Recirculated Partial Draft Environmental Impact Report

Centennial Specific Plan Project

Prepared for

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1.0 INTRODUCTION

The County of Los Angeles ("County") prepared this document, titled Recirculated Partial Draft Environmental Impact Report ("Recirculated Partial Draft EIR" or "RPDEIR"), to analyze the potential environmental impacts of the Centennial Specific Plan Project ("Project") under the California Environmental Quality Act ("CEQA"). As the CEQA Lead Agency, the County is responsible for coordinating with the Project Applicant/Developer ("Applicant"), the public, and responsible agencies during the CEQA process. The information contained within this Recirculated Partial Draft EIR will be considered by applicable decision-makers in determining whether to grant the necessary Project approvals. As discussed further below, the County prepared this Recirculated Partial Draft EIR following the Second District Court of Appeal decision in *Center For Biological Diversity et al. v. County of Los Angeles et al.* (2025) 112 Cal.App.5th 317, issued on June 26, 2025. The decision affirmed the trial court judgment that granted in part and denied in part the Center for Biological Diversity and California Native Plant Society's (referred to collectively herein as "CBD/CNPS") petition for writ of mandate challenging the Centennial EIR (defined below) and the County's 2019 approval of the Project under CEQA.

1.1 BACKGROUND – CEQA LITIGATION

In April 2019, following extensive environmental review, the County certified the Final Centennial Specific Plan Project Environmental Impact Report, State Clearinghouse No. 2004031072 ("Centennial EIR"), related to the following Project entitlements: (a) the Centennial Specific Plan to govern the Project's development, (b) a General Plan Amendment to amend the highway maps of the Los Angeles County General Plan and the County's Antelope Valley Area Plan, (c) a Zoning Ordinance Amendment to change the property's zoning from Open Space Light-Agricultural (two acre minimum required lot area), Residential Planned Development, Commercial Planned Development and Manufacturing Planned Development to Specific Plan (SP), (d) a Vesting Tentative Parcel Map to create 20 large-lot parcels on 8,408 acres of the Property for lease, conveyance and financing purposes only, (e) a Conditional Use Permit (CUP) to authorize the Specific Plan development process, and (f) a statutory Development Agreement to vest the approved land use entitlements and provide specified community benefits including but not limited to affordable housing ("Centennial 2019 Project Approvals").

In May 2019, the Centennial EIR was challenged in two separate lawsuits (collectively, the "Centennial Litigation") in the Los Angeles County Superior Court ("Superior Court"), one of which was brought by Climate Resolve and the other of which was brought by CBD/CNPS. The Centennial Litigation sought to set aside the County's certification of the Centennial EIR and approval of the Centennial Project Approvals. CBD/CNPS alleged a wide range of CEQA violations, including, but not limited to, failure to analyze adequately and/or mitigate aesthetic, recreational, and biological impacts; greenhouse gas ("GHG") emissions, noise impacts, transportation and traffic impacts, population and housing impacts, water quality impacts, air quality impacts, seismic impacts, water supply risks and impacts, and failure to adequately analyze alternatives. Climate Resolve alleged inadequate analysis and mitigation of GHG emissions and wildfire risk.

In April 2021, the Superior Court issued two orders (collectively, the "Superior Court Order") rejecting all CBD/CNPS claims and arguments that the Centennial EIR was deficient under CEQA, upholding the vast majority of the Centennial EIR, and granting in part Climate Resolve's petition for writ of mandate on two grounds—(1) the Centennial EIR's discussion of GHG emissions improperly relied on state cap-and-trade regulations to reduce GHG emissions impacts below the level of significance and (2) the Centennial EIR failed to analyze off-site wildfire impacts beyond the Project site. Following issuance of the Superior Court Order, but prior to final judgment in the Climate Resolve action, the Applicant and Climate Resolve entered into a legally enforceable settlement agreement to address the issues identified in the Superior Court Order (e.g., related to GHG emissions and wildfire impacts), thereby resolving the Climate Resolve litigation ("Settlement Agreement").

In March 2023, after initially denying in full CBD/CNPS's petition for writ of mandate, the Superior Court, following CBD/CNPS's motion for reconsideration, entered judgment (a) in favor of CBD/CNPS solely on the abovementioned GHG emissions and off-site wildfire impacts grounds raised in the Climate Resolve petition and (b) in favor of the County on all other claims and causes of action (the "Judgment"). The Superior Court ordered issuance of a writ of mandate directing the County to set aside its certification of the Centennial EIR and Centennial Project Approvals and suspending all Project activity until the County complies with the requirements of CEQA with respect to the Centennial EIR deficiencies identified in the Superior Court Order (the "Writ").

In May 2023, the Project Applicant appealed the Judgment to the Second District Court of Appeal, and CBD/CNPS filed a cross-appeal in June 2023. While the County did not appeal the Judgment, it did file a brief in response to CBD/CNPS's cross-appeal of the trial court's determination that the Centennial EIR's analysis of Project alternatives was lawful under CEQA, which determination was ultimately affirmed by the Court of Appeal. The Judgment and Writ were stayed pending determination of the appeal and cross-appeal.

In June 2025, the Second District Court of Appeal issued its decision in *Center For Biological Diversity et al. v. County of Los Angeles et al.* (2025) 112 Cal.App.5th 317 ("Opinion") affirming the Judgment. The published portion of the Opinion held that the Centennial EIR failed to comply with CEQA because (1) it improperly applied the state cap-and-trade program to the Project GHG emissions analysis and mitigation, and (2) its analysis of the wildfire risks associated with the Project's off-site infrastructure improvements lacked sufficient detail to enable those who did not participate in its preparation to understand to consider meaningfully the Centennial EIR's conclusion of less than significant off-site wildfire impacts. A copy of the Opinion is provided in Appendix A.

In September 2025, the Court of Appeal issued remittitur, thereby transferring jurisdiction over the Centennial Litigation back to the Superior Court. Thereafter, on September 22, 2025, the Superior Court issued the Writ. A copy of the issued Writ is provided in Appendix B.

On December 2, 2025, in compliance with the Writ, the Board of Supervisors adopted a resolution (i) vacating and setting aside all approvals and adoption of the Centennial Project Approvals, (ii) vacating and setting aside certification of the Centennial EIR, prepared in connection with the Centennial Project, the Findings, Statement of Overriding Consideration,

and Mitigation Monitoring and Reporting Program adopted in connection with the Centennial Project, and (iii) suspending any and all specific project activity or activities, pursuant to the Centennial Project Approvals that could result in an adverse change or alteration to the physical environment, unless and until the County complies with the requirements of CEQA. On December 19, 2025, the County filed the return to the Writ in the Superior Court and a Proposed Order discharging the Writ.

1.2 PURPOSE

By its December 2025 action, the County vacated and set aside its *certification* of the Centennial EIR. However, the document itself remains intact, albeit in need of revision to address the deficiencies identified in the Opinion. This Recirculated Partial Draft EIR addresses those deficiencies. Specifically, this Recirculated Partial Draft EIR updates and provides additional analysis for the Centennial EIR's discussion of Climate Change, Wildfire, which are presented in Section 2.2, *Climate Change*, and Section 2.3, *Wildfire*. This Recirculated Partial Draft EIR also updates a portion of the analysis of Biological Resources to address potentially significant impacts to Crotch's bumble bee and mitigation to reduce those potential impacts to less than significant , which is presented in Section 2.1, *Biological Resources*, and portions of the analysis of Cumulative Impacts related to Climate Change, Wildfire, and Biological Resources, which is presented in Section 3.0, *Cumulative Resources*.

Because this Recirculated Partial Draft EIR is limited to revising only a few portions of the Centennial EIR, only the revised portions of the Centennial EIR are being recirculated for public review and comment in accordance with Subdivision (c) of State CEQA Guidelines Section 15088.5. The Centennial EIR, including portions that are not being revised and recirculated, are provided at https://planning.lacounty.gov/wp-content/uploads/2026/02/centennial_FEIR_combined_11-27-18.pdf. This Recirculated Partial Draft EIR, along with any responses to comments or revisions, will become the final volume of the Centennial EIR, and will be presented to the County for certification as part of a Revised Final EIR.[1] The analysis in this document relies on all relevant information in the Centennial EIR, its appendices and errata, as well as the new or additional sources of information identified herein.

This document has been made available for public review and comment in accordance with the procedures contained in the Notice of Availability. Written comments may be submitted to Mr. Jodie Sackett, Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012. As CEQA Guidelines Section 15088.5, subdivision (f)(2) permits, the County requests reviewers to limit the scope of their comments to that material which is addressed within the text of the revised portions and the appendices included in this Recirculated Partial Draft EIR. The County also requests that reviewers not make new comments on matters not included in this Recirculated Partial Draft EIR. Responses to all comments received during the review period regarding the environmental analysis in this

[1] In April 2025, before the Court of Appeal's Opinion, the County circulated a draft Supplemental EIR for public review. By virtue of the County's decertification of the Centennial EIR, that Supplemental EIR is now void and will not be considered part of the Revised Final EIR.

Recirculated Partial Draft EIR will be provided in a separate document – a Revised Final EIR. Pursuant to CEQA Guidelines Section 15088.5, subdivision (f)(2)(ii), written responses will be prepared only to comments received regarding this Recirculated Partial Draft EIR. The Revised Final EIR will provide the basis for County decision-makers to consider the environmental implications of the Project as well as possible ways to mitigate any significant environmental impacts. Prior to making a decision on the Project, the County would need to certify that the Revised Final EIR has been completed in compliance with CEQA, was presented to the County's decision-making body, that the decision-making body reviewed and considered the information contained in the Revised Final EIR prior to approving the Project, and that the Revised Final EIR reflects the lead agency's independent judgment and analysis.

1.3 PROJECT SUMMARY

The Project involves the development of a new master-planned community with residential, commercial, business park, recreational/entertainment, and institutional/civic uses. The Project includes open space, parks, schools, utilities, and infrastructure to support the proposed land uses and future residents based on zoning and development standards outlined in the *Centennial Specific Plan* ("Specific Plan").

The Project site encompasses approximately 12,323 acres and authorizes development of up to 19,333 dwelling units (du) on approximately 4,987 gross acres of land designated for residential uses. Other land uses include approximately 7,363,818 square feet (sf) of Business Park uses (office, research and development, and warehousing or light manufacturing uses) on approximately 597 gross acres; and approximately 1,034,550 sf of Commercial uses on approximately 102 acres. Proposed Institutional/Civic land uses (such as schools for higher education, medical facilities, library, and other civic uses) encompass approximately 1,568,160 sf on approximately 110 acres. The Project includes approximately 130,680 sf of Recreation/Entertainment uses (clubhouse, farmers market, childcare facilities, health clubs) on approximately 75 acres. Proposed sites for major Utility facilities (wastewater reclamation facilities, water treatment facility, water bank and materials recovery facility) that would serve the entire community encompass approximately 191 acres, and Kindergarten through 12th grade schools would be located on approximately 145 acres. Approximately 5,624 acres are proposed for Open Space for natural resource protection and greenways, and parks for active and passive recreational use. The Project would include an integrated network of roadways, walking and biking trails to reduce automobile use and facilitate safe and efficient travel. Please see https://case.planning.lacounty.gov/assets/upl/case/sp_02-232_pm060022_04-0-project-description.pdf, as no changes are proposed to this Section and therefore it is not being recirculated within this Partial Recirculated Draft EIR.

Two minor changes are proposed to the Specific Plan. First, the Project would add local microgrid electrical distribution systems as a permitted land use to serve the Specific Plan Area with renewable energy generated on-site in support of the Project's "Net Zero" GHG program. Second, the Project proposes to dedicate a majority of the Cement Road Realignment as a public road to improve fire resiliency.

Adding local microgrid electrical distribution systems as a permitted land use and dedicating a portion of the Cement Road Realignment for public use would not result in a new or substantially increased environmental impact for any resource area evaluated in the Centennial EIR, as described below. Therefore, these minor project changes are not significant new information requiring recirculation under CEQA Guidelines Section 15088.5.

The addition of local microgrid electrical distribution systems as a permitted land use would revise Specific Plan Table 2-16 to add "Renewable Energy Microgrids" as a new land use type within the "Accessory Uses and Structures" category of use types, and would designate the use as "P" (*i.e.*, Permitted) within the Specific Plan's Very Low Density Residential (VRDR), Low Density Residential (LDR), Medium Density Residential (MDR), High Density Residential (HDR), Very High Density Residential (VHDR), Mixed Use (MU), Commercial (C), Business Park (BP), School, Recreation/Entertainment (RE), Utility (U), and Institutional/Civic (I/C) land use designations, and would designated the use as "M" (*i,e.*, Permitted with Ministerial Review) within the Specific Plan's Park land use designation. The addition of this new permitted land use does not propose a specific microgrid electrical distribution system project; new microgrid electrical distribution systems would be specifically regulated by the Specific Plan but individual projects may or may not be proposed and developed.

The addition of local microgrid electrical distribution systems as a permitted use is not expected to result in additional disturbance area, vehicle trips, noise, hazards risk, view impacts, or air emissions not otherwise accounted for in the Centennial EIR. Local microgrid electrical distribution systems would not develop additional residences or other land uses that would use public services or utilities, and therefore would not impact Parks and Recreation, Education, Fire and Law Enforcement Services, and Other Public Services. Because no new disturbance areas would be introduced by the addition of local microgrid electrical distribution systems as a permitted use, there would be no new or increased Geotechnical or Hydrology and Flood impacts or impacts to Cultural and Tribal Cultural Resources and Biological Resources. Local microgrid electrical distribution systems would have minimal water demand and therefore impacts to Water Resources would not increase substantially beyond that already evaluated in the Centennial EIR. A local microgrid electrical distribution system would not require substantial employees for maintenance and therefore would not increase public service impacts or vehicle trips. Finally, hazards risks would be similar to other uses permitted in the Specific Plan and therefore impacts to Hazards and Fire Safety would be similar to those evaluated in the Centennial EIR.

Dedication of the majority of the Cement Road Realignment would revise Figure 3-1 of the Specific Plan, which depicts the Project's backbone roadways, to designate the Cement Road Realignment as public, rather than a private, collector (2 lanes) street. In addition, the Circulation Element of the Specific Plan would be revised to add the following new paragraph to the end of Circulation Element Section 3.2.2:

> In coordination with DRP, Centennial will provide five public roadway connections to SR-138 to allow residents multiple access points to Regional Circulation. This will include changing the National Cement Plant Road from

> being a private road with emergency access only to a public road that will meet LA Public Works and Fire Department's road and safety standards. In addition, the use of 2 lane collectors that will service sub-division housing neighborhoods within the villages will limit the number of homes located on a dead-end street with no secondary access. The circulation and design of roadways for these neighborhoods should encourage looped design with multiple connections to main collectors, allowing the flow of traffic to be optimal and provide multiple points of access for emergency vehicles.

Dedication of the Cement Road Realignment as a public roadway, as opposed to a private roadway, would not change the proposed disturbance area for Cement Road and therefore would not cause new or increased Geotechnical or Hydrology and Flood impacts or impacts to Cultural and Tribal Cultural Resources and Biological Resources. Public use of the Cement Road Realignment would not develop additional residences or other land uses that would use public services or utilities, and therefore would not impact Parks and Recreation, Education, Fire and Law Enforcement Services, and Other Public Services. Public dedication of the Cement Road Realignment would not increase water demand, and therefore, impacts to Water Resources would not increase beyond that already evaluated in the Centennial EIR. Public use of the Cement Road Realignment could reallocate some local vehicle trips but overall vehicle trips and air emissions would not change substantially from that evaluated in the Centennial EIR.

1.4 CENTENNIAL EIR

The Project has already been the subject of extensive environmental review under CEQA. In March 2004, the Los Angeles County Department of Regional Planning published a Notice of Preparation ("2004 NOP") of a Draft Environmental Impact Report for the Project as it was initially envisioned, along with an Initial Study. At that time, the Project included a request for a general plan amendment and zone change, among other entitlement actions.

On March, 24, 2015, the Board of Supervisors approved the County of Los Angeles 2035 General Plan ("2035 General Plan") and, on June 16, 2016, an update to the Antelope Valley Area Plan ("AVAP"), both of which approvals designate the Project site for development consistent with the Project, obviating the need for some of the discretionary approvals proposed by the Project as initially envisioned.

Thereafter, certain modifications were made to the Project, including elimination of the discretionary land use entitlement actions that the Project no longer required. Thus, in March 2015, the County published a revised NOP ("2015 NOP"), which included the 2004 NOP and Initial Study as attachments, to inform the public and interested agencies of the Project, and to solicit comments on the NOP and Initial Study during a 30-day public review period that extended from October 5 to November 4, 2015. Based on the Initial Study, the 2015 NOP, and comments thereon, a determination was made that an EIR was required to comprehensively analyze all environmental issues identified in Appendix G of the CEQA Guidelines as they relate to the Project.

The Centennial Project Draft Environmental Impact Report, inclusive of its appendices ("Draft EIR"), was prepared and circulated for a 60-day public review period beginning on May 18, 2017, and ending on July 17, 2017, in accordance with Section 15087 of the State CEQA Guidelines. Subsequently, in July 2017, in response to public requests, the Draft EIR public review period was extended from July 17, 2017, to August 16, 2017. This 30-day extension was in addition to the original 60-day Draft EIR public review period.

The County reviewed all comments received on the Draft EIR during the public comment period and prepared the Centennial Project Final Environmental Impact Report, along with appendices thereto, dated May 2018 ("Final EIR"). The Final EIR included the Draft EIR, Draft EIR clarifications and revisions, a list of all persons, organizations, and public agencies that commented on the Draft EIR, responses to comments on the Draft EIR, and other information beyond the scope of CEQA provided by the County for context and information to the decision makers, agencies, and the public.

Following publication of the Final EIR, a new version of the air quality modeling software CalEEMod was released (i.e., version 2016.3.2) and the 2019 Title 24 Building Energy Efficiency Standards were adopted. For the purpose of clarifying information presented in the Draft EIR, County staff directed its environmental consultant to prepare the Updated Greenhouse Gas Calculations for the Centennial Project Final Environmental Impact Report (the "Updated GHG Calculations") to compare the Project's GHG emissions calculated in the Draft EIR with an updated analysis that took into account emissions estimates calculated per CalEEMod Version 2016.3.2.

Concurrently with preparation of the Updated GHG Calculations, the County prepared the Centennial Project Consolidated Final Environmental Impact Report, dated November 2018, and its appendices ("Consolidated Final EIR"). The purpose of the Consolidated Final EIR was to consolidate in one document all clarifications, corrections, or minor revisions to the text, tables, figures, and appendices of the Draft EIR and Final EIR generated either from responses to comments or independently by the County, including those identified after publication of the Final EIR, such as the Updated GHG Calculations.

The Centennial EIR, which included the Draft EIR, the Final EIR, and the Consolidated Final EIR, was certified by the Los Angeles County Board of Supervisors on April 30, 2019. As certified, the Centennial EIR scope included the following issue areas: Geotechnical; Hydrology and Flood; Hazards and Fire Safety; Water Quality; Land Resources (Agricultural, Forestry, and Mineral Resources); Cultural and Tribal Resources; Biological Resources; Land Use, Entitlements, and Planning; Population, Housing, and Employment; Traffic, Access, and Circulation; Air Resources; Noise; Visual Resources; Parks and Recreation; Education; Fire and Law Enforcement Services; Other Public Services (Library, Solid Waste, and Other Public Facilities); Water Resources; Wastewater Collection; Dry Utilities (Electrical, Fossil Fuels [Natural Gas and Petroleum], Telephone, and Cable Service); Climate Change; Growth-Inducing Impacts; Cumulative Impacts; and Alternatives to the Proposed Project.

The significant and unavoidable impacts identified in the Centennial EIR included the following:

- Agricultural and Forest Resources:
    - Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to non-agricultural use.
- Population, Housing and Employment:
    - Induce substantial population growth in an area, either directly or indirectly.
- Air Resources:
    - Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
    - Expose sensitive receptors to substantial pollutant concentrations.
    - Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.
- Noise:
    - Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project, including noise from parking areas.
- Visual Resources:
    - Have a substantial adverse effect on a scenic vista.
    - Substantially degrade the existing visual character or quality of the site and its surroundings because of height, bulk, pattern, scale, character, or other features.
    - Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.
- Other Public Services- Solid Waste Management:
    - Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs.
    - Not comply with federal, state, and local statutes and regulations related to solid waste.
- Climate Change:
    - Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
    - Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

- Cumulative Impacts:
    - Land Resources (loss of Prime Farmland)
    - Biological Resources (regional wildlife movement, loss of native grasslands)
    - Population, Housing, and Employment (substantial relative to existing conditions)
    - Traffic, Access, and Circulation (without pending improvements by Caltrans)
    - Air Resources (construction and operational emissions in the AVAQMD and the SCAQMD)
    - Noise (traffic noise along segments of SR-138)
    - Visual Resources (change to long range views from public land and nighttime light and glare)
    - Solid Waste (contribution to municipal solid waste disposal)
    - Water Resources (water supplies)
    - Climate Change (greenhouse gas emissions)

In compliance with the Writ, on December 2, 2025, the Board of Supervisors adopted a Resolution decertifying the Centennial EIR, as discussed above.

1.5 PREPARATION OF THIS RECIRCULATED PARTIAL DRAFT EIR

As discussed above, the primary purpose of this Recirculated Partial Draft EIR is to revise portions of the Centennial EIR to address the deficiencies identified by the Court of Appeal in the Opinion so as to ensure that the Centennial EIR evaluates the potential environmental effects of the Project in compliance with CEQA (Public Resources Code Sections 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3). This Recirculated Partial Draft EIR is intended to inform decision makers and the public regarding the Project's potential to result in significant environmental impacts related to Climate Change, Wildfire, and Biological Resources (Crotch's bumble bee), to identify feasible mitigation measures that may minimize such impacts, and to facilitate informed agency decisions regarding the Project.

This Recirculated Partial Draft EIR has been prepared in accordance with CEQA and the State CEQA Guidelines. The County is the Lead Agency under CEQA and is responsible for preparing the Recirculated Partial Draft EIR. The determination that the County is the "lead agency" has been made in accordance with Sections 15051 and 15367 of the State CEQA Guidelines, which define the Lead Agency as the public agency that has the principal responsibility for carrying out or approving a project.

The County as the Lead Agency has determined that the Recirculated Partial Draft EIR is the appropriate document for revising portions of the Centennial EIR so that it fully discloses the

environmental impacts of the Project consistent with the Opinion and the Writ, and in compliance with CEQA Guidelines Section 15088.5.

The County has prepared this Recirculated Partial Draft EIR for the following purposes:

- to satisfy the requirements of CEQA, the State CEQA Guidelines, the Opinion, and the Writ;
- to inform the general public, the local community, responsible and interested public agencies, and decision makers, including the Los Angeles County Board of Supervisors, of the Project, and to communicate the potential environmental impacts and measures to mitigate those impacts in accordance with CEQA;
- to enable the Board of Supervisors to consider the environmental consequences of the Centennial Specific Plan Project when deciding whether to approve the Project; and
- to serve as a source document for responsible agencies to issue permits and approvals, as required, for implementation of the Project.

As described in CEQA and the State CEQA Guidelines, public agencies are charged with the duty to review the potential environmental impacts of a project and to avoid or substantially lessen those impacts where feasible. In satisfying this duty, a public agency has an obligation to balance a project's significant impacts on the environment with its benefits, including economic, social, technological, legal, and other benefits.

The County as Lead Agency is responsible for processing and approving the Project and associated discretionary actions and must consider the information in this Recirculated Partial Draft EIR and the balance of the Centennial EIR, along with other information that may be presented during the CEQA process in its decision-making process. Other public agencies (i.e., responsible and trustee agencies) may also use this Recirculated Partial Draft EIR in their decision making or permitting processes.

Upon certification of the Centennial EIR, as revised by the Recirculated Partial Final EIR, the County Board of Supervisors will consider whether to approve the Project.

1.6 SCOPE OF THIS RECIRCULATED PARTIAL DRAFT EIR

Pursuant to State CEQA Guidelines Section 15088.5, subdivision (g), this Recirculated Partial Draft EIR contains the following revised and updated portions and/or sections to be recirculated for public comment:

- Updated Partial Biological Resources analysis as to impacts of the Project to Crotch's bumble bee (RPDEIR Section 2.1).
- Updated Climate Change/Greenhouse Gas Emissions analysis as to eliminating discussion of the state cap-and-trade program to the Project emissions analysis and mitigation (RPDEIR Section 2.2);

- Updated Wildfire analysis as to off-site impacts of the Project and impacts of the Project's off-site components (RPDEIR Section 2.3).
- Updated Partial Cumulative Impacts analysis related to Biological Resources, Climate Change, and Wildfire (RPDEIR Section 3.0).

The County has considered whether any other portions of the Centennial EIR require recirculation as a result of new significant or substantially more severe environmental impacts than previously analyzed and has determined that no such impacts exist.

All other environmental topic areas under CEQA are addressed in other unrevised portions of the Centennial EIR. As summarized below, there would be no new significant or substantially more severe environmental impacts for these topics than previously disclosed in the Centennial EIR, and they are not further analyzed or updated in this Recirculated Partial Draft EIR:

Geotechnical (EIR Section 5.1)

Potential impacts related to geologic materials and soils and surface rupture and groundshaking were discussed in Section 5.1 of the Centennial EIR. The Centennial EIR determined that the Project would have less than significant impacts related to earthquake faults, groundshaking, seismic-related ground failure, landslides, soil erosion, topsoil loss, lateral spreading, subsidence, liquefaction, collapse, expansive soils, and conflicts with applicable plans and design standards. The Project would not create any new ground disturbances that were not otherwise previously disclosed in the Centennial EIR. Geotechnical conditions of the Project site have not changed since the Draft EIR was circulated for public review. The Project would not cause, and the Centennial EIR has not been revised to include any significant new information concerning new significant geotechnical impacts or a substantial increase in the severity of geotechnical impacts that were not previously disclosed and analyzed in the Centennial EIR. Nor are there any feasible project alternatives or mitigation measures considerably different from others previously analyzed in the Centennial EIR that would clearly lessen the geotechnical impacts of the Project that the Project proponents decline to adopt.

Hydrology and Flood (EIR Section 5.2)

Potential impacts related to hydrology and flood were discussed in Section 5.2 of the Centennial EIR. The Centennial EIR determined that the Project would have less than significant impacts related to the creation of drainage system problems but would require mitigation to reduce to less than significant levels of impacts related to drainage pattern alterations, runoff water, flood hazard mapping, flood and flood flows, mudflows, mosquitoes and other vectors, and conflicts with applicable low impact development regulations. The Project would not create any new ground disturbances that were not otherwise previously disclosed in the Centennial EIR. Hydrology and flood conditions of the Project site have not changed since the Draft EIR was circulated for public review. The Project would not cause, and the Centennial EIR has not been revised to include any significant new information concerning new significant impacts related to hydrology or flood

or a substantial increase in the severity of hydrology or flood impacts that were not previously disclosed and analyzed in the Centennial EIR. Nor are there any feasible project alternatives or mitigation measures considerably different from others previously analyzed in the Centennial EIR that would clearly lessen the hydrology and flood impacts of the Project that the Project proponents decline to adopt.

Hazards, Hazardous Materials, Fire Safety (EIR Section 5.3)

Potential impacts related to hazards and hazardous materials were discussed in Section 5.3 of the Centennial EIR. The Centennial EIR determined that the Project would have less than significant impacts related to airports and airstrips but would require mitigation to reduce to less than significant levels impacts related to hazardous material storage and transport, the accidental release of hazardous materials, hazardous emissions, and hazardous material site listings. Conditions of the Project site related to hazards and hazardous materials have not changed since the Draft EIR was circulated for public review. The Project would not cause, and the Centennial EIR has not been revised to include any significant new information concerning new significant impacts related to airports, airstrips, hazardous material storage and transport, the accidental release of hazardous materials, hazardous emissions, or hazardous material site or substantial increase in the severity of such impacts that were not previously disclosed and analyzed in the Centennial EIR. Nor are there any feasible project alternatives or mitigation measures considerably different from others previously analyzed in the Centennial EIR that would clearly lessen the Project impacts related to hazardous material storage and transport, the accidental release of hazardous materials, hazardous emissions, and hazardous material site listings that the Project proponents decline to adopt.

Project impacts related to fire safety were also discussed in Section 5.3.3 of the Centennial EIR and determined that such impacts would be less than significant with mitigation. The fire safety impacts of the Project are discussed in Section 2.3, *Wildfire*, of this Recirculated Partial Draft EIR, which supersedes the analysis of fire safety. For this Recirculated Partial Draft EIR, wildfire is a standalone section that incorporates the new threshold questions from CEQA Appendix G, which were added in December 2018 as part of a comprehensive update to the CEQA Guidelines. This includes the revised threshold for hazards and hazardous materials related to wildfire, which asks whether a project will expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

Water Quality (EIR Section 5.4)

Potential impacts related to water quality were discussed in Section 5.4 of the Centennial EIR. The Centennial EIR determined that the Project would have no water quality impact related to designated Areas of Special Biological Significance but would require mitigation to reduce to less than significant levels impacts related to construction or post-construction runoff, onsite wastewater treatment systems, water quality degradation, and potential conflicts with water quality standards or waste discharge requirements. Conditions of the Project site related to water quality have not changed since the Draft EIR was circulated for

public review. The Project would not cause, and the Centennial EIR has not been revised to include any significant new information concerning new significant water quality impacts or a substantial increase in the severity of water quality impacts that were not previously disclosed and analyzed in the Centennial EIR. Nor are there any feasible project alternatives or mitigation measures considerably different from others previously analyzed in the Centennial EIR that would clearly lessen the Project impacts related to water quality that the Project proponents decline to adopt.

Land Resources (Agricultural, Forest and Mineral Resources) (EIR Section 5.5)

Potential impacts related to land resources, including agricultural, forest and mineral resources, were discussed in Section 5.5 of the Centennial EIR. The Centennial EIR determined that the Project would have no impacts related conflicts with forestland or timberland zoning, and forestland conversion, and would have a less than significant impact related to conflicts with existing zoning for agricultural use. However, the Centennial EIR determined that the Project would have a significant and unavoidable impact related to the conversion of prime farmland, unique farmland or farmland of statewide importance. The Project would not create any new ground disturbances that were not otherwise anticipated by the Centennial EIR. Conditions of the Project site related to land resources have not changed since the Draft EIR was circulated for public review and the Proposed Modifications would not cause, and the Centennial EIR has not been revised to include any significant new information related to a new significant land resources impact or substantial increase in the severity of land resources impacts than were previously disclosed and analyzed in the Centennial EIR. Nor are there any feasible project alternatives or mitigation measures considerably different from others previously analyzed in the Centennial EIR that would clearly lessen the Project impacts related to land resources that the Project proponents decline to adopt.

Cultural and Tribal Resources (EIR Section 5.6)

Potential impacts related to cultural and tribal resources were discussed in Section 5.6 of the Centennial EIR. The Centennial EIR determined that the Project would require mitigation to reduce to less than significant levels impacts related to historical resources, archaeological resources, paleontological resources, disturbances of human remains, and tribal cultural resources. The Project would not create any new ground disturbances that were not otherwise anticipated by the Centennial EIR. Conditions of the Project site related to cultural and tribal resources have not changed since the Draft EIR was circulated for public review. The Project would not cause, and the Centennial EIR has not been revised to include any significant new information concerning new significant impacts to cultural or tribal resources or a substantial increase in the severity of impacts to tribal or cultural resources that were not previously disclosed and analyzed in the Centennial EIR. Nor are there any feasible project alternatives or mitigation measures considerably different from others previously analyzed in the Centennial EIR that would clearly lessen the Project impacts related to cultural and tribal resources that the Project proponents decline to adopt.

Biological Resources (EIR Section 5.7)

Potential impacts related to biological resources were discussed in Section 5.7 of the Centennial EIR. The Centennial EIR determined that the Project would have no impact with respect to potential conflicts with an adopted habitat conservation plan but would require mitigation to reduce to less than significant levels impacts related to candidate, sensitive, or special status species, designated sensitive natural communities, protected wetlands, and wildlife movement corridors. The Project would not create any new ground disturbances that were not otherwise anticipated by the Centennial EIR. Conditions of the Project site related to biological resources have not changed since the Draft EIR was previously circulated for public review. Moreover, the Court of Appeal's Opinion upheld the Centennial EIR's discussion of impacts on wildlife and native plant life.

Nevertheless, this Recirculated Partial Draft EIR includes a partial update to the biological resources analysis related to Crotch's bumble bee in Section 2.1, *Biological Resources*, to address potentially significant impacts to the species and mitigation to reduce those potential impacts to less than significant.

Land Use, Entitlements, and Planning (EIR Section 5.8)

Potential impacts related to land use, entitlements, and planning were discussed in Section 5.8 of the Centennial EIR. The Centennial EIR determined that the Project would have no impact with respect to the division of established communities and less than significant impacts with respect to project consistency with applicable planning documents, zoning ordinances, hillside management criteria, Significant Ecological Areas conformance criteria, and other applicable land use criteria. Conditions of the Project site related to land use, entitlements, and planning have not changed since the Draft EIR was previously circulated for public review. The Project would not cause, and the Centennial EIR has not been revised to include significant new information concerning new significant impacts related to land use, entitlements or planning, or a substantial increase in the severity of impacts to land use entitlements, or planning, that were not previously disclosed and analyzed in the Centennial EIR. Nor are there any feasible project alternatives or mitigation measures considerably different from others previously analyzed in the Centennial EIR that would clearly lessen the Project impacts related to land use, entitlements, and planning that the Project proponents decline to adopt.

Population, Housing, and Employment (EIR Section 5.9)

Potential impacts related to population, housing, and employment were discussed in Section 5.9 of the Centennial EIR. The Centennial EIR determined that the Project would have less than significant impacts with respect to people and housing displacement but would have significant and unavoidable impacts with respect to population growth and cumulative regional or local population projections. Conditions of the Project site related to population, housing, and employment have not changed since the Draft EIR was circulated for public review. The Project would not cause, and the Centennial EIR has not been revised to include significant new information concerning new significant impacts related to population,

housing, or employment or a substantial increase in the severity of such impacts that were not previously disclosed and analyzed in the Centennial EIR. Nor are there any feasible project alternatives or mitigation measures considerably different from others previously analyzed in the Centennial EIR that would clearly lessen the Project impacts related to population, housing, or employment that the Project proponents decline to adopt.

Traffic, Access, and Circulation (EIR Section 5.10)

Potential transportation impacts were discussed in Section 5.10 of the Centennial EIR. The Centennial EIR determined that the Project would have no impact with respect to conflicts with adopted policies, plans, and programs related to transit, bicycles, or pedestrian facilities, and would have a less than significant impact with respect to changes to air traffic patterns. The Centennial EIR determined that the Project would require mitigation to reduce to less than significant levels impacts related to hazards associated with a design feature or incompatible uses, impacts related to emergency access, and impacts related conflicts with an applicable congestion management plan or an applicable plan, ordinance, or policy establishing circulation system performance measures. Conditions of the Project site related to traffic, access, and circulation have not changed since the Draft EIR was circulated for public review. The Project would not cause, and the Centennial EIR has not been revised to include any significant new information concerning new significant transportation impacts or a substantial increase in the severity of such impacts that were not previously disclosed and analyzed in the Centennial EIR. Nor are there any feasible project alternatives or mitigation measures considerably different from others previously analyzed in the Centennial EIR that would clearly lessen the Project transportation impacts that the Project proponents decline to adopt.

Air Resources (EIR Section 5.11)

Potential impacts related to air quality were discussed in Section 5.11 of the Centennial EIR. The Centennial EIR determined that the Project would have less than significant impacts with respect to odors and potential conflicts with applicable air quality plans, but significant and unavoidable impacts with respect to air quality standard violations, the exposure of sensitive receptors to substantial pollutant concentrations, and cumulative air quality impacts. Conditions of the Project site related to air resources have not changed since the Draft EIR was circulated for public review. The Project would not cause, and the Centennial EIR has not been revised to include significant new information concerning new significant impacts related to air resources or a substantial increase in the severity of such impacts that were not previously disclosed and analyzed in the Centennial EIR. Nor are there any feasible project alternatives or mitigation measures considerably different from others previously analyzed in the Centennial EIR that would clearly lessen the Project impacts related to air resources that the Project proponents decline to adopt.

Noise (EIR Section 5.12)

Potential impacts related to noise were discussed in Section 5.12 of the Centennial EIR. The Centennial EIR determined that the Project would have no impact with respect to public

airport noise, and a less than significant impact with respect to private airstrip noise. The Centennial EIR also determined that the Project would require mitigation to reduce to less than significant levels impacts related to noise exposure, groundborne vibration, and temporary increases in ambient noise levels, but that the Project would have a significant and unavoidable impact related to permanent increases in ambient noise levels. Conditions of the Project site related to noise have not changed since the Draft EIR was circulated for public review. The Project would not cause, and the Centennial EIR has not been revised to include significant new information concerning a new significant impact related to noise or a substantial increase in the severity of noise impacts that was not previously disclosed and analyzed in the Centennial EIR. Nor are there any feasible project alternatives or mitigation measures considerably different from others previously analyzed in the Centennial EIR that would clearly lessen the Project impacts related to noise impacts that the Project proponents decline to adopt.

Visual Resources (EIR Section 5.13)

Potential impacts related to visual resources were discussed in Section 5.13 of the Centennial EIR. The Centennial EIR determined that the Project would have less than significant impacts with respect to scenic resources and views from regional riding or hiking trails, but would have significant and unavoidable impacts with respect to scenic vistas, existing visual character, and new sources of substantial light and glare. Conditions of the Project site related to visual resources have not changed since the Draft EIR was circulated for public review. The Project would not cause, and the Centennial EIR has not been revised to include significant new information concerning new significant impacts related to visual resources or a substantial increase in the severity of such impacts that were not previously disclosed and analyzed in the Centennial EIR. Nor are there any feasible project alternatives or mitigation measures considerably different from others previously analyzed in the Centennial EIR that would clearly lessen the Project impacts related to visual resource impacts that the Project proponents decline to adopt.

Parks and Recreation (EIR Section 5.14)

Potential impacts related to parks and recreation were discussed in Section 5.14 of the Centennial EIR. The Centennial EIR determined that the Project would have less than significant impacts with respect to regional open space connectivity but would require mitigation to reduce to a less than significant level impacts related to park capacity and the physical construction of parks and recreational facilities. Conditions of the Project site related to parks and recreation have not changed since the Draft EIR was circulated for public review. The Project would not cause, and the Centennial EIR has not been revised to include significant new information concerning new significant impacts related to parks and recreation or a substantial increase in the severity of parks or recreation impacts that were not previously disclosed and analyzed in the Centennial EIR. Nor are there any feasible project alternatives or mitigation measures considerably different from others previously analyzed in the Centennial EIR that would clearly lessen the Project impacts related to park and recreation impacts that the Project proponents decline to adopt.

Education (EIR Section 5.15)

Potential impacts related to educational (school) services were discussed in Section 5.15 of the Centennial EIR. The Centennial EIR determined that the Project would, with mitigation, have less than significant impacts related to provision of, or need for, new or physically altered school facilities. Conditions of the Project site related to educational facilities have not changed since the Draft EIR was circulated for public review. The Project would not cause, and the Centennial EIR has not been revised to include significant new information concerning new significant impacts related to educational facilities or a substantial increase in such impacts that were not previously disclosed and analyzed in the Centennial EIR. Nor are there any feasible project alternatives or mitigation measures considerably different from others previously analyzed in the Centennial EIR that would clearly lessen the Project impacts related to education facility impacts that the Project proponents decline to adopt.

Fire and Law Enforcement (EIR Section 5.16)

Potential impacts related to the provision of new or physically altered fire and law enforcement facilities and response times were discussed in Section 5.16 of the Centennial EIR. The Centennial EIR determined that the Project required mitigation to reduce such impacts to less than significant levels. Conditions of the Project site related to fire and law enforcement services have not changed since the Draft EIR was circulated for public review. The Project would not cause, and the Centennial EIR has not been revised to include significant new information concerning new significant impacts related to the provision of fire and law enforcement facilities or a substantial increase in such impacts that were not previously disclosed and analyzed in the Centennial EIR. Nor are there any feasible project alternatives or mitigation measures considerably different from others previously analyzed in the Centennial EIR that would clearly lessen the Project impacts related to fire and law enforcement facility impacts that the Project proponents decline to adopt.

Other Public Services (EIR Section 5.17)

Potential impacts related to the provision of other public services, including library and solid waste disposal, were discussed in Section 5.17 of the Centennial EIR. The Centennial EIR determined that the Project would generally have a less than significant impact associated with the provision of new or physically altered government facilities, but that mitigation was required to reduce to less than significant levels associated with the provision of library services. Moreover, the Centennial EIR determined that the Project would have significant and unavoidable impacts related to landfill capacity and conflicts with applicable regulations related to solid waste. Conditions of the Project site related to other public services, including libraries and solid waste disposal, have not changed since the Draft EIR was circulated for public review. The Project would not cause, and the Centennial EIR has not been revised to include significant new information concerning new significant impacts related to the provision of other public services, including library and solid waste disposal services or a substantial increase in such impacts that were not previously disclosed and analyzed the Centennial EIR. Nor are there any feasible project alternatives or mitigation measures considerably different from others previously analyzed in the Centennial EIR that would

clearly lessen the Project impacts related to such that the Project proponents decline to adopt.

Water Resources (EIR Section 5.18)

Potential impacts related to water resources were discussed in Section 5.18 of the Centennial EIR. The Centennial EIR determined that the Project would have a less than significant impacts with respect to groundwater supplies and groundwater recharge, but would require mitigation to reduce to less than significant levels impacts related to water supplies to serve the Project. Conditions of the Project site related to water resources have not changed since the Draft EIR was circulated for public review. The Project would not cause, and the Centennial EIR has not been revised to include significant new information concerning new significant impacts related to water resource impacts or a substantial increase in such impacts that were not previously disclosed and analyzed in the Centennial EIR. Nor are there any feasible project alternatives or mitigation measures considerably different from others previously analyzed in the Centennial EIR that would clearly lessen the Project impacts related water resources that the Project proponents decline to adopt.

Wastewater (EIR Section 5.19)

Potential impacts related to wastewater were discussed in Section 5.19 of the Centennial EIR. The Centennial EIR determined that the Project would have less than significant impacts related to water or wastewater capacity problems but required mitigation to reduce to a less than significant level of impacts regarding conflicts with applicable wastewater treatment requirements. Conditions of the Project site related to wastewater have not changed since the Draft EIR was circulated for public review. The Project would not cause, and the Centennial EIR has not been revised to include significant new information concerning new significant impacts related to wastewater or a substantial increase in wastewater impacts that were not previously disclosed and analyzed in the Centennial EIR. Nor are there any feasible project alternatives or mitigation measures considerably different from others previously analyzed in the Centennial EIR that would clearly lessen the Project impacts related to wastewater impacts that the Project proponents decline to adopt.

Dry Utilities (EIR Section 5.20)

Potential impacts related to dry utilities were discussed in Section 5.20 of the Centennial EIR. The Centennial EIR determined that the Project required mitigation to reduce to a less than significant level impacts related to electric systems, natural gas systems, telephone systems, and cable systems. Conditions of the Project site related to dry utilities have not changed since the Draft EIR was circulated for public review. The Project would not cause, and the Centennial EIR has not been revised to include significant new information concerning new significant impacts related to dry utilities or a substantial increase in such impacts that were not previously disclosed and analyzed in the Centennial EIR. Nor are there any feasible project alternatives or mitigation measures considerably different from others previously analyzed in the Centennial EIR that would clearly lessen the Project impacts related to dry utility impacts that the Project proponents decline to adopt.

Growth Inducing Impacts (EIR Section 6.0)

Potential growth inducing impacts were discussed in Section 6.0 of the Centennial EIR. The Centennial EIR determined that the existence of the Project makes it reasonably foreseeable that others will propose Antelope Valley Area Plan (AVAP) amendments affecting land located outside of the AVAP's West Economic Opportunity Area, which could result in a significant impact on the environment, which is considered a significant adverse indirect growth-inducing impact. Conditions of the Project site related to growth inducing impacts have not changed since the Draft EIR was circulated for public review. The Project would not cause, and the Centennial EIR has not been revised to include significant new information concerning new significant growth-inducing impacts or a substantial increase in such impacts that were not previously disclosed and analyzed in the Centennial EIR. Nor are there any feasible project alternatives or mitigation measures considerably different from others previously analyzed in the Centennial EIR that would clearly lessen the Project's growth inducing impacts that the Project proponents decline to adopt.

Cumulative Impacts (EIR Section 7.0)

Potential cumulative impacts were discussed in Section 7.0 of the Centennial EIR. The Centennial EIR determined that the Project would have no significant cumulative geotechnical impacts; would not contribute to significant cumulative hydrology, flood or drainage impacts; there would be no significant cumulative hazardous materials impacts to which the Project would contribute; overflights would not constitute a cumulative impact with regards to the Project; the Project would result in a less than significant cumulative impact related to wildland fires, surface water quality, and groundwater quality; the Project's contribution to conversion of agricultural resources is cumulatively considerable and considered a significant and unavoidable impact; there would be a less than significant cumulative impact to forest resources; the Project would not result in cumulative impacts from the loss of availability of a known mineral resource; the Project would not contribute to a significant cumulative impact on archaeological or other cultural resources; cumulative impacts on special status plant and animal species and riparian habitat and other sensitive vegetation types are less than significant but impacts on native grasslands and wildlife movement are considered cumulatively significant; the Project would not conflict with existing land use plans, policies, or regulations of agencies and therefore would not contribute to a significant cumulative impact; the Project would not result in a cumulatively considerable contribution to impacts related to conflict with applicable land use policy or division of communities; while the Project would result in substantial population and housing growth, it would be consistent with local and regional growth assumptions but population, housing and employment growth would be substantial relative to the existing undeveloped and unoccupied Project site and hence this impact is significant; the Project makes it reasonably foreseeable that additional development proposals seeking General Plan amendments would be made, which is considered a significant adverse indirect growth-inducing impact; if Caltrans does not implement planned and needed improvements on State transportation facilities, the Project would contribute to a significant unavoidable traffic impact; the Project would result in cumulatively considerable and significant air quality impacts; there would be no cumulative noise and vibration impacts, except for

impacts associated with additional regional traffic on SR-138 because feasible mitigation to reduce these impacts is not within County jurisdiction; cumulative impacts on visual resources, light, and glare would be significant and unavoidable; the Project's contribution to increased demand for parks and recreational facilities, schools, fire protection services, law enforcement services, California Highway Patrol services, library services, hazardous waste disposal services, and other public facilities would not be cumulatively considerable and there would be a less than significant cumulative impact; the Project's contribution to solid waste disposal and associated landfill capacity during long-term operation would be cumulatively considerable; cumulative water supply impacts would be significant and unavoidable; the Project would not result in any cumulative impacts related to compliance with Waste Discharge Requirements or to wastewater treatment facilities or capacity in the area; the Project's increase in demand for dry utilities (including electricity, natural gas, petroleum, telephone, and cable television) would not be cumulatively considerable; and the Project's impact related to GHG emissions is cumulatively considerable and the cumulative impact would be significant.

This Partial Recirculated Draft EIR at Section 3.0, *Cumulative Impacts*, includes partial updates related to cumulative impacts associated with biological resources (Crotch's bumble bee), climate change, and wildfire. With respect to all other cumulative impacts, the Project would not cause, and the Centennial EIR has not been revised to include significant new information concerning new significant cumulative impacts or a substantial increase in such impacts that were not previously disclosed and analyzed in the Centennial EIR. Nor are there any feasible project alternatives or mitigation measures considerably different from others previously analyzed in the Centennial EIR that would clearly lessen the Project's cumulative impacts that the Project proponents decline to adopt.

Alternatives (EIR Section 8.0)

Alternatives to the Project were discussed in Section 8.0 of the Centennial EIR. The Centennial EIR determined, after full evaluation of six Project alternatives (including the No Project Alternative) and discussion of additional alternatives that were considered but not carried forward for full evaluation, that Alternative A (No Project Alternative) has the least environmental impact but would not meet any of the Project objectives; Alternative B (2004 NOP Described Project) would meet most of the Project objectives but would result in greater impacts on most issues due to the increase in development proposed on a smaller site and would not avoid any of the significant impacts of the Project; Alternative C (Additional Drainage Avoidance) would meet the Project objectives and would reduce impacts to major drainages on the site as well as other environmental factors due to the reduction in dwelling units and commercial and institutional development but would not avoid any of the significant and unavoidable Project impacts; Alternative D (Infrastructure Relocation) would meet the Project objectives and would reduce energy demands for water distribution and reduce visual impacts but would increase impacts on biological resources and would not avoid any of the significant and unavoidable Project impacts; Alternative E (Density Clustering/East of Aqueduct) would meet the Project objectives and would decrease grading-driven impacts, increase open space preservation, and reduce impacts to visual resources, would result in the same or similar impacts to population-driven impacts

and would not avoid any of the significant and unavoidable impacts of the Project; and Alternative F (Central Economic Opportunity Area Development) would meet three of five Project objectives and would result in additional significant and unavoidable impacts related to land use, population projections, and water supply and greater significant and unavoidable impacts relating to growth-inducing impacts and climate change but would avoid significant and unavoidable impacts to sensitive vegetation communities and wildlife movement. Although no alternative would entirely avoid any of the significant and unavoidable impacts of the Project, Alternative E is considered the environmentally superior alternative.

The Court of Appeal's Opinion upheld the Centennial EIR's discussion of alternatives. The Centennial EIR has not been revised to include significant new information concerning alternatives.

CEQA Mandated Sections (EIR Section 9.0)

Potential significant irreversible changes caused by the Project were discussed in Section 9.0 of the Centennial EIR. The Centennial EIR determined the Project would result in irreversible environmental changes related to topography/landform, site character, loss of open space, and commitment to non-renewable resources. The Project would result in significant and unavoidable impacts related to a change in visual character of the Project site, in part due to alteration of topography, and the required changes to the existing topography would be considered a significant irreversible change. Similarly, the change from rural to urban character and loss of open space is considered a significant irreversible environmental change. The Project's consumption of non-renewable resources is not considered a significant irreversible environmental change because the non-renewable resources that would be used for the Project's construction and operation would be consumed by housing and land development in other locations to fulfill the housing and employment demand that is anticipated, and that is still unfilled, in Los Angeles County.

The Centennial EIR has not been revised to include significant new information concerning any of the impacts discussed in EIR Section 9.0.

1.7 REFERENCES

County of Los Angeles. 2017 (May). *Centennial Project, Draft Environmental Impact Report. Los Angeles, CA: County of.*

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2.1 BIOLOGICAL RESOURCES

2.1.1 INTRODUCTION

The County of Los Angeles Department of Regional Planning Environmental Checklist Form, which has been prepared pursuant to the California Environmental Quality Act (CEQA), requires that potential project impacts related to biological resources be evaluated as part of the environmental documentation process. The County is partially recirculating revisions to the Centennial EIR Biological Resources section (Section 5.7) related to Crotch's bumble bee (*Bombus crotchii*).

As discussed in Section 1.0, Introduction, of this Recirculated Partial Draft EIR, the Centennial EIR was decertified by the Board of Supervisors on December 2, 2025, in compliance with the Writ issued by the Los Angeles County Superior Court in the Centennial Litigation. The Centennial EIR evaluated biological resources within the Project Area based on the regulatory framework and species status information available at the time of certification of the Final EIR. Since certification of the Final EIR, the regulatory and conservation status of Crotch's bumble bee has changed and a Crotch's Bumble Bee Habitat Assessment was prepared, warranting updates to the Biological Resources analysis.

This Recirculated Partial Draft EIR does not modify any other portion of the Biological Resources analysis presented in the Centennial EIR.

2.1.2 ENVIRONMENTAL SETTING

Species Background

Crotch's bumble bee (*Bombus crotchii*) is a near-endemic species in California, occurring primarily in southwestern portions of the state, including coastal and inland Mediterranean regions, western deserts, the Great Valley, and adjacent foothills (Williams et al. 2014; Zungri 2005). The species was historically common in the Central Valley but now appears to be absent from much of that region (Hatfield et al. 2014). Outside California, Crotch's bumble bee has been documented infrequently in southwestern Nevada and Baja California, Mexico (Labougle 1990; Williams et al. 2014).

Crotch's bumble bee occupies a variety of native habitat types but is most commonly associated with grassland and scrub communities that support diverse native flowering plants (Williams et al. 2014). It is a social species with annual colonies composed of a single queen, workers, and reproductive individuals. Only mated queens overwinter, emerging in spring to establish new colonies. Nesting typically occurs below ground, most often in abandoned mammal burrows, although other sheltered cavities may also be used. Colonies persist through spring and summer, producing workers early in the season and males and new queens later in the year (Williams et al. 2014).

Crotch's bumble bee is a relatively large bumble bee species, with queens measuring approximately 22 to 25 millimeters (mm) and workers measuring approximately 12 to

20 mm (Williams et al. 2014). It is a short-tongued species that forages on a wide variety of flowering plants, including species within the genera *Asclepias*, *Chaenactis*, *Lupinus*, *Medicago*, *Phacelia*, and *Salvia* (Williams et al. 2014). Although several other bumble bee species may appear superficially similar, most do not occur within southern California, reducing the likelihood of misidentification in the region (Williams et al. 2014).

Populations of Crotch's bumble bee have declined due to habitat loss and fragmentation associated with urban development and agricultural conversion, particularly in the Central Valley (Hatfield et al. 2014). Additional threats include climate change and increasing aridity, pesticide exposure, pathogen transmission from managed pollinators, competition with non-native bees, and reduced genetic diversity (Goulson 2010; Williams et al. 2009; Williams and Osborne 2009; Cameron et al. 2011; Fürst et al. 2014; Hatfield et al. 2012).

Regulatory Status

Since preparation of the Centennial EIR, the regulatory status of Crotch's bumble bee has advanced to "candidate species" under the California Endangered Species Act (CESA), meaning it has been petitioned for listing as an endangered species, and the California Department of Fish and Wildlife (CDFW) is reviewing the petition to determine if listing the species as Threatened or Endangered is warranted. (California Fish and Game Commission 2019). The status of Crotch's bumble bee has changed multiple times based on court rulings between June 2019 and September 2022. In November 2020, the Sacramento Superior Court ruled that insects are not eligible for listing under CESA because the statute does not expressly reference insects (*Almond Alliance of California v. Fish and Game Commission* 2020). The California Fish and Game Commission appealed the decision, and in 2022, the Third District Court of Appeal determined that invertebrates are eligible for protection under CESA based on the statute's definition of fish (*Almond Alliance of California v. Fish and Game Commission* 2022). In September 2022, the California Supreme Court declined review of the decision. As a result, candidate status for Crotch's bumble bee was reinstated and is currently in effect.

2.1.3 REGULATORY SETTING

State

California Endangered Species Act

Pursuant to the CESA (Fish and Game Code §§2050–2069), the take of species listed as threatened or endangered under State law is prohibited. Species designated as listing candidates by the California Fish and Game Commission are also protected from take for the duration of their candidacy. Under CESA, "take" means to "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." (Fish and Game Code § 86.)

Fish and Game Code Section 2081 authorizes the California Department of Fish and Wildlife (CDFW) to issue an Incidental Take Permit (ITP) for projects that could result in the take of

a State-listed threatened endangered, or candidate species, provided that specified conditions are met.

2.1.4 METHODOLOGY

The updated analysis for Crotch's bumble bee is based on review of existing site-specific biological information and application of the current regulatory framework. This includes review of previous biological surveys conducted within the Project Area and a Crotch's Bumble Bee Habitat Assessment Memorandum prepared to evaluate potential project-related effects and to recommend project design features or avoidance and mitigation measures (Appendix C).

In addition, relevant scientific literature, current agency guidance, and applicable state regulatory listings were reviewed to inform the updated impact analysis and mitigation approach. The information obtained through this review was used to assess potential impacts to Crotch's bumble bee and to refine mitigation measures to ensure consistency with current regulatory requirements.

2.1.5 THRESHOLDS OF SIGNIFICANCE

This section focuses only on those thresholds of significance that require updated or revised analyses to address potential impacts to Crotch's bumble bee.

The following significance threshold criteria are derived from the County of Los Angeles Environmental Checklist. The Project would have a significant impact related to biological resources if it would:

Threshold 2.1-1 ***Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.***

2.1.6 IMPACT ANALYSIS

Threshold 2.1-1

Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?

All natural vegetated portions of the project area contain potentially suitable habitat for Crotch's bumble bee. Project grading would impact the following vegetation types (listed with the approximate acreages of impact for each type) that support or could potentially support Crotch's bumble bee based on the presence of suitable floral resources: scrub and chaparral types (359.3 acres), broad leafed upland tree-dominated vegetation type (6.2 acres), riparian and bottomland vegetation types (21.4 acres), bog and marsh vegetation

types (10.7 acres), grass- and herb-dominated vegetation types (6,415.0 acres), and mixed chaparral or scrub and grassland vegetation types (105.4 acres). A total of 6,918.0 acres of potentially suitable foraging and nesting habitat for Crotch's bumble bee would be impacted during project implementation. Impacts to Crotch's bumble bee would be considered significant.

As described in Section 5.7 of the Centennial EIR, the Project's Mitigation Preserve Program (Project Design Feature 7-1) includes a 27,408-acre preserve system consisting of approximately 3,861 acres of unimpacted/Significant Ecological Area lands on-site and 23,547 acres in additional off-site areas, including lands on Tejon Ranch. The preserve system encompasses all major habitat types affected by the Project, as well as specific biological resource values addressed in the corresponding mitigation plans. Through the Mitigation Preservation Program, the Project would provide an approximately 4:1 preservation-to-impact ratio for potentially suitable Crotch's bumble bee habitat.

Applicable Mitigation Measures (MM) for sensitive plants and wildlife species that would also reduce adverse affects to Crotch's bumble bee include MM 7-3, MM 7-4, MM 7-10, MM 7-11, MM 7-12, MM 7-13, MM 7-15, MM 7-16, MM 7-17, MM 7-18, MM 7-21, and MM 7-22. These measures are set forth in Section 5.7 of the Centennial EIR and include various habitat preservation and restoration requirements for habitat suitable for Crotch's bumble bee; fencing of work areas; development of a Landscaping Plan to restrict invasive species; scavenger proof waste management program and homeowner education on avoiding attracting wildlife; monitoring and control of Argentine ants; restriction of public access to the open space areas and promotion of public education and awareness of such areas; pet leash requirements; protocols for reducing the potential for introduction, and monitoring of, of pathogens and pests into the site; the requirement for an Implementation Plan to avoid impacts to the adjacent Significant Ecological Area; and the requirement for any golf courses constructed be designed in accordance with the Audubon Cooperative Sanctuary Program for Golf Courses designed to promote ecologically sound land management and to conserve natural resources.

These habitat-based mitigation measures would reduce impacts to potentially suitable Crotch's bumble bee habitat. This Recirculated Partial Draft EIR evaluates impacts specific to Crotch's bumble bee and identifies mitigation measures where necessary. Implementation of the habitat-based mitigation measures (MM 7-3, MM 7-4, MM 7-10, MM 7-11, MM 7-12, MM 7-13, MM 7-15, MM 7-16, MM 7-17, MM 7-18, MM 7-21, and MM 7-22) would compensate for the permanent loss of suitable Crotch's bumble bee habitat through preservation and long-term management of comparable high-quality habitat at a minimum 2:1 ratio. New MM BIO-1 would further reduce potential direct impacts to Crotch's bumble bee during construction through preconstruction surveys, establishment of no-disturbance buffers around known nest sites, and compliance with CESA take authorization requirements, if applicable. With implementation of these measures, impacts to Crotch's bumble bee would be reduced to a less-than-significant level.

2.1.7 MITIGATION MEASURES

MM 7-3, MM 7-4, MM 7-10, MM 7-11, MM 7-12, MM 7-13, MM 7-15, MM 7-16, MM 7-17, MM 7-18, MM 7-21, and MM 7-22, including preservation of impacted native habitat at a minimum 2:1 ratio pursuant to MM 7-10, MM 7-11, MM 7-12, would reduce impacts to potentially suitable Crotch's bumble bee habitat.

In addition, to address potential direct impacts to Crotch's bumble bee during ground-disturbing activities and ensure compliance with applicable regulatory requirements, the following mitigation measure is required:

MM BIO-1 If Project ground-disturbing activities are scheduled to occur during the Crotch's bumble bee colony active period, a habitat assessment shall be conducted by a qualified biologist prior to initiation of such activities to identify suitable foraging and nesting habitat for Crotch's bumble bee. Such assessments shall be conducted every year that ground-disturbing activities are scheduled to occur or if vegetation is allowed to reestablish. The qualified biologist shall conduct preconstruction surveys for Crotch's bumble bee in suitable habitat identified during the habitat assessment, using methodology approved by California Department of Fish and Wildlife. If Crotch's bumble bee is not detected, no further measures are required. Regardless of the outcome of the surveys, a qualified biologist shall be present during ground-disturbing Project activities that occur during the Crotch's bumble bee colony active period.

If Crotch's bumble bee is detected:

1. No ground-disturbing activities shall occur within 100-feet of any known nest location, or as determined by a qualified biologist through evaluation of topographic features or distribution of nectar resources. The no-disturbance buffer shall be in place for the duration of the nesting colony active period, unless a nest is determined to be inactive by a qualified biologist or is relocated or removed with CDFW authorization
2. To further minimize the potential for take of Crotch's bumble bee, the Project Applicant shall implement the following measures:
    - Grubbing shall be minimized to the extent feasible. In areas where grubbing is needed, the following measures to minimize potential impacts to Crotch's bumble bee will be followed: (1) grub outside of the blooming season; (2) grub at the highest cutting height possible to avoid disturbing nests or overwintering queens; (3) avoid grubbing in the afternoon, the time of day when pollinators are most active; and (4) grub at speeds less than 8 mph.

- Construction vehicles onsite will not exceed a speed of 15 mph. Signage will be posted throughout the project site noting this requirement.

3. If the Crotch's bumble bee remains a candidate for listing, or has been listed, as endangered or threatened under the CESA, and avoidance of known nests is determined not to be feasible, the Project Applicant shall consult with the CDFW regarding the potential for project activities to result in take of the Crotch's bumble bee and will comply with all avoidance, minimization, and compensatory mitigation requirements set forth in any incidental take permit issued for the project by CDFW authorizing take of the species.

2.1.8 REFERENCES

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2.2 CLIMATE CHANGE

2.2.1 INTRODUCTION

The County of Los Angeles Department of Regional Planning Environmental Checklist Form, which has been prepared pursuant to the California Environmental Quality Act (CEQA), requires that greenhouse gas (GHG) emissions issues be evaluated as part of the environmental documentation process. Because the effects of GHG emissions are considered in a global context, that is, global warming and climate change, GHG emissions are generally addressed at both a project-level (e.g., for purposes of quantifying and mitigating project-level GHG) and as a cumulative issue. Because the topic of climate change is most appropriately considered on a cumulative level, the impact analysis in this RPDEIR section is fundamentally a cumulative analysis.

This section of the RPDEIR evaluates the GHG emissions of the Project and addresses the ways the Project's GHG emissions would be mitigated, including with the quantifiable Settlement Agreement measures, discussed in Section 2.2.2.3. This section also clarifies that the Project is not a "covered entity" under the Cap-and-Invest (formerly known as Cap-and-Trade) regulatory program, and accordingly, the Cap-and-Invest program is not used to analyze GHG impacts, reduce GHG impacts, or mitigate GHG impacts, in this document.

2.2.2 PROJECT HISTORY

The potential cumulative GHG impacts of the Centennial Specific Plan Project (Project) were analyzed and disclosed in the Centennial Specific Plan Draft Environmental Impact Report (2019 DEIR) and Consolidated Final Environmental Impact Report (2019 FEIR) (collectively, the "2019 EIR") in accordance with the analytical framework described in CEQA Guidelines section 15064.4. The 2019 EIR's analysis of the Project's GHG emission impacts was in Section 5.21 of the 2019 DEIR and Section 4.3 of Volume 3 of the 2019 FEIR. The 2019 EIR estimated that the Project would emit approximately 157,642 million metric tons carbon dioxide equivalent per year, after accounting for GHG reductions associated with the implementation of certain project design features ("PDFs"), mitigation measures, and compliance with applicable regulatory requirements.

The Project included a Green Development Program (included as Appendix 1-B to the Centennial Specific Plan) and 21 project design features that target GHG reductions related to energy efficiency, vehicle emissions, vehicle trips and vehicle miles traveled, and water supply treatment and distribution, as set forth on 2019 FEIR pages 4-364 through 4-370.

The 2019 EIR evaluated the significance of the Project's GHG emissions under two thresholds of significance. Under Threshold 21-1, the 2019 EIR considered whether the Project would "generate greenhouse gas emissions, either directly or indirectly, that may have a significant effect on the environment," which is an inherently cumulative impact. The 2019 EIR then assessed the Project's compliance with various regulatory programs designed to reduce GHG emissions and that contribute to the achievement of statewide GHG reduction goals. The

2019 EIR determined that the Project's GHG impacts would be less than significant under Threshold 21-1 because the Project complies with and is consistent with all applicable regulatory programs to reduce GHG emissions and, therefore, would contribute its fair share to achieving California's GHG reduction goals.

Under Threshold 21-2, the 2019 EIR considered whether the Project would "conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases." The 2019 EIR analyzed whether the Project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHG by assessing the Project's consistency with the then-current 2020 Los Angeles Community Climate Action Plan (CCAP) and with the Southern California Association of Governments' Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). The 2019 EIR determined that the Project's GHG emission impacts would be less than significant under Threshold 21-2 because the Project, including its Green Development Program, which is a component of the Specific Plan, would be consistent with and would not conflict with the CCAP and the RTP/SCS.

Despite finding that the Project's GHG impacts would be less than significant under both Thresholds 21-1 and 21-2, the 2019 EIR conservatively determined that the Project's incremental contribution of the global GHG emissions inventory would be a cumulatively considerable impact. Accordingly, the 2019 EIR proposed, and the County ultimately adopted, 22 mitigation measures with which the Project must comply to reduce its GHG emissions to the extent feasible.

The Los Angeles County Board of Supervisors certified the 2019 EIR and approved the Project on April 30, 2019. Climate Resolve and Center for Biological Diversity and California Native Plant Society (referred to collectively herein as "CBD/CNPS") brought two separate lawsuits challenging the Project approval.

2.2.2.1. Trial Court Decision

On April 5, 2021, the Los Angeles County Superior Court issued two orders (collectively, the "Court Order"), rejecting all CBD/CNPS and most Climate Resolve arguments that the 2019 EIR was deficient under CEQA. The Court Order upheld almost all components of the 2019 EIR's GHG analysis, including the fact that substantial evidence supported the 2019 EIR's determination that the Project is consistent with the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy ("2016 RTP/SCS"), adopted by the Southern California Association of Governments (SCAG) to establish transportation planning and funding priorities capable of achieving regional GHG reduction for cars and light-duty trucks as directed by the California Air Resources Board (CARB). The Court also found that the 2019 EIR use of a service population metric to assess the Project's compliance with statewide GHG reduction targets and use of the term "net-zero carbon for the electric sector" were not misleading. In addition, the court determined that no petitioner met legal exhaustion requirements to challenge the 2019 EIR's calculation of GHG emission reductions associated with the Project's affordable housing commitment. The court also determined that the

County supported its electric vehicle penetration assumptions were supported by substantial evidence

Although the court largely upheld the 2019 EIR analysis of the Project's potential GHG impacts, it concluded that certain statements in the 2019 EIR were misleading. Specifically, the court found the explanation that the Project's fossil fuel consumption, which accounted for approximately 96 percent of the Project's GHG emissions, were regulated at the production source by the state's Cap-and-Invest regulatory program. As the court stated, the Project is not covered by the Cap-and-Invest program and, therefore, the 2019 EIR's discussion of Cap-and-Invest amounted to prejudicial error because Cap-and-Invest does not provide any direct reduction to the Project's GHG emissions. The Court also determined that since Cap-and-Invest did not reduce the Project's GHG emissions, there was insufficient evidence in the record to support 2019 EIR's determination and the County's statement of overriding considerations that additional mitigation measures beyond those identified in the 2019 EIR would exceed the Project's fair share of mitigating a cumulatively significant GHG impact.

2.2.2.2. Court of Appeal Decision

Both the Project Applicant and CBD/CNPS appealed the trial court's decision. On June 26, 2025, the Court of Appeal issued a partially published option. In the published portion of the option, the Court of Appeal agreed with the trial court that the 2019 EIR's discussion of the Cap-and-Invest program caused the 2019 EIR to be prejudicially misleading, both related to the impression it left regarding the project's emissions and the reductions achieved by the mitigation measures. The Court of Appeal did not address any other issues related to GHG emissions.

2.2.2.3. Climate Resolve Settlement Agreement

Following the trial court issuing the Court Order, but prior to final judgment in the Climate Resolve action, and well before the Court of Appeal hearing, the Project Applicant and Climate Resolve entered into a legally enforceable settlement agreement resolving the Climate Resolve litigation ("Settlement Agreement"). The Settlement Agreement became effective and fully enforceable on November 30, 2021. As a result of the Settlement Agreement, the Climate Resolve lawsuit was dismissed by the Court with prejudice. The Settlement Agreement requires the Project to be "Net Zero GHG," which means that the Project's construction and operational GHG emissions will be further reduced, and fully offset, by GHG reductions. As recognized by the state's leading climate agency, the California Air Resources Board ("CARB") in its 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan), Appendix D:

> [R]ecently, Tejon Ranch Company, the developer for the Centennial Specific Plan located in northern Los Angeles County, committed through a legal settlement agreement that the project would result in no net additional GHG emissions. Specifically, Tejon Ranch Company committed to prohibit natural gas in residential and commercial properties, require solar energy in

> residential and commercial properties, install almost 30,000 EV chargers within and outside the community, and provide incentives supporting the purchase of 10,500 electric vehicles, school buses, and trucks, in addition to procuring voluntary GHG offsets." (CARB 2022 Scoping Plan, Appendix D p. 12-13)

No revisions to the Centennial of Specific Plan ("Specific Plan") are required for the Applicant to comply with the Settlement Agreement.

The Settlement Agreement requires the Project annually eliminate more than three times the annual GHG emissions produced by the Project as calculated by the 2019 EIR. The 2019 EIR determined that 157,642 metric tons of carbon dioxide equivalent per year ($MTCO_2e/yr$) of the Project's GHG emissions would not be directly offset by Project Design Features (defined in Section 2.2.6.2 below) and 2019 EIR mitigation measures. The Settlement Agreement requires the Project Applicant to ensure 500,000 $MTCO_2e$ in GHG reductions annually ("SA Emission Reductions") through implementation of various GHG reduction measures specified in the Settlement Agreement and described below.

Monitoring and Enforcement

Satisfaction of the SA Emission Reductions will be confirmed and monitored by Centennial Monitoring Group (CMG), which will be an independent non-profit group established approximately six months prior to the Applicant's application for its first vesting tentative tract map to the County to monitor compliance with the Settlement Agreement and implementation of its terms. The CMG would be led by a board consisting of two members appointed by the Project Applicant, two members appointed by Climate Resolve, and one independent member jointly appointed by Climate Resolve and the Project Applicant.

Under the Settlement Agreement, a true-up option is available at fifteen years. Prior to the expiration of fourteen years from the Settlement Agreement effective date, the Project applicant may elect to undertake a comprehensive process called the "True-Up" that assesses the extent to which the Project has progressed towards becoming a Net Zero GHG Project and would revisit the calculations and assumptions used to calculate the requirements of the Settlement Agreement. This would then go to the CMG Board for review and approval of the modified assumptions and calculations and itemized and non-itemized GHG reduction measures.

Settlement Agreement GHG Reduction Measures

The SA Emission Reductions will be accomplished by two types of mitigation measures: Itemized and Non-Itemized, which will be implemented in phases (i.e., on a tract map by tract map basis) as the Project develops. As discussed under Threshold 2.2-1, the SA Emission Reductions that are required to achieve a net zero project will be identified as mitigation measures in this RPDEIR ("SA MMs") and be enforceable by the County pursuant to CEQA, in addition to being enforceable by Climate Resolve in its capacity as a party to the Settlement Agreement.

Itemized GHG Reduction Measures

The Settlement Agreement requires the Project applicant, Centennial LLC, and its parent company, Tejon Ranchcorp, to implement the following itemized GHG reduction measures:

1. Ensure through enforceable Covenants, Conditions & Restrictions (CC&Rs) that no natural gas infrastructure may be installed within the Centennial Specific Plan Project site for residential buildings, recreation centers, and/or public facilities, and through CC&Rs ensure that natural gas use is prohibited in such structures (SA Measure 1);
2. Ensure through enforceable CC&R's that natural gas use is prohibited for use by Non-Residential tenants for non-essential uses, which include space heating, non-industrial water heating, space cooling, and non-commercial cooking (SA Measure 2);
3. Prohibit all fireplaces that use fossil fuels within the Centennial Specific Plan Project site (SA Measure 3);
4. All building developers, including without limitation residential commercial, industrial, or public buildings, must install battery storage systems to the extent required by then-applicable building codes or other regulatory requirements. If battery storage systems are not required by code, all building developers shall be required to offer such systems as an option available for purchase or lease (SA Measure 4);
5. Provide an inflation-adjusted $5,000 in reimbursement incentives to the renters or purchasers of each of the project's dwelling units to support the purchase of an electric vehicle (EV) until such time as the incentive has been provided to fifty percent of the project's dwelling units. Informational material on the incentives must be provide at the time of home purchase or rental and regularly advertised through HOA communications (SA Measure 5);
6. Prior to issuance of certificate of occupancy, install one operable Level 2 or higher-capacity EV charger at each of the Project's single-family dwelling units (SA Measure 6);
7. Prior to issuance of certificate of occupancy, install operable Level-2 or higher-capacity EV chargers in the parking area of each of the Project's multi-unit Residential buildings in such capacity that one charger is provide for one assigned parking space for each of the building's dwelling units (SA Measure 7);
8. Install in nearby parking spaces for each of the Project's Non-Residential structures operable Level-2 or higher-capacity EV chargers at a rate of at least one EV charger for each 3,500 square feet of space and no fewer than 3,500 charging connectors. The required EV chargers must be installed and made operatable prior to issuance of a certificate of occupancy for the relevant Non-Residential structure (SA Measure 8);
9. Install 100 operable EV chargers to serve Medium-Duty and Heavy-Duty vehicles at the Tejon Ranch Commerce Center. The first of these EV chargers must be

installed and made operable prior to receipt of a certificate of occupancy for the 100,972nd square feet of non-residential uses within the Centennial Specific Plan area, and one additional EV charger must be installed and made operable at the Tejon Ranch Commerce Center prior to issuance of a certificate of occupancy for each subsequent 100,972 square feet of non-residential uses within the Centennial Specific Plan thereafter (SA Measure 9);

10. Establish enforceable CC&Rs requiring the Project's Non-Residential owners to maintain and keep operable the EV chargers located on their respective properties, and include in CC&Rs a non-enforceable encouragement to opt into any available one hundred percent renewable energy source as a power supply (SA Measure 10);

11. Provide $7,500 in reimbursement incentives per vehicle for 500 vehicles to businesses that conduct activities on Tejon Ranch to purchase Medium-Duty and Heavy-Duty vehicles (i.e., Class 1-7 trucks or vans) expected to be used in part on Tejon Ranch, for a total of $3,750,000. Such EV incentives must be offered to businesses or other entities for Class 1-7 vehicles that conduct activities on Tejon Ranch, to be awarded in $7,500 grants with one $7,500 grant awarded prior to the certificate of occupancy for the 38th dwelling unit within the Centennial Specific Plan area, and additional $7,500 grants for every subsequent 38th dwelling unit until the incentives are fully depleted (SA Measure 11);

12. Provide an EV grant program of $5,000 per vehicle for 300 vehicles for public agency service fleets that serve the Centennial Specific Plan community, but which are controlled by public agencies no specific to the Project, such as for public safety, maintenance, and operations for a total of $1,500,000. In addition, provide an EV grant program of $5,000 per vehicle to provide for up to 100 vehicles for project-specific community agencies or organizations, including the Homeowners Association, Commercial and Hospitality Associations, and Transportation Management Association, for a total of $500,000. The total of $2,000,000 in EV incentives must be offered to public service and community service fleet vehicles used at the Project site must be awarded in $5,000 grants, within one $5,000 grant awarded prior to issuance of the certificate of occupancy for the 48th dwelling unit in the Project site, and additional $5,000 grants for every subsequent 48th dwelling unit until the incentives are fully depleted (SA Measure 12);

13. Provide incentives totaling $8,000,000 to support the purchase of school and transit buses and vans for the project's schools and community transit fleets, and for the installation of EV chargers to serve them. Such incentives must be awarded in $20,000 grants, with the first grant awarded prior to issuance of the certificate of occupancy for the 48th dwelling unit within the Centennial Specific Plan area and an additional $20,000 grant for each subsequent 48th dwelling unit until the incentives are fully depleted (SA Measure 13);

14. Install 5,000 operable Level-2 or higher-capacity EV chargers in disadvantaged communities located within the jurisdictional boundary of the South Coast Air Management District, with the first EV charger installed prior to issuance of a certificate of occupancy for the 4th dwelling unit within the Centennial Specific

Plan area, with one additional EV charger installed for every 4th dwelling unit thereafter (SA Measure 14);

15. Establish enforceable CC&R governing residential building in the Grapevine Specific Plan Project site prohibiting the installation of natural gas infrastructure serving residential buildings, ensuring that natural gas use is prohibited in such structures, and prohibiting fireplaces that use fossil fuels (SA Measure 15).

16. Ensure through enforceable CC&Rs that Community Choice Aggregation or an equivalent Southern California Edison ("SCE") plan with 100% Clean Power ("Clean Power Plan") is required to the extent allowed by law and is the default choice when not required by law, for all residents, businesses, recreation centers, and public facilities at the Project (SA Measure 16).

Non-Itemized GHG Reduction Measures

Pursuant to the Settlement Agreement, the Centennial Specific Plan Project will also implement non-itemized GHG reduction measures, which may include funding one of CARB's approved list of Offset Project Registries (Climate Action Reserve, Verra, American Carbon Registry); funding the development of a new GHG mitigation methodology under CARB or a CARB approved registry; or directly undertake or fund projects on Tejon Ranch directly resulting in a quantified mitigation credit by CARB or a CARB approved Registry. The Settlement Agreement generally prohibits the purchase of emission offsets to fulfill the Settlement Agreement's emission reduction obligations unless it will be otherwise infeasible approved as a last resort compliance option for one phase of the overall project by a majority vote of the CMG Board, and only to the extent the CMG Board determines that it will otherwise be infeasible for the Project applicant to reduce or avoid the GHG emissions of that phase of the project to become a Net Zero GHG Project under the terms of the Settlement Agreement. Any such CMG Board vote, however, would be on a temporary, phase-by-phase case and would not be applicable to the entire Project.

Transparent Reporting

The Settlement Agreement requires the Project applicant to annually publish a report that documents all actions taken in the prior calendar year to comply with the Settlement Agreement's GHG emission reduction requirements, including information on all itemized and non-itemized GHG reduction measures organized by Project phase (i.e., organized by each vesting tentative tract map). The required annual report must also list actions the Project applicant plans to undertake in the following calendar year to comply with its Settlement Agreement obligations. By way of illustration, the annual report shall include data for the relevant reporting period that detail applications for tract maps and building permits; the type and amount of EV incentives listed in the Settlement Agreement that have been reserved and actually disbursed; the number, model type, and locations of operative EV chargers installed by the Project applicant; and the description number and type of onsite and Registry-certified offsite GHG emission reduction measures planned and actually implemented by the Project applicant.

The annual report must provide a cumulative total of mitigation credits awarded by Offset Project Registries to the Project applicant for non-itemized GHG reduction measures since the effective date of the Settlement Agreement and an accounting of those such mitigation credits have been allocated to phases of the Project to enable the CMG to track progress towards achieving SA Emission Reductions. Moreover, if the Project's non-residential customers procure biogas for use in place of natural gas, the Settlement Agreement requires the Project applicant to ask Southern California Gas Company to report on the origins of that biogas as a term of their contract and must include that report in each annual report.

The Settlement Agreement requires each annual report to be made publicly available for download from the project website free of charge, and the Project applicant must issue a press release announcing the availability of each annual report for public review. Each annual report must be approved by a majority vote of the CMG.

2.2.2.4. Cap-and-Invest Does Not Cover the Project or Offset or Reduce the Project's GHG Emissions

The 2019 EIR suggested that Cap-and-Invest (formerly referred to as Cap-and-Trade) would indirectly reduce the net effect of the Project's emissions.

The Cap-and-Invest program is the State's carbon pricing program and is a key regulation for efficiently meeting California's long-term GHG reduction targets. It became effective in 2012 under authority of AB 32 and was extended through 2030 with the enactment of AB 398. The Cap-and-Invest program is enforced by CARB and reduces GHG emissions through the implementation of a hard cap on overall GHG emissions from covered entities, which are major, mainly industrial emitters of GHGs, that decreases annually. Covered entities are subject to a "compliance obligation" that requires them to surrender one "compliance instrument" (either an emissions allowance or an emissions offset) for each metric ton of GHG emitted by such covered entity.

Following publication of the 2019 DEIR in May of 2017, the Court of Appeal published its decision in *Association of Irritated Residents v. Kern County Board of Supervisors* (2017) 17 Cal.App.5th 708 ("*AIR*"). The AIR court held that a covered entity, such as an oil refinery or PG&E, could use its compliance with the Cap-and-Invest program to show its GHG emission impacts were less than significant. As CARB stated in the "Statement of Reasons" for the Cap-and-Invest regulations, the Cap-and-Invest program is intended to indirectly cover emissions from transportation fuel combustion and that of other fuels used by customers of Covered Entities by regulating the supply provided by the Covered Entities.[1]

Based on the *AIR* decision, the 2019 EIR included the Cap-and-Invest program not only in the regulatory setting of the EIR, but also in its updated discussion of the GHG emissions from the Project. The 2019 EIR reported that approximately 96 percent of the Project's unmitigated GHG emissions are covered by the Cap-and-Invest program because they are caused by the consumption of fuels and electricity supplied by the Project's upstream fuel

[1] CARB, available at: https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2010/capandtrade10/capisor.pdf .

and electricity suppliers, which are covered entities under Cap-and-Invest. The Court of Appeal ultimately determined that the 2019 EIR's explanation of how Cap-and-Invest would indirectly reduce Project emissions was misleading because the Project is not a Covered Entity and cannot participate in the Cap-and-Invest program, and Cap-and-Invest is accordingly not relevant to determining the significance of the Project's GHG emission impacts.

The analysis of GHG emissions that follows does not use or rely on the Cap-and-Invest program to analyze, mitigate, or otherwise reduce or determine the significance of the Project's GHG emission impacts.

2.2.3 CAUSES AND EFFECTS OF CLIMATE CHANGE

2.2.3.1. Global Climate Change

The consensus among leading scientists is that without action to reduce GHG emissions, climate change due to global warming will pose a considerable threat to the environment and to human health and society. Global climate change is a broad term used to describe any worldwide, long-term change in the Earth's climate. Global climate change refers to an increase in temperatures across the Earth due to human and industrial activity. Climate change, in addition to rising temperatures, can cause other climatic changes, such as a shift in the frequency and intensity of weather events such as rainfall or hurricanes, but it does not necessarily imply that all locations will be warmer. In fact, with global climate change, some locations will have climate patterns that may change in a way that makes the locations colder than average temperatures. The consequences of climate change are expected to manifest in different ways in different locations, depending on local and regional factors, such as topography, regional climate, ocean circulation, and land uses.

Climate change is a recorded change in the Earth's average weather measured by variables such as wind patterns, storms, precipitation, and temperature. Historical records show that global temperature changes have occurred naturally in the past, such as during previous ice ages. The years 2016 and 2020 are statistically tied as the Earth's warmest year since 1880, and the 10 warmest years in the instrumental record have now occurred since 2000. The average global temperature has risen about 1.6 degrees Fahrenheit (°F) (0.89 degrees Celsius [°C]) since 1880 (NASA 2023).

The global atmospheric concentration of carbon dioxide (CO_2), the most abundant GHG, has increased from a pre-industrial (roughly 1750) value of about 280 parts per million (ppm) to a seasonally-adjusted 416 ppm in February 2021, primarily due to fossil fuel use, with land use change providing a significant but smaller contribution. The annual concentration of CO_2 has increased at an average rate of 1.6 ppm over the past decades, accelerating to approximately 2.4 ppm annual between 2017 and 2022 (OEHHA 2022).

2.2.3.2. Greenhouse Gases

GHGs, as defined by the United States Environmental Protection Agency (USEPA) and California Air Resources Board (CARB), include CO_2, methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). GHGs are global pollutants and are therefore unlike criteria air pollutants such as ozone (O_3), particulate matter (respirable particulate matter with a diameter of 10 microns or less [PM10] and fine particulate matter with a diameter of 2.5 microns or less [PM2.5]), and toxic air contaminants (TACs), which are pollutants of regional and local concern. While pollutants with localized air quality effects have relatively short atmospheric lifetimes (generally on the order of a few days), GHGs have relatively long atmospheric lifetimes, ranging from one year to several thousand years. Long atmospheric lifetimes allow for GHGs to disperse around the globe. Therefore, GHG effects are global, as opposed to the local and/or regional air quality effects of criteria air pollutant and TAC emissions.

Global warming potential (GWP) is a term used to indicate, on a pound for pound basis, how much a gas will contribute to global warming relative to how much warming would be caused by the same mass of CO_2. When measuring GWP, CO_2 is considered to have a GWP equal to one. CH_4 and N_2O are substantially more potent than CO_2 with GWPs of 25 and 298, respectively. (Prior values of 21 and 310 were from the Intergovernmental Panel on Climate Change [IPCC] second assessment report; CARB has adopted the current values from the IPCC's fourth assessment report.) Carbon dioxide equivalent (CO_2e) is a quantity that enables all GHG emissions to be considered as a group despite their varying GWP. The GWP of each GHG is multiplied by the quantity of that gas to produce CO_2e.

The Greenhouse Effect

In a greenhouse, sunlight enters through the glass panels, and the heat from the sunlight is then trapped inside the structure. The Earth's atmosphere acts like a greenhouse by allowing sunlight in, but traps some of the heat that reaches the Earth's surface. When solar radiation from the sun reaches the Earth, much of it penetrates the atmosphere and ultimately reaches the Earth's surface. This solar radiation is absorbed by the Earth's surface and is then re-emitted as heat in the form of infrared radiation. Whereas the GHGs in the atmosphere let solar radiation through, GHGs trap infrared radiation, resulting in the overall warming of the Earth's surface.[2] This phenomenon is referred to as the "greenhouse effect".

Concentrations of major greenhouse gases, such as CO_2, CH_4, N_2O, and water vapor (H_2O) have been naturally present for millennia at relatively stable levels in the atmosphere, and act to keep temperatures on Earth hospitable. Without these GHGs, the earth's temperature would be too cold for life to exist. With increased human industrial activity, concentrations of certain GHGs have grown dramatically. In the absence of major industrial human activity, natural processes maintain atmospheric GHG concentrations at relatively stable levels, which have allowed global temperatures to remain at constant levels over the last several

[2] Infrared radiation has longer wavelengths than does solar radiation. GHGs reflect radiation with longer wavelengths. As a result, instead of escaping back into space, GHGs reflect much infrared radiation (i.e., heat) back to Earth.

centuries. As the concentrations of GHGs have increased as a result of human industrial activity, the amount of infrared radiation that is trapped has increased, thereby increasing the Earth's average temperature.

2.2.4 REGULATORY SETTING

Many legal requirements applicable to greenhouse gas and climate change continue to be expanded and modified. This subsection presents a summary of international laws (national treaties followed by sub-national agreements), federal laws, regulations and other actions, state laws, regulations, and other actions, and then local (regional and County) laws, regulations and other actions that have been updated or adopted since November 2018 (although pre-November 2018 information is included where helpful for context).

2.2.4.1. International

International Treaties and Other Developments

The Paris Agreement was adopted on December 12th, 2015, by 196 parties that pledged to reduce their greenhouse gas emissions. Although the U.S. was originally a party to the agreement, the first Trump administration pulled out in 2017. On January 20, 2021, President Biden signed an executive order reentering the United States in the Paris Agreement.; this reentry went into effect on February 19, 2021. On January 20, 2025, President Trump issued an executive order withdrawing the U.S from the Paris Agreement for a second time.

2.2.4.2. Federal

Status of the Endangerment Finding

In *Massachusetts et al. vs. Environmental Protection Agency et al.* (April 2, 2007), the U.S. Supreme Court ruled that the USEPA was authorized by the Clean Air Act to regulate CO_2 emissions from new motor vehicles. The Court did not mandate that the USEPA enact regulations to reduce GHG emissions, but found that the only instances in which the USEPA could avoid taking action were if it found that GHGs do not contribute to climate change or if it offered a "reasonable explanation" for not determining that GHGs contribute to climate change.

On December 7, 2009, the USEPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act.

- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases in the atmosphere —CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6threaten the public health and welfare of current and future generations.

- **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

The findings do not themselves impose any requirements on industry or other entities. However, this action was a prerequisite for implementing GHG emissions standards for vehicles (USEPA 2021). A light-duty vehicle is defined any motor vehicle with a gross vehicle weight of 6,000 pounds or less (CARB 2021a).

On July 29, 2025, the USEPA issued a Notice of Proposed Rulemaking titled "Reconsideration of 2009 Endangerment Finding and Greenhouse Gas Vehicle Standards" (Docket ID No. EPA-HQ-OAR-2025-0194). This proposal aimed to rescind the 2009 Endangerment Finding, which has served as the legal basis for regulating greenhouse gas emissions under the Clean Air Act following the Supreme Court's decision in *Massachusetts v. EPA* (2007). The proposed rule also seeks to eliminate all greenhouse gas emission standards for light-, medium-, and heavy-duty vehicles. Public hearings began on August 19, 2025, and the comment period closed on September 22, 2025. On February 12, 2026, the USEPA finalized the rule concluding that Section 202(a) of the Clean Air Act does not provide statutory authority for EPA to prescribe motor vehicle and engine emission standards in the manner previously utilized, including for the purpose of addressing global climate change, and therefore has no legal basis for the Endangerment Finding and resulting regulations.

Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy (CAFE) Standards

The USEPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) have been working together on developing a National Program of regulations to reduce GHG emissions and to improve the fuel economy of light-duty vehicles. On September 19, 2019, NHTSA and the USEPA issued a final action entitled the "One National Program Rule" (SAFE-1) to enable the federal government to provide nationwide uniform fuel economy and GHG emission standards for automobile and light duty trucks. This action finalized parts of the Safer, Affordable, Fuel-Efficient (SAFE) Vehicles Rule that was first proposed in August 2018. In this proposal, the agencies proposed new and amended GHG and SAFE standards for model year 2021 to 2026 light duty vehicles which were less fuel efficient (USEPA and NHTSA 2019). The SAFE Vehicles Rule lowered the fuel efficiency standards for model years 2021 through 2026 to the 2020 standards of 43.7 miles per gallon (mpg) and 204 grams of CO2 per mile for passenger cars and 31.3 mpg and 284 grams of CO2 per mile for light duty trucks.

As part of the SAFE rule approvals, the USEPA withdrew the Clean Air Act waiver that had been granted to the State of California in January 2013 for the State's Advanced Clean Car program with respect to GHG and Zero Emission Vehicle (ZEV) elements. In November 2019, California, 21 other states, the District of Columbia, and four California cities filed a petition for the USEPA to reconsider SAFE-1. A petition for reconsideration was also filed by several environmental groups. On January 20, 2021, President Biden signed an executive order directing the Government to revise fuel economy standards with the goal of further reducing

emissions. On April 22, 2021, the Biden Administration proposed to formally roll back portions of the SAFE Rule, thereby restoring California's right to enforce more stringent fuel efficiency standards.

On April 28, 2021, USEPA published a Notice of Reconsideration: California State Motor Vehicle Pollution Control Standards; Advanced Clean Car Program; Reconsideration of a Previous Withdrawal of a Waiver of Preemption; Opportunity for Public Hearing and Public Comment. The public comment period closed July 6, 2021 (USEPA 2021).

On March 14, 2022, the USEPA determined that the actions taken as a part of SAFE-1 were decided in error and were rescinded. With this action California's authority under the Clean Air Act to implement its own GHG emission standards and zero emission vehicle (ZEV) sales mandate was restored (USEPA 2022a). On June 11, 2025, the U.S. Department of Transportation's National Highway Traffic Safety Administration (NHTSA) published an interpretive rule titled "Resetting the Corporate Average Fuel Economy Program" (Federal Register Document No. 2025-10586, 90 FR 24518; Docket No. NHTSA-2025-0055). This rule clarified that, under the Energy Policy and Conservation Act of 1975 and the Energy Independence and Security Act of 2007, NHTSA is prohibited from considering electric vehicles or other alternative fuel vehicles when determining "maximum feasible" fuel economy standards. The interpretive rule was issued pursuant to President Trump's Executive Order "Unleashing American Energy" and the Secretary of Transportation's Memorandum "Fixing the CAFE Program."

President Trump also revoked three major Clean Air Act waivers that had been granted to California during the Biden administration. These waivers allowed California to enforce stricter vehicle emissions standards and zero-emission mandates. The revocation occurred through three Congressional Review Act (CRA) resolutions signed into law on June 12, 2025:

- H.J.Res. 87 – Disapproved the waiver for the Advanced Clean Trucks (ACT) regulation, which required increasing sales of zero-emission trucks.
- H.J.Res. 88 – Disapproved the waiver for Advanced Clean Cars II, which aimed to phase out new gasoline-powered car sales by 2035.
- H.J.Res. 89 – Disapproved the waiver for the Omnibus Low-NOx regulation, which set stricter nitrogen oxide standards for heavy-duty engines.

These actions effectively preempted California's authority under Clean Air Act Section 209(b) to implement these programs.

Heavy-Duty Engines and Vehicles Fuel Efficiency Standards

CARB has adopted rules for new diesel trucks and for off-road diesel equipment. Along with rules adopted by the USEPA, these regulations have resulted in substantially more stringent emissions standards for new diesel trucks and new off-road diesel equipment, such as construction vehicles. As of January 1, 2023, commercial vehicles with a GVWR of 14,001 lbs or more must operate with 2010 model year engines or newer.

Tier 4 Final standards are required for new off-road engines, depending on engine size, for all model years starting in 2014 or 2015. Generally, compared to Tier 4 Interim standards, Tier 4 Final standards are about 80 percent more restrictive for NOx emissions and 30 percent more restrictive for particulate matter emissions. As a result, use of engines that meet the Tier 4 Final standards would reduce exhaust emissions of NOx by approximately 80 percent and reduce diesel exhaust emissions of particulate matter by approximately 30 percent compared to new engines produced under Tier 4 Interim standards.

On December 20, 2022, the USEPA adopted a final rule "Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards" that sets stronger emissions standards to further reduce air pollution, including pollutants that create ozone and particulate matter, from heavy-duty vehicles and engines starting in model year 2027 (USEPA 2022).

On April 22, 2024, the EPA finalized its Phase 3 Greenhouse Gas Emissions Standards for Heavy-Duty Vehicles, which introduced stricter GHG limits for model years beginning in 2027 and extended through 2032, building on the Phase 2 program. These standards aimed to reduce emissions from vocational trucks, tractors, and buses while adding new requirements for zero-emission vehicle components, such as battery warranties and state-of-health monitoring systems.

On July 4, 2025, President Trump signed H.R. 1 – the "One Big Beautiful Bill Act" (Public Law No. 119-21) into law following passage through budget reconciliation (House vote on May 22, 2025, Senate vote on July 1, 2025). Among its environmental provisions, Section 42101 through Section 42106 explicitly rescinded funding and authority for EPA programs implementing the Phase 3 Greenhouse Gas Emissions Standards for Heavy-Duty Vehicles, finalized in April 2024. By invalidating these rulemakings under the Congressional Review Act (CRA) mechanism embedded in the reconciliation bill, the law nullified the stricter NOx, particulate matter, and GHG limits scheduled for model years 2027–2032. This legislative action effectively removed federal requirements for advanced emissions controls and zero-emission technology incentives for heavy-duty engines and vehicles.

2.2.4.3. State

Assembly Bill 1842

California's 2021 Climate Adaptation Strategy, mandated by AB 1482, links together existing and planned climate adaptation efforts, and demonstrates how they will work together to achieve California's climate resilience priorities. These priorities include the following: strengthen protections for climate vulnerable communities, bolster public health and safety to protect against increasing climate risks, build a climate resilient economy, accelerate nature-based climate solutions and strengthen climate resilience of natural systems, make decisions based on the best available climate science, and partner and collaborate to leverage resources.

Assembly Bill 32 and Senate Bill 32 (Statewide GHG Reductions)

The California Global Warming Solutions Act of 2006 (AB 32) was signed into law in September 2006 after considerable study and expert testimony before the Legislature (California 2006a). The law instructs CARB to develop and enforce regulations for the reporting and verifying of statewide GHG emissions. The Act directed CARB to set a GHG emission limit based on 1990 levels, to be achieved by 2020. The bill set a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner.

The heart of the bill is the requirement that statewide GHG emissions be reduced to 1990 levels by 2020. Based on CARB's calculation of 1990 baseline emissions levels, California must reduce GHG emissions by approximately 28.5 percent below "business-as-usual" predictions of year 2020 GHG emissions to achieve this goal. The bill requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions. Key AB 32 milestones for CARB's actions include the following:

- **June 30, 2007.** Identification of discrete early action GHG emissions reduction measures. On June 21, 2007, CARB satisfied this requirement by approving three early action measures (CARB 2007a). These were later supplemented by adding six other discrete early action measures (CARB 2007b).
- **January 1, 2008.** Identification of the 1990 baseline GHG emissions level; approval of a statewide limit equivalent to that level; and adoption of reporting and verification requirements concerning GHG emissions. On December 6, 2007, CARB approved a statewide limit on GHG emissions levels for the year 2020 consistent with the determined 1990 baseline (CARB 2007c).
- **January 1, 2009.** Adoption of the Scoping Plan for achieving GHG emission reductions. On December 11, 2008, CARB adopted *Climate Change Scoping Plan: A Framework for Change* (Scoping Plan), discussed in more detail below (CARB 2008).
- **January 1, 2010.** Adoption and enforcement of regulations to implement the "discrete" actions. Several early action measures have been adopted and became effective on January 1, 2010 (CARB 2007a, 2007b).
- **January 1, 2011.** Adoption of GHG emissions limits and reduction measures by regulation. On October 28, 2010, CARB released its proposed Cap-and-Invest regulations, which would cover sources of approximately 85 percent of California's GHG emissions. On October 20, 2011, the Board adopted the final Cap-and-Invest regulation. The final rulemaking packing was approved by the Office of Administrative Law (OAL) on December 14, 2011, with an effective date of January 1, 2012 (CARB 2011a).
- **January 1, 2015.** Cap-and-Invest compliance obligations were phased in for suppliers of natural gas, reformulated gasoline blendstock for oxygenate blending (RBOB), distillate fuel oils, and liquefied petroleum gas, with emissions that meet or exceed specified emissions thresholds. Emission offsets are allowed for up to eight

percent of a facility's compliance obligation. According to the 2016 California Climate Investments Annual Report, $2.6 billion from the Greenhouse Gas Reduction Fund has been appropriated to State agencies, and $1.7 billion has been awarded to projects (CARB 2016). CARB has confirmed that the Cap-and-Invest program will continue to be administered after 2020.

- **September 19, 2025.** Governor Gavin Newsom signed AB 1207 and SB 840, reauthorizing and renaming California's Cap-and-Trade Program as the Cap-and-Invest Program, extending its authority through December 31, 2045.

As noted above, on December 11, 2008, CARB adopted the Scoping Plan to achieve the goals of AB 32. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. The Scoping Plan outlines the reduction of GHG emissions of approximately 28.5 percent below "business as usual" conditions. The Scoping Plan evaluates opportunities for sector-specific reductions; integrates all CARB and Climate Action Team early actions and additional GHG reduction measures by both entities; identifies additional measures to be pursued as regulations; and outlines the role of a Cap-and-Invest program.

CARB approved the final "First Update to the Climate Change Scoping Plan" on May 22, 2014. The first update describes California's progress towards AB 32 goals, stating that "California is on track to meet the near-term 2020 greenhouse gas limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32." Specifically, "if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts [MW] of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under AB 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80 percent below 1990 levels by 2050" (CARB 2014). This first update had a recalculated 1990 GHG emissions level of 431 $MMTCO_2e$, as well as the 509 $MMTCO_2e$ 2020 "business as usual" or BAT condition (CARB 2014). Thus, under CARB's 2014 document, reducing the "business as usual" or BAT condition of 509 $MMTCO_2e$ to the 1990 emissions level of 431 $MMTCO_2e$ required a reduction of 78 $MMTCO_2e$, or approximately a 15.3 percent reduction (compared to a 28.5 percent reduction as set forth in the original Scoping Plan but not directly comparable because of the change in methodology). The State of California had achieved its 2020 GHG emission reduction targets by 2014, when emissions fell below 431 MMT of CO2e.

Senate Bill (SB) 32 became effective on January 1, 2017, and requires CARB to develop technologically feasible and cost-effective regulations to achieve by 2030 the targeted 40 percent GHG emission reduction set in EO B-30-15. In response, CARB prepared a second update to the Scoping Plan to reflect the 2030 target established in Executive Order B-30-15 and in SB 32. The Final Proposed 2017 Climate Change Scoping Plan (2017 Scoping Plan Update) was adopted on December 14, 2017. The 2017 Scoping Plan Update included new statutory GHG reduction requirements that were not included in the previous Scoping Plan, including SB 32 (discussed below) which sets a 40 percent GHG reduction target below 1990 GHG levels to be achieved by 2030, SB 350 (which sets a 50 percent reduction in GHG emissions from electricity generation and other energy uses in existing structures, and a

50 percent renewable energy portfolio requirement by 2030), and SB 650 (which establishes priority GHG reduction targets for designated types of greenhouse gases such as methane). The key elements of the 2017 Scoping Plan Update called for further GHG reductions from the refinery sector specifically, further reductions from other stationary sources through either a renewed and expanded cap and invest or carbon tax program, further reductions from other sectors such as transportation technologies and services, water and solid waste conservation and management, and land uses in both open space and urban areas (CARB 2017).

In December 2022, CARB adopted the 2022 Scoping Plan which assesses progress towards the statutory 2030 GHG reduction target of AB 32 and provides a technologically feasible, cost-effective, and equity-focused path to achieving the state's climate target of reducing anthropogenic emissions to 85 percent below 1990 levels and achieving carbon neutrality by 2045 or earlier (see Assembly Bill 1279 below). The 2022 Scoping Plan takes an aggressive approach to decreasing fossil fuel use and decarbonization of every sector of emissions. Measures include moving to zero-emission transportation, phasing out the use of fossil fuel gas used for heating, reduction in the use of chemicals and refrigerants with high global warming potential, development of sustainable infrastructure that provides opportunities for walking, biking and public transit to reduce reliance on automobiles, and development of more renewable energy (CARB 2022).

AB 1279

Assembly Bill 1279 (AB 1279), enacted in 2022 as the California Climate Crisis Act, establishes long-term greenhouse gas reduction goals that build upon the Global Warming Solutions Act of 2006 (AB 32). The law requires California to achieve net-zero greenhouse gas emissions as soon as possible, but no later than 2045, and to maintain net-negative emissions thereafter. It also mandates an 85 percent reduction in anthropogenic emissions below 1990 levels by 2045. To implement these targets, CARB must integrate carbon dioxide removal strategies, including carbon capture, utilization, and storage (CCUS), into its Scoping Plan and provide annual progress reports to the Legislature. These provisions position AB 1279 as a cornerstone of California's climate policy, aligning state efforts with global decarbonization objectives.

Senate Bill 375 (Land Use Planning)

SB 375, which took effect on January 1, 2009, provides for a new planning process to coordinate land use planning, regional transportation plans, and funding priorities in order to help California meet the GHG reduction goals established in AB 32 (California 2008b). SB 375 requires Metropolitan Planning Organizations (MPOs) (as relevant to the Project area, SCAG) to incorporate a "sustainable communities strategy" (SCS) in their regional transportation plans (RTPs) that will achieve GHG emission reduction targets for cars and light-duty trucks set by CARB and to be achieved by 2020 and 2035. SB 375 also includes provisions for streamlined CEQA review for some infill projects such as transit-oriented development. SB 375 has been and will continue to be implemented.

SB 375 is similar to the Regional Blueprint Planning Program, established by the California Department of Transportation, which provides discretionary grants to fund regional transportation and land use plans voluntarily developed by MPOs working in cooperation with Councils of Governments. The 2012 RTP was SCAG's first plan subject to SB 375. The Scoping Plan, adopted by CARB in December of 2008, relies on the requirements of SB 375 to implement the carbon emissions reductions anticipated from cars and light-duty trucks.

On September 23, 2010, CARB adopted Regional Targets applying to the years 2020 and 2035 (CARB 2011b). For the area under SCAG's jurisdiction—including the Project area—CARB adopted Regional Targets of an 8 percent reduction from 2005 levels for 2020 and 13 percent reduction from 2005 levels for 2035. On February 15, 2011, CARB's Executive Officer approved the final targets (CARB 2023b). CARB filed a Notice of Decision two days later on February 17, 2011 (CARB 2011b). In March 2018, CARB updated SCAG's 2035 target to 19 percent reduction from per capita passenger vehicle greenhouse gas emissions relative to 2005. The next update to the GHG reduction targets is scheduled to occur in 2026.

SB 150 requires that CARB prepare a progress report every four years to discuss progress related to SB 375. This progress report uses data-supported metrics to assess progress on transportation, housing, and land use strategies, identifies best practices and challenges to achieving greater reductions, and discusses the impact of State policies and funding. The latest progress report was published on June 8, 2022. Based on the CARB evaluation of the SCAG 2024 RTP-SCS, SCAG met its 2020 GHG reduction target.

Title 24 California Code of Regulations

Title 24 of the California Code of Regulations requires California homes and businesses to meet strong energy efficiency measures, thereby lowering their energy use. Title 24 contains numerous subparts, including Part 1 (Administrative Code), Part 2 (Building Code), Part 3 (Electrical Code), Part 4 (Mechanical Code), Part 5 (Plumbing Code), Part 6 (Energy Code), Part 8 (Historical Building Code), Part 9 (Fire Code), Part 10 (Existing Building Code), Part 11 (Green Building Standards Code), and Part 12 (Referenced Standards Code). The California Building Code is applicable to all development in California. (Health and Safety Code §§ 17950 and 18938(b).) Updated every three years through a rigorous stakeholder process, The regulations receive input from members of industry, as well as the public, with the goal of "[r]educing of wasteful, uneconomic, inefficient, or unnecessary consumption of energy." (Pub. Res. Code § 25402.) These regulations are carefully scrutinized and analyzed for technological and economic feasibility (Pub. Res. Code § 25402(d)) and cost effectiveness (Pub. Res. Code § 25402(b)(2) and (b)(3)).

Energy Efficiency Standards

The Energy Efficiency Standards for Residential and Non-residential Buildings (24 CCR, Part 11) were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The currently applicable standards are the 2025 Title 24 Standards, effective January 1, 2026 (CBSC 2025).

Starting in 2020, the California Energy Code was revised to require solar, and the 2022 Code was revised to require: "All single-family residential buildings shall have a newly installed photovoltaic (PV) system or newly installed PV modules meeting the minimum qualification requirements specified in Joint Appendix JA11." (Cal. Code Regs., tit. 24, Part 6, § 150.1(c)(14).) The California Energy Code was further updated in 2022 to require solar for multifamily buildings, and energy storage for structures greater than three habitable stories. (Cal. Code Regs., tit. 24, Part 6, § 170.2(f), (g), (h).) Similarly, solar photovoltaics and energy storage are now required for grocery stores, offices, financial institutions, unleased tenant space, retail, schools, warehouses, auditoriums, convention centers, hotels/motels, libraries, medical office buildings/clinics, restaurants, theaters, and mixed-use buildings where one or more of these building types constitute at least 80 percent of the floor area. (Cal. Code Regs., tit. 24, Part 6, § 140.10(a).)

Title 24 also requires ventilation measures to improve indoor air quality, protecting homeowners from air pollution originating from outdoor and indoor sources (CEC 2022). The requirements of the energy efficiency standards result in the reduction of natural gas and electricity consumption. Both natural gas and electricity use produce GHG emissions.

To address GHG emissions, the California Energy Commission (CEC) first adopted the 2008 changes to the Building Energy Efficiency Standards in order to (1) "Provide California with an adequate, reasonably-priced, and environmentally-sound supply of energy" and (2) "Respond to Assembly Bill 32, the Global Warming Solutions Act of 2006, which mandates that California must reduce its GHG emissions to 1990 levels by 2020." Additionally, it had been California policy that all new residential buildings would be zero net energy (ZNE) by 2020, and new commercial buildings will be ZNE by 2030, as described in the 2008 California Public Utilities Commission (CPUC) long-term energy efficiency strategic plan. For the 2019 Title 24 Energy Efficiency Standards, the CEC opted not to require homes to be ZNE, but did adopt many requirements to make new homes substantially more energy efficient than homes built to meet 2016 Title 24. The 2022 Title 24 Energy Efficiency Standards establish building design and construction requirements that move closer to achieving California's ZNE goals through encouragement of energy efficient heat pumps, electric-ready alternatives to use of natural gas, electric vehicle charging options, renewable energy generation and electricity storage, as well improving indoor air quality through ventilation standards. The requirements of the energy efficiency standards result in the reduction of natural gas and electricity consumption. Both natural gas use and electricity generation result in GHG emissions. The 2025 Title 24 Energy Efficiency Code expands the use of heat pumps in newly constructed residential buildings, encourages electric-readiness, and strengthens ventilation standards. Buildings whose permit applications are applied for on or after January 1, 2026, must comply with the 2025 Energy Code.

Title 24 Green Building Standards

The 2025 California Green Building Standards Code (24 CCR, Part 11), also known as the CALGreen code, contains mandatory requirements and voluntary measures for new residential and nonresidential buildings (including buildings for retail, office, public schools

and hospitals) throughout California) (CBSC 2025). The development of the CALGreen Code is intended to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the following construction practices: (1) planning and design; (2) energy efficiency; (3) water efficiency and conservation; (4) material conservation and resource efficiency; and (5) environmental quality. In short, the code is established to reduce construction waste; make buildings more efficient in the use of materials and energy; and reduce environmental impact during and after construction. Compared to 2022 requirements, 2025 CALGreen code requires a much higher percentage of parking spaces to be EV ready or have EV chargers, and added a statewide requirement for secure bike parking in certain building types.

Executive Order S-01-07 and the Low Carbon Fuel Standard

Executive Order S-01-07 (January 18, 2007) requires a ten percent or greater reduction (from current transportation fuels) in the average fuel carbon intensity for CARB-regulated transportation fuels in California (California 2007a). CARB identifies the Low Carbon Fuel Standard (LCFS) as a Discrete Early Action item under AB 32.

In 2009, CARB approved for adoption the LCFS regulation, which became fully effective in April 2010 and is codified in the *California Code of Regulations* (CCR, specifically Title 17, Sections 95480–95490). The LCFS will reduce greenhouse gas emissions by reducing the carbon intensity of transportation fuels used in California by at least 10 percent by 2020. CARB has since reported that by 2020, the LCFS program achieved a carbon intensity reduction of approximately 13% from the 2010 baseline. Carbon intensity is a measure of the GHG emissions associated with the various production, distribution, and use steps in the "lifecycle" of a transportation fuel. Following a federal lawsuit challenging the LCFS, on September 25, 2015, CARB re-adopted the LCFS regulation (CARB 2015). In 2018, the Board approved amendments to the regulation, which strengthened carbon intensity benchmarks through 2030, in-line with California's GHG target enacted through SB32 (CARB 2020).

On November 8, 2024, CARB approved major LCFS amendments to

- Increase carbon intensity (CI) reduction targets from 20% to 30% by 2030 and 90% by 2045 (based on 2010 baseline).
- Introduce sustainability certification for crop-based feedstocks, phased in from 2026 to 2031.
- Expand eligible feedstocks and require attestation letters for specified source feedstocks.
- Expand LCFS credit generation opportunities for ZEV infrastructure and transit agencies.

After initial disapproval in February 2025 for clarity issues, CARB revised and resubmitted the LCFS amendments. OAL approved the final package on June 27, 2025, and the amended LCFS regulation took effect on July 1, 2025.

Assembly Bill 1826 and Senate Bill 1383

In October 2014, Governor Brown signed AB 1826 Chesbro (Chapter 727, Statutes of 2014), requiring businesses to recycle their organic waste on and after April 1, 2016, depending on the amount of waste they generate per week. This law also required that on and after January 1, 2016, local jurisdictions across the state implement an organic waste recycling program to divert organic waste generated by businesses, including multifamily residential dwellings that consist of five or more units (however, multifamily dwellings were not required to have a food waste diversion program). Organic waste (also referred to as organics) means food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste. This law phased in the mandatory recycling of commercial organics over time. In particular, the minimum threshold of organic waste generation by businesses decreases over time, which means an increasingly greater proportion of the commercial sector would be required to comply (CalRecycle 2023).

SB 1383 went into effect on January 1, 2022, with the goal of reducing emissions of short-lived climate pollutants. SB 1383 expands upon the requirements set forth by AB 1826. Specifically, the law sets the following goals:

- By 2025, reduce the amount of compost materials disposed in landfills by 75%.
- By 2025, rescue at least 20% of edible food currently disposed for human consumption.

The Senate Bill applies to all residents (single-family homes and apartments/condos), businesses, education agencies, and non-local entities (special districts, state/federal facilities, and prisons).

In March 2023, CalRecycle issued formal guidance clarifying SB 1383 compliance, including low-population waivers (Cal. Code Regs., tit. 14, §18984.12), high-elevation waivers (§18984.12(b)), and edible food recovery recordkeeping requirements (§18991.5). These updates were published in the SB 1383 Compliance Assistance Toolkits and incorporated into local enforcement ordinances.

Additionally, CalRecycle adopted amendments to Title 14, Division 7, Chapter 12 to clarify enforcement discretion (§18997.2) and expand acceptable feedstocks for compost and anaerobic digestion (§18983.1). These changes were filed with the Office of Administrative Law (OAL) on June 27, 2024, and became effective July 1, 2024.

Senate Bill 391 and California Transportation Plan 2050

On October 11, 2009, Governor Brown signed into law SB 391, which directs the California Department of Transportation (Caltrans) to update the California Transportation Plan to address how the state will achieve maximum feasible emissions reductions in order to attain a statewide reduction of GHG emissions to 1990 levels by 2020 and 80 percent below 1990 levels by 2050. Per SB 391, the California Transportation Plan update must be adopted by December 31, 2015, and updated every five years thereafter. Pursuant to SB 391, in February

2021, Caltrans adopted California Transportation Plan 2050 (CTP 2050), which provides a long-range policy framework to meet future statewide mobility needs and reduce greenhouse gas emissions for the transportation sector. The CTR provides a common framework for guiding transportation decisions and investments by all levels of government and the private sector (Caltrans 2023).

Senate Bills 1078, 107, and SBX1-2 (Renewable Portfolio Standards)

Established in 2002 under SB 1078, accelerated in 2006 under SB 107, and again in 2011 under SBX1-2, California's Renewable Portfolio Standard (RPS) requires retail sellers of electric services to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020. Initially, the Renewable Portfolio Standard provisions applied to investor -owned utilities, community choice aggregators, and electric service providers. SBX1-2 added publicly owned utilities to the entities subject to RPS.

Senate Bill 100 and SB 1020

On September 10, 2018, Governor Brown signed SB 100, the 100 Percent Clean Energy Act of 2018. SB 100 requires renewable energy and zero-carbon resources to supply 100 percent of electric retail sales to end-use customers and 100 percent of electricity procured to serve state agencies by December 31, 2045. This policy requires the transition to zero-carbon electric systems that do not cause contributions to increase of GHG emissions elsewhere in the western electricity grid (CEC 2021). SB 100 also creates new standards for the RPS goals established by SB 350 in 2015. Specifically, the bill increases required energy from renewable sources for both investor-owned utilities and publicly owned utilities from 50 percent to 60 percent by 2030.

On September 16, 2022, Governor Gavin Newsom signed Senate Bill 1020 (SB 1020), known as the Clean Energy, Jobs, and Affordability Act of 2022, into law (Chapter 362, Statutes of 2022). This legislation builds on SB 100 (2018) by accelerating California's clean electricity transition and establishing interim zero-carbon electricity procurement targets for all retail electricity providers:

- 90% by 2035
- 95% by 2040
- Maintains 100% by 2045

In addition to these statewide goals, SB 1020 introduced a new mandate requiring state agencies to procure 100% zero-carbon electricity for their own operations by 2035. The law also directed the California Energy Commission (CEC), California Public Utilities Commission (CPUC), and California Air Resources Board (CARB) to update planning and compliance frameworks to reflect these interim milestones. SB 1020 complements SB 100 by ensuring a phased approach toward full decarbonization, providing regulatory certainty for utilities.

Executive Order B-55-18

On September 10, 2018, Governor Brown also signed California EO B-55-18, which sets a new statewide goal of carbon neutrality as soon as possible, and no later than 2045, and achieve net negative emissions thereafter. EO B-55-18 was added to the existing Statewide targets of reducing GHG emissions, including the targets previously established by Governor Brown of reducing emissions to 40 percent below 1990 levels by 2030 (EO B-30-15 and SB 32), and by Governor Schwarzenegger of reducing emissions to 80 percent below 1990 levels by 2040 (EO S-3-05).

2.2.4.4. Regional

Southern California Association of Governments

As described above, SB 375 requires the MPOs to prepare a Sustainable Communities Strategy (SCS) in their regional transportation plan. In September 2020, SCAG adopted its 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy ("2020 RTP/SCS"), which superseded the 2016 RTP/SCS and would reduce regional per capita passenger vehicle transportation emissions 19 percent by 2035 relative to 2005, the regional GHG reduction target set by CARB. As with the 2016 RTP/SCS, the Centennial Project is included in the growth assumptions used in the 2020 RTP/SCS. Subsequently, in April 2024, SCAG adopted its 2024-2050 Regional Transportation Plan/Sustainable Communities Strategy ("2024 RTP/SCS"), which superseded the 2020 RTP/SCS and is also expected to achieve CARB's regional GHG reduction target for passenger vehicle transportation emissions of 19 percent by 2035 relative to 2005 (SCAG 2024a). Like the 2020 RTP/SCS, the 2024 RTP/SCS includes Mobility, Goods Movement, Housing and Land Use, System Preservation & Resilience, and Transit Backbone components. Like the 2016 RTP/SCS and 2020 RTP/SCS, the 2024 RTP/SCS includes the Project's unit count and square footage in its land use assumptions (SCAG 2024a).

2.2.4.5. Local – Los Angeles County

Los Angeles County General Plan Air Quality Element and 2045 Climate Action Plan

As discussed above, CARB encourages local governments to adopt a reduction goal for municipal operations emissions and move toward establishing similar goals for community emissions that parallel the state's commitment to reduction GHG emissions.

The *Los Angeles County Climate Action Plan (CCAP) 2020* was adopted on October 15th, 2020 (Los Angeles County 2015) as a subcomponent of the Air Quality Element of the Los Angeles County General Plan 2035. The CCAP provided a community-wide emissions inventory for 2015 and set new reduction targets to address statewide GHG goals beyond 2020. The 2020 CCAP aligned with General Plan goals, policies, and programs and several other existing programs in Los Angeles County. It identified emissions related to community activities, established a 2020 GHG emissions reduction target consistent with AB 32, and established

26 local actions for GHG emissions reduction. The 2020 CCAP was the first attempt to set Countywide GHG emissions reduction goals, providing a road map for implementing the County GHG emissions reduction measures. The 2020 CCAP addressed emissions from land use, transportation, building energy, water consumption, and waste generation. The trial court determined in its Order that the Project was consistent with the CCAP. This determination was not appealed.

On June 25, 2024, the Los Angeles County Board of Supervisors approved a resolution updating Chapter 8, Air Quality Element, of the Los Angeles County 2035 General Plan and approving the 2045 Climate Action Plan (2045 CAP). The updated Air Quality Element summarizes air quality issues affecting the County and outlines goals and policies to be implemented to improve air quality and reduce greenhouse emissions. The Air Quality Element's new policies include AQ Policy 3.1, which states as follows:

> *Facilitate the implementation and maintenance of the Climate Action Plan through future County programs to ensure that the County reaches its climate action and greenhouse gas emission reduction goals, and consider projects with an enforceable legal obligation to achieve "net zero" greenhouse gas (GHG) emissions, including by voluntary agreement to resolve litigation or with a government agency, to help the County achieve the long-term goals of the CAP.*

The 2045 CAP replaces the 2020 CCAP. The 2045 CAP is an aspirational vision to help prioritize, fund, and create a policy framework for future ordinances, plans and policies. The 2045 CAP is not a regulatory document but rather a plan-level framework for the County to implement, and instead sets strategies, goals, and actions to reach emissions reductions targets, which include zero emissions vehicles market share. The County recognizes that GHG reduction goals cannot be achieved by individual projects alone, but instead requires a comprehensive Countywide approach that would include the enactment of future plans, changes to existing ordinances, and an integrated and sustainable approach. Accordingly, the 2045 CAP serves dual purposes: (i) to provide a policy framework to guide future County actions, and to the extent those future actions are rules and regulations that are intended to apply to individual projects, they would only be legally enforceable upon further approval by the Board, unless previously authorized; and (ii) to allow qualifying future development projects to streamline the GHG analysis component of the project's environmental review by utilizing a voluntary checklist listed in Appendix F of the 2045 CAP. The goals in the 2045 CAP are Countywide, not requirements or mandates for individual, private development projects, unless and until they are implemented through appropriate legal processes.

The 2045 CAP constitutes a qualified GHG emissions reduction plan under CEQA Guidelines Section 15183.5(b). Non-CEQA-exempt projects requiring discretionary approvals may elect to use the 2045 CAP (as a qualified GHG emissions reduction plan) to streamline the GHG analysis if they are consistent with the General Plan's future growth projections. There are two ways projects may qualify to use the 2045 CAP to streamline their GHG analyses. First, projects can demonstrate that they would achieve net-zero GHG emissions using a comprehensive quantitative project-specific analysis of all GHG emissions, sinks, and removals from construction and full buildout operations. Second, projects that cannot

demonstrate they will achieve net-zero GHG emissions can still utilize the 2045 CAP to streamline their GHG analyses if they can show that they comply with the requirements in the 2045 CAP's CEQA Streamlining Checklist (2045 CAP Appendix F).

Los Angeles County Green Building Standards Code (Title 31)

The 2023 County of Los Angeles Green Building Standards Codes is part 11 of 13 of the latest triennial compilation of adoptions, amendments and repeals of administrative regulations to the California Code of Regulations, Title 24, which is also referred to as the California Building Standards Code. The Board of Supervisors adopted the Los Angeles County Green Building Standards Code (Title 31) in response to the mandates set forth in the CALGreen Code. The purpose of Title 31 is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts that have a reduced negative impact or positive environmental impact and that encourage sustainable construction practices in planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental air quality (Title 31 of the Los Angeles County Code).

Los Angeles County Zero Waste Plan

On September 13, 2022, the Los Angeles County Board of Supervisors adopted the Zero Waste Plan (Los Angeles County 2022b). This Plan outlines the strategies and initiatives to reduce the amount of waste going to landfills and the greenhouse gas emissions created by landfill waste. The Zero Waste Plan first began as the Roadmap to a Sustainable Waste Management Future which was adopted by the Board of Supervisors in October 2014. This Plan establishes diminishing amounts of solid waste going to landfills over time with no more than 3 pounds per person going to landfills in 2025 and to no more than 0.75 pounds by 2045 with the remainder of waste being diverted. Measures are centered on three focus areas which include Regional/County wide, County Unincorporated Communities, and County Operations.

2.2.5 ENVIRONMENTAL SETTING

2.2.5.1. Global, National, State, and Regional Contributions to GHG Emissions

Table 2.2-1 compares the magnitude of GHG emissions on the global, national, State, and regional (i.e., Los Angeles County) scales.

TABLE 2.2-1
COMPARISON OF WORLDWIDE GHG EMISSIONS

Area and Data Year	Annual GHG Emissions ($MMTCO_2e$)
World (2020)	47,500
United States (2022)	6,343
California (2023)	360.4
Los Angeles County, Unincorporated (2018)	5.2
$MMTCO_2e$: million metric tons of carbon dioxide equivalent Source: WRI 2023; USEPA 2024; CARB 2025; LA County 2024	

Based on data from between 2018 and 2023, the U.S. contributes approximately 13.3 percent of worldwide GHG emissions per year; California contributes approximately 0.7 percent; and the unincorporated portion of the County contributes approximately 0.01 percent. CO_2 constitutes approximately 79 percent of all GHG emissions in the U.S. The primary contributors to California GHG emissions are (1) transportation; (2) industrial uses; and (3) electric power production from both in-state and out-of-state sources. In 2018, the primary contributors to unincorporated County GHG emissions are (1) transportation (52 percent); and stationary (33 percent).

Local Climate Change Effects

The focus of CEQA's GHG analyses has been upon the scope of the Project's GHG emissions, rather than a detailed analysis of the consequences of climate change. This approach is consistent with the 2009 Statement of Reasons for Regulatory Action in Implementing SB 97, which explain that "[s]ome comments submitted to OPR during its public workshops indicated that the Guidelines should be addressed to 'Climate Change' rather than just the effects of GHG emissions. The focus in the Guidelines on GHG emissions is appropriate." For informational purposes, the following is a brief description of potential localized adverse effects is provided based on the most recent assessment for the region included in California's Fourth Climate Change Assessment (2018), as described in the 2045 CAP, and include warming and extreme heat, drought and precipitation, wildfire, sea level rise, and ocean acidification. These localized adverse effects vary based different predictions of global GHG emissions, and on the extent to which climate change impacts occur based on modeled scenarios. For example, as noted in the 2045 CAP, "[s]ea levels are projected to rise roughly

1-2 feet by mid-century and by as much as 8-10 feet by the end of the century based on the most extreme climate impact projections."

Large increases in global GHG concentrations could have substantial adverse effects on natural and human environments in the unincorporated areas. Current research efforts coordinated through the CARB and other State agencies examine the specific changes to California's climate that will occur as Earth's surface warms. California's *2012 Vulnerability and Adaptation Study* (CNRA 2012), the State's third major assessment on climate change, examines local and statewide vulnerabilities to climate change and includes new data and projections on climate changes in California. Dr. Alex Hall, from the University of California, Los Angeles (UCLA), in partnership with the Los Angeles Regional Collaborative for Climate Action and Sustainability (LARC), published several studies that develop climate change predictions that are specific to the greater Los Angeles area (LARC 2015). These studies indicate that if GHG emissions continue to increase globally based on current trends, climate change could impact the natural environment in the following ways:

Increases in Ambient Temperatures: On average, the Los Angeles region is expected to warm 4 to 5°F over land by mid-century. The coasts and oceans will likely warm the slowest, whereas the mountains and deserts will experience more rapid warming. Warming across the region will be greatest in the summer and fall. For the unincorporated areas in particular, UCLA's high emissions modeling scenario predicts that mountain and inland areas may warm up to or greater than 4.5°F, and coastal and valley/urban areas warming up to 3.7 to 3.9°F.

Increases in Extreme Heat Conditions: Heat waves and very high temperatures could last longer and become more frequent. The number of extreme heat days is expected to triple in the coastal and central areas; the San Fernando Valley and San Gabriel Valley will witness almost a quadrupling of heat days. The number of extreme heat days in the desert and mountain areas will increase five to six times relative to the current amounts. For the unincorporated areas in particular, UCLA's high emissions modeling scenario predicts a nearly 12-fold increase in the number of heat days.

Decreased Snowfall and Winter Snowpack: The region's mountains could see a 42 percent reduction in annual snowfall by mid-century. The winter snowpack is also expected to melt 16 days earlier as a result of rising temperatures. As of March 2014, California is facing a severe drought and the snowpack in the Sierra Nevada is 12 percent of the annual average (DWR 2014). Changes in snowfall could exacerbate drought-like conditions, reducing water supplies and water security for all end users throughout the County.

Increased Frequency, Intensity, and Duration of Extreme Storms: Changes in storm events could create conditions that are conducive to air pollution formation, which further exacerbates air quality issues. Increased winter storm events could also affect peak stream flows and flooding as well as landslides.

Changes in Growing Season and Species Distribution: Changes in growing season conditions could cause variations in crop quality and yield. Plant and wildlife distributions

may also be affected by changes in temperature, competition from colonizing species, regional hydrology, sea level, and other climate-related effects.

Rising Sea Levels: Sea levels are expected to steadily rise by mid-century, which could inundate portions of the coastline.

2.2.6 PROJECT EMISSIONS

2.2.6.1. Existing Site Emissions

The Project site is currently undeveloped and used primarily for livestock grazing. Of the approximately 12,323 acres of land comprising the Project site, approximately 10,950 acres (89 percent) are currently used for cattle grazing. Existing GHG emissions from the Project site occur from enteric fermentation (cattle digestive processes), which primarily produces CH4, and from vehicles used on the property for grazing management. The extensive vegetation on the Project site sequesters CO2, thereby reducing GHG emissions attributed to the existing condition. The amount of GHG emissions from livestock grazing has not been quantified due to the historic fluctuations of cattle grazing across Tejon Ranch. A portion of State Route (SR) 138 extends through the Project site, and vehicles traveling that roadway do emit GHGs. However, for the purposes of this analysis, the emissions generated by existing SR 138 vehicle trips are not quantified as Project site emissions because they are not associated with activities at the site. In sum, the baseline GHG emissions of the Project site is conservatively assumed to be zero.

2.2.6.2. Project Design Features that Reduce GHG Emissions

Green Development Program

The Project would implement a Green Development Program, included as Appendix 2-A to the Centennial Specific Plan. The Green Development Program includes:

- Project features that comply with and implement the 2045 CAP and
- Additional Project features that comply with and implement State and federal GHG reduction mandates and goals.

The Project would create a balanced master-planned community that includes mixed-use neighborhoods where residential, commercial, and other employment-generating uses and institutional/public uses are proximate to each other and connected by a network of pathways to reduce reliance on automobile use and off-site commuting. The bicycle and pedestrian trail system connects community uses such as neighborhood parks, elementary schools, and neighborhood-scale retail to reduce single-occupancy automobile travel for these neighborhood-scale destinations.

The Project also includes infrastructure and building design standards to reduce GHG emissions through energy and water conservation measures. For example, the Project's integrated water resources management approach would (1) minimize water use and

maximize water reuse through development of two wastewater reclamation facilities (WRF) that will produce recycled water for landscape irrigation use throughout the Project site ,and (2) incorporate a variety of water supply sources including State Water Project (SWP) water, banked water, groundwater, and other non-SWP supplies to reduce the GHG emissions associated with water supply delivery.

The Green Program includes measures that would conserve and enhance open space, promote transit, and reduce waste. For example, no development is allowed in established Significant Ecological Areas, which protects open space areas that sequester CO_2. The Project would have a comprehensive waste diversion and recycling program and includes a Transportation Management Association (TMA) that develops strategic linkages with other Antelope Valley/Santa Clarita Valley TMAs or similar organizations to maximize transit efficiencies and services. The TMA's purpose is to coordinate and facilitate transit and rideshare use to serve as many riders as possible thereby reducing GHG emissions from mobile sources.

Project design features (PDF) required by the Green Development Program that would reduce GHG are listed below.[3] The emissions reductions for some PDFs are quantifiable; others are not, and for those, no GHG reductions were taken. Nevertheless, the nonquantifiable PDFs would further reduce GHG emissions from the quantified levels identified in the RPDEIR. PDFs that demonstrate quantifiable GHG emissions reductions are also mitigation measures.

Operational – Energy Efficiency

PDF 21-1 The Green Development Program requires compliance with CALGreen voluntary measure A4.203.1.2.1 for low-rise residential buildings. Therefore, the energy efficiency of these buildings would exceed 2016 Title 24 requirements by 15 percent. Low-rise residential buildings are three stories or less.[4]

PDF 21-2 The Green Development Program requires compliance with CALGreen voluntary measure A5.203.1.2.1 for nonresidential buildings. Therefore, the energy efficiency of nonresidential, hotel, and high-rise residential buildings would exceed 2016 Title 24 requirements by 10 percent. High-rise residential buildings are four stories or more.[5]

PDF 21-3 The Green Development Program requires a minimum of 50 percent of the Project's anticipated electrical energy demand at buildout (i.e. household, business, civic/institutional, recreational, and public facilities) shall be satisfied from on-site renewable energy generation. "Anticipated electrical energy demand" shall be determined on the basis of the anticipated loads for

[3] Since the drafting of the Green Development Program, state regulations have become more stringent. Where applicable regulations are more stringent, those regulations control over the PDFs.

[4] Complying with the current Building Code will meet this PDF.

[5] Complying with the current Building Code will meet this PDF.

each building as shown in the reports submitted at the time of building permit application pursuant to the Building Energy Efficiency Standards of Title 24 or equivalent. "On-site renewable energy generation" includes, but is not limited to, solar, wind, geothermal, biofuel and hydroelectric systems. These systems shall be installed in connection with the development of one or more of the following: residential units, nonresidential buildings, public buildings, or Specific Plan utility facilities located either within the Specific Plan area or within its immediate vicinity. MM 21-1 requires implementation of PDF 21-3.

PDF 21-4 The Green Development Program requires that a minimum of 70 percent of public and community pools and spas would be equipped with active solar heating systems where heating is necessary or desired. The applicant for a pool permit shall provide the proposed plan for compliance with this provision prior to obtaining a permit for the pool. MM 21-5 requires implementation of PDF 21-4.

PDF 21-5 The Green Development Program requires that deeds, CC&Rs (Covenants, Conditions and Restrictions), or similar legal documents contain the following requirement: The owners of all single-family and multi-family residential units shall be required, upon resale, to present to the buyer a written energy audit checklist prepared by a qualified third party at the time the seller provides the buyer with the Real Estate Transfer Disclosure Statement required by Section 1102 et seq. of the California Civil Code. The energy audit checklist shall certify that all heating, ventilation, and air conditioning (HVAC) systems, thermostats, appliances, windows and swimming pools (if applicable) are the same as those originally installed or, if changed, otherwise comply with Centennial's Green Development Program. The CC&Rs of the master homeowners association or other applicable association shall require compliance with the provisions of this measure and shall provide notice to individual owners of the resale energy audit checklist requirement. The master homeowners association or other applicable association shall monitor compliance and provide the County with an annual report of compliance with this measure. MM 21-6 requires implementation of PDF 21-5.

PDF 21-6 The Green Development Program requires that deeds, CC&Rs, or similar legal documents contain the following requirement: For nonresidential buildings, within 90 days after the end of the first full calendar year following the issuance of the certificate of occupancy and within 90 days after each 5-year period thereafter, the owner or tenant in possession thereof shall submit to the master commercial owners association or other applicable association a report prepared by the owner or a qualified, independent third party that evaluates whether all major building systems such as heat furnace, air conditioner, and other mechanical fixtures are working within the design standards established for each system. The master commercial owners association or other applicable association shall monitor compliance and

provide the County with an annual report of compliance with this measure. MM 21-7 requires implementation of PDF 21-6.

PDF 21-7 The Green Development Program requires builders to install energy efficient major appliances and HVAC systems which meet the more stringent of applicable California Energy Commission (CEC) requirements or ENERGY STAR requirements. Major appliances subject to this requirement include dishwashers, clothes washers, refrigerators, and room air conditioners. MM 21-8 requires implementation of PDF 21-7.

PDF 21-8 The Green Development Program requires that the Project's wastewater reclamation facilities (WRF) will include equipment to capture and reuse biogas for energy production. MM 21-9 requires implementation of PDF 21-8.

Operational – Vehicle Trip and Vehicle Miles Traveled Reductions

PDF 21-9 The Green Development Program requires that the Project establish a Transportation Management Association (TMA) that develops strategic linkages with other Antelope Valley/Santa Clarita Valley TMAs or like organizations to maximize transit efficiencies and services. The TMA's purposes are to coordinate and facilitate transit and rideshare usage to serve as many riders as possible; to promote multi-modal transportation services and options; and to reduce resident and employee use of single-occupancy automobiles for off-site commuting, and for internal travel within the Specific Plan. PDF 21-9 is required for implementation through MM 10-1, detailed in 2019 DEIR, Section 5.10, Traffic, Access, and Circulation.

PDF 21-10 The Affordable Housing Implementation Plan (see Appendix 3-H of the Centennial Specific Plan) will be adopted in conjunction with the Specific Plan, which includes dedication of a minimum of ten percent of all homes in Centennial communities that permit housing, with the exception of the lowest density area (Community 8-2) will be affordable. The California Air Pollution Control Officers Association's (CAPCOA's) 2024 document entitled *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*, identifies affordable housing as a quantifiable measure for reducing GHG emissions because integrating affordable housing into development projects addresses the limited availability of affordable housing that might otherwise force residents to live far away from jobs or schools. MM 21-14 requires implementation of PDF 21-10.

PDF 21-11 The Green Development Program requires the installation of one 208/240 volts of alternating current (VAC) receptacle that may be used for charging electric vehicles in each detached and attached single-family residence. The

installation shall comply with requirements of Section 4.106.4.1 of the 2016 CALGreen Code, or the most applicable code at the time of construction.[6]

PDF 21-12 The Green Development Program requires each applicant for an applicable construction permit to install "alternative energy fueling stations" as listed below. An "alternative energy vehicle fueling station" is a 208/240 VAC electrical vehicle charging station (allowing simultaneous charging of two or more vehicles) or a station providing another new or improved technology (e.g. compressed natural gas [CNG] and hydrogen fuel cell) that provides refueling for vehicles that do not use fossil fuel.

- Business Park and Institutional land use designations shall provide a minimum of one alternative energy vehicle fueling station on site for the first 50,000 square feet of usable floor space and additional alternative energy vehicle fueling stations for each additional 50,000 square feet of usable floor space thereafter.
- Multi-family residential buildings of at least 20 residential units shall provide a minimum of one alternative energy vehicle fueling station for the first 20 residential units and an additional alternative energy vehicle fueling station for each additional 20 residential units thereafter.
- The Town Center and each Village Center shall provide a minimum of one alternative energy vehicle charging station.
- Designated Transit Hubs shall provide a minimum of one alternative energy vehicle charging station.[7]

PDF 21-13 The Green Development Program requires that, prior to the issuance of each nonresidential construction permit, the Project Applicant/Developer shall provide plans and specifications to the County demonstrating that the following features have been incorporated into the building designs:

- Bicycle parking spaces at a rate of 5 percent of minimum required vehicle parking spaces for nonresidential land uses or as required by Section 22.52.1225B of the County Code, whichever is more stringent
- For new nonresidential buildings with over 10 tenant-occupants, provide secure bicycle parking spaces at a rate of 5 percent of tenant parking being added, with a minimum of 1 space. Acceptable parking facilities shall be conveniently reached from the street and may include, but not be limited to:
    - Covered, lockable enclosures with permanently anchored racks for bicycles.

[6] This PDF is covered by and implemented through SA Measure 6.

[7] This PDF is covered by and implemented through SA Measures 7 and 8.

- Lockable bicycle rooms with permanently anchored racks.
- Lockable, permanently anchored bicycle lockers.

MM 21-17 requires implementation of PDF 21-13.

PDF 21-14 The Green Development Program requires that prior to the issuance of an applicable construction permit for each residential building permit, the Project Applicant/Developer shall provide plans and specifications to the County demonstrating that the following features have been incorporated into the building designs or specifications.

- Visitor parking shall include preferentially located parking spaces for alternative-fueled vehicles.
- Bicycle parking shall be provided as specified in Section A4.106.9, Residential Voluntary Measures, of the CALGreen Code or as required by Section 22.52.1225B of the County Code, whichever is more stringent.

MM 21-18 requires implementation of PDF 21-14.

PDF 21-15 The Green Development Program requires that prior to issuance of an applicable construction permit for each parking structure and parking lots with 20 or more parking spaces, the Project Applicant/Developer shall provide plans and specifications to the County demonstrating that the following features have been incorporated into the parking facility:

- The parking facility shall include a minimum of five percent preferentially located parking spaces for alternative-fueled (electric, natural gas, or similar low-emitting technology) vehicles.
- The parking facility shall include at least one electric vehicle charging station. Electrical lines shall be designed and sized to add additional charging stations for up to three percent of the total parking spaces when a demand is demonstrated. The design and installation shall be consistent with Section A4.106.8.2, Residential Voluntary Measures, of the CALGreen Code.

MM 21-19 requires implementation of PDF 21-15.

PDF 21-16 The Green Development Program requires that the Project Applicant/Developer provide:

- Internet infrastructure and high-speed broadband access to facilitate telecommuting.
- A community intranet (or similar) with access for homeowners associations; interest groups; local event scheduling; schools, library,

carpool and transit services; and other on-site entertainment and amenities reduce the need for people to use automobile travel to obtain the information that is provided.

Compliance shall be required prior to the issuance of building permit for the 1,000th residential unit. MM 10-2 requires implementation of PDF 21-16.

Operational – Water Conservation to Reduce Emissions Associated with Water Supply, Treatment, and Distribution

PDF 21-17 The Green Development Program requires each applicant for an applicable construction permit for a nonresidential or multi-family building to install recycled water infrastructure to serve common areas for these facilities, except where prohibited by law. To the extent recycled water is produced within the Project and available, recycled water shall be used for landscape irrigation within those common areas. Compliance with these measures shall be established prior to the issuance of a building permit for nonresidential and multi-family facilities and at the time of County approval of final landscaping plans submitted by the applicant after final map recordation for homeowners association common areas. CC&Rs shall require the owners of such common areas to maintain, repair and replace irrigation systems and plantings in accordance with County approved plans. MM 21-10 requires implementation of PDF 21-17.

PDF 21-18 The Green Development Program requires each applicant for an applicable construction permit for a nonresidential building to install indoor plumbing fixtures and fixture fittings that would reduce the overall use of potable water within the building by 12 percent, consistent with 2016 CALGreen Tier 1 nonresidential voluntary measures as prescribed in Section A5.303.2.3.1 of the code.[8]

PDF 21-19 The Green Development Program requires each applicant for an applicable construction permit for a single or multi-family residential building to install kitchen faucets and appliances that comply with 2016 CALGreen code residential voluntary measures specified in Sections A4.303.1 and A4.303.3 of the code.[9]

PDF 21-20 Implement MM 18-1, which requires water rates to be based on the assigned water budget for each parcel, to assure that outdoor landscaped areas for single-family and multi-family homes do not exceed the assigned outdoor water budget for the parcel through excessive watering or excessive turf planting. MM 21-13 requires implementation of PDF 21-20.

[8] This PDF is met by complying with current Building Code.

[9] This PDF is met by complying with current Building Code.

Operational – Other

PDF 21-21 The Green Development Program requires that CC&Rs (Covenants, Conditions and Restrictions) or similar legal documents contain the following requirement: all landscape maintenance equipment used within the Specific Plan area must be electric. MM 21-20 requires implementation of PDF 21-21.

Construction – Vehicle Emissions Reduction

PDF 21-22 The Green Development Program requires that, prior to the issuance of each construction permit, the Project Applicant/Developer shall require in contract specifications that contractors set goals to limit unnecessary construction equipment idling to three minutes and provide a program to encourage equipment operators to achieve the three-minute goal. This requirement exceeds State regulations (California Code of Regulations [CCR], Title 13, 2449[d][2]) that limit idling time to five minutes. MM 21-4 requires implementation of PDF 21-22.

Construction – Other

PDF 17-2 The Project must divert from landfill disposal 100 percent of soil during grading activities, and at least 70 percent of nonhazardous construction and demolition waste, which exceeds the 65 percent diversion requirement with the Tier I voluntary measure in Section A5.408.3.1 of the California Green Building Standards Code. This goal also exceeds the 50 percent reduction required by Section 20.87.040 of the County Code and Sections 4.408.5/5.408.1.4 of the CalGreen Code. MM 17-9 requires implementation of PDF 17-2.

2.2.6.3. Summary of the Project Emissions

The GHG emissions are calculated by using the California Emissions Estimator Model (CalEEMod) Version 2016.3.1 and various construction and operational inputs described in 2019 DEIR Section 5.11, Air Quality, with the additional following input for the GHG emissions:

- Electrical energy use
- Water use – indoor and outdoor, potable and recycled
- Solid waste generation
- Carbon sequestration loss from vegetation removal and gain from planting of trees
- Renewable generation of 50 percent of the Project's electrical energy use as specified in PDF 21-3, as implemented by MM 21-1.
- For the calculation of GHG emissions for the electrical energy used by the Project, including direct Project consumption of electricity and the electricity used to supply,

distribute, and treat water used by the Project. It was not assumed that renewable energy would exceed 50 percent by 2035. (Note that under the modeling methodology, to be conservative only a 50 percent renewable energy assumption was made only for electricity consumption, and did not extend to transportation, etc., even though under SB 100 Southern California Edison (SCE) and Clean Power Alliance (CPA) would achieve a renewable energy percentage of 52 percent by the end of 2027 and 60 percent by the end of 2030)

- Energy efficiency was assumed to exceed the 2016 Building Code requirements as specified in PDF 21-1 and PDF 21-2, as it would through compliance with the 2019 Building Code. No credit was taken for additional energy efficiency that may be required by the 2025 Building Code or subsequent Building Codes.

Details of the methodology used to generate the GHG emissions in this section are set forth in Appendix D to this RPDEIR.

Construction Emissions

The major construction phases for the Project are:

- Demolition. Demolition involves tearing down buildings or structures and removing asphalt and concrete parking areas and walkways.
- Site Preparation. Site Preparation involves clearing vegetation (grubbing and tree/stump removal) and stones prior to grading.
- Grading. Grading involves cut and fill of land to ensure the proper base and slope for the construction foundation.
- Building Construction. Building construction is the construction of structures and buildings.
- Architectural Coating. Architectural coating is the application of coatings to both the interior and exterior of buildings or structures
- Paving. Paving is the laying of concrete or asphalt such as in parking lots or roads.

These construction activities would occur for onsite and offsite construction, as described in Section 4.0 of the 2019 DEIR, Project Description. The GHG emissions from construction phases are largely attributable to fuel use from construction equipment and worker commuting. Additional indirect GHG emissions result from the supply and delivery of water used during grading.

Construction GHG emissions were calculated by using CalEEMod Version 2016.3.1 as described in 2019 DEIR Section 5.11, Air Resources. Specific inputs to CalEEMod included, but were not limited to, the start and finish dates of construction phases; inventories of construction equipment to be used during each phase; areas to be paved; and areas to be painted. Output emissions data are provided for off-road equipment used in construction and on-road vehicles that will be used during the construction phase, including worker trips.

Project construction is assumed to begin in 2016, with buildout complete in 2035, although the actual start of construction and buildout will occur later than 2026 and 2045, respectively. The RPDEIR does not adjust the start dates compared to the 2019 EIR because emissions from off-road and on-road vehicles (the main source of emissions during construction) generally decrease over time due to advances in technology and compliance with regulations. Therefore, keeping the start dates the same results in a conservative analysis. That the actual start of construction would occur later than 2016 and buildout would occur later than 2035 results in the construction equipment fleet and on-road vehicles being "cleaner" than would be the case if construction starts in 2016 and buildout occurs in 2035.

Once construction begins (in Year 1), it will proceed continuously for approximately 20 years, with full buildout completed after 20 years. Construction emissions are calculated for all the construction phases listed above, with the emissions from demolition being set to zero because they would be negligible.[10] The rate of construction would vary with a variety of factors, including market demand, weather, and as-found site conditions. The estimation of the quantities of grading, building, paving, and painting on a year-by-year basis for a 20-year project would be highly speculative. Therefore, the construction effort is initially evaluated assuming that each construction activity would be spread equally over the applicable years.

Additionally, construction emissions are evaluated for a peak grading year. Grading would occur from Year 1 through Year 18. Preliminary grading engineering design indicates that approximately 127 million cubic yards (mcy) of earth would be moved for the Project. Based on the preliminary grading estimates, the average daily grading quantity over the 18 years of grading would be approximately 26,500 to 36,500 cubic yards (cy), depending on the number of days of grading. For a conservative estimate, it is assumed that grading would be limited by weather and other factors to 200 days per year, and the average daily grading quantity would be 36,500 cy. Cut and fill would be balanced on the Project site and no off-site export or import is anticipated. Soil movement within the site would be by scraper. Equipment used for the average year grading analysis is shown in Table 2.2-2.

[10] Emissions modeling often includes demolition and site preparation (clearing and grubbing) activities. Demolition required for the proposed Project would be negligible. Clearing and grubbing would be predominately grassland and would occur concurrently with grading.

TABLE 2.2-2
GRADING, BUILDING, PAVING, AND ARCHITECTURAL COATING EQUIPMENT FOR AVERAGE YEAR EMISSIONS ESTIMATES

Equipment Type	Number of Equipment
Grading	
Scrapers	10
Dozers	7
Compactors	2
Water Trucks	2
Graders	1
Building	
Cranes	4
Forklifts	12
Tractor/Loader/Backhoes	12
Welders	4
Generator Sets	4
Paving	
Paving Machine	1
Roller	3
Architectural Coating	
Compressors	4

Construction grading would use approximately 9,744 acre-feet (3,176 million gallons) of water for dust control during the estimated 20-year construction period. This estimate accounts for climatic conditions (i.e., dry and windy conditions) in the Project area. The water would come from previously imported water, banked, and stored north of the Project site. GHG emissions associated with this water use were calculated using energy data from CAPCOA's 2010 publication, *Quantifying Greenhouse Gas Mitigation Measures*, and the SCE GHG intensity factor for 2025.

The estimated Project construction GHG emissions would be 134,692 $MTCO_2e$.[11]

Vegetation Changes

The Project would permanently alter the vegetation, changing the carbon sequestration capacity of the Project site.

The loss of vegetation would occur concurrently with construction. Therefore, the increase in GHG emissions attributable to the loss of carbon sequestration is also amortized over 30 years. However, the reduction in GHG emissions resulting from the planting of new trees

[11] CalEEMod data for construction emissions are included in 2019 EIR Appendix 5.11-A.

would occur more slowly and this reduction is conservatively amortized over 100 years in accordance with IPCC recommendations.

The removal of an estimated 6,416 acres of grassland and other vegetative covers on the Project site during construction would result in an estimated reduction in current levels of sequestration of 27,653 $MTCO_2$, as shown in Table 2.2-3, below. The planting of an estimated 35,123 new trees, as required by the adopted County Tree Planting Ordinance would result in an estimated long-term sequestration of 24,867 $MTCO_2e$. Therefore, in total the Project would result in an overall reduction in the amount of carbon sequestration on the Project site, resulting in an overall increase in GHG emissions of 2,786 $MTCO_2$ (27,653–24,867 $MTCO_2$).

TABLE 2.2-3
VEGETATION CHANGE GREENHOUSE GAS EMISSIONS

Type of Vegetation	Acres in Current Condition	Acres in Buildout Condition	Net Change	GHG Emissions $MTCO_2$
Grassland	6,416	0	-6,416 acres	+ 27,653
Annual Increase in CO_2 over 30 year Amortization				**+922**
Type of Tree	**Replacement Trees in Current Condition**	**Replacement Trees in Buildout Condition**	**Net Change**	
Miscellaneous	0	35,123	+35,123 trees	-24,867
Annual Decrease in CO_2 over 100 year Amortization				**-249**

Operational Emissions

Emissions from mobile and area sources and indirect emissions from energy and water use, wastewater, and waste management, would occur every year after buildout.

Area Sources

The Project's area source GHG emissions result primarily from natural gas fireplaces[12] with additional emissions from landscaping-related fuel combustion sources, such as lawn mowers. GHG emissions due to natural gas combustion in buildings other than from fireplaces are excluded from area sources since they are included in the emissions associated with building energy use. The input for fireplace emissions was consistent with PDF 11-2, which limited fireplaces to a maximum of 13,954 natural gas fireplaces and no wood-burning fireplace. Landscape maintenance emissions are based on Project land use data. The Project's area source GHG emissions are estimated at 11,297 $MTCO_2e$ per year, as shown in Table 2.2-4.

[12] As discussed in Section 2.2.2.3, SA Measures, since this modeling was completed, the Project has committed to being all electric, with no natural gas.

TABLE 2.2-4
AREA SOURCE GREENHOUSE GAS EMISSIONS

Source	Emissions ($MTCO_2e$/yr)
Fireplaces (Hearth)	11,056
Landscape maintenance	240
Total	**11,297**
Total does not add due to rounding.	

Energy Use

GHGs are emitted from buildings as a result of activities for which electricity and natural gas are typically used as energy sources. Combustion of any type of fuel emits CO_2 and other GHGs directly into the atmosphere; these emissions are considered direct emissions associated with a building. GHGs are also emitted during the generation of electricity from fossil fuels; these emissions are considered to be indirect emissions.

The CalEEMod default natural gas use and emissions calculations are modified by application of the 2016 State Energy Efficiency Standards for Residential and Nonresidential Buildings, PDF 21-1 and PDF 21-2. PDF 21-1, and PDF 21-2 commit the Project to comply with CALGreen voluntary Tier 1 measures to exceed the 2016 code for residential and nonresidential buildings, respectively. The combined effect is a 32.4 percent reduction from the CalEEMod base data for Title 24 natural gas and electricity uses. The SCE GHG intensity factor for 2030 was used based on the SB 350 requirement for 50 percent renewable power by 2030. The carbon intensity factor was not extrapolated to 2035. Therefore, if SCE power content is greater than 50 percent in 2035, the Project's GHG emissions would be less than calculated. The Project's estimated 2035 GHG emissions from the direct burning of natural gas and the indirect generation of electricity are 49,412 MTCO2e per year as shown in Table 2.2-5.

TABLE 2.2-5
ENERGY USE AND GREENHOUSE GAS EMISSIONS

Land Use*	Energy Use		GHG Emissions ($MTCO_2e$/yr)		
	Electricity (MWh/yr)	Natural Gas (MBTU/yr)	from Electricity Use	from Natural Gas Use	Total
Elementary School	1,834	4,958	312	266	578
General Light Industry	1,007	2,620	171	141	312
Government (Civic Center)	9,219	11,280	1,566	606	2,172
Health Club	689	1,792	117	96	213
High School	1,273	3,442	216	185	401
Office Park	46,430	49,430	7,888	2,654	10,542
Regional Shopping Center	6,465	1,318	1,098	71	1,169
Single-Family Housing	59,030	340,900	10,028	18,300	28,328
Apartments Mid Rise	11,060	71,130	1,879	3,818	5,697
Total	**137,007**	**486,870**	**23,275**	**26,137**	**49,412**

MTCO2e/yr: metric tons of carbon dioxide equivalent per year;
MWh/yr: megawatt hours per year;
MBTU/yr: million British thermal units per year
*Land use categories shown are CalEEMod standard names. "Health Club" is Project "Recreation/Entertainment."
Some totals do not add due to rounding. Emissions calculations can be found in Appendix D.

After the Project's energy emissions were calculated using CalEEMod version 16.3.2, the state adopted 2019 Title 24, which results in an increase in energy emissions. Specifically, 2019 Title 24's increased the EV chargers required for the Project, resulting in an increase in 11,224 MTCO2e/yr. 2019 Title 24 also decreased energy use in buildings, including through mandatory solar panels on low-rise residential buildings, increased envelope efficiency requirements, and nonresidential lighting efficiency requirements, resulting in a decrease of 3,173 MTCO2e/yr from energy and 222 MTCO2e/yr from natural gas. After these adjustments, the Project's energy emissions would be 57,243 MTCO2e/yr.

Water Supply, Treatment, and Distribution

Indirect GHG emissions result from the production of electricity used to convey, treat, and distribute water and wastewater. The amount of electricity required to convey, treat, and distribute water depends on the volume of water as well as the sources of the water. Additional emissions from wastewater treatment include CH_4 and N_2O, which are emitted directly from the wastewater. Estimated indoor and outdoor water use quantities and source are shown in Table 2.2-6 and are summarized from the data provided in 2019 EIR Section 5.18, Water Resources. GHG emissions were calculated in CalEEMod using energy data from the CAPCOA publication, Quantifying Greenhouse Gas Mitigation Measures (CAPCOA 2010) and the SCE GHG intensity factor for 2025. As shown in Table 2.2-6, GHG emissions from water use at buildout are estimated at 7,387 $MTCO_2e$ per year.

TABLE 2.2-6
WATER USE AND GREENHOUSE GAS EMISSIONS

Water Use/Source	Water Use (afy)		GHG Emissions (MTCO2e/yr)
	Indoor	Outdoor	
Indoor/Imported	5,436		6,329
Outdoor/Imported		1,518	434
Outdoor/Water bank		4,578	624
Total	**5,436**	**6,096**	**7,387**

afy: acre-feet per year; GHG: greenhouse gas;
$MTCO_2e$/yr: metric tons of carbon dioxide equivalent per year

Solid Waste

Solid waste may be disposed in landfills or diverted for recycling, composting, reuse, or other means to avoid landfilling. Any waste not diverted will be disposed of at a landfill. GHG emissions from landfills are associated with the anaerobic breakdown of material. Solid waste GHG emissions were calculated using Project land use data and CalEEMod default emission factors, and accounting for the State's requirement for 50 percent diversion of waste from landfills under the California Integrated Waste Management Act. As shown in Table 2.2-7, solid waste GHG emissions are estimated at 5,107 $MTCO_2e$ per year.

TABLE 2.2-7
SOLID WASTE GENERATION AND GREENHOUSE GAS EMISSIONS

Land Use	Solid Waste (tons/yr)	GHG Emissions (MTCO2e/yr)
City Park	9	5
Elementary School	730	367
General Light Industry	118	60
Government (Civic Center)	4,469	2,248
Health Club	372	187
High School	319	161
Office Park	3,424	1,722
Regional Shopping Center	543	273
Single-Family Housing	9,087	4,570
Apartments Mid Rise	1,237	622
Total pre-regulation	20,308	10,214
Total with State diversion requirements	**10,154**	**5,107**

MTCO2e/yr: metric tons of carbon dioxide equivalent per year
Totals may not add due to rounding. Emissions calculations can be found in Appendix D.

Mobile Sources

The GHG emissions associated with on-road mobile sources are generated from residents, workers, customers, and delivery vehicles visiting the land use types in the Project. The emissions associated with on-road mobile sources include running and starting exhaust emissions, evaporative emissions, brake and tire wear, and fugitive dust from paved and unpaved roads. Mobile source emissions were calculated in CalEEMod. Trip generation rates were adjusted to be consistent with the trip generation data provided in the Project's 2019 EIR traffic impact analysis (TIA), which was Appendix 5.10-A to the draft 2019 EIR. Average trip distance inputs were adjusted based on the vehicle miles traveled (VMT) data in the Project TIA. VMT and GHG emission results are shown in Table 2.2-8. GHG emissions based on 2035 on-road emissions factors are calculated to be 160,904 $MTCO_2e$ per year.

TABLE 2.2-8
MOBILE SOURCE VEHICLE MILES TRAVELED AND GREENHOUSE GAS EMISSIONS

Land Use	Vehicle Miles Traveled (VMT/yr)	GHG Emissions (MTCO2e/yr)*
City Park	750,300	194
Elementary School	15,864,160	4,098
General Light Industry	4,087,962	1,056
Government (Civic Center)	45,359,777	11,718
Health Club	7,694,986	1,988
High School	8,950,942	2,312
Office Park	128,855,027	33,287
Regional Shopping Center	79,419,401	20,516
Single-Family Housing	249,898,307	64,556
Apartments Mid Rise	81,986,191	21,179
Total	**622,867,052**	**160,904**

VMT/yr: vehicle miles traveled per year; MTCO2e/yr: metric tons of carbon dioxide equivalent per year

*CalEEMod does not output mobile source GHG emissions by land use; emissions apportioned based on VMT. Total may not add due to rounding.

Attached as Appendix E is additional information regarding the Project's VMT. VMT is the primary contributor of GHG emissions from mobile sources. The information in Appendix E allows the public and County decisionmakers to understand how the Project's VMT relates to the average VMT in the North County area.

Approximately two years after the release of the 2019 EIR, the County adopted new transportation analysis methods that rely on VMT rather than LOS for measuring transportation impacts and adopted new VMT significance thresholds, consistent with CEQA

Guidelines Section 15064.3.[13] Because CEQA Guidelines Section 15064.3 only applies prospectively, and because preparation of the Draft EIR began prior to the requirement to analyze VMT, the County is not required to perform a VMT analysis. Nevertheless, for informational purposes only, the County has chosen to provide a comparison to the Project's VMT with and without mitigation to the County's current VMT threshold. This information, which has been included in County CEQA documents since July 2020, will allow the readers of the RPDEIR to better understand how the Project's VMT compares to other projects in the area.

As shown in Appendix E, the Project includes certain land use and neighborhood design characteristics (i.e., PDFs) recognized by CAPCOA as VMT reducing measures. With incorporation of these PDFs, the Project's VMT would be reduced by approximately 28.7 percent in comparison to a typical development in the Project area, which is more than the 16.8 percent reduction in light-duty daily VMT per capita that CARB has determined is necessary to show consistency with the State's climate goals.[14] Because the majority of the Project's trips would be from light-duty vehicles, comparing the Project's VMT to 16.8 percent below the North County average is informative for GHG purposes. A project in the County's North Region with VMT that is 16.8 percent below the North County average also is considered to have a less than significant impact to transportation under the County's VMT Guidelines. Additionally, transportation demand management (TDM) measures that would be implemented as mitigation measures for the Project's transportation impacts would reduce Project VMT by an additional 2.4 percent, for a total VMT reduction of approximately 31.1 percent lower than the Project's unadjusted travel demand model forecast.

Summary of Total Project Emissions

The Project at buildout would have GHG emissions of approximately 247,101 $MTCO_2e$/yr, as shown in Table 2.2-9 below.[15]

[13] Los Angeles County Public Works, July 2020, Draft Transportation Impact Analysis Guidelines.

[14] California Air Resources Board 2017 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals (Jan. 2019), available at https://ww2.arb.ca.gov/sites/default/files/2019-01/2017_sp_vmt_reductions_jan19.pdf; last visited on Apr. 14, 2026.

[15] For modeling purposes, buildout year was assumed to be 2035. Given that state regulation of GHG emissions has increased over time, starting and ending the Project construction later than modeled likely would result in the Project having less GHG emissions, making the modeling conservative.

TABLE 2.2-9
UNMITIGATED GHG EMISSIONS

GHG Emission Sources	Project Quantified GHG Emissions
Mobile	160,904
Energy	57,243
Electrical Power	*31,327*
Natural Gas	*25,915*
Water and Wastewater	7,387
Solid Waste	5,107
Area	11,297
Construction	4,490
Vegetation	673
Total Emissions	**247,101**

Note: Total emissions may not add up exactly due to rounding.
Sources: 2019 DEIR Quantified GHG Emissions; Section 5.21; Updated GHG Calculations from Psomas using CalEEMod version 16.3.2 (June 2018) from 2019 FEIR Section 5.21.

Overall, the emission inventory for the Project is conservative. The Project's emission inventory does not account for GHG reductions associated with the Settlement Agreement's "Net Zero" GHG contractual obligations that will be reflected in the SA Mitigation Measures. These additional reductions are shown in Table 2.2-10, below. The analysis also does not account for the recently enacted GHG regulatory mandates that would reduce GHG emissions described above, such as the more stringent energy efficiency standards in the 2025 California Building Code. The analysis assumes that California will not implement its previously proposed Advanced Clean Trucks (ACT) regulation, Advanced Clean Cars II, or the Omnibus Low-NOx regulation.

As explained above, this analysis relies on the GHG emissions calculated for the 2019 EIR using CalEEMod Version 2016.3.1 with additional inputs discussed above. CalEEMod Version 2016.3.1 relies on CARB's EMFAC2014 model. Emissions reductions for Mitigation Measures and Settlement Agreement Mitigation measures were modeled using EMFAC2017. Compared to EMFAC2017, EMFAC2014 predicts a higher GHG emission rate for vehicles, including light-duty passenger vehicles and trucks. This is primarily because EMFAC2017 incorporates updated ZEV market share and growth information and additional vehicle tailpipe and fuel efficiency regulations (including Phase 2 GHG standards and Senate Bill 1, The Road Repair and Accountability Act of 2017) compared to EMFAC2014 (CARB 2018). Specifically, the average vehicle emission rate used to estimate the Project's unmitigated mobile source emissions at full buildout in 2035 under EMFAC 2014 is 258 grams CO_2e per mile, while the average vehicle emission rate used to estimate emission reductions from mobile source mitigation measures under EMFAC 2017 is 242 grams CO_2e per mile. For light-duty vehicles, EMFAC2014 predicts a statewide average emission rate in 2035 of 224

grams CO_2e per mile while EMFAC2017 predicts an emission rate of 223 grams CO_2e per mile.

Both EMFAC models are conservative from a GHG emissions perspective for two reasons. First, they include much more modest ZEV market share growth than the current market is exhibiting, which predicts a higher GHG per mile emission rate. Second, both models pre-date CARB's more stringent vehicle emissions standards, including Advanced Clean Cars I, Advanced Clean Cars II, Advanced Clean Trucks, Advanced Clean Fleets, and Omnibus Low-NOx, the effect of which has recently been called into question based on the U.S. EPA's disapproval of California's Clean Air Act waivers that allowed California to enforce stricter vehicle emissions standards and zero-emission mandates and recission of the Endangerment Finding. In other words, the models reflect a more conservative (higher level) estimate of emissions because they include emissions reduction estimates based on older, less stringent mobile-source emissions regulations as compared to more recent models, including EMFAC2021 and EMFAC2025.

Therefore, using EMFAC2014 to model the project's unmitigated emissions produces a *higher* (i.e., more conservative) mobile source GHG emissions number. Similarly, using EMFAC2017 to model GHG emission reductions from mobile source PDFs and Mitigation Measures results in slightly *lower* GHG emission reductions than if the EMFAC2014 model was used, representing a conservative assessment of mitigated project emissions.

2.2.7 THRESHOLDS OF SIGNIFICANCE

In accordance with Appendix G of the CEQA Guidelines and the County of Los Angeles Environmental Checklist Form, a project would normally have a significant effect on the environment if the project would:

Threshold 2.2-1 ***Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.***

Threshold 2.2-2 ***Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.***

2.2.8 IMPACT ANALYSIS

Because the effects of GHG emissions are considered in a global context, that is, global warming and climate change, the analysis of GHG emissions is inherently a cumulative issue. No single project would make a significant impact on climate change, but a project's emissions can make a cumulatively considerable contribution to existing significant climate change impacts. Therefore, the analysis below is a cumulative analysis.

Threshold 2.2-1

Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant effect on the environment?

For purposes of this analysis, the County has determined that that the key consideration for appropriate analysis under Threshold 2.2-1 is whether the Project would generate any additional GHG emissions as compared to baseline. If the project does not alter the emissions from baseline (i.e., is net zero), it would have a less than significant impact and make a less than cumulatively considerable contribution to global climate change. Net-zero GHG emissions means that the project's GHG emissions from construction and operational activities occurring at full buildout would result in zero total GHG emissions on an annual basis. In other words, all GHGs emitted the atmosphere during construction and operation by a project are balanced completely by GHG sequestration and removal over each calendar year period.

Using a "net-zero" baseline is appropriate for this Project for several unique reasons. First, while the 2022 Scoping Plan acknowledges that achieving no net additional increase in GHG emissions may not be feasible or appropriate for every project, it expressly identifies the Centennial Project as an example of a project that has committed to net-zero GHG emissions and for which a net zero threshold would be appropriate. (2022 Scoping Plan, Appendix D, pp. 12-13.) Second, the large scale of the Project means it could have a large impact on State climate goals, making a net-zero threshold more appropriate than it would be for a smaller project. Third, the large scale of the Project also enhances its ability to achieve net zero emissions through project-wide requirements and prohibitions, investments in EV infrastructure, and GHG offsets. For these reasons, the County elects to use net zero as compared to baseline as the appropriate standard of significance for the Centennial project.

As noted above in Table 2.2-9, the Project at buildout would have GHG emissions of approximately 247,101 MTCO2e/yr. Generation of these levels of GHG emissions would be considered a significant impact.

As shown in Table 2.2-10, implementation of the SA Mitigation Measures listed below would reduce the Project's emissions, as follows:

- Mobile-Source Electrification

  The SA Mitigation Measures ("MM") include eight quantifiable measures that reduce emissions associated with mobile sources: SA Measure 6 (SA MM-6), SA Measure 7 (SA MM-7), SA Measure 8 (SA MM-8), SA Measure 9 (SA MM-9), SA Measure 11 (SA MM-11), SA Measure 12 (SA MM-12), SA Measure 13 (SA MM-13), and SA Measure 14 (SA MM-14). These measures are described in full in Section 2.2.2.3, above, and briefly summarized here.

  SA MM-6 and MM-7 together require 19,333 chargers for residential units (i.e., enough for one charger per planned dwelling unit). SA MM-6 and MM-7 together will reduce emissions by 51,462 $MTCO_2e$ per year.

SA MM-8 requires the installation of 3,500 electric vehicle chargers in the on-site commercial areas. SA MM-8 will reduce emissions by 72,428 $MTCO_2e$ per year.

SA MM-9 requires the installation of 100 medium- and heavy-duty vehicle chargers at the Project site, supporting the State's heavy-duty truck electrification goals. SA MM-9 will reduce emissions by 13,208 $MTCO_2e$ per year.

SA MM-11 requires subsidies to replace 500 light-heavy and medium-heavy duty trucks used by businesses that conduct activities on Tejon Ranch with electric equivalents, yielding direct reductions from diesel and gasoline combustion. SA MM-11 would reduce emissions by 3,003 $MTCO_2e$ per year.

SA MM-12 and SA MM-13 require the subsidized procurement of 100 community electric vehicles, 300 public-service electric vehicles, and incentives to support electric school and transit buses and install electric vehicle charging stations to serve them. These substitutions of electric vehicles will lower GHG emissions on- and off-site by 4,767.9 (259.5 + 778.4 + 3,730) $MTCO_2e$ per year.

SA MM-14 requires the installation of 5,000 electric vehicle chargers in disadvantaged communities in the SCAQMD. SA MM-14 will reduce emissions by 72,881 $MTCO_2e$ per year.

- Building Energy Decarbonization

The SA Measures include five quantifiable measures that reduce emissions associated with buildings: SA Measure 1 (SA MM-1), SA Measure 2 (SA MM-2), SA Measure 3 (SA MM-3), SA Measure 15 (SA MM-15), and SA Measure 16 (SA MM-16). These measures are described in full in Section 2.2.2.3, above, and briefly summarized here.

SA MM-1 requires residential buildings to be "all electric," meaning having no natural gas. SA MM-1 will reduce emissions by 22,118 $MTCO_2e$ per year.

SA MM-1 also requires that recreational centers and public facilities be all electric. SA MM-2 prohibits natural gas use by non-residential tenants for non-essential uses, which includes space heating, non-industrial water heating, space cooling, and no-commercial cooking. The elimination of natural gas in recreational, public, and commercial buildings, with minor exceptions, would reduce emissions by 3,709 $MTCO_2e$ per year.

SA MM-3 prohibits fireplaces that use fossil fuels at the Project. Prohibiting fossil fuel fireplaces at the Project would reduce emissions by 11,056 $MTCO_2e$ per year.

SA MM-15 prohibits the installation of natural gas infrastructure serving residential buildings and fossil fuel fireplaces at the Grapevine Specific Plan Project site. The elimination of natural gas at the Grapevine Specific Plan Project Site would offset emissions by 11,225 $MTCO_2e$ per year.

SA MM-16 requires the use of SCE's 100% Clean Power Plan or equivalent to reduce the carbon emissions associated with electricity from a utility provided, resulting in a reduction of approximately 29,220 $MTCO_2e$ per year.

TABLE 2.2-10
SA MITIGATION MEASURES GHG EMISSIONS REDUCTION SUMMARY

Category	Mitigation Measure Description	Location (On-Site or Off-Site)	Reductions: Calculated Scenario[1] ($MT CO_2e$/year)		
			On-Site	Off-Site	Total
From Itemized GHG Mitigation Measures[2]	EV grant program for public agency service fleets (SA MM-12)	Off-Site	--	259	259
	EV grant program for community agencies or organizations (SA MM-12)	Off-Site	--	778	778
	Incentives to purchase school and transit buses and install chargers (SA MM-13)	On-Site	1,925	--	1,925
	Truck chargers installed at Tejon Ranch Commerce Center (SA MM-9)	Off-Site	--	13,208	13,208
	Chargers installed at non-residential structures (SA MM-8)	On-Site	37,377	--	37,377
	Chargers installed at residential dwelling units (SA MM-6 and SA MM-7)	On-Site	26,557	--	26,557
	Chargers installed in disadvantaged communities (SA MM-14)	Off-Site	--	72,881	72,881
	Prohibition of fossil fuel fireplaces (SA MM-3)	On-Site	11,056	--	11,056
	Subtotal	--	**76,915**	**87,127**	**164,042**
Reduced by Centennial Energy Requirements[3]	No natural gas for residential uses (SA MM 1)	On-Site	22,118	--	22,118
	No natural gas for non-essential non-residential uses (SA MM-2)	On-Site	3,709	--	3,709
	Commitments to renewable energy (SA MM-16)	On-Site	29,220	--	29,220
	Subtotal	--	**55,047**	**0**	**55,047**
Reduced by Grapevine Residential Gas Restriction[4]	No natural gas infrastructure at the Grapevine (SA MM-15)	Off-Site	--	11,225	**11,225**
Reduced by Class 1-7 Truck Incentives[5]	Reimbursement incentives for heavy-duty vehicles used at Centennial (SA MM-11)	On-Site	3,003	--	**3,003**
	Total Reductions	--	**134,965**	**98,352**	**233,317**

Notes:

[1] Reductions shown in Appendix D Tables 1-12 and summarized in Appendix D] Table 13.

TABLE 2.2-10
SA MITIGATION MEASURES GHG EMISSIONS
REDUCTION SUMMARY

Category	Mitigation Measure Description	Location (On-Site or Off-Site)	Reductions: Calculated Scenario[1] (MT CO_2e/year)		
			On-Site	Off-Site	Total

[2] The estimate of reductions from the itemized GHG mitigation measures is outlined in SA Measures #1 through #4 and represented in Tables 1 through 7of Appendix D. The DEIR calculated that 65,859 MT CO2e per year would be reduced by assuming an EV utilization rate of 50% at Project buildout. The numbers reflected here for reductions from the on-site mobile commitments (presented in Tables 3, 5, and 6 of Appendix D have been conservatively scaled down to ensure that reductions attributed to on-site mobile measures do not exceed this value. Reductions from itemized GHG mitigation measures also includes GHG reductions associated with the Settlement Agreement's prohibition on fossil fuel fireplaces at the Project, which were expected to emit 11,056 MT CO_2e/yr.

[3] The estimate of reductions from the Project energy requirements is outlined in SA Measure #5 and represented in Tables 8 through 10 of Appendix D.

[4] The estimate of reductions from the Grapevine residential gas restriction is outlined in Settlement Agreement commitment #5d and represented in Table 11 of Appendix D.

[5] The estimate of reductions from the Class 1-7 truck incentives is outlined in Settlement Agreement commitment #2d and represented in Table 12 of Appendix D.

Abbreviations:

CO_2e - carbon dioxide equivalents	GHG - greenhouse gas
DEIR - Draft Environmental Impact Report	MT - metric ton
EV - electric vehicle	yr - year

Table 2.2-10 illustrates that the SA Mitigation Measures would reduce emissions by 233,317 $MTCO_2e$/yr, resulting in the Project having net GHG emissions of 13,784 $MTCO_2e$/yr with the incorporation of the above-listed SA MMs.

The Project's PDFs and mitigation measures (MMs) listed below would further reduce the Project's remaining emissions as follows:

Transportation: Reductions total 18,037 $MTCO_2e$/yr, with the bulk of the reductions (15,521 MTOCO2e/yr) from MM 10-25.

- PDF 21-9, implemented through MM 10-1, requires a transportation demand association.
- PDF 21-10, implemented through MM 21-14, requires affordable housing in conformance with the Affordable Housing Implementation Plan.
- MM 21-22 requires clearly marked pedestrian pathways connecting building entrances to parking, sidewalk, and transit drop-off/pick-up locations.
- MM 10-25 and MM 10-26 require the Applicant to implement the Mobility Plan in Section 3.2 of the Specific Plan, which requires pedestrian connections (sidewalks, greenway trails, community trails), bicycle and transit improvements, and an ongoing

Transportation Management Association (TMA), and commits the Applicant to measures that result in 30 percent of total daily internal onsite trips and 20 percent offsite peak hour commutes being completed by transit modes other than single-occupancy vehicles.

- MM 14-1 requires the Applicant to implement components of the Green Development Program, including trails and corridors that serve as alternative means of transportation to single-occupancy vehicles, complete streets, sidewalks and trees, bike lanes, bike racks, and bike parking.

Energy: Reductions total 2,195 $MTCO_2e/yr$

- MM 13-2 requires the Applicant to implement components of the Green Development Program that reduce energy consumption, including automatic controls on exterior lighting.
- MM 13-6 requires outdoor lights, where applicable, to have time-control devices.
- PDF 21-3, implemented through MM 21-1, requires a minimum of 50 percent of the Project's anticipated electrical energy demand at buildout to be satisfied from on-site renewable energy generation.

Water: Reductions total 3,184 $MTCO_2e/yr$

- PDF 21-8, implemented through MM 21-9, requires the wastewater reclamation facilities to include equipment to capture and reuse biogas for energy production.
- PDF 21-20, implemented through MM 21-13, limits outdoor water use.

Vegetation: Reductions total 108 $MTCO_2e/yr$

- MM 7-11 requires mitigation for impacts oak woodlands, including the establishment of 322 oak trees.
- MM 7-12 requires habitat restoration for impacts to waters and wetlands, which will include revegetation.
- MM 21-20 requires compliance with the County's tree planning ordinance.

Area: Reductions total 74 $MTCO_2e/yr$

- PDF 21-21, implemented through MM 21-20, requires all landscape maintenance equipment used within the Specific Plan area must be electric.

The above-listed PDFs (21-3, 21-8, 21-9, 21-10, 21-10, 21-20, 21-21) and MMs (7-11, 7-12, 10-25, 10-26, 13-2, 13-6, 14-1, 21-20, 21-22) result in reductions totaling 23,598 $MTCO_2e$, resulting in the Project having net negative GHG emissions. In other words, the Project would reduce more GHG emissions than it would emit.

In summary, with the PDFs and MMs set forth above and SA MMs-1–3, SA MMs-6–9, and SA MMs-11–16, the Project would reduce more GHG emissions than it would generate.

Therefore, the Project would not generate greenhouse gas emissions, either directly or indirectly that may have a significant effect on the environment.

Impact Conclusion: Less than Cumulatively Considerable with Mitigation.

Threshold 2.2-2

Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Applicable plans adopted for the purpose of reducing GHG emissions include the 2035 General Plan Air Quality Element, the 2045 CAP, CARB's 2022 Scoping Plan, and SCAG's applicable RTP/SCS. A consistency analysis with these plans is presented below.

2035 General Plan Air Quality Element and 2045 Climate Action Plan

As discussed above, AQ Policy 3.1 of the County's General Plan is to:

> *Facilitate the implementation and maintenance of the Climate Action Plan through future County programs to ensure the County reaches its climate action and greenhouse gas emission reduction goals, and consider projects with an enforceable legal obligation to achieve "net zero" greenhouse gas (GHG) emissions, including by voluntary agreement to resolve litigation or with a government agency, to help the County achieve the long-term goals of the CAP.*[16]

Appendix F of the CAP provides:

> *If the project would achieve net-zero GHG emissions, the project is considered to comply with the 2045 CAP and the analysis is complete.*[17]

As demonstrated under GHG Threshold 1, the Project would achieve net-zero GHG emissions through reductions attributable to PDFs (21-3, 21-8, 21-9, 21-10, 21-10, 21-20, 21-21), MMs (7-11, 7-12, 10-25, 10-26, 13-2, 13-6, 14-1, 21-20, 21-22), and the SA Mitigation Measures (SA MMs 1–3, SA MMs 6–9, and SA MMs11–16). Accordingly, the Project is consistent with AQ Policy 3.1 of the 2035 General Plan and the 2045 CAP and would not conflict with either the General Plan or the 2045 CAP.

[16] The Honorable Board of Supervisors, County of Los Angeles. 2024. "RE: 2045 Climate Action Plan (04/16/24 Boards Agenda; Item No. 5)". June 25. Source: https://file.lacounty.gov/SDSInter/bos/supdocs/192494.PDF. Accessed date: November 2024.

[17] County of Los Angeles. 2024. "Appendix F: 2045 Climate Action Plan CEQA Streamlining Checklist". June 25. Source: https://planning.lacounty.gov/wp-content/uploads/2024/07/gp_2045_Climate_Action_Plan Appendices_June-2024.pdf. Accessed date: November 2024.

2022 Scoping Plan

The 2022 Scoping Plan reflects the 2030 target of a 40 percent reduction below 1990 levels codified by SB 32, and the 2045 target of carbon neutrality and 85 percent reduction below 1990 levels established by AB 1279. The 2022 Scoping Plan is not directly applicable to specific projects, nor is it intended to be used for project-level evaluations. Under the 2022 Scoping Plan, however, there are several state regulatory measures aimed at identifying and reducing GHG emissions. CARB and other state agencies have adopted many of the measures identified in the 2022 Scoping Plan. Most of these measures focus on area source emissions (e.g., energy usage, high-GWP GHGs in consumer products) and changes to the vehicle fleet (i.e., hybrid, electric, and more fuel-efficient vehicles) and associated fuels (e.g., Low Carbon Fuel Standard), among others.

Appendix D to the 2022 Scoping Plan recommends a number of potential ways for determining whether a local project would align with State climate goals.

First, Appendix D "strongly encourages" local governments to adopt a local CAP that complies with CEQA requirements. (CEQA Guidelines, §§ 15064.4 (b)(3) and 15183.5(b).) Consistency with a locally adopted "CEQA-qualified" CAP would be evidence of consistency with State-wide goals to reduce GHG emissions. As discussed above, the Project is consistent with the County's 2045 CAP. Accordingly, the Project also would be in alignment with the Scoping Plan.

CARB also identified residential and mixed-use project attributes to help lead agencies qualitatively identify projects that are "clearly" consistent with the State's climate strategy (CARB 2022). Per the 2022 Scoping Plan, empirical evidence shows that residential and residential mixed-use development projects that are consistent with these project attributes to reduce GHG emissions will accommodate growth in a manner that aligns with the GHG and equity goals of SB 32. Additionally, consistency with the project attributes will ensure that projects are: (1) addressing the largest sources of their operational emissions, (2) aligning with the priority areas defined for Local Climate Action, and (3) aligning with the state's climate goals. The Project's consistency with these attributes is presented in Table 2.2-11, below. As shown in Table 2.2-11, the project is consistent with most, but not all, of the project attributes identified by the 2022 Scoping Plan. According to the 2022 Scoping Plan, even projects with some, but not all, of these attributes may be consistent with the State's climate strategy with adequate additional supporting evidence. Although the Project would not incorporate all of the CARB-identified project attributes, it would not conflict with the 2022 Scoping Plan primarily because the Project would achieve net zero GHG emissions after mitigation.

TABLE 2.2-11
PROJECT CONSISTENCY WITH DRAFT 2022 SCOPING PLAN CLIMATE CHANGE KEY RESIDENTIAL AND MIXED-USE PROJECT ATTRIBUTES THAT REDUCE GHGS

Priority Areas	Key Project Attribute	Consistency
Transportation Electrification	Provides EV charging infrastructure that, at minimum, meets the most ambitious voluntary standard in the California Green Building Standards Code at the time of project approval[1]	*Consistent*. The Project is required to provide more EV chargers than required by the voluntary standards in the CalGreen Code.
VMT Reduction	Is located on infill sites that are surrounded by existing urban uses and reuses or redevelops previously undeveloped or underutilized land that is presently served by existing utilities and essential public services (e.g., transit, streets, water, sewer)[2]	*Not Consistent*. The Project is not located on an infill site or an undeveloped site served by essential public services. The Project proposes a mixed-use community with a balance of jobs and housing, designed to reduce VMT compared to a single-use community in the same location or the type of suburban development proposed outside of California, where there are fewer regulations related to GHG emissions.
	Does not result in the loss or conversion of natural and working lands	*Not consistent*. The Project would result in removal of natural lands. But preservation and integration of open space into the community is a key feature of the plan and the Project will plant approximately 35,123 trees. In addition, the Mitigation Preserve Program (Project Design Feature 7-1) includes a 27,408-acre preserve system consisting of approximately 3,861 acres of unimpacted/Significant Ecological Area lands on-site and 23,547 acres in additional off-site areas.
	Consists of transit-supportive densities (minimum of 20 residential dwelling units per acre),[3] or Is in proximity to existing transit stops (within a half mile),[4] or Satisfies more detailed and stringent criteria specified in the region's SCS[5]	*Consistent*. The Project is consistent with the applicable SCS. The Project includes some areas zoned High Density Residential, which permits 15 to 25 dwelling units per acre before accounting for a bonus under State Density Bonus Law. The Project includes a Transportation Management Association (TMA) that will plan the community's transit facilities and two transit centers near the Project's job sites, retail, and trail system. The TMA also will ensure that Project trips meet the non-single-occupancy vehicle (SOV) transit mode

TABLE 2.2-11
PROJECT CONSISTENCY WITH DRAFT 2022 SCOPING PLAN
CLIMATE CHANGE KEY RESIDENTIAL AND MIXED-USE
PROJECT ATTRIBUTES THAT REDUCE GHGS

Priority Areas	Key Project Attribute	Consistency
		standards: minimum of 20% of total daily peak morning and afternoon external trips and a minimum of 30% of total daily internal trips are completed by using non-SOV transit modes.
	Reduces parking requirements[6] by: Eliminating parking requirements or including maximum allowable parking ratios (i.e., the ratio of parking spaces to residential units or square feet); or Providing residential parking supply at a ratio of less than one parking space per dwelling unit; or For multifamily residential development, requiring parking costs to be unbundled from costs to rent or own a residential unit.[7]	*Potentially Consistent*. The TMA could include measures that reduce parking or require unbundled parking.
	At least 20 percent of units included are affordable to lower-income residents[8, 9]	*Potentially Consistent*. The Project requires a minimum of 18 percent of the units constructed to be made available as affordable units. It allows 20 percent or more of the units to be affordable. The Project also would provide naturally more affordable housing compared to urban areas such as Los Angeles.
	Results in no net loss of existing affordable units	*Consistent*. The Project would not demolish any existing units.

TABLE 2.2-11
PROJECT CONSISTENCY WITH DRAFT 2022 SCOPING PLAN CLIMATE CHANGE KEY RESIDENTIAL AND MIXED-USE PROJECT ATTRIBUTES THAT REDUCE GHGS

Priority Areas	Key Project Attribute	Consistency
Building Decarbonization	Uses all-electric appliances without any natural gas connections and does not use propane or other fossil fuels for space heating, water heating, or indoor cooking[10, 11]	*Consistent*. The Project's residential and mixed-use buildings would be required to be all electric with no natural gas or other fossil fuel use.

Source: CARB 2022.
Notes: MMT CO_2e = million metric tons of carbon dioxide equivalent.

1 Cal. Code Regs., tit. 24, Part 11.

2 Cal. Code Regs., tit. 24, Part 11. 49 Government Code, § 65041.1. "Statewide Environmental Goals and Policy Report." Available at: https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=GOV&sectionNum=65041.1. 50 Federal Transit Administration. 2014. Planning for Transit-Supportive Development: A Practitioner's Guide. Available at: https://www.transit.dot.gov/funding/funding-finance-resources/transit-oriented-development/planning-transit-supportive.

3 Washington Department of Transportation. 2013. Tools for Estimating VMT Reductions from Built Environment Changes. Available at: https://www.wsdot.wa.gov/research/reports/fullreports/806.3.pdf.

4 One example of an evaluation of consistency with the region's SCS is from the 2013 draft EIR for The Cannery in Davis, p. 3.7-26. Available at: https://www.cityofdavis.org/home/showpublisheddocument/650/635607772224000000.

5 CAPCOA. 2021. Handbook for Analyzing Greenhouse Gas Emissions Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity: Designed for Local Governments, Communities, and Project Developers. Available at: https://caleemod.com/handbook/index.html

6 AB 2097, adopted by the Legislature and signed by the Governor in September 2022 eliminates parking requirements for residential and commercial development within a half-mile of transit.

7 Government Code, § 65863.2. "Residential, commercial, or other development types: parking requirements." Available at: https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202120220AB2097

8 Newmark, G. and Haas, P. 2015. Income, Location Efficiency, and VMT: Affordable Housing as a Climate Strategy. Available at: https://chpc.net/wp-content/uploads/2016/05/CNT-Working-Paper-revised-2015-12-18.pdf.

9 California Housing Partnership Corporation and TransForm. 2014. Why Creating and Preserving Affordable Homes Near Transit is a Highly Effective Climate Protection Strategy. Available at: https://1p08d91kd0c03rlxhmhtydpr-wpengine.netdna-ssl.com/wp-content/uploads/2015/11/4- AffordableTODResearchUpdate070114.pdf.

10 Energy and Environmental Economics. 2019. Residential Building Electrification in California: Consumer economics, greenhouse gases and grid impacts. Available at: https://www.ethree.com/wp-content/uploads/2019/04/E3_Residential_Building_Electrification_in_California_April_2019.pdf.

11 Energy and Environmental Economics. 2021. Achieving Carbon Neutrality in California: PATHWAYS Scenarios Developed for CARB. Available at: https://ww2.arb.ca.gov/sites/default/files/2020-10/e3_cn_final_report_oct2020_0.pdf

Regional Transportation Plan/Sustainable Communities Strategy

As discussed above, the Court Order upheld the 2019 EIR's determination that the Project was consistent with the 2016-2040 RTP/SCS adopted by SCAG to establish a transportation funding priorities and encourage a regional land use pattern capable of achieving regional GHG reductions from CARB for passenger vehicles.

In September 2020, SCAG adopted the 2020 RTP/SCS, commonly known as Connect SoCal, which superseded the 2016 RTP/SCS. Like the 2016 RTP/SCS, the 2020 RTP/SCS included the Project in its land use assumptions. Subsequently, in April 2024, SCAG adopted its 2024-2050 Regional Transportation Plan/Sustainable Communities Strategy ("2024 RTP/SCS" or "Connect SoCal 2024"), which superseded the 2020 RTP/SCS. Like the 2016 RTP/SCS and 2020 RTP/SCS, the 2024 RTP/SCS includes the Project's unit count and square footage in its land use assumptions.

Since the 2024 RTP/SCS accounted for the Project in its land use assumptions used to determine its transportation plan to achieve CARB's regional GHG reduction target for passenger vehicles, the Project is consistent with and would not conflict with the 2024 RTP/SCS. Table 2.2-12 analyzes the Project's consistency with the primary measures in Connect SoCal 2024 and shows the Project would not impede the region from meeting its GHG reduction targets from passenger vehicles.

TABLE 2.2-12
CONNECT SOCAL 2024 CONSISTENCY

SCAG Goals	Consistency
Mobility: Build and maintain an integrated multimodal transportation network	
Support investments that are well-maintained and operated, coordinated, resilient and result in improved safety, improved air quality and minimized greenhouse gas emissions	**Consistent**. The Project is designed to reduce the need for SOV trips, encourage the use of EVs, and reduce the use of fossil fuels, all of which improve air quality and minimize GHG emissions.
Ensure that reliable, accessible, affordable, and appealing travel options are readily available, while striving to enhance equity in the offerings in high-need communities	**Consistent**. The Project's TMA, copious EV chargers, and pedestrian paths and trails will ensure that there are reliable, accessible, affordable, and appealing travel options for the Project's residents and employees, including the residents who qualify for the affordable housing units.
Support planning for people of all ages, abilities, and backgrounds	**Consistent**. The Project is planned to support people of all ages, abilities, and backgrounds. The Project will provide a variety of housing types, offer a variety of employment opportunities, and provide market rate and affordable housing.
Communities: Develop, connect, and sustain communities that are livable and thriving	
Create human-centered communities in urban, suburban, and rural settings to increase mobility options and reduce travel distances	**Consistent**. The Project is designed to have walkable "villages" that increase mobility options by allowing people to meet daily living needs without driving and reducing travel distances.
Produce and preserve diverse housing types in an effort to improve affordability, accessibility, and opportunities for all households	**Consistent**. The Project would produce a diversity of housing types that improve affordability in the area and increase opportunities for households that cannot afford to live in more expensive California cities and those who qualify for affordable housing.

TABLE 2.2-12
CONNECT SOCAL 2024 CONSISTENCY

SCAG Goals	Consistency
Environment: Create a healthy region for the people of today and tomorrow	
Develop communities that are resilient and can mitigate, adapt to, and respond to chronic and acute stresses and disruptions, such as climate change	**Consistent**. The Project is designed to be resilient to climate change, meeting high Fire Code standards, including solar panels, and a robust water plan that includes multiple sources of potable water such as groundwater, State Water Project (SWP), independent purchased water by Tejon Ranch, return flows, recycled water, and banked water. Water resource management strategies such as conservation and recycled water will reduce the demand for potable water and the energy needed to obtain that water.
Integrate the region's development pattern and transportation network to improve air quality, reduce greenhouse gas emissions and enable more sustainable use of energy and water	**Consistent**. The Project will be integrated with existing regional and interstate highways and internally would have a robust TMA that includes transit and other measures to reduce SOV trips. As stated above, the Project also would have features that improve air quality, reduce GHG emissions, and enable reliance on renewable energy and recycled water.
Conserve the region's resources	**Consistent**. The Project is designed to minimize its use of non-renewable resources, with commitments to all electric residential buildings, use of renewable energy, and recycled water.
Economy: Support a sustainable, efficient, and productive regional economic environment that provides opportunities for all people in the region	
Improve access to jobs and educational resources	**Consistent**. The Project would include many jobs and schools, which improves access to jobs and educational resources in the area.
Advance a resilient and efficient goods movement system that supports the economic vitality of the region, attainment of clean air and quality of life for our communities	**Consistent**. The Project would advance a resilient and efficient goods movement system, with EV chargers and subsidies to encourage electric trucks that will support the economic vitality of the region and reduce air pollution.
Source: SCAG 2024a.	

In sum, with mitigation, the Project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.

Impact Conclusion: Less than Cumulatively Considerable with Mitigation.

Cumulative Impact Significance Determination

As discussed above, GHG emissions are generally addressed as a cumulative issue because no single project alone would produce enough emissions to cause a measurable climate

change impact.[18] Instead, existing global development has already created the significant cumulative impact called climate change and the goal is to analyze whether a project would make a cumulative considerable contribution to that significant cumulative impact. Therefore, as explained above, with implementation of the PDFs (21-3, 21-8, 21-9, 21-10, 21-10, 21-20, 21-21), MMs (7-11, 7-12, 10-25, 10-26, 13-2, 13-6, 14-1, 21-20, 21-22), and SA Mitigation Measures (SA MMs 1–3, SA MMs 6–9, and SA MMs 11–16), the Project would not make a cumulatively considerable contribution to significant cumulative impacts from GHG emission.

2.2.9 MITIGATION MEASURES

From other Chapters in 2019 EIR and/or RPDEIR

MM 7-11 This measure prescribes mitigation for other special status vegetation types including mixed oak woodland, oak trees, and other riparian and wetland vegetation types. Each of these three vegetation types is discussed separately (native grassland and wildflower fields are addressed in MM 7-10).

Mixed Oak Woodlands

The Project Applicant/Developer shall create mixed oak woodlands to achieve resulting vegetation/habitat values. Since there would be approximately 6.2 acres of oak woodland impacts, mitigation will result in the preservation of a minimum of 6.2 acres of mixed oak woodland and creation of a minimum of 6.2 acres of mixed oak woodland, which will include the establishment of 322 oak trees completed as part of oak tree replacement in accordance with the County of Los Angeles oak tree permit requirements (see Oak Trees Section below). Oak trees established in created oak woodlands will be credited towards both oak woodland and oak tree mitigation requirements. If Project impacts are reduced through a reduction in Project disturbance limits in oak woodland areas, required mitigation acreage will be reduced accordingly.

In accordance with mitigation options outlined in Section 21083.4 of the California Public Resources Code (PRC), replacement of oak woodlands shall consist of no greater than ½ of the oak woodland mitigation requirement. Therefore, half of the 6.2 oak woodland impact acreage will be mitigated via the alternate option of preservation. The combined acreage of oak woodland preserved both on site (unimpacted Significant Ecological Area [SEA]) and within the off-site mitigation areas is 3,090 acres and is expected to substantially exceed the required 50 percent of mitigation as preservation.

[18] BAAQMD, 2022 CEQA Guidelines, § 3.3, available at https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa-guidelines-2022/ceqa-guidelines-chapter-3-thresholds_final_v2-pdf.pdf?la=en.

Mitigation through creation is typically implemented on lands with minimal habitat value (e.g., ruderal vegetation, graded slopes) rather than in areas with a substantial component of existing native vegetation. However, evidence of lack of naturally occurring recruitment on site indicates that the existing woodlands are likely to be eventually replaced by non-woodland vegetation. Based on the lack of naturally occurring replacement trees, it is anticipated that oak woodland planting is necessary to sustain the oak woodlands. Therefore, the goal of oak resource mitigation efforts will be to create and enhance oak woodlands. To maximize potential for success, oak woodlands will be created within and adjacent to the same areas where oak woodlands currently exist. This method will create future generations of oak trees and oak woodland on the site in these areas. Details of the oak woodland mitigation program are described below in items 1–10.

1. To mitigate for impacts to oak woodland and oak trees, site-specific native acorns will be collected. Acorns will be collected within the watershed area of the Project site to ensure that acorns collected are of a similar genetic stock to those existing on the site. Some acorns will be planted and maintained in containers, and others will be stored and planted directly on site within the Oak Mitigation Areas.

2. To maximize oak woodland biological values and the potential for long-term success, some locally collected oak acorns will be planted directly into the ground. These acorns will be planted in appropriate locations in the Oak Mitigation Areas. The locations identified for acorn planting will be reviewed by the County Forester.

3. Container plants will be propagated and maintained from locally collected acorns. In this way, more established container plants will be available for mitigation efforts, and they will contain the most suitable genetic variability appropriate for the region to increase mitigation success. The preferred method of propagation will include the establishment of a temporary nursery on the Project site. The nursery will include partial shade areas to reduce water loss and a constant water supply to supplement planted trees. Using the acorns collected from within the watershed area of the Project site, container plantings will be cultivated at this location. Development of trees on site will ensure that they are acclimated to the typical weather conditions at their eventual permanent location. If necessary, and in consultation with the County Forester, acorns collected from the site may be stored or propagated and maintained under contract with a reputable native plant nursery off site.

4. To provide overstory, midstory, and understory tree/plant coverage, some container plants and oak trees, grown from locally collected acorns, will be installed in addition to the application of native seed

mixes. Since studies indicate that the younger the planting is, the more likely the chance is for successful establishment and long term viability8 locally collected acorns as well as locally collected, nursery-cultivated young oak trees (one-gallon or five-gallon containers of oaks) would be planted on site. The oak woodland planting and seeding palettes will include a diversity of locally-collected native shrubs, subshrubs, grasses, forbs, and ferns, to provide a beneficial mosaic of understory vegetation.

5. The oak mitigation program will include the extensive salvage (from the impacted oak habitat areas) and placement of coarse woody debris, brush piles, and boulders (as available) to immediately provide (a) suitable micro-habitats for the establishment of plant species with particular shade and moisture requirements (e.g., ferns) and (b) improved habitat resources (e.g., cover) for wildlife species.

6. Irrigation will be provided to the oak plantings in a manner that simulates natural rain events; i.e., infrequent, deep watering. Irrigation will be suspended during periods of substantial rainfall, and irrigation will be terminated at the earliest possible date (depending on seasonal weather patterns) in coordination with the County Forester, to optimize the drought resiliency and proper root development of the planted oaks. Additionally, all irrigation must be terminated for a minimum of five years before the oak mitigation areas will be eligible for final approval/sign-off.

7. The Project Applicant/Developer will provide an annual report to the County that will include an accounting of each of the following in the mitigation areas: (a) the number of acorns planted; (b) the number of germinated acorns (whether planted or natural) protected; (c) the number of new oak trees planted in mitigation areas, including the species of each tree planted; (d) the caliper of each new tree planted and/or protected; (e) the acreage of woodlands created and/or conserved in the mitigation areas.

8. Creation of structurally diverse oak woodland habitat within and contiguous to existing oak woodlands will be accomplished by planting locally collected oak acorns, plus yearly sowings of additional locally collected acorns, as well as, temporary irrigation, weed abatement, pest deterrence, and/or other maintenance tasks as needed to facilitate oak seedling germination and survival.

9. Prior to Project grading, locally collected acorns will be planted and grown. Once trees reach a diameter of one inch just above ground surface (i.e., basal height) within the Oak Tree/Oak Woodland Mitigation Areas, they will be appropriated as “mitigation trees” to be used for oak woodland and oak tree permit mitigation purposes with

approval from the County Forester as part of the oak woodland and oak tree permit mitigation process and will be credited as a mitigation tree if the tree is determined to be healthy by the Los Angeles County Forester at the end of the monitoring period.

10. The required 12.4 acres of mixed oak woodland creation will occur within 473 acres of existing oak woodland (primary area) and 716 acres of adjacent low quality non-native grassland (secondary area, if needed) on the western portion of the Project site. Additional suitable areas may also be identified within reduced grading footprints following final detailed tract map production to the satisfaction of the County Forester. Mitigation planting areas will be refined within the proposed mitigation areas through a multi-variable query of existing Geographical Information System (GIS) data sets, and intensive field analysis to precisely identify suitable planting locations (e.g., localized soil types, microtopography). Created oak woodlands will have an approximate average density of 80 appropriately sized oak trees per acre at the end of the monitoring period (or other density as directed by the County Forester), while staying within the mitigation areas. The contiguity of the created woodland habitat within or adjacent to existing oak woodlands will be ecologically beneficial, and will also improve the logistics of restoration installation, maintenance, and monitoring, compared to a fragmented habitat creation program. These methods will help to ensure the success of created oak woodlands to replace the existing woodlands over time.

11. In order to implement the creation of habitat on the site and to ensure the persistence of the overall biological functions and values over time, the Project Applicant/Developer shall submit an Oak Woodland Habitat Mitigation Plan to the County for approval prior to the issuance of a grading permit for each tract map or combination of tract maps. The mitigation approach described in the Plan shall comply with Section 21083.4 of the California Public Resources Code (PRC), which was enacted by California Senate Bill (SB) 1334. County approval of the Plan shall be required prior to the initiation of any clearing or grading on the site that affects any oak woodland vegetation. The Oak Woodland Habitat Mitigation Plan shall be developed by a qualified Restoration Specialist, to be retained by the Project Applicant/Developer, and shall be subject to County approval. The objective of the Oak Woodland Habitat Mitigation Plan will be to preserve 6.2 acres of existing oak woodland and to create 6.2 acres of oak woodland. The Oak Woodland Habitat Mitigation Plan serves the purpose of satisfying the conditions of Section 21083.4 of the California Public Resources Code.

12. Implementation of the Oak Woodland Mitigation Plan will be the responsibility of the Project Applicant/Developer or its designated party; the Plan shall specify, the following:

    a. Planting Management Program: A Planting Management Program shall be prepared for review by the County Forester that will outline three planting seasons and will include (i) the first planting season, year 0, being the acorn and sun tolerant ground covers; (ii) the second planting season occurring at approximately year 5, introducing sun/shade tolerant species; and (iii) the third planting season at year 10 with the introduction of more shade tolerate understory species, including the use of reference sites.

    b. Personnel: The responsibilities and qualifications of personnel required to implement and supervise the plan will be specified. The responsibilities of the Landowner, County staff, Specialists, and Maintenance Personnel that will supervise and implement the plan will also be included.

    c. Site Selection: The mitigation site(s) will be determined in coordination with the project applicant/Developer and the County. The site(s) will be located in open space areas that will be managed in perpetuity through a conservation easement, open space dedication, performance bond, management at the Tejon Ranch Conservancy, or other method approved by the County Forester.

    d. Native Species Seed Collection, Site Preparation, and Planting Implementation: Under the supervision of the County Forester, site preparation will include (i) protection of existing native species; (ii) trash and weed removal; (iii) native species salvage and reuse (i.e., duff); (iv) soil treatments (i.e., imprinting, and/or decompacting); (v) erosion-control measures (i.e., rice or willow wattles); (vi) native seed mix application; and (vii) procedures for native seed collection from the site, including acorns of native oak species.

    e. Schedule: Restoration/revegetation sites will be established between October 1 and January 30. Seeding and planting of container plants will take place immediately after preparation of the mitigation sites and will take place under the supervision of the County Forester.

    f. Maintenance Plan and Guidelines: The Maintenance Plan, to be approved by the County, will include (i) weed control; (ii) herbivory control (e.g., feral pigs); (iii) trash removal; (iv)

irrigation system maintenance; (v) maintenance training; (vi) replacement planting; and (vii) a vehicle washing program to capture invasive propagules. The Maintenance Plan will also indicate who is responsible for each of these listed tasks.

g. Monitoring Plan: The monitoring plan, to be implemented for a 15-year period, and to be approved by the County, will include (i) qualitative monitoring (i.e., photographs and general observations); (ii) yearly quantitative monitoring (i.e., randomly placed transects to assess vegetation type coverage and systematically assess all mitigation oak trees); (iii) performance criteria as approved by the County; and (iv) annual reports that will be submitted to the County for five consecutive years after initial planting (or longer if the County requires) and following plan approval. The Plan shall be prepared by a qualified Restoration Specialist and approved by the County prior to any clearing or grading for any tract map that affects any oak woodland vegetation.

h. Long-Term Preservation: Long-term preservation of the mitigation site(s) will be outlined in the Restoration Plan to ensure that they are not impacted by future development. An open space dedication, conservation easement, performance bond, management by the Tejon Ranch Conservancy, or other County approved method will be used to ensure long-term preservation.

i. Growth/Vegetation Standards: Growth/vegetation standards will be developed by a qualified Biologist in accordance with County and regulatory agency requirements.

Oak Trees

The mitigation approach for replacing lost oak trees shall comply with the County of Los Angeles Oak Tree Ordinance (CLAOTO) requirements. The goal of this program is to replace impacted oak trees at a ratio of 3:1 for non-heritage oaks and 10:1 for heritage oaks in accordance with the County's oak tree permit requirements. This would result in the establishment of 322 oak trees. However, if Project impacts are reduced through a reduction in Project disturbance limits within oak woodland areas, required tree numbers will be reduced accordingly.

Mitigation trees are typically planted on lands with minimal habitat value (e.g., ruderal vegetation, graded slopes) rather than in areas with a substantial component of existing native vegetation. To maximize potential for success, oak trees will be planted in the same areas where oak woodlands currently exist. This method will create future generations of oak trees and oak

woodland on the site in these areas and will be done as described in Numbers 1–10 under the "Mixed Oak Woodlands" portion above. Additionally, quantitative tree monitoring data for all mitigation trees (whether for County of Los Angeles Oak Tree Ordinance [CLAOTO] mitigation or oak woodland mitigation) will be submitted to the County Forester yearly and, for convenience, will be included as an appendix to the annual report required in 10(f)(ii) above.

Other Riparian and Wetland

In addition, the Applicant shall create, enhance, and/or restore all impacted riparian and wetland vegetation types that are not considered jurisdictional by permitting resource agencies (i.e., those not mitigated through regulatory permit conditions) at a 1:1 ratio. This applies to areas mapped as alluvial scrub; riparian herb; rush riparian grassland; southern arroyo willow riparian; southern willow scrub; unvegetated wash; willow riparian forest; willow riparian woodland; alkali meadow; Baltic rush; and seeps and ephemeral ponds. These areas shall be included in the Streambed and Wetland Habitat Creation and Enhancement Plan discussed in MM 7-12, which shall be approved by the County prior to issuance of grading permits.

Consultation with representatives from the Angeles National Forest regarding oak and grasslands mitigation activities in SEA 17 shall occur prior to the commencement of oak tree planting in SEA 17.

MM 7-12 Prior to any fill of or alteration to drainage tributaries, wetlands, and/or riparian vegetation on the Project site, the Project Applicant/Developer shall obtain the appropriate regulatory agency permits and/or agreements from the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and the applicable Regional Water Quality Control Board (RWQCB). The Project Applicant/Developer shall comply with all construction mitigation measures specified in the EIR, regulatory agency permits, and/or agreements. Pursuant to the permit requirements, the Project Applicant/Developer will develop a Storm Water Pollution Prevention Plan (SWPPP) that incorporates Best Management Practices (BMPs) for reducing or eliminating construction-related pollutants in the site runoff.

The Project is subject to the following Mitigation Performance Standards: As anticipated to be required by USACE, CDFW, and Regional Water Quality Control Board (RWQCB) regulatory permits, the Project Applicant/Developer shall create, enhance, and/or restore acreage to ensure that net habitat values are at least equal to those lost from Project implementation. Mitigation ratios are typically specified in the regulatory permits. However, if mitigation is conducted prior to impacts taking place, mitigation ratios can be pro-rated; this type of mitigation pro-rating allows time to evaluate if created, enhanced, and/or restored habitat values are at least equal to those that will eventually be lost from Project implementation. Under this scenario, it can be verified

that the restoration/creation goals have been accomplished or are proceeding satisfactorily.

The extent of drainages and wetlands that would be preserved under the Project will provide opportunities to expand and enhance the drainages, wetlands, and riparian vegetation throughout the Mitigation Preserve.

As discussed previously, a wetland functional assessment of the drainages and other aquatic features in the Project site was conducted by Glenn Lukos Associates in 2006 and 2009 in order to characterize and evaluate the functions of the site's drainages and riparian habitats (GLA 2009a). An update to that functional assessment was conducted in 2015 (BonTerra Psomas 2015a). Overall, aquatic resources on the site were evaluated in terms of Functional Capacity Units (FCU), which indicate more specifically the mitigation level necessary to restore riparian functions after Project implementation by providing a measure of the ability of a wetland area to perform typical wetland functions.

The purpose of the mitigation is to replace lost habitat value, as measured in FCU (or other acceptable functional value units) rather than based on a standard acreage ratio. Alternatively, a more traditional mitigation ratio approach may be employed using following rates:

a. Wetland Waters: 2:1, including 1:1 restoration and 1:1 enhancement, of wetland waters.

b. Streams:

    i. 1:1 preservation of ephemeral and/or intermittent streams for permanent impacts to ephemeral non-wetland waters of the state (non-riparian)

    ii. 1:1 preservation of intermittent streams for permanent impacts to intermittent non-wetland waters of the state (non-riparian)

    iii. 1:1 restoration of intermittent streams for temporary impacts to intermittent non-wetland waters of the state (non-riparian)

c. Riparian Vegetation: 2:1, including 1:1 restoration and 1:1 enhancement of riparian vegetation.

Mitigation will include a combination of on-site and off-site preservation of jurisdictional resources; on-site and off-site enhancement/restoration of preserved jurisdictional resources in order to increase overall functional capacity; and the creation (expansion) of riparian/wetland habitats along degraded drainages, including Oso Creek and two of its tributaries in addition

to the three other drainages (including the main drainage located along and immediately north of State Route [SR] 138).

The direct and indirect loss in on-site functional units will be mitigated through passive enhancement of open space areas, active enhancement of 6.5 acres of wetland, and creation of approximately 78.4 acres of wetland/riparian habitat (GLA 2009a). Following implementation of mitigation, the Project provides approximately 4,748.5 FCUs. Therefore, the proposed mitigation will result in a functional gain of 327.5 FCUs, thereby ensuring a net increase in functionality in the post-Project condition (GLA 2009a). In summary, implementation of the proposed jurisdictional resource mitigation will actually result in a net gain in the measurable functional capacity and therefore, the habitat values, of the on-site and off-site drainages and other aquatic features.[19]

To implement the creation/restoration/enhancement of streambed/wetland habitats on the site, the Project Applicant/Developer shall develop a Streambed and Wetland Habitat Creation and Enhancement Plan commensurate with regulatory agency permits and/or agreements. The purpose of this plan is to demonstrate the feasibility of creating the required mitigation acreage and to ensure that the overall biological functions and values are increased. The plan shall be developed by a qualified Restoration Specialist and shall be submitted and approved by the County and CDFW, and RWQCB prior to grading that would impact jurisdictional waters or wetlands. The Streambed and Wetland Habitat Creation and Enhancement Plan shall specify the following for each tentative tract map area:

- **Statement of Impacts:** A statement of impacts and avoidance shall be prepared, including temporary and permanent impacts.
- **Personnel:** Responsibilities and qualifications of the personnel required to implement and supervise the plan will be specified. The responsibilities of the Landowner, Specialists, and Maintenance Personnel that will supervise and implement the plan will also be included.
- **Site Selection:** Identification of preservation, enhancement and/or creation sites on Mitigation Preserve shall be included. A summary of location of preserved wetlands and/or waters required to achieve applicable preservation performance standards shall also be included. The sites for mitigation will be determined through coordination between the project applicant/Developer, the USACE, the CDFW, the applicable RWQCB, and the County.

[19] For information about the functional values of the impacted jurisdictional resources and proposed mitigation areas, see GLA 2009b in Appendix 5.7-B.

- **Site Preparation and Planting Implementation:** Site preparation will include: (1) protection of existing native species; (2) trash and weed removal; (3) native species salvage and reuse (i.e., duff); (4) soil treatments (i.e., imprinting and/or decompacting); (5) fencing, grading and contouring to improve topographic heterogeneity and floodplain benching, erosion-control measures (i.e., rice or willow wattles); (6) seed mix application and quantities; and (7) procedures for seed collection from existing habitat on the site. Implementation procedures such as mulching will also be included.
- **Schedule:** Establishment of restoration/revegetation sites will be conducted between October 1 and January 30. Seeding and planting of container plants will take place immediately after preparation of the restoration sites.
- **Maintenance Plan/Guidelines:** The maintenance plan will include (1) weed control; (2) herbivory control; (3) trash removal; (4) irrigation system maintenance; (5) maintenance training; (6) replacement planting; (7) vehicle washing program to capture invasive propagules; and (8) pest management.
- **Monitoring Plan:** The monitoring plan will include (1) qualitative monitoring (i.e., photographs and general observations); (2) quantitative monitoring (i.e., randomly placed transects); (3) vegetation performance success criteria, as approved by the USACE, the CDFW, and the applicable RWQCB [including success for species richness: (≥10), native vegetative cover (≥70 percent) and invasive species (≤5 percent)]; (4) biannual reports (i.e., two reports the first year) for the first year will be submitted to the USACE, the CDFW, the applicable RWQCB; and (5) annual reports, which will be submitted to all three agencies and the County for an additional four years after initial planting. The monitoring is planned for five years, but may be shorter or longer depending upon the performance of the mitigation sites.
- **Long-Term Preservation:** Long-term preservation of the mitigation sites will be outlined in the mitigation plan to ensure that they are not impacted by future development. An open space dedication, conservation easement, performance bond, management by the Tejon Ranch Conservancy, or other County-approved method will be used to ensure long-term preservation.
- **Performance Standards:** A statement of mitigation performance standard being met (functional value or acreage ratio) shall be included. These will be developed by conducting a biological functions and values assessment (using an accepted method such as Hydrogeomorphic Modeling [HGM]) to establish a baseline for the overall biological value of the affected streambeds and riparian areas

on the site. Revegetation will be considered successful at five years if the percent cover and species diversity of the restored and/or created habitat areas are similar to percent cover and species diversity of adjacent existing habitats, as determined by quantitative testing of existing, restored, and created habitat areas [for species richness (≥10), native vegetative cover (≥70 percent) and invasive species (≤5 percent)]. Contingency measures shall also be described in the event that mitigation efforts are not successful.

- **Temporary Impacts**: standards for minimizing and restoring temporary impacts, which include recontouring and erosion control for intermittent channels and reseeding requirements for riparian vegetation areas.
- **Cattle Exclusion Methods:** Measures to exclude cattle from habitat creation areas and enhancement areas (where applicable) shall be identified and described.
- **Funding:** The funding source(s) for all proposed mitigation actions shall be identified.

The Streambed and Wetland Habitat Creation and Enhancement Plan shall be subject to approval by the County, the USACE, the CDFW, and the applicable RWQCB for impacts within the respective jurisdictional areas of these agencies. If pro-rated mitigation ratios are used, it shall be demonstrated that the mitigation performance standards have been accomplished. The accomplishment shall be verified by the USACE, the CDFW, and the applicable RWQCB based on the performance standards established above prior to the County's issuance of a grading permit. Implementation of these mitigation measures may serve the dual purpose of satisfying the conditions (or a portion of the conditions) of the agreements/permits of the USACE, the CDFW, and the applicable RWQCB.

MM 10-25 *(Traffic Study MM-24)* The Project Applicant/Developer shall implement the Mobility Plan, included as Section 3.2 of the Specific Plan, which provides an extensive system of sidewalks, greenway trails, community trails, a dedicated transit easement, and two transit hubs to serve as alternative means of transportation on the Project site. The Mobility Plan also requires creation and ongoing operation of a Transportation Management Association (TMA) to implement ongoing transportation improvements and programs.

The Project Applicant/Developer, through the required implementation of the Mobility Plan, shall:

- Reinforce and serve the Land Use Plan;
- Provide future residents, visitors and employees with multiple modes of transit/non-single occupancy vehicle (non-SOV) accessibility for internal and external trips;

- Provide options to reduce vehicle trips and emissions by linking effective travel demand management with transportation systems and parking policies;
- Provide residents and employees on the Project site with multiple modes of transportation options (i.e., walk, bike, public transit, private auto, car share, bike share, etc.);
- Provide for 80 percent on average, but no less than 50 percent of each Village's residential units to be located within one-half mile of a Village Center that includes retail and service uses;
- Provide parks within a 5-minute walk (0.25 mile) of 80 percent of all residential units;
- Provide a transit route easement no less than 25 feet wide in the Centennial Commerce District connecting the Town Center, Business Park, and Industrial/Civic areas and also northerly connecting to the Village Five Core;
- Require TMA implementation of a combination of transit and transportation measures to ensure that a minimum of 30 percent of total daily internal on-site trips are completed by using transit modes other than SOV use, including on-demand pooled car or multi-passenger vehicle service;
- Require TMA implementation of a combination of transit and transportation measures to ensure that a minimum of 20 percent of total off-site peak hour commutes to and from the Project site are completed by using transit modes other than SOVs, which shall include requiring the TMA to provide am and pm peak hour demand-based multi-passenger transit services for Project residents and employees that link the Project to the nearest Metrolink station and commuter transit hub to the south (currently Santa Clarita) and the east (currently Palmdale), and to the north (Tejon Mountain Village, Tejon Commerce Center, and Grapevine), and to other commuter destinations as warranted by consumer demand;
- Require TMA implementation of a program to coordinate with automotive dealers on the Project site to promote battery electric or hydrogen fuel cell (collectively "electric") vehicles; at minimum, this program shall include preferences for dealers offering bulk discounts or other financial incentives;
- Require TMA oversight of requirement for service fleet vehicles for agencies or businesses located on-site to be electric vehicles to the maximum extent feasible, as determine by the Project Applicant/Developer in consultation with the County, or other future vehicle technologies as may be developed and comply with California's air quality, greenhouse gas, and climate change mandates, and which meet the performance and affordability needs of Project employees and residents as

determined by the Project Applicant/Developer in consultation with the County (collectively, "Future Vehicle Fleet" or "FVF"); and

- Require TMA implementation of a combination of measures to provide adequate temporary bike or personal electric vehicle (e.g., scooter) parking during large public events conducted at civic center, large amphitheaters, fairgrounds or athletic stadium uses that may be permitted, temporarily permitted, or conditionally permitted on the Project site pursuant to the Specific Plan. Such measures may include, but are not limited to, providing valet bike parking, temporarily anchored bike parking racks, or a secured temporary bike parking enclosure.

The Circulation Plan sets forth requirements for roadway classifications; intersection controls; and traffic calming measures. Where approved by the California Department of Transportation (Caltrans) and the County and where maintenance and durability costs are comparable to traditional materials, use "cool" pavement materials, which reduce heat island effect.

MM 10-26 *(Traffic Study MM-24)* Each component of the Mobility Plan incorporates Transportation Demand Management (TDM) features to reduce dependence on the automobile, provide for a more efficient use of transportation resources among Project occupants, and thereby reduce pollutant emissions. Related to this is the creation and ongoing operation of a Transportation Management Association (TMA) to fund and manage the operation of ongoing transportation programs, including but not limited to transit and on-demand services. The key TDM elements that are inherent in the overall Mobility Plan are:

- Sidewalks, greenway trails, and community trails that link residential, schools, shopping, and employment areas;
- Small- to medium-sized streets and blocks that allow for shorter walking distances to retail, parks, schools, and other destinations;
- Pedestrian environments incorporated with public streets;
- Transit route easement connecting the residential and commerce areas;
- Parking behind buildings to encourage walking in retail areas along street frontage; and

Parks within 0.25 mile of 80 percent of all residential units.

MM 13-2 The Project shall implement the following components of the Green Development Program to minimize potentially adverse visual impacts:

- Site the highest density residential uses in areas adjacent to commercial centers and permit residential uses in commercial centers through the

Mixed Use Overlay to place larger populations within key centers, encouraging pedestrian activity and a reduction in vehicle trips.

- Preserve oak woodlands, savannahs, and other sensitive habitat areas near Oso Canyon and at the foot of the San Gabriel Mountains southerly of SR-138.
- Exterior lighting shall not cause unacceptable light trespass and shall be fully shielded.
- Outdoor lighting shall be turned off using automatic control devices or systems between the hours of 10:00 PM and sunrise of the following day in commercial, business park, and mixed use areas, unless required by the County Building Code. If the property operates beyond 10:00 PM, then outdoor lighting shall be turned off 1 hour after the operation ends for the day.
- Outdoor lighting for safety and security reasons is allowed after 10:00 PM only if fully shielded motion sensors are used to turn off lighting after 10:00 PM and the sensors turn the lighting off automatically no more than 10 minutes after the area is vacated or at least 50 percent of the total lumen levels are reduced or 50 percent of the total outdoor light fixtures are turned off between 10:00 PM and sunrise.
- Outdoor lighting in residential and open space areas that are over 15 feet in height shall have an output no greater than 400 lumens.
- The maximum height of outdoor lighting fixtures shall be:
  - 20 feet in Residential and Open Space areas
  - 30 feet in Commercial, Mixed Use, and Public areas
  - 35 feet in Business Park areas
- Prohibit the use of outdoor lighting that includes drop-down lenses, mercury vapor lights, ultraviolet lights, search lights, laser lights and any outdoor lighting that flashes, blinks, alternates or moves unless mandated for health and safety reasons by a public agency.
- Outdoor light fixtures in outdoor recreational areas shall be mounted, aimed, and fully shielded so that light beams fall onto activity areas and no unacceptable light trespass occurs on surrounding areas or properties. Outdoor lighting shall only provide the minimum necessary to illuminate recreational activities areas and shall be no more than 75 feet high. Preferably, these fixtures shall also use high pressure sodium or metal halide lamps.

Outdoor advertising signs, business signs and roof and freestanding signs that are lighted shall be fully shielded. Externally mounted light fixtures shall be mounted on the top of the sign and shall be oriented downward. Externally mounted bulbs or lighting tubes for signs shall not be visible from adjoining

properties or public rights-of-way, unless such bulbs or tubes are filled with neon, argon, krypton or other self-illuminating substance.

MM 13-6 An Exterior Lighting Plan shall be prepared in coordination with a qualified Biologist, be reviewed by an Electrical Engineer who is registered in the State of California, and then approved by the County prior to the submittal of each building permit. The Lighting Plan shall apply to all proposed structures and for development areas that border natural open space resources.

The Lighting Plan shall be consistent with County Rural Outdoor Lighting District requirements for the Antelope Valley and shall provide guidelines for the outdoor lighting to be used throughout the Project site. Final lighting orientation and design shall be approved by the County.

The Lighting Plan shall include, but not be limited to, the following:

a. All lighting within 300 feet of natural open space areas shall only be implemented where needed for safety and shall be directed away from these areas and shielded so that light is not directed into open space and riparian areas. Where possible, these safety lights shall be motion sensor activated with infrared light sensors to prevent daytime lighting.

b. Mercury vapor and halide lighting shall not be used on the perimeter of the developed areas or adjacent to designated open space.

c. Illumination levels should be compatible with the character and use of surrounding development as determined by national lighting organizations. The Illuminating Engineering Society of North America publishes recommendations for the lighting industry that include illumination levels for outdoor lighting.

d. Low-pressure sodium lighting fixtures or flashing lights shall not be used except in emergency situations.

e. Exterior lighting standards and fixtures shall be located and designed to minimize direct glare beyond the site boundaries. Lighting shall be fully shielded and directed downwards to confine light spread solely within necessary locations. Illumination or glare from the exterior lighting system onto adjacent properties or streets should be minimized.

f. Security lighting fixtures shall not project above the roof line of the building on which they are mounted.

g. Where applicable, time-control devices shall be utilized on exterior lighting sources.

Street, parking lot, and structural lighting fixtures shall provide adequate illumination for safety and comfort of vehicular and pedestrian traffic while minimizing light spillover.

MM 14-1 The Project shall implement the following components of the Green Development Program to provide healthy outdoor parks and recreational resources on the Project site:

- Provide a functional system of community trails, greenway trails, and natural corridors to serve as recreational opportunities and as alternative means of transportation to reduce vehicular traffic.
- Provide "complete streets" throughout the community to provide alternative modes of transport (walking, biking, low-speed vehicles (LSVs) such as neighborhood electric scooters, bikes and other low-speed electric vehicles (NEVs).
- Incorporate sidewalks (separated by a parkway from streets) and trees to be the main street elements to create a walking environment, promoting pedestrian activity.
- Provide Class I – IV bike lanes throughout the Project to ensure a variety of alternative transportation options.
- Provide permanently anchored bicycle racks within 200 feet of visitors' entrance of nonresidential buildings, readily visible to passers-by, for 5 percent of new visitor motorized vehicle parking spaces being added, with a minimum of two-bike capacity rack.
- For new nonresidential buildings with over 10 tenant-occupants or for additions or alterations that add 10 or more tenant vehicular parking spaces, provide secure bicycle parking spaces at a rate of 5 percent of tenant parking being added, with a minimum of one space.
- For residential buildings, provide permanently anchored bicycle racks within 100 feet of the visitor's entrance, readily visible to passers-by, for 5 percent of visitor motorized vehicle parking capacity with a minimum of one two-bike capacity rack.
- Nonresidential buildings within the Business Park and Commercial areas with 75,000 or more square feet of gross floor area shall provide locker rooms and shower facilities.
- For multifamily buildings, provide on-site bicycle parking for at least one bicycle per every two dwelling units

Include planned green space, which are integrated pockets of open space (including greenways, tree stands, hillsides, and community parks) with minimal developed amenities. Planned green space reduces evapotranspiration; allows natural percolation of runoff from adjacent lands; reduces the heat island effect; and adds aesthetic value to a site. Planned green space can provide habitat as well as linkages to other habitat areas.

Measures From this Chapter of the RPDEIR

MM 21-1 The Project Applicant/Developer shall provide the County with plans and specifications that demonstrate 50 percent of the Project's anticipated electrical energy demand at buildout shall be satisfied from on-site renewable energy generation. "Anticipated electrical energy demand" shall be determined on the basis of the anticipated loads for each building as shown in the reports submitted at the time of building permit application pursuant to the Building Energy Efficiency Standards of Title 24. "On-site renewable energy generation" includes, but is not limited to, solar, wind, geothermal, biofuel and hydroelectric systems. These systems shall be installed in connection with the development of one or more of the following: residential units, nonresidential buildings, public buildings, or Specific Plan utility facilities located either within the Specific Plan area or within its immediate vicinity.

MM 21-2 The Project's plans and specifications shall demonstrate compliance with California Green Building Standards (CALGreen) Code voluntary measure A4.203.1.2.1 Tier 1 for newly-constructed low-rise residential buildings. Therefore, the energy efficiency of these buildings would exceed 2016 Title 24 requirements by 15 percent. Low rise buildings are three stories or less. The Project shall incorporate the Green Development Program (*Centennial Specific Plan,* Appendix 2A), and the Project Applicant/Developer shall be responsible for the implementation of this requirement, which may include energy reduction measures such as use of high performance glazing, radiant heat roof barriers, insulation of all pipes, programmable thermostats, fluorescent and LED bulbs, solar access, sealed ducts, strategic placement of trees and other shading devices. All single-family homebuyers shall have the option to include a photovoltaic array system.

MM 21-4 The Project Applicant/Developer shall require, in contract specifications, that contractors limit construction equipment idling to 3 minutes and include a program to ensure that equipment operators comply with the 3-minute limit.

MM 21-5 The Project Applicant/Developer shall provide plans and specifications to the County demonstrating that a minimum of 70 percent of public and community pools and spas shall be equipped with active solar heating systems where heating is necessary or desired. The Project Applicant/Developer shall provide the proposed plan for compliance with this provision prior to obtaining a permit for the pool.

MM 21-6 Deeds, CC&Rs or similar legal documents shall contain the following requirement: The owners of all single-family and multi-family residential units shall be required, upon resale, to present to the buyer a written energy audit checklist prepared by a qualified third party at the time the seller provides the buyer with the Real Estate Transfer Disclosure Statement required by California Civil Code, Section 1102 et seq. The energy audit checklist shall

certify that all HVAC systems, thermostats, appliances, windows and swimming pools (if applicable) are the same as those originally installed or, if changed, otherwise comply with Centennial's Green Development Program. All residential pool covers shall be removable, and shall not be automatic retractable covers.

The CC&Rs of the master homeowners association or other applicable association shall require compliance with the provisions of this measure and shall provide notice to individual owners of the resale energy audit checklist requirement. The master homeowners association or other applicable association shall monitor compliance and provide the County with an annual report of compliance with this measure.

MM 21-7 Deeds, CC&Rs, or similar legal documents shall contain the following requirement: For nonresidential buildings, within ninety (90) days after the end of the first full calendar year following the issuance of the certificate of occupancy and within ninety (90) days after each five year period thereafter, the owner or tenant in possession thereof shall submit to the master commercial owners association or other applicable association a report prepared by the owner or a qualified, independent third party that evaluates whether all major building systems such as heat furnace, air conditioner, and other mechanical fixtures are working within the design standards established for each system. The master commercial owners association or other applicable association shall monitor compliance and provide the County with an annual report of compliance with this measure.

MM 21-8 Energy efficient major appliances and HVAC systems that meet the more stringent of applicable California Energy Commission (CEC) requirements or ENERGY STAR requirements, or equivalent, shall be exclusively offered by residential builders. Major appliances subject to this requirement include dishwashers, clothes washers, refrigerators, and room air conditioners.

MM 21-9 The Project Applicant/Developer shall provide plans and specifications to the County that have been prepared in accordance with the Project Water Purveyor or alternate qualified public utility district requirements and standards, demonstrating that the Project's wastewater reclamation facilities (WRFs) shall include equipment to capture and reuse biogas for energy production.

MM 21-10 The Project Applicant/Developer shall provide plans and specifications to the County demonstrating that nonresidential or multi-family buildings shall be constructed with recycled water infrastructure to serve common areas for these facilities, except where prohibited by law. To the extent recycled water is produced within the Project and available, recycled water shall be used for landscape irrigation within those common areas. Compliance with these measures shall be established prior to the issuance of a construction permit for nonresidential and multi-family facilities and at the time of County

approval of final landscaping plans submitted by the Project Applicant/Developer after final map recordation for homeowners association common areas. Covenants, conditions and restrictions (CC&Rs) shall require the owners of such common areas to maintain, repair and replace irrigation systems and plantings in accordance with County approved plans.

MM 21-13 The outdoor residential (single-family and multi-family) water budget for water-budget-based ratemaking shall be based on having no more than 25 percent turf grass allowed in landscaped areas of single-family detached residential front yards and multi-family residential common areas.

MM 21-14 Ten percent of all homes in Centennial communities that permit housing, with the exception of the lowest density area (Community 8-2) will be affordable, in conformance with the Affordable Housing Implementation Plan (see Appendix 3-H of the *Centennial Specific Plan*).

MM 21-17 The Project Applicant/Developer shall provide plans and specifications to the County demonstrating that the following features have been incorporated into the building designs for non-residential buildings:

- Bicycle parking spaces at a rate of 5 percent of minimum required vehicle parking spaces for non-residential land uses.
- Preferential parking for low-emitting, fuel-efficient, and carpool/van vehicles shall be provided as specified in Section A5.106.5.1, Nonresidential Voluntary Measures, of the CALGreen Code.

MM 21-18 The Project Applicant/Developer shall provide plans and specifications to the County demonstrating that the following features have been incorporated into the building designs or specifications for multi-family residential buildings:

- Visitor parking shall include preferentially located parking spaces for alternative-fueled vehicles.
- Bicycle parking shall be provided as specified in Section A4.106.9, Residential Voluntary Measures, of the CALGreen Code or as required by County Code Section 22.52.1225B, whichever is more stringent.

MM 21-19 For parking structures and parking lots with 20 or more parking spaces that serve uses other than residential or nonresidential buildings (e.g., trailhead, park), and parking structures and parking lots that serve multifamily residential buildings with 17 or more multifamily units, the Project Applicant/Developer shall provide plans and specifications to the County demonstrating that the following features have been incorporated into the parking facility:

- The parking facility shall include a minimum of five percent preferentially located parking spaces for electric vehicles.

- Five percent of the total number of parking spaces provided in the parking facility, but in no case less than one, shall be Electric Vehicle Parking Spaces (EV Spaces), as defined in CALGreen Code Section 202, capable of supporting future Electric Vehicle Supply Equipment (EVSE), as defined in CALGreen Code Section 202 Calculations for the required number of EV Spaces shall be rounded up to the nearest whole number and the design and installation of each EV space shall be consistent with Section A4.106.8.2, Residential Voluntary Measures, and Section 4.106.4.2, of the CALGreen Code as follows:

  Single charging space requirements. When only a single EV Space is required, install a listed raceway capable of accommodating a dedicated branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall be securely fastened at the main service or subpanel and shall terminate in close proximity to the proposed location of the charging system into a listed cabinet, box or enclosure.

  Multiple charging spaces required. When multiple EV Spaces are required, plans shall include the location(s) and type of EVSE, raceway method(s), wiring schematics and electrical calculations to verify that the electrical system has sufficient capacity to charge simultaneously all the electrical vehicles at all designated EV Spaces at their full rated amperage. Plan design shall be based on Level 2 EVSE at its maximum operating ampacity. Only underground raceways and related underground equipment are required to be installed at the time of construction.

- For residential parking facilities, bicycle parking shall be provided as specified in Section A4.106.9, Residential Voluntary Measures, of the CALGreen code or as required by County Code Section 22.52.1225B, whichever is more stringent.

MM 21-20 The Project Applicant/Developer shall ensure the implementation of the Green Development Program, including but not limited to requirements that all landscape maintenance equipment used within the Specific Plan area must be electric and those measures implementing applicable legal requirements, including the Los Angeles Tree Planting Ordinance (Los Angeles County Code, Title 22, Division 1, Chapter 22, Part 20).

MM 21-21 The Project Applicant/Developer shall require contractors to use locally available and recycled building materials, provided such materials meet all applicable Building Code and other requirements, and area readily available and comparably priced to assure that such materials do not increase the cost and decrease the affordability of housing or community infrastructure.

MM 21-22 The Project parking lots shall be designed to reduce vehicle queueing and improve pedestrian safety. Parking lot access designs shall include self-enforcement features for reducing the speeds on driveways, such as speed bumps or curved driveways. The parking lots shall include clearly marked

pedestrian pathways connecting building entrances to parking, sidewalk, and transit drop-off/pick-up locations.

Measures Implementing Certain Settlement Agreement Requirements

SA MM-1 Ensure through enforceable Covenants, Conditions & Restrictions (CC&Rs) that no natural gas infrastructure may be installed within the Centennial Specific Plan Project site for residential buildings, recreation centers, and/or public facilities, and through CC&Rs ensure that natural gas use is prohibited in such structures.

SA MM-2 Ensure through enforceable CC&R's that natural gas use is prohibited for use by Non-Residential tenants for non-essential uses, which include space heating, non-industrial water heating, space cooling, and non-commercial cooking.

SA MM-3 Prohibit all fireplaces that use fossil fuels within the Centennial Specific Plan Project site.

SA MM-6 Prior to issuance of certificate of occupancy, install one operable Level 2 or higher-capacity EV charger at each of the project's single-family dwelling units.

SA MM-7 Prior to issuance of certificate of occupancy, install operable Level 2 or higher-capacity EV chargers in the parking area of each of the project's multi-unit Residential buildings in such capacity that one charger is provide for one assigned parking space for each of the building's dwelling units.

SA MM-8 Install in nearby parking spaces for each of the project's Non-Residential structures operable Level-2 or higher-capacity EV chargers at a rate of at least one EV charger for each 3,500 square feet of space and no fewer than 3,500 charging connectors. The required EV chargers must be installed and made operatable prior to issuance of a certificate of occupancy for the relevant Non-Residential structure.

SA MM-9 Install 100 operable EV chargers to serve Medium-Duty and Heavy-Duty vehicles at the Tejon Ranch Commerce Center. The first of these EV chargers must be installed and made operable prior to receipt of a certificate of occupancy for the 100,972nd square feet of non-residential uses within the Centennial Specific Plan area, and one additional EV charger must be installed and made operable at the Tejon Ranch Commerce Center prior to issuance of a certificate of occupancy for each subsequent 100,972 square feet of non-residential uses within the Centennial Specific Plan thereafter.

SA MM-11 Provide $7,500 in reimbursement incentives per vehicle for 500 vehicles to businesses that conduct activities on Tejon Ranch to purchase Medium-Duty and Heavy-Duty vehicles (i.e., Class 1-7 trucks or vans) expected to be used in

part on Tejon Ranch, for a total of $3,750,000. Such EV incentives must be offered to businesses or other entities for Class 1-7 vehicles that conduct activities on Tejon Ranch, to be awarded in $7,500 grants with one $7,500 grant awarded prior to the certificate of occupancy for the 38th dwelling unit within the Centennial Specific Plan area, and additional $7,500 grants for every subsequent 38th dwelling unit until the incentives are fully depleted.

SA MM-12 Provide an EV grant program of $5,000 per vehicle for 300 vehicles for public agency service fleets that serve the Centennial Specific Plan community, but which are controlled by public agencies no specific to the Project, such as for public safety, maintenance, and operations for a total of $1,500,000. In addition, provide an EV grant program of $5,000 per vehicle to provide for up to 100 vehicles for project-specific community agencies or organizations, including the Homeowners Association, Commercial and Hospitality Associations, and Transportation Management Association, for a total of $500,000. The total of $2,000,000 in EV incentives must be offered to public service and community service fleet vehicles used at the Project site must be awarded in $5,000 grants, within one $5,000 grant awarded prior to issuance of the certificate of occupancy for the 48th dwelling unit in the Project site, and additional $5,000 grants for every subsequent 48th dwelling unit until the incentives are fully depleted.

SA MM-13 Provide incentives totaling $8,000,000 to support the purchase of school and transit buses and vans for the project's schools and community transit fleets, and for the installation of EV chargers to serve them. Such incentives must be awarded in $20,000 grants, with the first grant awarded prior to issuance of the certificate of occupancy for the 48th dwelling unit within the Centennial Specific Plan area and an additional $20,000 grant for each subsequent 48th dwelling unit until the incentives are fully depleted.

SA MM-14 Install 5,000 operable Level 2 or higher-capacity EV chargers in disadvantaged communities located within the jurisdictional boundary of the South Coast Air Management District, with the first EV charger installed prior to issuance of a certificate of occupancy for the 4th dwelling unit within the Centennial Specific Plan area, with one additional EV charger installed for every 4th dwelling unit thereafter.

SA MM-15 Establish enforceable CC&Rs governing residential buildings in the Grapevine Specific Plan Project site prohibiting the installation of natural gas infrastructure serving residential buildings, ensuring that natural gas use is prohibited in such structures, and prohibiting fireplaces that use fossil fuels.

SA MM-16 Ensure through enforceable CC&Rs that Community Choice Aggregation or an equivalent Southern California Edison ("SCE") plan with 100% Clean Power ("Clean Power Plan") is required to the extent allowed by law and is the default choice when not required by law for all residents, businesses, recreation centers, and public facilities at the Project.

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2.3 WILDFIRE

2.3.1 INTRODUCTION

The County of Los Angeles Department of Regional Planning Environmental Checklist Form, which has been prepared pursuant to the California Environmental Quality Act (CEQA), requires that potential project impacts related to wildfire be evaluated as part of the environmental documentation process. The County is recirculating this new Section 2.3, *Wildfire*, in response to the Second District Court of Appeal Opinion in *Center For Biological Diversity et al. v. County of Los Angeles et al.* (2025) 112 Cal.App.5th 317, issued on June 26, 2025. The 2017 Draft EIR evaluated wildfire risks in Section 5.3, *Hazards and Fire Safety*, and determined that, with adherence to requirements for fuel modification zone management (MM 3-9) and emergency access (MM 3-7), the Project's impact related to wildfires would be less than significant. This recirculated Section 2.3, *Wildfire*, incorporates new thresholds of significance from CEQA Appendix G, which were added in December 2018 as part of a comprehensive update to the CEQA Guidelines.

As discussed in Section 1.0, *Introduction*, of this Recirculated Partial Draft EIR, the Centennial EIR was decertified by the Board of Supervisors on December 2, 2025, in compliance with the Writ issued by the Los Angeles County Superior Court in the Centennial Litigation. As further explained in Section 1.0 of this Recirculated Partial Draft EIR, the Opinion of the Court of Appeal in the Centennial EIR held that the Centennial EIR's analysis of the wildfire risk impacts associated with the Project's off-site project features was inadequate.

In compliance with the Writ, Section 2.3, *Wildfire*, of the Recirculated Partial Draft EIR, supersedes the fire safety analysis set forth in Section 5.3.3 of the Centennial EIR to address the CEQA deficiencies identified by the Court of Appeal in the Opinion. For this Recirculated Partial Draft EIR, wildfire is a standalone section that incorporates the new threshold questions for wildfire and a revised threshold question for hazards and hazardous materials related to fire safety from Appendix G, which were added in December 2018 as part of a comprehensive update to the CEQA Guidelines.

Following issuance of the Court Order, but prior to final judgment in the Climate Resolve action, the Project proponent and Climate Resolve entered into a settlement agreement to finally resolve the Climate Resolve litigation (Settlement Agreement). The Settlement Agreement requires enhanced wildfire prevention and protection, including on- and off-site fire mitigation commitments, including a Project-specific Fire Protection Plan (FPP) that identifies community fire hazard reduction measures including building design and fuel management requirements. The Settlement Agreement also requires the Project proponent to establish a Good Neighbor Firewise Fund of $500,000 annual to aid communities with a population of less than 10,000 located within 15 miles of the Tejon Ranch in order to reduce off-site fire risks, increase fire prevention, protection, and response measures and reduce or avoid impacts to Project residents and neighboring communities.

2.3.2 ENVIRONMENTAL SETTING

Wildfire Background

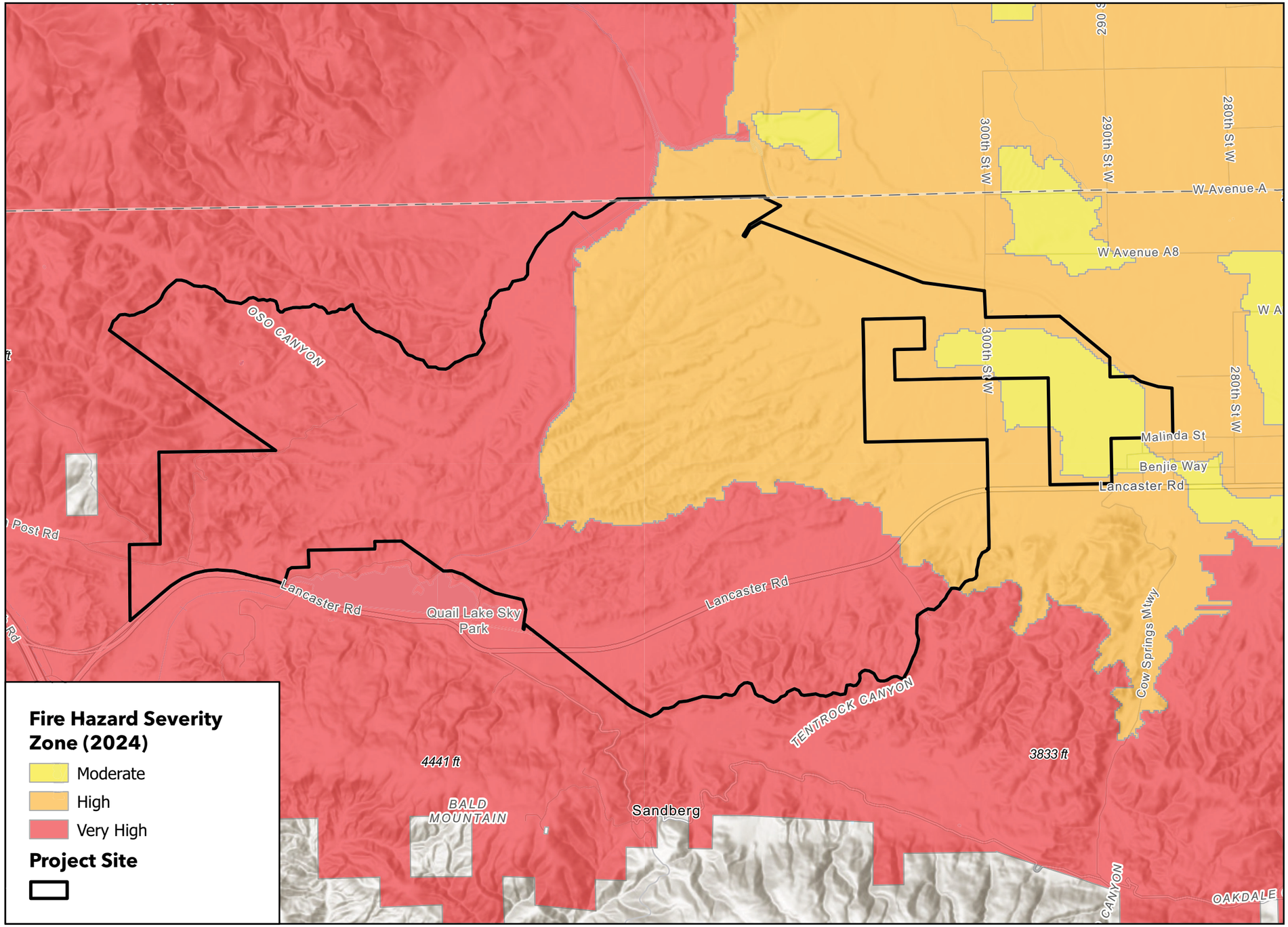
Fire environments are dynamic systems and include many types of environmental factors and site characteristics. Fires can occur in any environment where conditions are conducive to ignition and fire movement. Areas of naturally vegetated open space in California are typically comprised of conditions that may be favorable to wildfire spread. The three major components of fire environment are topography, vegetation (fuels), and climate. The state of each of these components and their interactions with each other determines the potential characteristics and behavior of a fire at any given moment. It is important to note that wildland fire may transition to urban fire if structures are receptive to ignition. Inversely, it is possible for structural fires to transition into wildland fires in extreme cases. This is more likely to occur when multiple structures are burning simultaneously, particularly in areas with close proximity to receptive wildland fuels. Structure ignition depends on a variety of factors and can be prevented/minimized through a layered system of protective features including fire resistive landscapes directly adjacent the structure(s), application of known ignition resistive materials and methods, and suitable infrastructure for firefighting purposes.

The 5-mile buffer area encompassing and surrounding the Project has experienced wildfires at an average return interval of approximately four years. As shown on Figure 1, the Project site's potential wildfire hazard is mapped by CAL FIRE as primarily moderate and high with the western portion of the site mapped as a Very High Fire Hazard Severity Zone (VHFHSZ) (CAL FIRE 2024).

Climate

The Project site and the area proposed for development with off-site project features is in the western Antelope Valley region of Los Angeles County. The climate of this region is influenced by both the arid continental climate to the east and the moister Mediterranean climate to the west; therefore, the region is described as having a hot–to–cold and semi-arid to sub-humid climate. The temperatures in the Project area range from an average low of 55.4°F in January to an average high of 98.9°F in July. Precipitation typically occurs between December and March with average rainfall of 8.51 inches (WRCC 2021).

From a regional perspective, the fire risk in Southern California can be divided into three distinct "seasons" (Nichols et al. 2011; Baltar et al 2014). The first season, the most active season and covering the summer months, extends from late May to late September. This is followed by an intense fall season characterized by fewer but larger fires. This season begins late September and continues until early November. The remaining months, November to late May cover the mostly dormant, winter season. Typically, the highest fire danger in southern California coincides with Santa Ana winds. The Santa Ana wind conditions are a reversal of the prevailing southwesterly winds that usually occur on a region-wide basis near the end of fire season during late summer and early fall. They are dry, warm winds that flow from the higher desert elevations in the east through the mountain passes and canyons



Source: Dudek 2024

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Fire Hazard Severity Zones (2024)

Figure 1

Centennial Recirculated Partial Environmental Impact Report

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Map not to scale

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which increase in velocity as they converge through the canyons. Localized wind patterns on the Project site may be affected by regional topographies. As observed throughout Los Angeles County and the majority of Southern California, the Project Site is occasionally subject to strong Santa Ana wind events.

Climate Change

A rapidly warming climate is expected to impact California and the Western U.S. from both direct and indirect effects. Since 2006, the State has monitored and created climate change assessments to assess the impacts and risks of climate change. Based on California's Fourth Climate Change Assessment, published in 2019, the current average annual maximum daily temperature is projected to increase between 5.6 and 8.8 degrees by 2100 (State of California 2019a). Because wildfires can contribute to climate change via greenhouse gas emissions and be affected by climate change, the Fourth Climate Assessment also examined how climate change is expected to impact wildfires across the State. The changes to temperature, loss of snowpack, and earlier snowmelt are expected to result in dryer "dry" seasons and result in more susceptible forests (State of California, 2019a).

The Fourth Climate Assessment also prepared assessments based on regions to capture region-specific effects of climate change (State of California, 2019b). The Los Angeles Region includes all of Ventura, Los Angeles, and Orange Counties as well as the urbanized areas of San Bernardino and Riverside Counties. This region has a highly variable topography ranging from coastal plains to mountain ranges to desert areas. In the Los Angeles Region, average maximum temperatures are projected to increase around 4°–5° by 2050 and 5°–8° by 2100. As a result, the number of extremely hot days is also expected to increase across the region. Precipitation is projected to only exhibit small changes in average precipitation amounts; however, extreme precipitation events, both wet and dry, are expected to increase. Areas are projected to experience a 25%–30% rise in the wettest day of the year by the end of the century (State of California, 2019b).

Topography

The Project site and the area proposed for development with off-site project features are located at moderate elevations in the transition zone between the southern edge of the Tehachapi Mountains and the northern edge of the Liebre Mountains. Elevations on the site range from approximately 3,000 to 4,300 feet above mean sea level (USGS 2021, 2022). Of note is Oso Canyon that bisects the central portion of the property along a north-south axis ultimately draining in a northerly direction toward the Alamo Power Plant and the East Branch of the California Aqueduct. Oso Canyon is the primary drainage feature on site and affects the site's overall drainage pattern, which trends from the higher elevations in the northwest and southeast toward the northeast. Immediately south of the property is Quail Lake, which is associated with the California Aqueduct that also bisects the property and is aligned roughly parallel with Oso Canyon but situated to the east.

Slopes on the Project site range from relatively flat (0%) up to nearly 95%. Steeper slopes are associated with the portions of the property that are situated on the flanks of the Tehachapi and Liebre Mountains in the west and southeast portions of the property. Site wide topography is illustrated in Figure 2. Topography related to the off-site improvements such as the SR-138 intersections, wells/water infrastructure, aqueduct crossings, and dry utilities are located in areas that are predominately flat and level with minimal or no vegetation, such as paved roads, gravel shoulders, concrete pads, and previously disturbed ground. As presented below in Table 2.3-1, planned development areas are not proposed within the site's steeper areas. Roughly 80% of proposed development would occur in areas with existing slopes of less than 15%. The Project site can be described as occurring in a wide valley absent of the topographical features that contribute to more aggressive fire behavior.

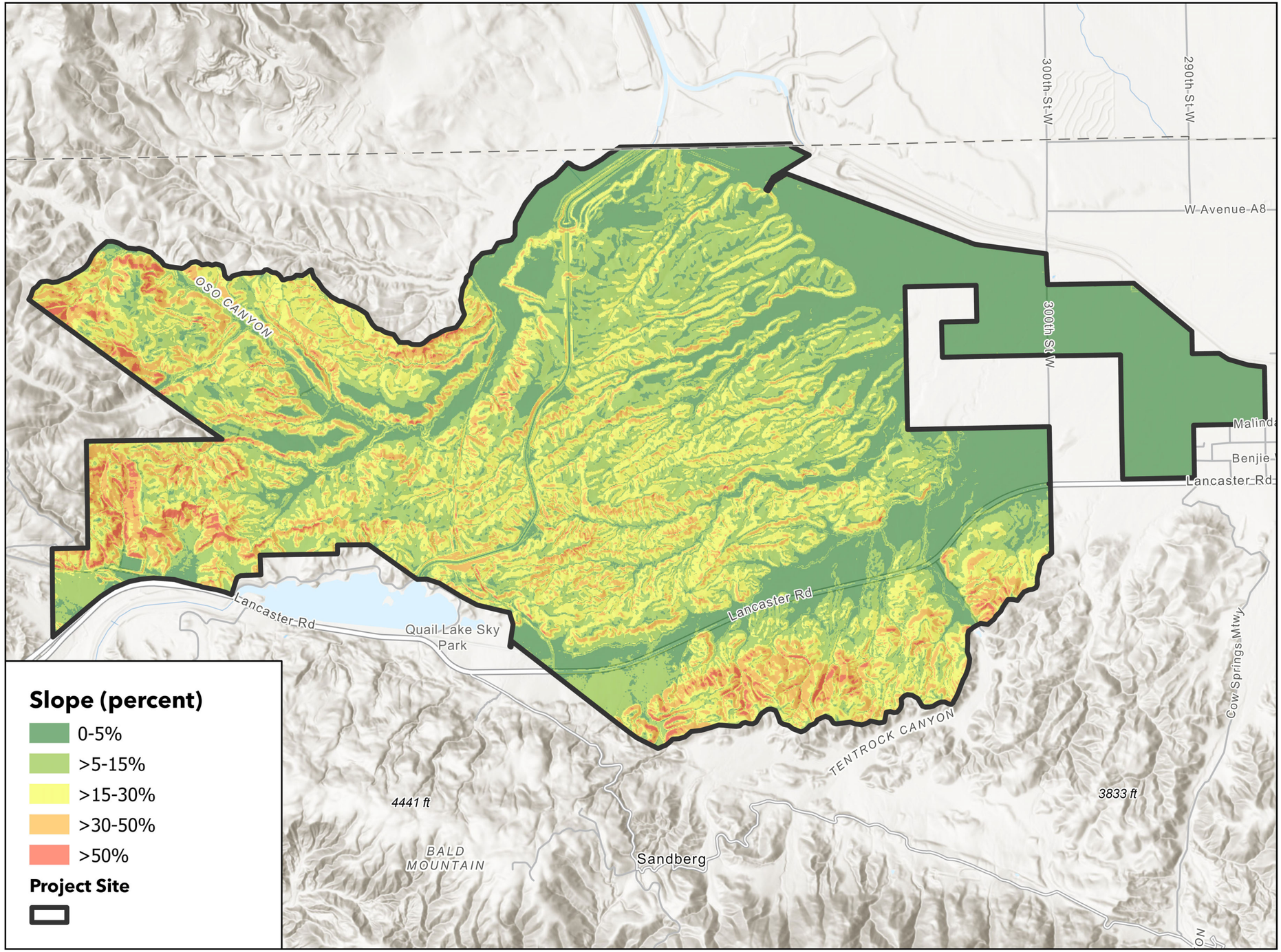
TABLE 2.3-1
SLOPES WITHIN THE PROJECT SITE

Slope Percent	Acreage Within Project Site	Acreage Within Proposed Development Areas
0%–5%	3,488	2,292
>5%–15%	4,471	2,772
>15%-–30	2,700	1,193
>30%–50%	1,409	242
>50%	237	<1
Source: LANDFIRE, 2023.		

Topography influences fire risk by affecting fire spread rates. Typically, steep terrain results in faster fire spread up-slope and slower spread down-slope. Terrain that forms a funneling effect, such as chimneys, chutes, or saddles on the landscape can result in especially intense fire behavior, including faster spread and higher intensity. Conversely, flat terrain tends to have little effect on fire spread, resulting in fires that are driven by vegetation and wind. Topographic features that may present a fire spread facilitator are the slope and canyon alignments, which may serve to funnel or channel winds, thus increasing their velocity and potential for influencing wildfire behavior.

Vegetation (Fuels)

Vegetation on the Project site is dominated primarily by both native and non-native grassland which represent nearly 76% of the site's vegetative cover. Compared to other fuel types, grasslands have lower fuel loads and typically result in faster-moving fires with lower flame lengths and heat output. Unlike wildfires in shrub and forest vegetation, grass fires are generally more easily contained and require less resources and planning to achieve fire containment. While grassland fires may spread rapidly and are influenced heavily by wind, fires in shrub and forest vegetation involve higher intensity fire behavior, present greater risk to structures, and often more difficult control measures. Mixed oak woodland inhabits nearly 12% of the site and is situated both on the north-facing slope of the Liebre Mountains in the southeast portion of the property as well as in the higher elevations in the western portion



Source: Dudek 2023

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Terrain

Figure 2

Centennial Recirculated Partial Environmental Impact Report

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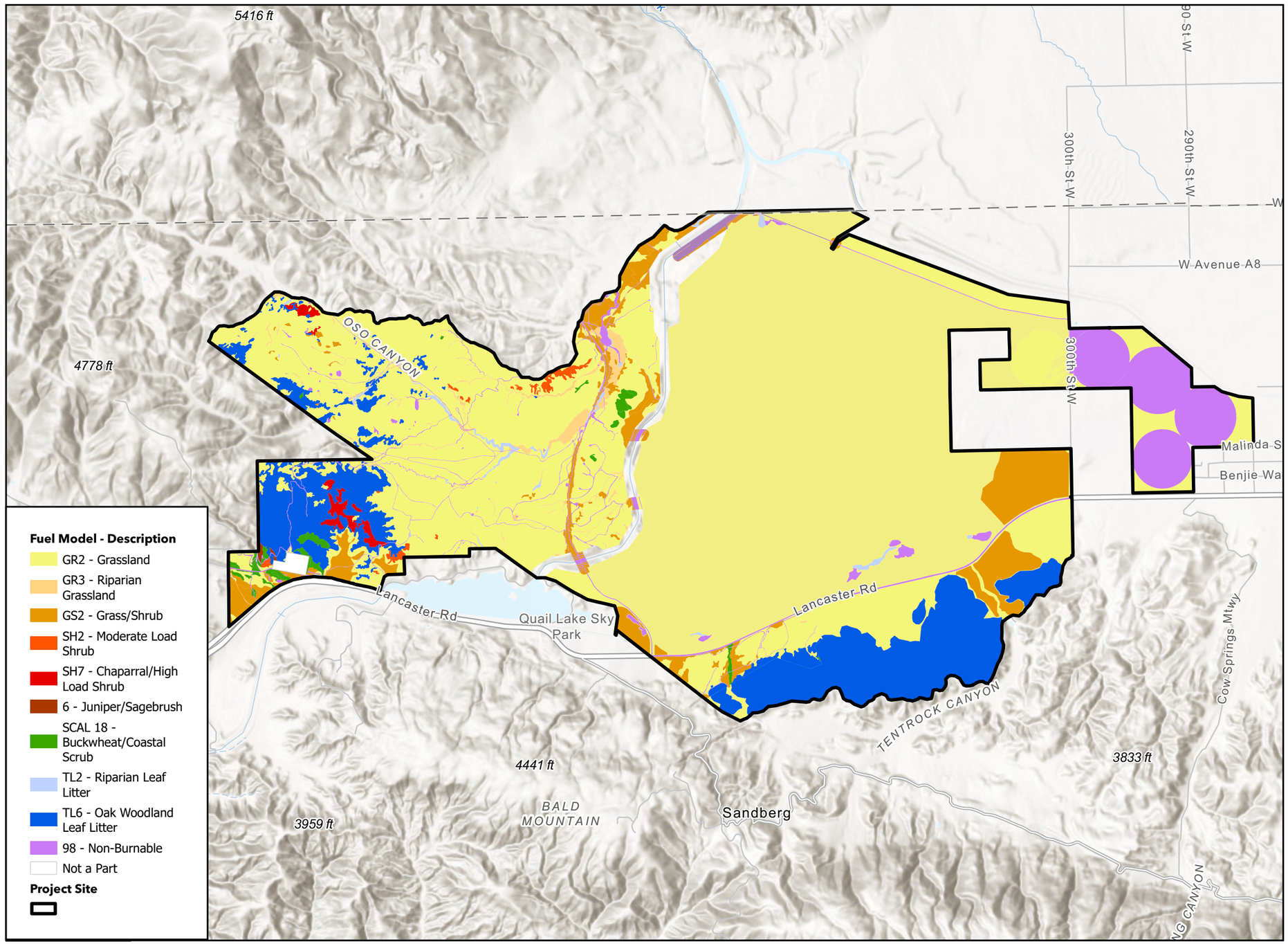
of the property. This vegetation type exhibits similar fire behavior to that of grasslands due to grass understory fuels and significant spacing between individual trees. Scrub vegetation types, scattered throughout the site, represent nearly 8% of the site's vegetative cover. While this fuel type can burn intensely under strong, dry wind patterns, it does not produce the high fire intensity wildland fires which occur within chaparral fuel types, which cover less than 1% of the site. The remaining cover on site (less than 4%) consists of disturbed or un-vegetated areas (roads, aqueduct, etc.), riparian scrub, and riparian woodland habitats.

Table 2.3-2 provides details of the vegetation types on the Project site (Bonterra 2009). In all, there are 45 individual vegetation types on site. For the purposes of evaluating fuel type coverage on site, these vegetation types have been aggregated into similar fuel characteristic groupings based on fuel model type, resulting in a total of 11 different fuel models, of which 2 are classified as non-burnable. On-site vegetation is important relative to wildfire as some vegetation, such as scrub, chaparral, and grassland habitats are highly flammable while other vegetation, such as riparian communities or forest understory, are less flammable due to their higher plant moisture content, compact structure, and available shading from overstory tree canopies. Figure 3 presents the vegetation/fuel distribution for the Project site.

Off-site vegetation surrounding the Project site consists of grazed grasslands, oak woodlands, scrub vegetation, chaparral, coniferous forests, and extensive agricultural areas to the east. Off-site improvements such as the SR-138 intersections, wells/water infrastructure, aqueduct crossings, and dry utilities are located in areas that predominately have minimal or no vegetation, such as paved roads, gravel shoulders, concrete pads, and previously disturbed ground.



Source: Dudek 2029

Vegetation Fuel Model

Figure 3

Centennial Recirculated Partial Environmental Impact Report

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TABLE 2.3-2
PROJECT SITE VEGETATION TYPES

Vegetation Type	Acreage on the Project Site
Agricultural	106.80
Alkali Meadow	3.66
Alluvial Scrub	5.56
Baltic Rush	21.48
Bladderpod Scrub	0.67
Bush Lupine Scrub Dominated	1.80
California Buckwheat Scrub Dominated	21.92
California Juniper/California Buckwheat Scrub	4.70
Chamise/Bigberry Manzanita Chaparral	40.10
Coastal and Valley Freshwater Marsh	2.46
Coffeeberry Scrub	11.95
Cottonwood Woodland	0.88
Developed/Disturbed	184.68
Goldenbush Scrub Dominated	16.06
Grassland (Undifferentiated)	5,937.35
Great Basin Scrubs	360.85
Mixed Oak Woodland	1,371.63
Native Perennial/California Annual Grassland	3,076.54
Open Water/Developed	6.88
Ornamental	0.12
Rabbitbrush Scrub Dominated	443.10
Riparian Herb	54.38
Rush Riparian Grassland	48.98
Seeps and Ephemeral Ponds	8.05
Southern Arroyo Willow Riparian	8.57
Southern Cottonwood Willow Woodland	3.96
Southern Willow Scrub	14.14
Unvegetated Wash	25.87
Valley Oak Riparian Woodland	12.08
Wand Buckwheat Scrub Dominated	6.07
Willow Riparian Forest	15.05
Willow Riparian Woodland	10.18
Wright's Buckwheat Scrub Dominated	16.51
Yucca Scrub Dominated	33.20
Total	**11,876.32**

Source: BonTerra, 2009

Land Uses

Project Site

The Project site is part of Tejon Ranch, a vast working ranch that includes extensive grazing, orchards, and vineyards. The Project site is currently used for grazing, as part of Tejon Ranch's historical and ongoing operations, as described below.

The Project site is traversed by existing utility infrastructure. Existing on-site dry utilities include (1) Southern California Edison (SCE) electric lines running north-south to the Oso Pumping Plant and National Cement Plant, which include lines that run southwest to northeast across the Project site connecting to the lines feeding the Oso Pumping Plant and National Cement Plant, as well as electricity lines running east-west along SR-138; (2) an AT&T underground telephone line running northwest to southeast across the western portion of the Project site; (3) a SoCalGas line that runs north-south immediately west of the Project site; and (4) fiber-optic lines installed by Quest Communications, which are adjacent to the I-5.

Historic and Ongoing Grazing Program (Project Site and Adjacent Ranch Lands)

Tejon Ranch remains unfragmented and has been carefully managed with livestock and cattle grazing for nearly 160 years, including the Project site. Actively grazed landscapes, including those of portions of the ranch within the Antelope Valley of Los Angeles County, assure sustainability and limit the severity of wildfire because grassland fuel loads are reduced. The sustainable grazing operation employed at Tejon Ranch effectively reduces the grass fuels on an ongoing basis which reduces the potential for ignitions and for rapid fire spread.

Tejon Ranch has maintained a database since 2013 providing annual Residual Dry Matter (RDM) records from locations across the ranch. RDM refers to the unused forage at the end of the grazing season (fall) and provides an approximation of the residual fuel load. (Ratcliff et al., 2022) At the end of the grazing period where the occurrence of extreme fire weather (Santa Ana wind conditions) is most likely, the average RDM the Centennial Project site equates to roughly 467 pounds per acre. Flame lengths have been found to be reduced to under 8 feet when RDM is managed to under 1,225 pounds per acre (Ratcliff et al., 2022). The sustainable grazing operation employed at Tejon Ranch effectively reduces the grass fuels on an ongoing basis which reduces the potential for ignitions and for rapid fire spread. Following buildout of Centennial, Tejon Ranch has committed to maintaining grazing management within the Project's open spaces. Tejon Ranch's commitment to ongoing grazing management at Centennial facilitates the historic land use and stewardship of the area while also maintaining and reducing the vegetative fuels. Because of the variability of the historic grazing practices, this analysis considers the grazing program as an additional environmental benefit but, conservatively, this analysis does not rely upon those benefits when determining the Project's potential impacts under CEQA.

Surrounding Land Uses

Most of the adjacent lands can be categorized as undeveloped or agricultural. Vast open spaces in the Project's vicinity include the Angeles National Forest, Bureau of Land Management lands, Tejon Ranch, Hungry Valley State Vehicular Recreation Area, Los Padres National Forest, and various private landowners. Proximal human development is generally limited to small enclaves along major roadways. Existing communities are rural, large-lot residential and lower-density residential and are generally confined to the areas of Lebec, Gorman, Caswell, Sandberg, Three Points, and Neenach. According to the Microsoft Building Footprints database, 1,064 structures currently exist within 10 miles of the Project site, the majority of which are located to the east near Three Points and Neenach.

Other adjacent land uses include but are not limited to the following:

- California Department of Water Resources—the California Aqueduct and Quail Lake.
- Pacific Gas and Electric (Kern County), Southern California Gas Company, and Southern California Edison—major transmission facilities currently traverse Tejon Ranch and adjacent areas and are constantly monitored and regularly upgraded.
- SCE maintains one existing substation (known as the Bailey Substation) in the immediate vicinity of the Project site, located north of SR 138 in southwestern corner of the Project site. This substation currently serves as a transmission-only substation (220 kilovolt [kV]/66 kV) and is not currently equipped for distribution (12 kV) capability.
- SCE also maintains the existing Gorman distribution substation, located approximately 3.6 miles northwest of the Project site along Gorman Post Road. This substation is equipped for distribution voltage and serves as the primary electric distribution facility in the Project area. It is from this facility that the existing 12-kV lines extend east along Gorman Post Road toward and within the Project site. The current capacity of the existing 12-kV facilities extending from the Gorman Substation along SR 138 can accommodate approximately 300 dwelling units.
- There are existing SoCalGas gas lines within and near the Project boundary. There is one high-pressure gas main in the vicinity. It is a 33-inch diameter, north-south running gas transmission line (Line 225) within a SoCalGas-owned easement that originates at SR-138 just east of the I-5. A six-inch high-pressure distribution line branches from Line 225 and travels east to serve the National Cement Plant. Existing natural gas service to the Project site is available through a medium-pressure gas distribution main in SR-138, which branches from Line 225 and travels east to the Quail Lake area (SCGC 2006).
- Multiple telecommunications carriers—communications facilities and fiber optic easements currently traverse Tejon Ranch and adjacent areas.
- National Cement—major mining operations.
- Agricultural and farming operations.

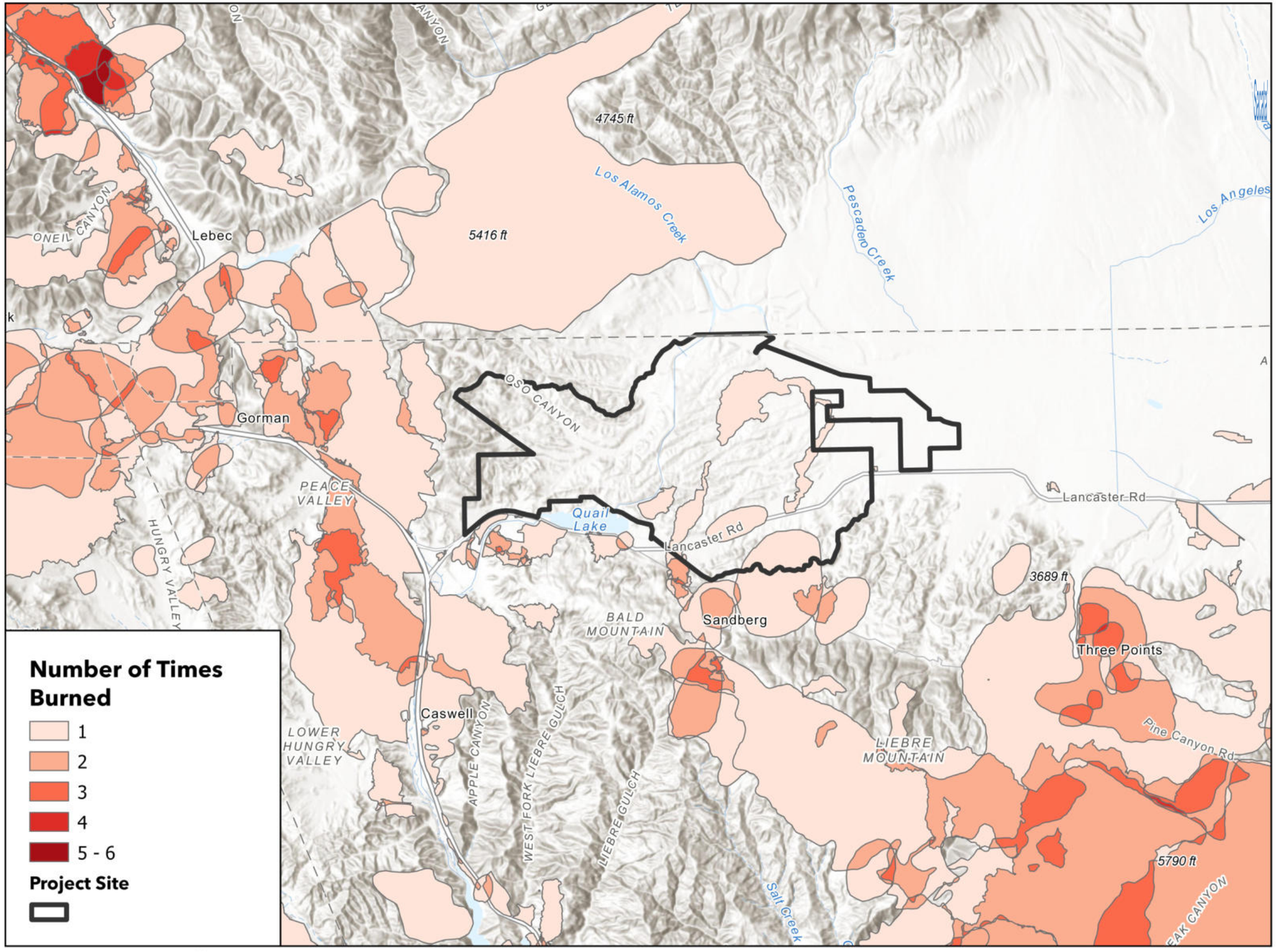
Historic Wildland Fires

Fire history data provides valuable information regarding fire spread, fire frequency, ignition sources, and vegetation/fuel mosaics across a given landscape. Fire history data can be used to show whether large fires have occurred in the area of the Project site, which indicates whether they may be possible in the future. Fire history for the Project site and surrounding areas was analyzed through records from CAL FIRE in their Fire and Resource Assessment Program database and the Integrated Reporting of Wildland-Fire Information (IRWIN) database. The Project site and the surrounding vicinity have been subject to wildfires, primarily within the direct vicinity of, but also some fires occurring within, the Project boundaries.

According to the Fire and Resource Assessment Program (FRAP) most recent database, 23 wildland fires have occurred on or within 1 mile of the Project site since 1800, with 11 wildland fires burning on site at an average fire return interval of roughly 11 years (Figure 4). The most recent recorded fire burning in the vicinity (within 1 mile) of the Project site (i.e., excluding an unrecorded 2024 fire) was the Gorman Fire, which occurred in May of 2007 and burned west of the property and west of Interstate (I) 5. Limited wildfire history at the Project site is believed to be largely due to the site's terrain, managed fuels, barriers to wildland fire spread, quick wildfire detection and response, the removal of fine fuels by cattle grazing and a lower risk for human-caused ignitions as compared to off-site developed areas. Off-site wildland fire occurrence is more common, particularly south of the Project site in the Liebre Mountains. However, wildfires encroaching onto the Project site from the south rarely enter the interior of the site due to the position of SR-138 and its use as a fire break. Wildfires that have previously burned within the Project site have been limited in size with an average area of 284 acres.

According to the IRWIN database, there have been 196 reported wildfire ignitions within 5 miles of the Project since 2014. As presented in Figure 5, regional wildfire ignition locations documented in the IRWIN database are strongly associated with major roadways including I-5, State Route (SR) 138, and Pine Canyon Road, with most ignitions occurring along I-5 to the southwest of the Project site.

Other than the southern portion of the property, relatively few documented fires have burned within the interior portion of the Project site. Table 2.3-3 summarizes the fire history on and near the Project site.



Source: Dudek 2024

Wildfire History

Figure 4

Centennial Recirculated Partial Environmental Impact Report

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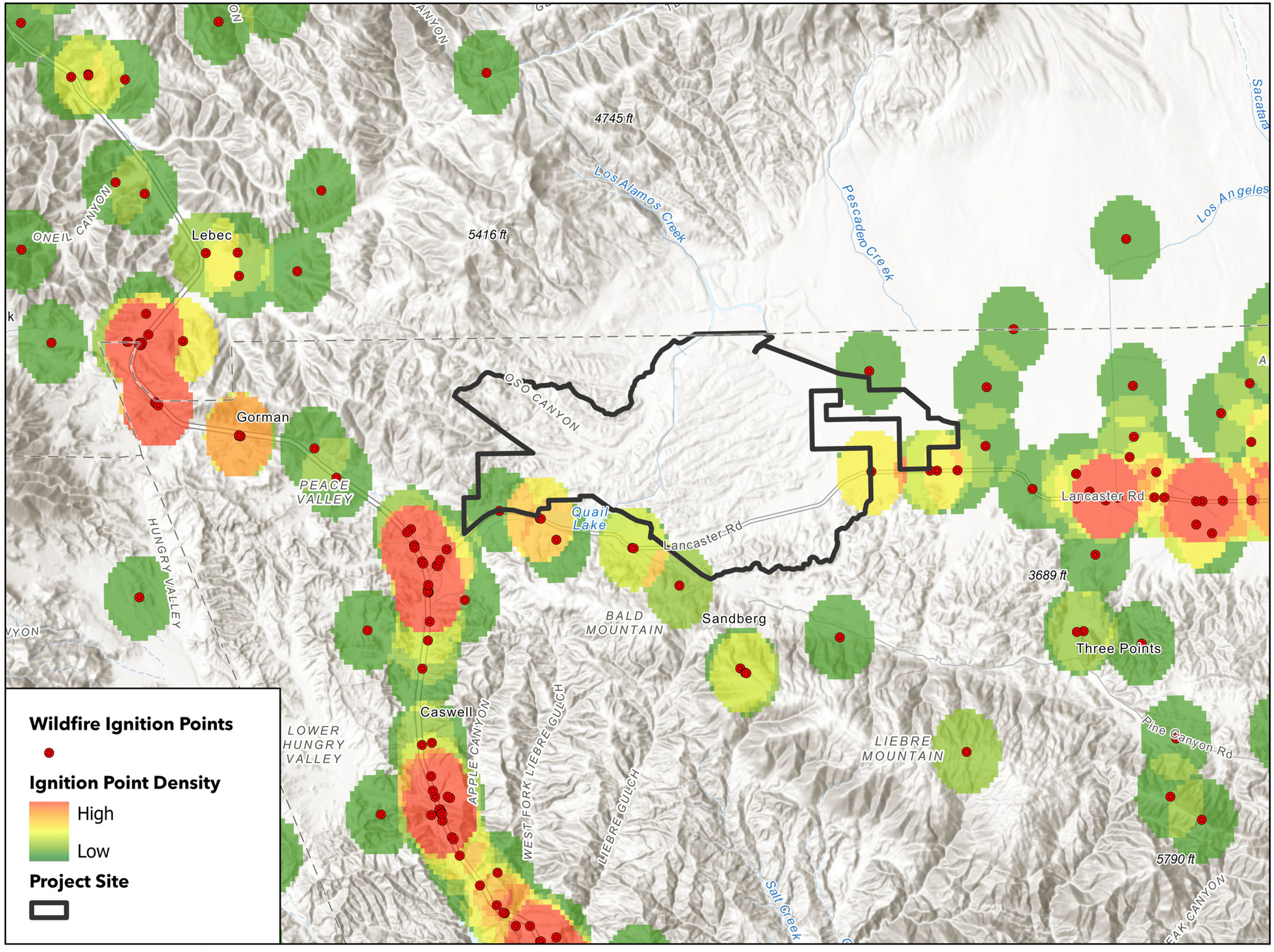

Source: Dudek 2023

Vegetation Fire Ignitions (2014–2022)

Figure 5

Centennial Recirculated Partial Environmental Impact Report

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TABLE 2.3-3
FIRE HISTORY WITHIN FIVE MILES OF THE PROJECT BY DECADE

Year	Number of Fires	Average Size of Fire (acres)
1912–1920	12	516
1921–1930	15	1,578
1931–1940	1	117
1941–1950	2	5,049
1951–1960	2	507
1961–1970	4	12,418
1971–1980	1	3,969
1981–1990	6	2,330
1991–2000	7	498
2001–2010	17	1,709
2011–2020	18	1,777
2021–Present	6	175
Total	**91**	**Average Fire Size: 1,915**

Source: FRAP, 2023

While not yet recorded in the public fire history database, other notable wildfires within the region have occurred in 2024. Most notably, the Post Fire ignited on June 15, 2024, near Gorman Post Road in Gorman, California located roughly 6 miles northwest of the Project site. Fueled by strong winds from the northeast and long-range spotting, the fire spread rapidly to the south, eventually growing to 15,563 acres. Firefighters suggested that fire spread was exacerbated by two back-to-back wet winters which resulted in dense vegetation growth. Two structures were destroyed in the Post Fire, resulting in one civilian injury. The fire was declared fully contained on June 26, 2024. While the Post Fire spread quickly south, it did not cross Interstate-5 or threaten the Project site.

The White Fire ignited on July 13, 2024, roughly 11 miles south of Tehachapi near Twin Lakes. The fire was caused by lightning and eventually spread to 5,646 acres roughly 16 miles northeast of the Project site. The fire was limited to the steeper terrain of the Tehachapi Mountains and did not spread to the Antelope Valley or the Project site.

As stated above, this analysis evaluates 160 years of land management history and analyzes wildfires from the past 112 years. While wildfires certainly occurred prior to this period, and prior to arrival of Euro-Americans in California when the region was populated by various indigenous communities, including but not limited to Kitanemuk, Interior Chumash, Tejon Tribe and Tataviam, these historic fires do not change the Project's wildfire risks analysis nor the Recirculated Draft EIR's determination of significance.

2.3.3 REGULATORY SETTING

This subsection presents a summary of federal laws, regulations and other actions, state laws, regulations, and other actions, and then local (regional and County) laws, regulations and other actions that are related to the Project. Regulations that would apply to the Southern California Edison (SCE) system upgrades that would be constructed to serve the Project and California Department of Transportation (Caltrans) highway improvements to service the Project are identified separately below.

Federal

Disaster Mitigation Act

The Disaster Mitigation Act of 2000 requires that a state mitigation plan, as a condition of disaster assistance, add incentives for increased coordination and integration of mitigation activities at the state level through the establishment of requirements for two different levels of state plans: "Standard" and "Enhanced." States that develop an approved Enhanced State Plan can increase the amount of funding available through the Hazard Mitigation Grant Program. The Disaster Mitigation Act also established a new requirement for jurisdictions to prepare local mitigation plans.

National Incident Management System

The National Incident Management System (NIMS) guides all levels of government, non-governmental organizations and the private sector to work together to prevent, protect against, mitigate, respond to and recover from incidents. NIMS provides community members with a shared vocabulary, systems and processes to successfully deliver the capabilities described in the National Preparedness System. The National Preparedness System is a Presidential Policy Directive establishing a common goal to create a secure and resilient nation associated with prevention, protection, mitigation, response and recovery to address the greatest risks to the nation. One core area is fire management and suppression.

NIMS defines operational systems that guide how personnel work together during incidents.

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

National Fire Protection Association 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 or the local fire agency.

Federal Wildland Fire Management Policy

The Federal Wildland Fire Management Policy was developed in 1995 and updated in 2001 and 2009 by the National Wildfire Coordinating Group, a federal multi-agency group that establishes consistent and coordinated fire management policy across multiple federal jurisdictions. The Federal Wildland Fire Management Policy acknowledges the essential role of fire in maintaining natural ecosystems. The Federal Wildland Fire Management Policy is based on the following guiding principles, found in the Guidance for Implementation of Federal Wildland Fire Management Policy (NWCG 2009):

- Firefighter and public safety are 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.

National Fire Plan

The National Fire Plan, officially titled Managing the Impacts of Wildfire on Communities and the Environment: A Report to the President In Response to the Wildfires of 2000, was a presidential directive in 2000 as a response to severe wildland fires that had burned throughout the United States. The National Fire Plan focuses on reducing fire impacts on rural communities and providing assurance for sufficient firefighting capacity in the future. The plan addresses five key points: firefighting, rehabilitation, hazardous fuels reduction, community assistance, and accountability. The plan provides technical, financial, and resource guidance and support for wildland fire management across the United States. U.S. Forest Service and the Department of the Interior are working to successfully implement the key points outlined in the plan (DOI/USDA 2000).

International Fire Code

Created by the International Code Council, the International Fire Code addresses a wide array of conditions hazardous to life and property, including fire, explosions, and hazardous materials handling or usage. The International Fire Code places an emphasis on prescriptive and performance-based approaches to fire prevention and fire protection systems. Updated every 3 years, the International Fire Code uses a hazards classification system to determine the appropriate measures to be incorporated to protect life and property (often these measures include construction standards and specialized equipment). The International Fire Code uses a permit system (based on hazard classification) to ensure that required measures are instituted (ICC 2021).

Federal Energy Regulatory Commission

The Federal Energy Regulatory Commission requires utilities to adopt and maintain minimum clearance standards between vegetation and transmission voltage power lines. These clearances vary depending on voltage. In most cases, the minimum clearances required in state regulations are greater than the federal requirement. In California for example, the state has adopted General Order 95 rather than the North American Electric Reliability Corporation (NERC) Standards as the electric safety standard for the state (California Public Utilities Commission [CPUC]). Federal Energy Regulatory Commission is not discussed further.

National Electric Safety Code 2023

The National Electric Safety Code covers basic provisions related to electric supply stations, overhead electric supply and communication lines, and underground electric supply and communication lines. The code also contains work rules for construction, maintenance, and operational activities associated with electric supply and communication lines and equipment. The code, which must be adopted by states on an individual basis, is not applicable in the State of California. As stated previously, the State of California has adopted its own standard (General Order 95) rather than a general national standard. The National Electric Safety Code is not discussed further.

North American Electric Corporation Reliability Standards

The NERC is a nonprofit corporation comprising 10 regional reliability councils. The overarching goal of NERC is to ensure the reliability of the bulk power system in North America. To achieve its goal, the NERC develops and enforces reliability standards, monitors the bulk power systems, and educates, trains, and certifies industry personnel To improve the reliability of regional electric transmission systems and in response to the massive widespread power outage that occurred on the Eastern Seaboard, NERC developed a transmission vegetation management program that is applicable to all transmission lines operated at 200 kilovolts (kV) and above to lower voltage lines designated by the Regional Reliability Organization as critical to the reliability of the electric system in the region. The plan, which became effective on April 7, 2006, establishes requirements of the formal

transmission vegetation management program, which include identifying and documenting clearances between vegetation and any overhead, ungrounded supply conductors, while taking into consideration transmission line voltage, the effects of ambient temperature on conductor sag under maximum design loading, fire risk, line terrain and elevation, and the effects of wind velocities on conductor sway The clearances identified must be no less than those set forth in the Institute of Electrical and Electronics Engineers Standard 516- 2021, IEEE *Guide for Maintenance Methods on Energized Power Lines.*

Institute of Electrical and Electronics Engineers Standard 516-2009

The Institute of Electrical and Electronics Engineers is a leading authority in setting standards for the electric power industry. Standard 516-2021, *Guide for Maintenance Methods on Energized Power Lines*, establishes minimum vegetation-to-conductor clearances in order to maintain electrical integrity of the electrical system.

State

California Government Code

California Government Code, Sections 51175 through 51189, provide guidance for classifying lands in California as fire hazard areas and requirements for management of property within those lands. The California Department of Forestry and Fire Protection (CAL FIRE) is responsible for classifying FHSZs based on statewide criteria and makes the information available for public review. Further, local agencies must designate, by ordinance, VHFHSZs within their jurisdiction based on the recommendations of CAL FIRE.

Section 51182 sets forth requirements for maintaining property within fire hazard areas, such as defensible space, vegetative fuels management, and building materials and standards. Defensible space around structures in fire hazard areas must consist of 100 feet of fuel modification on each side of a structure, but not beyond the property line unless findings conclude that the clearing is necessary to significantly reduce the risk of structure ignition in the event of a wildfire. Clearance on adjacent property shall only be conducted following written consent by the adjacent owner. Further, trees must be trimmed from within 10 feet of the outlet of a chimney or stovepipe, vegetation near buildings must be maintained, and roofs of structures must be cleared of vegetative materials. Exemptions may apply for buildings with an exterior constructed entirely of nonflammable materials.

California Code of Regulations

Title 14 Natural Resources

Title 14, Division 1.5, Chapter 7, Subchapter 3, Fire Hazard, also sets forth requirements for defensible space if the distances specified above cannot be met. For example, options that have similar practical effects include noncombustible block walls or fences, 5 feet of noncombustible material horizontally around the structure, installing hardscape landscaping or reducing exposed windows on the side of the structure with a less-than-30-foot setback, or additional structure hardening such as those required in the

California Building Code (CBC)—California Code of Regulations Title 24, Part 2, Chapter 7A (CWUIC Chapter 5).

Title 24 California Building Standards Code

California Building Code

Part 2 of Title 24 of the California Code of Regulations contains the CBC. Chapter 7A of the CBC regulates building materials, systems, and/or assemblies used in the exterior design and construction of new buildings located within a fire hazard area. Fire hazard areas as defined by the CBC include areas identified as FHSZs within State Responsibility Areas (SRAs) or wildland–urban interface (WUI) fire areas. The purpose of Chapter 7A is to establish minimum standards for the protection of life and property by increasing the ability of structures located in a fire hazard area to resist the intrusion of flames or burning embers projected by a wildfire, and to contribute to a systematic reduction in structural losses from a wildfire. New buildings located in such areas must comply with the ignition-resistant construction standards outlined in Chapter 7A. Chapter 7A regulations are now required in Chapter 5 of the CWUIC.

California Fire Code

The California Fire Code (CFC) is a set of regulations that govern fire safety standards and practices within the state of California. It is part of the California Building Standards Code (Title 24 of the California Code of Regulations) and is enforced by local building authorities across the state. The 2022 California Fire Code (CCR Title 24, Part 9) establishes regulations to safeguard against the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The Fire Code also establishes requirements intended to provide safety for and assistance to firefighters and emergency responders during emergency operations. The provisions of the Fire Code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure throughout California. Chapter 12 has specific, detailed design requirements for stationary electrical energy storage systems and microgrids to ensure fire safe construction, operation, and decommissioning. Chapter 33 (Fire Safety During Construction and Demolition) of the California Fire Code outlines general fire safety precautions to maintain required levels of fire protection, limit fire spread, establish the appropriate operation of equipment and promote prompt response to fire emergencies. The Fire Code includes regulations regarding fire-resistance-rated construction, fire protection systems such as alarm and sprinkler systems, fire services features such as fire apparatus access roads, means of egress, fire safety during construction and demolition, and WUI areas. The County has adopted the California Fire Code as Title 32 of the Los Angeles County Municipal Code, as amended, including appendices addressing fire-flow requirements for buildings.

Projects designed in compliance with current fire code requirements exhibit an already high level of fire safety prior to the incorporation of additional project mitigation measures. Many code requirements such as defensible space, construction materials and methods, and road access, have been developed and confirmed effective through extensive research. For

example, a recent study concluded that a 2008 or newer home with code compliant construction is about 40% less likely to be destroyed than a 1990 home experiencing an identical wildfire exposure (Baylis and Boomhower 2021).

Additionally, the State Fire Marshal's data shows that homes constructed according to the California Building Code Chapter 7A standards (Chapter 5 CWUIC) significantly reduce fire risks for properties located in the wildland-urban interface (WUI) and fire hazard severity zones (CBIA, 2022). Additionally, the risk of major structural damage is greatly minimized when homes are part of a well-planned and mitigated master-planned community, such as the Project (FEMA, 2023). According to the Office of the State Fire Marshal (OSFM) Property Loss Data, no master-planned community built after the adoption of California Building Code Chapter 7A has experienced significant structural losses. Therefore, modern code-compliant master planned communities provide a baseline level of high wildfire safety when designed to modern fire code requirements.

Note: The Project would also be subject to the CWUIC Chapter 5 which includes the former Chapter 7A of the current CBC; the current California Residential Code, Section 327. The Project would also be subject to the provisions of Section 4291 of the Public Resources Code; Chapter 12-7A of the CA Reference Standards Code, Title 14, Division 1.5, Chapter 7, Subsection 2, Articles 1-5 and Title 14, Division 1.5, Chapter 7, Subsection 3, Section 1299 of the CA Code of Regulations; Title 19, Division 1, Chapter 7, Subchapter 1, Section 3.07 of the CA Code of Regulations; and Sections 51175-511829 of the CA Government Code.

California Wildland–Urban Interface Code

On September 20, 2025, the California Building Standards Commission approved the Office of the State Fire Marshal's emergency regulations amending the CBC (California Code of Regulations [CCR] Title 24, Part 2). Section 701A of the CBC includes regulations addressing materials and construction methods for exterior wildfire exposure and applies to new buildings located in SRAs or VHFHSZs in Local Response Areas. The California Wildland – Urban Interface Code was adopted in February 2025. Beginning in 2026, the building, fire, and residential codes will be moved into the California Wildland – Urban Interface Code (CCR Title 24, Part 7).

California Strategic Fire Plan

The Cal Fire Strategic Plan 2024 is a reflective and collaborative effort between CAL FIRE and its employees, partners, collaborators, and the public to identify operational opportunities, key issues, and future strategies that will drive improvement. It also serves as a tool for measuring progress toward embodying CAL FIRE's values in pursuit of its goals and objectives, and continued implementation of the mission and vision. CAL FIRE's Mission is to "serve and safeguard the people and protect the property and resources of California". The Vision is to "lead a dedicated, diverse, and inclusive workforce while maximizing

partnerships to create a safer and more resilient California". . The Cal Fire Strategic Plan 2024 identifies the following 6 goals (CAL FIRE 2024):

1. Attract, hire, and retain quality employees.
2. Ensure all employees understand how the Department's various programs and job duties contribute towards efficiently achieving the CAL FIRE mission.
3. Promote a culture that values equitable access, embraces diverse backgrounds and experiences, and actively removes barriers to cultivate a more inclusive environment.
4. Leverage technology to modernize internal human resources processes and create efficient and effective innovative solutions to promote, support, and enhance the employee experience.
5. Strengthen the Department's physical and digital infrastructure and streamline equitable access to information across core services.
6. Identify core capabilities and strengthen operational capacity.

California Mutual Aid

The purpose of Emergency Management Mutual Aid is to provide emergency management personnel and technical specialists to support the disaster operations of affected jurisdictions during an emergency. In accordance with the California Master Mutual Aid Agreement, local and state emergency managers have responded in support of each other under a variety of plans and procedures. Immediately following the 1994 Northridge Earthquake, city and county emergency managers, along with the Coastal, Inland, and Southern Regions of the California Governor's Office of Emergency Services, developed Emergency Management Mutual Aid to provide a valuable service during the emergency response and recovery efforts at the Southern Region Emergency Operations Center, local emergency operations centers, the Disaster Recovery Center, local assistance centers, and in the field. Since that time, Emergency Management Mutual Aid has often been used to deploy emergency managers and other technical specialists not covered by law enforcement or fire mutual aid plans in support of emergency operations and response throughout California.

California Natural Disaster Assistance Act

The California Natural Disaster Assistance Act provides financial aid to local agencies to assist in the permanent restoration of public real property, other than facilities used solely for recreational purposes, when such real property has been damaged or destroyed by a natural disaster. The California Natural Disaster Assistance Act is activated after a local declaration of emergency, after the California Emergency Management Agency gives concurrence with the local declaration, or after the governor issues a proclamation of a state emergency. Once the California Natural Disaster Assistance Act is activated, local government is eligible for certain types of assistance, depending on the specific declaration or proclamation issued.

State Fire Regulations

State fire regulations are set forth in Sections 13000 et seq. of the California Health and Safety Code and include regulations concerning building standards (as also set forth in the CBC), fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, high-rise building and childcare facility standards, and fire suppression training. The state fire marshal enforces these regulations and building standards in all state-owned buildings, state-occupied buildings, and state institutions throughout California.

Fire Hazard Severity Zones

To assist each fire agency in addressing its responsibility area, CAL FIRE uses a severity classification system to identify areas or zones of severity for fire hazards within the state. CAL FIRE is required to map these zones for SRAs and identify VHFHSZs for Local Responsibility Areas. These zones were established based on fire environments and the likelihood of wildfire ignition and spread. The initial mapping process was completed and adopted in 2007. The 2007 fire hazard severity mapping at the Project site included mostly High FHSZs (north, west, and south), an area of VHFHSZ in the central/north-central portion of the site, and a Moderate FHSZ in the eastern portion of the site.

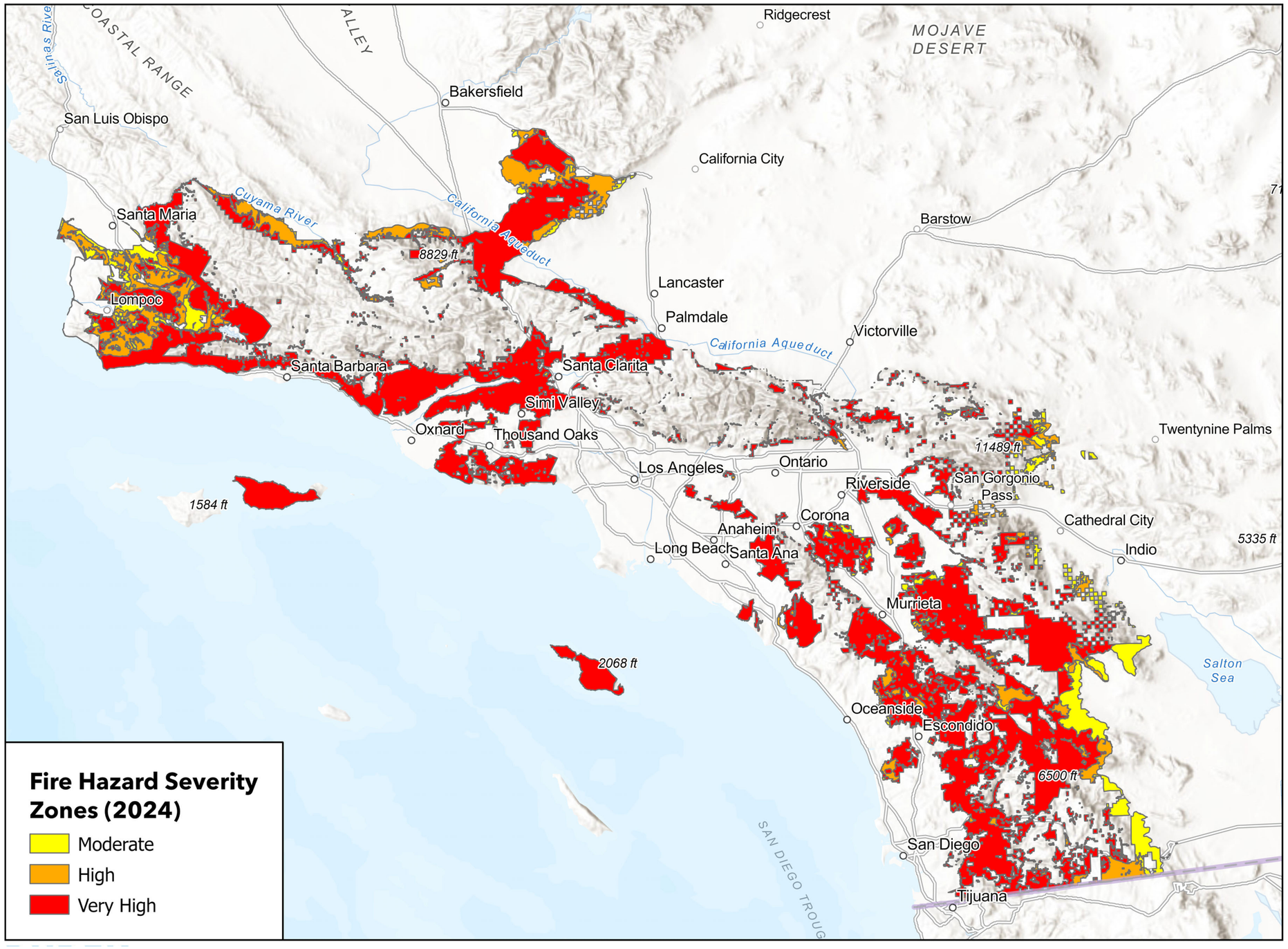
CAL FIRE is also statutorily required to update the FHSZ maps on a periodic basis. The first map update in SRAs, like that found on the Project site, has recently been completed. The first and second drafts of the updated maps resulted in most of the site being elevated to a VHFHSZ with small portions of the eastern and northeastern portions mapped as High or Moderate FHSZs. The analysis of the updated CAL FIRE modeling approach detailed throughout this section revealed that the inputs, including fuel models/fire behavior and burn probabilities, were not well aligned to the actual conditions on site. After providing details to CAL FIRE, the Project site was remapped by CAL FIRE to include primarily High FHSZs, as depicted in Figure 6.

The Fire Hazard Severity Zone map assesses "hazard" rather than "risk." Similar to flood zone maps, which describe areas based on the likelihood of flooding, the FHSZ map identifies areas based on the probability of fire occurrence and expected fire behavior. "Hazard" refers to the physical conditions that create a likelihood of fire, whereas "risk" considers the potential damage a fire could cause to the area, including factors like fuel reduction projects, defensible space, and ignition-resistant building construction.

The zones serve multiple purposes, such as designating areas where California's defensible space standards and wildland-urban interface building codes are mandatory. They can influence real estate disclosures and may be considered by local governments in their general planning.

California Emergency Services Act

The California Emergency Services Act (California Government Code 8550, et seq.), provides for the creation of an Office of Emergency Services, assigns and coordinates functions and duties to be performed during an emergency, facilitates mutual aid, and assigns resources



Source: Dudek 2024

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Southern California Fire Hazard Severity Zones (2024)

Figure 6

Centennial Recirculated Partial Environmental Impact Report

N W E S

Map not to scale

PSOMAS

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(including manpower and facilities) throughout the state for dealing with any emergency that may occur.

California Office of Emergency Services

The California Office of Emergency Services (OES) is responsible for the coordination of overall state agency response to disasters. It assures the state's readiness to respond to and recover from all hazards and assist local governments in their emergency preparedness, response, recovery, and mitigation.

Standardized Emergency Management System (SEMS)

SEMS is the cornerstone of California's emergency response system and the fundamental structure for the response phase of emergency management. The system unifies all elements of California's emergency management community into a single integrated system and standardizes key elements. SEMS incorporates the following:

- **Incident Command System (ICS)**—A field-level emergency response system based on management by objectives
- **Multi/Inter-agency coordination**—Affected agencies working together to coordinate allocations of resources and emergency response activities
- **Mutual Aid**—A system for obtaining additional emergency resources from non-affected jurisdictions
- **Operational Area Concept**—County and its sub-divisions to coordinate damage information, resource requests and emergency response

Local

Los Angeles County Multi-Jurisdictional Local All-Hazard Mitigation Plan

The purpose of the County's Multi-Jurisdictional All Hazard Mitigation Plan (AHMP) (County of Los Angeles 2025) is to form the strategic-level foundation for hazard mitigation efforts undertaken by the County of Los Angeles. The 2025 AHMP is an update to the 2020 version of the plan and seeks to maintain the County's continuing commitment to hazard mitigation as a critical step in reducing hazard risks, making communities safer, and building countywide resilience

Los Angeles County General Plan Safety Element

The County of Los Angeles General Plan provides the policy framework and guides development decisions in unincorporated Los Angeles County. The Land Use Element designates the proposed general distribution and general location and extent of uses while also providing the "blue print" for how land will be used to accommodate growth and change throughout the unincorporated areas of the County. The Safety Element of the General Plan

provides an overview of fire hazards in the County, including wildland fires, flooding, and mud and debris flows.

The following policies related to fire safety and development in fire hazard zones are applicable to the Project subject to the terms and conditions of the Project's proposed Development Agreement:

- **Policy LU 11.6:** Ensures that subdivisions in VHFHSZs site open space to minimize fire risks, as feasible.
- **Policy S 1.3:** Requires developments to mitigate geotechnical hazards, such as soil instability and landsliding, in Hillside Management Areas through siting and development standards.
- **Policy S 4.1: 1:** Prohibit new subdivisions in VHFHSZs unless: (1) the new subdivision is generally surrounded by existing or entitled development or is located in an existing approved specific plan or is within the boundaries of a communities facility district adopted by the County prior to January 1, 2022, including any improvement areas and future annexation areas identified in the County resolution approving such district; (2) the County determines there is sufficient secondary egress; and (3) the County determines the adjoining major highways and street networks are sufficient for evacuation as well as safe access for emergency responders under a range of emergency scenarios, as determined by the County. Discourage new subdivisions in all other FHSZs.
- **Policy S 4.2:** New subdivisions shall provide adequate evacuation and emergency vehicle access to and from the subdivision on streets or street systems that are evaluated for their traffic access or flow limitations, including but not limited to weight or vertical clearance limitations, dead-end, one-way, or single lane conditions.
- **Policy S 4.3:** Ensure that biological and natural resources are protected during rebuilding after a wildfire event.
- **Policy S 4.4:** Reduce the risk of wildland fire hazards through meeting minimum State and local for fire-resistant building materials, vegetation management, fuel modification, and other fire hazard reduction programs.
- **Policy S 4.5:** Encourage the use of climate-adapted plants that are compatible with the area's natural vegetative habitats.
- **Policy S 4.6:** Ensure that infrastructure requirements for new development meet minimum State and local regulations for, ingress, egress, peak load water supply availability, anticipated water supply, and other standards within FHSZs.
- **Policy S 4.7:** Discourage building mid-slope, on ridgelines and on hilltops, and employ adequate setbacks on and below slopes to reduce risk from wildfires and post-fire, rainfall-induced landslides and debris flows.
- **Policy S 4.8:** Support the retrofitting of existing structures in FHSZs to meet current safety regulations, such as the building and fire code, to help reduce the risk of structural and human loss due to wildfire.

- **Policy S 4.9:** Adopt by reference the County of Los Angeles Fire Department Strategic Fire Plan, as amended.
- **Policy S 4.10:** Encourage the planting of native oaks in strategic locations and near existing oak woodlands, including those to be mapped in the Oak Woodlands Conservation Management Plan, to protect developments from wildfires, as well as to lessen fire risk associated with developments.
- **Policy S 4.11:** Support efforts to address unique pest, disease, exotic species and other forest health issues in open space areas to reduce fire hazards and support ecological integrity.
- **Policy S 4.12:** Support efforts to incorporate systematic fire protection improvements for open space, including facilitation of safe fire suppression tactics, standards for adequate access for firefighting, fire mitigation planning with landowners and other stakeholders, and water sources for fire suppression.
- **Policy S 4.10:** Encourage the planting of native oaks in strategic locations and near existing oak woodlands, including those to be mapped in the Oak Woodlands Conservation Management Plan, to protect developments from wildfires, as well as to lessen fire risk associated with developments
- **Policy S 4.14:** Encourage the strategic placement of structures in FHSZs that conserves fire suppression resources, increases safety for emergency fire access and evacuation, and provides a point of attack or defense from a wildfire.
- **Policy S 4.15:** Encourage rebuilds and additions to comply with fire mitigation guidelines.
- **Policy S 4.16:** Require local development standards to meet or exceed SRA Fire Safe Regulations, which include visible home and street addressing and signage and vegetation clearance maintenance on public and private roads; all requirements in the California Building Code and Fire Code; and Board of Forestry Fire Safe Regulations.
- **Policy S 4.17:** Coordinate with agencies, including the Fire Department and ACWM, to ensure that effective fire buffers are maintained through brush clearance and fuel modification around developments.
- **Policy S 4.18:** Require Fire Protection Plans for new residential subdivisions in FHSZs that minimize and mitigate potential loss from wildfire exposure and reduce impact on the community's fire protection delivery system.
- **Policy S 4.19:** Ensure all water distributors providing water in unincorporated Los Angeles County identify, maintain, and ensure the long-term integrity of future water supply for fire suppression needs, and ensure that water supply infrastructure adequately supports existing and future development and redevelopment, and provides adequate water flow to combat structural and wildland fires, including during peak domestic demand periods.
- **Policy S 4.20:** Prohibit new and intensification of existing general assembly uses in VHFHSZs unless the use is located in an existing approved specific plan or meets

secondary egress route requirements, and the level of service capacity of adjoining major highways and street networks can accommodate evacuation. Discourage new general assembly uses in all other FHSZs.

- **Policy S 7.1:** Ensure that residents are protected from the public health consequences of natural or human-made disasters through increased readiness and response capabilities, risk communication, and the dissemination of public information.
- **Policy S 7.2:** Support County emergency providers in reaching their response time goals.
- **Policy S 7.3:** Coordinate with other County and public agencies, such as transportation agencies, and health care providers on emergency planning and response activities, and evacuation planning.
- **Policy S 7.5:** Ensure that there are adequate resources, such as sheriff and fire services, for emergency response.

County of Los Angeles Operational Area Emergency Response Plan

The 2023 County of Los Angeles Operational Area Emergency Response Plan describes a comprehensive emergency management system that provides for a planned response to disaster situations associated with natural disasters, technological incidents, terrorism, and nuclear-related incidents within the County of Los Angeles. These plans delineate operational concepts relating to various emergency situations, identify components of the Emergency Management Organization, and describe the overall responsibilities for protecting life and property and providing for the overall well-being of the population. The plan also identifies the sources of outside support that might be provided (through mutual aid and specific statutory authorities) by other jurisdictions, state and federal agencies, and the private sector.

County of Los Angeles Fire Code

The County of Los Angles Fire Code adopts the 2022 California Fire Code with additions, deletions, and amendments. Provisions of the California Fire Code are described under State Regulations, above.

County of Los Angeles Building Code

The County Building Code is intended to regulate the construction of applicable facilities and encompasses (and formally adopts) associated elements of the 2022 California Building Code. Specifically, this includes regulating the erection, construction, enlargement, alteration, repair, moving, removal, demolition, conversion, occupancy, use, height, area, and maintenance of all structures and certain equipment therein.

SCE-Related Regulations

California Public Resources Code

California Public Resources Code, Section 4290, requires minimum fire safety standards related to defensible space that are applicable to residential, commercial, and industrial building construction in SRA lands and lands classified and designated as VHFHSZs. These regulations include road standards for fire apparatus access, standards for signs identifying roads and buildings, fuel breaks and green belts, and minimum water supply requirements. These regulations do not supersede local regulations that equal or exceed minimum regulations required by the state.

California Public Resources Code, Section 4291, requires a reduction of fire hazards around buildings located adjacent to a mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or land that is covered in flammable material. Section 4291 requires 100 feet of defensible space around all sides of a structure, but not beyond the property line unless required by state law, local ordinance, rule, or regulations. Further, Section 4291 requires the removal of dead or dying vegetative materials from the roof of a structure and trimming of trees and shrubs from within 10 feet of the outlet of a chimney or stovepipe. Exemptions may apply for buildings with an exterior constructed entirely of nonflammable materials.

In response to the increasing frequency and severity of wildfires in California over the past decade, the Legislature enacted AB 3074 (2020) and SB 504 (2024), which amended Public Resources Code Section 4291. These amendments direct the Board of Forestry and Fire Protection to establish an ember-resistant defensible space within the first five feet surrounding a structure, referred to as Zone 0.

California Public Resources Code, Section 4292 requires any person or entity that owns, operates, or maintains electrical transmission or distribution lines to maintain a minimum clearance of 10 feet around the base of power poles, towers, and associated electrical support structures. This clear area must be kept free of combustible materials, including grass, brush, weeds, and other flammable vegetation, in order to reduce the risk of wildfire ignition caused by sparks, arcing, equipment failure, or falling hot material from energized facilities. This statute focuses specifically on ground-level ignition prevention at pole and tower bases and is distinct from conductor-to-vegetation clearance requirements addressed under Public Resources Code § 4293.

California Public Resources Code, Section 4293 requires any person or entity that owns, controls, operates, or maintains electrical transmission or distribution lines on mountainous, forested, brush-covered, or grass-covered lands to maintain minimum clearances between energized conductors and surrounding vegetation during periods and in locations determined necessary by the responsible fire protection agency. Required clearances vary by voltage, with a minimum of four feet for lines operating between 2,400 and 72,000 volts, six feet for lines between 72,000 and 110,000 volts, and ten feet for lines operating at 110,000 volts or greater. In addition, hazardous trees, including dead, decayed, diseased, or

leaning trees that could contact or fall onto the lines must be removed or trimmed to eliminate ignition risk. The director or the agency with primary fire protection responsibility may allow site-specific exceptions where justified by local conditions. California Public Resources Code, Section 4294 requires that any trees or vegetation that may fall across a line and break it shall be removed. California Public Resources Code, Section 4296 states that PRC Sections 4292 and 4293 do not apply if the transmission or distribution line voltage is 750 volts or less.

California Public Resources Code section 4295.5 authorizes electrical transmission and distribution line operators to access land, regardless of ownership or permission, after providing notice and an opportunity to be heard, to prune or remove hazardous trees and maintain required clearances around power lines. The extent of pruning is at the operator's discretion but must meet at least the minimum standards in Section 4293 and applies in high fire threat districts and state responsibility areas. The statute does not relieve operators from liability for removing vegetation outside the scope of any existing easement.

CPUC General Order 95

General Order 95 was initially adopted by the California Public Utilities Commission in 1941 and was most recently updated in 2020. General Order 95 governs the design, construction, and maintenance of overhead electrical lines. Rule 31.1 generally states that design, construction, and maintenance of overhead electrical lines should be done in accordance with accepted good practices for the given location conditions known at the time by the persons responsible for the design, construction, and maintenance of the overhead electrical lines and equipment. Rule 35 of General Order 95 (Tree Trimming) requires the following:

- 4 feet radial clearances for any conductor of a line operating at 2,400 volts or more, but less than 72,000 volts
- 6 feet radial clearances for any conductor of a line operating at 72,000 volts or more, but less than 110,000 volts
- 10 feet radial clearances for any conductor of a line operating at 110,000 volts or more, but less than 300,000 volts (this would apply to the Project)
- 15 feet radial clearances for any conductor of a line operating at 300,000 volts or more.

CPUC General Order 128

General Order 128 establishes uniform standards for underground electrical supply and communication systems to ensure reliable service and protect the safety of workers and the general public.

CPUC General Order 165

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

CPUC General Order 166

California Public Utilities Commission General Order 166 Standard 1.E requires each investor-owned utility, such as Southern California Edison ("SCE"), to develop a fire prevention plan describing measures that the utility will implement to mitigate the threat of power line fires generally. Additionally, this standard requires that investor-owned utilities outline a plan to mitigate power line fires when wind conditions exceed the structural design standards of the line during a Red Flag Warning event in a high-fire-threat area. Fire prevention plans formulated by investor-owned utilities are required to identify specific parts of the utility's service territory where the conditions described above (i.e., Red Flag Warnings and high-wind events) may occur simultaneously. Standard 11 requires that utilities report annually to the CPUC regarding compliance with General Order 166 (CPUC 2017b).

CPUC General Order No. 58-A – Standards for Gas Service in the State of California

Sets uniform standards and rules for gas utility service in California. It covers definitions, delivery pressures, meter requirements and testing, system records, gas quality and purity standards, operational and reporting requirements, and other provisions gas utilities must follow to ensure safe, reliable, and consistent gas service under CPUC jurisdiction.

CPUC General Order No. 112-F

Establishes the State of California rules governing the design, construction, testing, operation, maintenance, and safety of gas gathering, transmission, and distribution piping systems under CPUC jurisdiction. It incorporates and supplements federal pipeline safety standards (49 CFR Parts 191, 192, 193, and 199), sets minimum requirements for gas utility facilities and operations, defines reporting and incident requirements, and requires utilities to maintain records and comply with safety regulations to protect public safety, property, and service reliability.

CPUC – Division 1. Regulation of Public Utilities

Makes the California Public Utilities Commission (CPUC) the state authority responsible for regulating and enforcing intrastate gas pipeline transportation facilities, consistent with federal pipeline safety law (49 U.S.C. § 60101 et seq.). Requires the CPUC to adopt safety standards, emergency response standards, and plans for testing and replacing pipelines to ensure integrity and minimize risk of accidents.

Cal/OSHA hot-work rules (Title 8 §6777)

Cal/OSHA hot-work rules and local hot-work permitting mandates safe practices for welding/cutting operations, fire watches, and controls that directly reduce on-site ignition probability during construction.

SCE All-Hazards Plan

Updated in 2022, the SCE All-Hazards Plan assists SCE personnel with safe, efficient, and coordinated response to emergency incidents involving electric generation, distribution, storage, and/or transmission systems. The All-Hazards Plan applies to the SCE service territory and to the people who work in those systems. This all-hazards approach applies to any natural disaster or human-caused situation (e.g., fires, floods, storms, earthquakes, terrorist attack, or cyberattack) that threatens life and property or requires immediate action to protect or restore service or critical business functions to the public. The All-Hazards Plan includes a Wildfire Risk Mitigation approach, as known as Public Safety Power Shutoffs (PSPS) Protocols, which incorporate long-standing operational practices (e.g., special procedures during Red Flag Warning, automated recloser blocking, restricted work practices, and Operation Santa Ana (joint patrol with fire agencies)), investments in system hardening of the electric grid (e.g., fire-resistant poles, covered conductors, current-limiting fuses, next-gen engineering technology), bolstering situational awareness capabilities (e.g., fire and severe weather monitoring, rapidly advancing analytics to improve weather prediction), enhancing operational practices (e.g., extra-sensitive relay settings, public safety power shutoff and community engagement, vegetation management), and community access and functional needs (e.g., external feedback and consultation, customer programs and available resources, customer preparedness outreach and community engagement, and in-event customer communications).

Senate Bill 1028

Senate Bill 1028 (2016) requires each electrical corporation to construct, maintain, and operate its electrical lines and equipment in a manner that will minimize the risk of catastrophic wildfire posed by those electrical lines and equipment, and makes a violation of these provisions by an electrical corporation a crime under state law. The bill also requires each electrical corporation to annually prepare a Wildfire Mitigation Plan (WMP) and submit to the CPUC for review. The plan must include a statement of objectives, a description of preventive strategies and programs that are focused on minimizing risk associated with electric facilities, and a description of the metrics that the electric corporation uses to

evaluate the overall WMP performance and assumptions that underlie the use of the metrics. SCE filed the 2023-2025 WMP on March 27, 2023 (SCE, 2023).

Senate Bill 901

Senate Bill 901 (2018) expanded upon the WMP requirements of Senate Bill 1028 and included a number of provisions related to wildfire risk and management in California including, but not limited to, the following: budget adjustments related to emergency response and readiness, the creation of a CAL FIRE Wildfire Resilience Program, and increasing the maximum penalties that can be issued by the CPUC to a public utility that fails to comply with CPUC requirements. Additionally, the legislation requires that utilities prepare WMPs that include elements specified in the bill, such as the following:

1. A description of the preventive strategies and programs to be adopted by the electrical corporation to minimize the risk of its electrical lines and equipment causing catastrophic wildfires, including consideration of dynamic climate change risks.
2. Protocols for disabling reclosers[1] and deenergizing portions of the electrical distribution system that consider the associated impacts on public safety, as well as protocols related to mitigating the public safety impacts of those protocols, including impacts on critical first responders and on health and communication infrastructure.
3. Particular risks and risk drivers associated with topographic and climatological risk factors throughout the different parts of the electrical corporation's service territory.

SCE filed the 2023-2025 WMP on March 27, 2023 (SCE, 2023).

Assembly Bill-111: Wildfire agencies: public utilities: safety and insurance.

AB 111 addresses wildfire-related safety and insurance issues involving public utilities by clarifying and strengthening the roles and coordination of state wildfire and utility oversight agencies. The bill supports improved utility safety practices, risk management, and accountability related to wildfire prevention and insurance impacts.

Assembly Bill-1054: Public utilities: wildfires and employee protection.

AB 1054 establishes a comprehensive framework to reduce wildfire risk from electric utilities by requiring enhanced wildfire mitigation plans, strengthening safety oversight, and protecting utility employees who report safety concerns. It also created a wildfire fund to stabilize utility finances and support continued safe and reliable electric service while improving accountability for wildfire prevention.

[1] Reclosing devices, such as circuit breakers, are used to isolate circuit segments when abnormal system conditions are detected.

Public Utilities Code 8386.3: Wildfire Mitigation Plans (WMPs)

Wildfire Mitigation Plans outline the actions utilities will take to reduce the risk of utility-caused catastrophic wildfires. These plans are submitted to the Office of Energy Infrastructure Safety for review and approval, with the CPUC responsible for ratifying the Office's approval pursuant to Public Utilities Code section 8386.3. CPUC programs and SCE's WMP guide where targeted undergrounding, covered conductors, and other grid hardening measures are required or prioritized, reducing wildfire ignition risk on a system-wide basis.

SCE's targeted underground covered conductor programs, vegetation management, and enhanced protection technologies are practical measures that reduce ignition probability for relocated or upgraded SCE facilities.

SCE Wildfire Mitigation Plan

Pursuant to Senate Bills 901 and 1028, SCE submitted its 2026-2028 WMP Revision 3 to the California Office of Energy Infrastructure Safety (OEIS or Energy Safety) on January 22, 2026. The WMP describes SCE's approach to enhancing grid resilience and mitigating wildfire risk. The WMP represents the continuous refinement, expansion, and improvement of wildfire and Public Safety Power Shutoffs (PSPS) mitigation efforts. The WMP is also characterized by a continued execution of SCE's Integrated Wildfire Mitigation Strategy (IWMS), which further aligns grid hardening, inspections, and vegetation management activities. The WMP includes 40 activities with program targets to reduce the risk of wildfires and support service communities. The WMP represents SCE's continued efforts to mature and evolve its wildfire mitigation efforts, to learn from past experiences and other utilities, and to develop a forward-looking strategy.

The primary goal of the 2026-2028 WMP "is to reduce the risk of wildfires associated with utility equipment and to reduce the scope, scale, frequency, and impacts of PSPS events" (SCE, 2025).

Caltrans-Related Regulation

Caltrans Maintenance Manual & Vegetation Control (Chapter C2 / Highway Design Manual (HDM) Guidance) and Integrated Vegetation Management Plan (IVP)

Caltrans manages vegetation in state highway rights-of-way to reduce fire risk, requires clearing of the clear-recovery/clear-zone, prescribes integrated vegetation management practices, and sets standards for slope protection and revegetation after construction. Roadway work is subject Caltrans' vegetation control, Highway Design Manual (HDM)clear-recovery and roadside management requirements.

Caltrans implements an Integrated Vegetation Management (IVM) Program to manage vegetation within State highway rights-of-way (ROW). The IVM approach combines different control methods to achieve multiple objectives including reducing fire hazards. Rather than

relying on a single practice, IVM establishes site-specific treatment plans that balance safety, environmental, and maintenance needs.

Together, these practices reduce ignition likelihood and fire spread potential along highways. Compliance with Caltrans' IVM standards and maintenance requirements provides a regulatory mechanism ensuring roadside vegetation is managed to minimize wildfire ignition risk.

Non-Regulatory Guidance Documents

The following non-regulatory guidance documents are relevant to the analysis of the Project's potential effects related to wildfire:

California Attorney General's Office Best Practices for Analyzing and Mitigating Wildfire Impacts of Development Projects Under the California Environmental Quality Act

The California Office of the Attorney General issued (October 2022) guidance (AG Guidance) outlining best practices for analyzing and mitigating wildfire impacts of development projects under the California Environmental Quality Act (CEQA). The AG Guidance is not a regulatory document and it does not impose additional legal requirements on local governments, nor does it alter any applicable laws or regulations. Instead, the AG Guidance is intended to help local governments evaluate and consider the wildfire impacts of development projects proposed in fire-prone areas, and to assist project design in a way that minimizes wildfire ignition and incorporates emergency access and evacuation measures. The following provides a summary of the AG Guidance.

Baseline Conditions

The AG Guidance recommends that an EIR's discussion of existing environmental (baseline) conditions include information about open space areas and habitats within the area of the Project site that may be fire prone, a discussion of fire history and fuels on the Project site and a description of existing available water supplies for firefighting.

Modeling

The AG Guidance encourages lead agencies to model fire scenarios to "quantify" increased wildfire risks resulting from a project's addition of more people to wildfire prone areas and to aid in the assessment of such risks.

Qualitative Assessment

The AG Guidance recommends that an EIR qualitatively assess relevant variables on the risk of wildfire, including:

- **Project Density –** Project density influences how likely a fire is to start or spread and how likely it is that occupants would be in danger. As stated by the AG Guidance, "Fire spread and structure loss is more likely to occur in low- to intermediate-density developments."
- **Location in the Landscape –** Where a project's structures are placed in the landscape relative to fire environment features (vegetation, topographical features, and wind alignments) also influences wildfire risk.
- **Water Supply and Infrastructure –** Water supply and infrastructure to address firefighting within the project site are also relevant to evaluating wildfire risk.

Potential Measures to Reduce Wildfire Risk

The AG Guidance identifies potential design features that may reduce a project's wildfire risk impacts, such as:

- Avoiding and minimizing low-density development patterns or "leapfrog-type" developments with undeveloped wildland between developed areas. interface area and creating buffer zones and defensible space measures within and adjacent to the Project.
- Undergrounding power lines.
- Upgrading building materials and installation techniques to increase a structure's resistance to heat, flames and embers (i.e. "fire hardening") and requiring fire-hardened communication facilities to the Project site.
- Requiring adequate water supplies during a wildfire.
- Parking limitations / sufficient off-street parking to ensure access roads are not clogged with parked vehicles. Placement of development close to adequate emergency services, existing or planned ingress/egress, and designated evacuation routes.

Governor's Office of Land Use and Climate Innovation Guidelines

The Governor's Office of Land Use and Climate Innovation's Wildland-Urban Interface (WUI) Planning Guidance Document offers strategies for local governments to address wildfire risks in WUI areas. The following elements are applicable to specific project measures and have been analyzed for this project.

- **Risk Assessment:** Identification and assessment of wildfire risk in WUI areas, considering factors such as vegetation types, topography, climate, and historical fire data.

- **Land Use Planning:** Guidelines for responsible land use planning to minimize wildfire risk and promote resilient communities. This may include zoning regulations, building codes, and infrastructure planning.
- **Community Preparedness:** Recommendations for community outreach, education, and preparedness measures to enhance safety and resilience against wildfires. This could involve creating defensible space around properties, developing evacuation plans, and fostering community partnerships.
- **Policy Recommendations:** Guidance on integrating wildfire risk considerations into broader planning policies at the local, regional, and state levels. This may involve coordination between various agencies and stakeholders.
- **Environmental Considerations:** Strategies for balancing development and environmental conservation in WUI areas, taking into account habitat protection, water resources, and ecosystem management.
- **Implementation and Monitoring:** Steps for implementing the guidance and monitoring its effectiveness over time. This may involve periodic reviews, updating policies based on new data or experiences, and adapting strategies to changing conditions.

2.3.4 METHODOLOGY

The analysis of the impacts of the Project regarding wildfires in the Project area considers the existing regulations detailed in the Regulatory Setting discussion above that address fire hazards and future uses in the Project area, both on-site and off-site, that could occur as a result of the Project. Based on these considerations, a determination as to whether there would be an increased potential for wildfire hazards to occur in the Project, both on-site and off-site, based on the thresholds of significance set forth in Section 2.3.5, *Thresholds of Significance*. This analysis also follows the recommendations of the AG Guidance and the Governor's Office of Land Use and Climate Innovation (formerly Office of Planning and Research (OPR)) Wildland-Urban Interface (WUI) Planning Guidance Document. The analysis in this chapter is informed in part by (i) a Project-specific Wildfire Safety Plan (Dudek, 2025) included as Appendix G, (ii) a Project-specific Wildfire Evacuation Technical Report (Dudek, 2025) included as Appendix H, (iii) a Project -specific Construction Fire Prevention Plan (Dudek, 2024) included as Appendix I, and (iv) a Project-specific Focused Off-Site Ignition Risk Assessment (Dudek, 2025) included as Appendix J.

The Wildfire Safety Plan sets forth a Project-specific assessment of fire behavior, emergency response capacity, fire-related water supply and flows, roads and access, building construction, and defensible space and Fuel Modification Zones. The Wildfire Safety Plan includes advanced fire behavior modeling, including modeling of "worst-case" fire conditions to determine flame lengths that may impact the Project site from worst-case wildfire scenarios under both pre-development and post-development conditions (with regulatory compliance and mitigation implemented). Fire behavior modeling was conducted to document the type and intensity of a fire that would be expected adjacent to the Project Site, given characteristic site features such as topography, vegetation, and weather during "worst case" fire conditions (e.g., during Santa Ana winds). For planning purposes, the averaged worst-case fire behavior is the most useful information for conservative fuel modification design. The Wildfire Safety Plan also includes an analysis of landscape burn probability, integrated hazard, and wildfire progression simulations.

The Wildfire Safety Plan analyzes the time it takes for existing fire personnel to reach the Project site, and the demand for fire service resulting from Project implementation. Response times were calculated using the ISO travel time equation, which calculated travel times based on travel distance and the average speed of fire apparatus.[2] Emergency call volumes for the Project were estimated by using the historical per-capita call volume from LACoFD County-wide service area total population. The County's per capita annual call volume is approximately 93 calls per 1,000 persons. This call ratio was then applied to the anticipated population for the Project of 57,150 people.

The Wildfire Evacuation Technical Report sets forth a Project-specific evacuation analysis to determine how long it would take for affected Project occupants and the surrounding communities to evacuate under most likely scenarios to nearby urban areas/freeway access

[2] Travel Time (minutes) = 0,65 + 1.7 (Travel Miles)

in case of a fire emergency. A detailed description of the Wildfire Evacuation Technical Report methodology is set forth in Attachment C of Appendix H.

The Focused Offsite Ignition Risk Assessment evaluates the potential for the Project to cause fires that ignite on-site and subsequently spread off-site, thereby impacting existing land uses in the Project's proximity.

CEQA requires the assessment of the environmental impact of a proposed project (impact of project on the environment) (CEQA Guidelines § 15126.2 (a)). The concept of "CEQA-in-reverse" refers to the effect the existing environment may have upon the proposed Project. As clarified in *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369, Case No. S213478, agencies subject to CEQA are not required to analyze the impacts of existing hazards on future residents or users, with the exception of a handful of statutory exceptions (airport land use compatibility, for example) or if the project would exacerbate the existing environmental hazards through project implementation. Accordingly, this Recirculated Partial Draft EIR focuses on the potential for the Project, including both on-site and off-site Project components, to exacerbate potential Wildfire impacts to the Project area and surrounding environments.

2.3.5 THRESHOLDS OF SIGNIFICANCE

Following publication of the Centennial EIR, new provisions were added to the CEQA Guidelines in late 2018 that focus on the impacts of proposed projects related to wildfire hazards. Specifically, a new Section XX was added to Appendix G of the CEQA Guidelines to address wildfire impacts. The new Appendix G checklist questions ask whether a project located in or near state responsibility areas (i.e., areas where the state has financial responsibility of preventing and suppressing fires), or lands classified as very high fire severity zones by local agencies, would:

- "Substantially impair an adopted emergency response plan or emergency evacuation plan";
- "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";
- "Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment"; or
- "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 new Appendix G checklist was also revised with respect to hazards and hazardous materials to ask whether a project would expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

This Recirculated Partial Draft EIR incorporates the new and revised Appendix G questions into the following thresholds of significance. Because the Project site is located in or near state responsibility areas or lands classified as very high hazard severity zones, the Project would have a significant impact if:

Threshold 2.3-1 ***The Project would expose people or structures, either directly or indirectly, to significant risk of loss, injury, or death involving wildland fires.***

Threshold 2.3-2 ***The Project would 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.***

Threshold 2.3-3 ***Due to slope, prevailing winds, and other factors, the project would exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or uncontrolled spread of a wildfire.***

Threshold 2.3-4 ***The project would substantially impair an adopted emergency response plan or emergency evacuation plan.***

Threshold 2.3-5 ***Require 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.***

2.3.6 IMPACT ANALYSIS

Threshold 2.3-1

Would the Project expose people or structures, either directly or indirectly, to significant risk of loss, injury, or death involving wildland fires?

Fire Hazard Severity Zones, Wildfire Hazards and Risk

Project Site

The Project site is located in or near state responsibility areas or land classified as very high fire hazard severity zones. Specifically, the Project site's potential wildfire hazard is mapped by CAL FIRE as primarily Moderate and High with the western portion of the site mapped as Very High (Figure 1). Fire Hazard Severity Zone maps depict wildfire hazard based on wildfire intensity and likelihood, in addition to firebrand hazard for non-wildland areas. CAL FIRE updated the Fire Hazard Severity Zone maps for the State Responsibility Area (SRA) in April 2024, increasing the extent of areas mapped in the VHFSZ both within the Project area and statewide. Table 2.3-4 shows the mapped acreage within the Project Site and within proposed development areas that are mapped as moderate, high, and very high according to the most recent CAL FIRE maps.

TABLE 2.3-4
FIRE HAZARD SEVERITY ZONE CLASSIFICATIONS
AT THE PROJECT SITE

Fire Hazard Severity Zone	Project Site Acres	Development Area Acres
Moderate	603	431
High	4,631	3,870
Very High	7,089	2,283
Source: OSFM, 2024		

Wildfire hazard at the Project site is lower than most State Responsibility Areas (SRA) in Los Angeles County. As presented in Table 2.3-5 and Figure 8, 92% of SRA lands within Los Angeles County are designated as VHFHSZ, with only 8% classified as Moderate (4%) or High (4%). The Project site is subject to lower severity wildfire conditions compared to other unincorporated areas of Los Angeles County due to lower hazard fuels, gentle topography, and reduced burn probability.

TABLE 2.3-5
FIRE HAZARD SEVERITY ZONES IN THE SRA
WITHIN LOS ANGELES COUNTY

Fire Hazard Severity Zone	Acres	Proportion of County SRA
Moderate	18,085	4%
High	21,373	4%
Very High	456,414	92%

Within the greater Southern California region which includes Santa Barbara, Los Ventura, Los Angeles, Orange, San Bernardino, Riverside, San Diego, and Imperial Counties, 75% of the SRA is designated as VHFHSZ (Table 2.3-6). See Figure 6 for a graphical depiction of FHSZs within Southern California.

TABLE 2.3-6
FIRE HAZARD SEVERITY ZONES IN THE SRA
WITHIN GREATER SOUTHERN CALIFORNIA

Fire Hazard Severity Zone	Acres	Proportion of County SRA
Moderate	469,527	12%
High	495,652	13%
Very High	2,836,388	75%

Uses of Fire Hazard Severity Zone maps, as determined by the Office of the State Fire Marshall, are summarized below.

- Designate areas where California's wildland urban interface building codes apply to new buildings.
- Included into real estate disclosures.
- Guide planning, prevention, and mitigation activities/requirements that reduce risk.
- Considered by local governments in General Plans

By design, the state does not consider any planned actions that reduce the potential fire hazard in a given area when designating a specific hazard rating. Instead, FHSZs are based on worst-case conditions, including extreme fire weather in mature (and untreated) vegetation. (OSFM, 2025.) FHSZs are not designated with the intention to prohibit development but are instead meant to be used as a tool to illustrate the relative fire potential if no steps are taken to reduce the threat in a given area and to trigger the more restrictive construction requirements for buildings, roads, water, and other fire protection and safety features mandated by applicable regulations. (CAL FIRE, 2019.) For example, under Public Resources Code Section 20180.58, qualified student housing projects proposed to be located

in FHSZs are exempt from CEQA review altogether, provided they have adopted fire hazard mitigation measures pursuant to existing building standards.

Construction

Fire risks associated with construction of a residential community primarily stem from electrical failures, equipment use, and site conditions. Potential ignition sources include electrical arcing or shorts, machinery and motor fires, overheated wiring or junction boxes, and damage to electrical systems from structural collapse or rodents. Additional hazards during the construction phase may include overgrown vegetation, combustible material storage, equipment and supply staging areas, trash receptacles, and smoking areas around the construction site.

During the construction phase, ignition risks are heightened by the use of heavy equipment and tools. Earth-moving equipment, vehicles, chainsaws, welders, grinders, woodchippers, torches, and blasting activities (if required) can generate sparks, heat, or fuel leaks that may ignite dry vegetation. Compost piles left on-site for extended periods may also combust and produce embers. Human-caused accidental ignitions, such as discarded smoking materials, temporary electrical connections, improperly placed generators, and poor equipment maintenance, further contribute to wildfire risk during construction. Left unaddressed, the risk these on-site construction activities present would be considered a significant impact.

To address this impact, Mitigation Measure WILD-1 requires the project proponent/operator to implement all protocols for reducing the potential of ignitions during construction set forth in the Project's proposed a Construction Fire Prevention Plan (CFPP), included as Appendix I, to minimize construction-phase ignition risks by establishing comprehensive controls on combustible materials, equipment use, and site operations. The CFPP reduces fire risk by limiting the amount of flammable and combustible materials stored on site and requiring any necessary materials to be stored away from potential ignition sources. Additionally, the CFPP reduces the likelihood of vehicle-related ignitions by requiring vegetation management around parking areas, including clearing grass and brush within a minimum 10-foot buffer. The CFPP also ensures evacuation routes remain unobstructed, supporting both fire safety and emergency response.

The CFPP addresses ignition hazards from construction activities and equipment through strict operational requirements. Hot work is required to follow fire-safe practices, be conducted in controlled environments, and include readily available fire suppression equipment. A dedicated fire watch with extinguishing capability is required during all hot work activities. Electrical fire risks are minimized by prohibiting overloaded circuits, limiting reliance on extension cords, and requiring equipment to be turned off and unplugged when not in use. Fuel-related hazards are reduced through prompt reporting and repair of leaks and clear labeling and storage of hazardous materials.

To further reduce wildfire ignition potential, the CFPP restricts the use of high-risk equipment during Red Flag Warning conditions. When such equipment is in use, water trucks and hand tools are required to be immediately accessible. All construction vehicles are equipped with fire extinguishers, water suppression tools, hand tools, and first-aid kits

to support rapid response to any ignition. Finally, the plan includes clear evacuation procedures to ensure personnel accountability and safe, orderly departure from the site if fire conditions warrant, minimizing risk to workers and supporting coordinated emergency response. Additionally, Mitigation Measures 3-8 and 10-5 require implementation of a construction Traffic Control Plan, which would require coordination with public agencies with respect to construction traffic and would ensure that evacuation routes are not impeded. ***With implementation of MMs 3.8, 10-5, and WILD-1, impacts related to construction at the Project Site would be less than significant.***

Operation

While the Project is partially located in Very High FHSZ, it would have significantly lower potential for actual loss as compared to older communities (such as Paradise, Coffee Park, etc.) and even the older homes that occur within the vicinity of the Project. This determination is based upon the distinction between hazard (which the State categorizes) and risk (which the State does not quantify). Hazard is a combination of potential fire behavior (flame length, crown fire occurrence, capacity to generate embers) and burn probability in the likely mature vegetation of a given area.[3] Risk, however, is the potential for structural loss from fire. Thus, even if there is potential low fire hazard in a given area (expected low flame lengths), a given home might be at high risk of ignition if the physical characteristics of the property would facilitate structural ignition (e.g., flammable vegetation next to a home constructed with wood siding). Conversely, a home might be in a high-hazard area (potential exposure to high flame lengths and ember generation) but may be at low risk of ignition if the house is built with ignition-resistant construction materials and the resident has created adequate defensible space around the home.

Modern planned communities such as the Project typically contain large areas where fuel modification is provided and include a perimeter zone of defensible space between the wildland-urban interface (WUI) and community structures. Research indicates that scenarios with lower housing density, large lots (ranchettes) and larger numbers of small, isolated clusters of development resulted in higher predicted fire risk. (Syphard, et. al. (2013.) The current low density general plan land use patterns that currently exist at the site represent a higher fire risk than the Project with a higher density because the developed Project site would act as a large, irrigated fire break that would be expected to modify fire spread by preventing large scale wildland fires from spreading across the Project site.

While CAL FIRE has designated portions of the Project site as a VHFHSZ, the risk of home ignition would likely be very low due to actions that reduce the risk of ignition. Projects within fire hazard zones, including the Project, are required to provide for a level of planning, ignition resistant construction, access, water availability, fuel modification and construction materials and methods that have been developed specifically to allow safe development

[3] CalFire FAQs about 2024 Fire Hazard Severity Zones, available at https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/osfm-website/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones/2024-fhsz-faqs_english.pdf?rev=538374a27bb44bbab4c2786ff2eafb39&hash=AD4DB7857E3EF6F0BEC0B56429A1C262

within these areas. New development projects in Los Angeles County are required to meet and, in many cases, actually exceed these requirements.

While CAL FIRE's Fire Hazard Severity Zone map is utilized as a tool for quantifying the likelihood of severe wildfire behavior, it does not reflect community risks as it does not consider vital attributes of community wildfire resiliency including but not limited to:

- Home Construction Materials and Methods (roofing material, siding material, vent style, etc.)
- Defensible Space and Fuel Modification
- Urban Fuels/Vegetation
- Community Design (Intermix or Interface)
- Emergency Response Capacity
- Early Wildfire Detection Potential
- Evacuation Capacity

While the extent of the VHFHSZ is substantial across Southern California, there is no evidence that modern, code-compliant master planned communities are at high risk from wildfire if located within a designated VHFHSZ. Master-planned communities built to modern ignition resistant standards provide passive fire protection that is highly successful at minimizing damage and loss of structures (CBIA, 2022). The State Fire Marshal's statistics demonstrate that homes built to California Building Code Chapter 7A standards (Chapter 5 CWUIC) effectively reduce fire risks to homes built in the wildland urban interface (WUI) and fire hazard severity zones (CBIA, 2022). Further, fire risk is reduced when homes are built as part of a properly planned and mitigated master-planned community, like the Project, the risk of significant structural loss is extremely low (FEMA, 2023). According to the Office of the State Fire Marhsall (OSFM) Property Loss Data, no master-planned community built after the adoption of California Building Code Chapter 7A has been reported as having suffered extensive structural losses.

The Project would include a development of a new community with commercial uses, recreational uses, and institutional/civic uses, some of which would include healthcare facilities or spaces that would have the potential to hold large events or assembly of people. The Project's proposed development would introduce approximately 57,150 people into currently undeveloped areas. In general, research has suggested that urban development in the wildland-urban interface has resulted in more wildland fire ignitions when analyzing all WUI communities built nationwide from 1990-2010. (Radeloff et al. 2018.) Chen and Jin found that most human-caused wildfire ignitions in California occur near populated areas and along traffic corridors. (Chen and Jin, 2022.) In Southern California, Syphard and Keeley identified powerlines, arson, and equipment use as the main sources of these ignitions. (Syphard and Keeley, 2015.) Therefore, new developments in the WUI may result in an increased potential for these specific ignition types.

In its current state, the Project site is largely undeveloped, and human presence is generally limited. With a greater number of people and structures, there is a greater potential for activities and accidents involving the use of fire, flammable/combustible materials, and electrical systems, along with the creation of fire hazards from candles, cooking, electrical and heating sources, and smoking and the use of equipment, appliances, and materials that may cause fire, explosion, or the release of smoke, gas, and/or hazardous materials. In addition, secondary impacts of new development in the WUI such as increased vehicle traffic and road use have the potential to increase the likelihood of roadside ignitions caused by vehicles themselves or human negligence (e.g., cigarette disposal, dragging chains). Thus, new development in the WUI may increase the likelihood of incidents requiring LACoFD response and calls for service over existing conditions.

It is difficult to determine the direct correlation between ignition risk and increased people residing in the WUI. For example, there is no standard method to assess how many new ignitions will occur as a result of bringing in roughly 57,150 people to the WUI due to the dynamic nature of wildfire risks and ignitions. Existing research related to wildfire ignitions generally does not distinguish between the various potential forms of urban development that may occur within the WUI. As evident from many studies, wildfire risk to structures and the potential for human-caused ignitions are not identical across all forms of WUI development. For example, both wildfire risk and ignition risk have been found to be higher where houses meet or intermingle with wildfire prone vegetation (i.e., the Wildland-Urban Intermix). (Radeloff et al., 2018; Theobald et al., 2007; Stewart et al., 2007; Sirca et al., 2007.) Research explains that "[t]he WUI, where housing spacing is low to intermediate, is an apparent influence in most ignition maps," further enforcing the conclusion that more rural/large parcel housing poses a higher ignition risk than master planned communities with more urbanized landscapes. (Syphard and Keeley, 2015.) In fact, the highest ignition risks are often associated with low-density housing where structures are interspersed with natural vegetation. (Syphard and Keeley, 2019.) As the degree of development-adjacent vegetation increases, so does the potential for vegetative ignition and wildfire. This relationship is true for wildfire risks to structures, as well as the risk for ignitions to occur and spread offsite. Conversely, the potential for human caused ignitions in higher-density developments with a clear boundary between urban and wildland areas (i.e., Wildland-Urban Interface) is inherently lower due to low or absent levels of wildfire prone vegetation intermingled between structures and roadways. (Syphard and Keeley, 2019.) Syphard and Keeley state, "However, it appears that when human population density and development reach a certain threshold density, ignitions decline, and this is likely the result of diminished and highly fragmented open space with fuels insufficient to sustain fire. In addition, above a certain population threshold, fire suppression resources are likely to be more concentrated in the WUI." The authors go on to state "Contrary to what might be expected, fire activity is not highest where population is highest. Instead fire frequency, and to a lesser extent, area burned, tend to peak at low- to intermediate population and housing density (Syphard et al., 2007; Westerling and Bryant, 2008; Mann et al., 2016); this relationship has also been observed in other areas across the globe (Syphard et al., 2009; Aldersley et al., 2011; Bistinas et al., 2013)."

The evidence does not demonstrate that the Project will increase off-site wildfire ignitions. Its design as a fire-resilient interface community (i.e., modern, master-planned housing developed with appropriate hardscaping and landscaping meeting fuel modification best practices as opposed to housing intermingling with wildfire prone vegetation), aligns with conditions shown in the literature to have low ignition risk, especially compared to low-density intermix WUI development. While the Project would introduce new land uses and people in an area that is within moderate, high, and very high fire hazard severity zones, upon development of the Project, the site would become a fire-hardened, defensible community that includes hardened evacuation routes out of the area. As discussed in more detail herein, the Project's approach to fire risk reduction is multi-layered and includes the following measures as provided below.

- Unlike developments in the WUI prior to 2007, wildfire risks associated with the Project are reduced due to modern fire safety standards such as extended defensible space mandates including the "Zone 0 – ember resistant zone (the area within 0 to 5 feet of a structure most critical for preventing home ignition during a wildfire). This zone is designed to eliminate combustible materials and minimize places where embers can accumulate and ignite) which has been proven to greatly increase home survivability during wildfire exposure. (Zamanialaei et al, 2025; IBHS, 2023.)
- State-of-the-art, ignition-resistant construction regulatory requirements for all new residential, non-residential, and public facility buildings meeting Chapter 7A of the California Building Code (CBC), Title 26 of the County of Los Angeles Building Code (LACBC), and the Los Angeles County Fire Department (County Fire) requirements. These standards require, among many other measures, fire-resistant roofing to resist ignition from embers or building-to-building fires, vent covering and opening limitations to avoid ember intrusion, noncombustible or ignition-resistant exterior walls, ignition-resistant eaves, and porch ceilings, insulated windows and exterior doors, fire-resistant exterior decks and walkways, and ignition-resistant under-flooring and appendages. These standards have proven to substantially reduce the risk of buildings catching fire or spreading fires during a wildfire event.
- Fuel modification zones around the perimeter of the Project ranging from 100-200 feet to provide defensible space and firefighter access to protect against encroaching fires and minimize the risk of fires originating on the Project site from moving off-site. The fuel modification zones are based on LA County Fire requirements and confirmed with site-specific modeling. The zones will be implemented by knowledgeable professionals, inspected by third-party inspectors, and maintained in perpetuity by the HOA, as required by applicable regulations.
- Ongoing, funded maintenance, inspections, and enforcement of fuel modification zones and other fire protection features by the HOA or similar organization funded by an assessment or tax on parcels within the Project, as required by applicable regulations.
- Existing and planned firefighting capabilities, including new fire stations, to ensure a response to fire and medical emergencies, as required by applicable regulations.

- In all structures, additional fire protection systems, including internal fire sprinkler systems, as required by applicable regulations.
- Fire-resistant landscaping regulatory requirements.
- Multiple access routes for fire apparatus and emergency vehicles, as required by applicable regulations.
- Multiple evacuation routes during a wildfire event. (*See Appendix H, Wildfire Evacuation Technical Report,* for a detailed description of evacuation routes.)
- Code-compliant water capacity, delivery, and availability, with additional surface water supply.
- Ongoing resident fire safety education and evacuation planning.
- Undergrounding of all proposed electrical transmission lines, as required by applicable regulations.

For a complete list of the Project's risk reduction measures including regulatory requirements, Specific Plan requirements, requirements from the Climate Resolve Settlement Agreement, Project specific mitigation measures, and additional safety measures, see Appendix K. ***The risk of wildfire from on-site project operations would be less than significant due to compliance with regulatory requirements. Implementation of Mitigation Measures WILD-2, WILD-3, WILD-4, WILD-5, MM 3-7, MM 16-3, MM 11-3, and MM 7-13 further reduce the risk of wildfire from on-site project operations.***

Off-Site Project Features

The Project requires the construction of off-site features consisting of roadway improvements and connections and upgrades to existing off-site utility systems. All environmental impacts have been analyzed that would be associated with these off-site improvements throughout the Centennial EIR and this Recirculated Partial Draft EIR. This analysis focuses specifically on off-site Project impacts to wildfire, including impacts from off-site Project features.

Off-Site Roadway Improvements

For the purposes of the Recirculated Partial Draft EIR analysis, all Caltrans right-of-way property within the Project boundary, up to the existing edge pavement of SR-138, is considered to be "on-site", whereas all existing paved areas of SR-138 are considered "off-site."[4]

[4] For roadway improvements along other sections of SR-138, the construction would be completed by Caltrans, and the impacts have been fully analyzed by the Northwest State Route 138 Corridor Improvement Project (NW 138 Project) EIR/EIS, dated June 2017. The NW 138 EIR/EIS includes an environmental analysis of all components of the proposed SR-138 improvements and all short- and long-term environmental impacts of the improvements. As such, no additional analysis within the Recirculated Partial Draft EIR is required for any needed clearances associated with SR-138. Since the timing of the SR-138 improvements are unknown and the ultimate implementation of the improvements cannot be assumed, the Project and Recirculated Partial Draft EIR assume the current alignment of the SR-138 is the baseline condition for Project implementation.

The Project involves five intersections with SR-138. Two of the five intersections are considered "off-site," as they are not surrounded on both sides by the Project site: 1) the proposed re-alignment of the National Cement Plant Road at the western edge of Quail Lake and 2) the intersection of 290th Street West with the SR-138. These two off-site intersections would require construction within Caltrans right of-way. The construction of acceleration and deceleration lanes, turn pockets, and signalized traffic lights at each intersection may be required for Project implementation. Additionally, two underpasses and one overpass bridge crossing over SR-138 would be constructed to facilitate both pedestrian and bike access to employment centers.

Wet and dry utility facilities would cross beneath the paved areas of SR-138 and would encroach into Caltrans right-of-way and/or otherwise require future coordination with/approval from Caltrans for construction of actual improvements at various locations. Additionally, storm drainage crossings would be constructed at intermediate locations to accommodate the existing and proposed drainage systems. Other intermediate utility crossings may be required to accommodate final designs for both dry and wet utilities. Where feasible, these utility crossings would be grouped together at common crossing locations. Additional encroachments beyond those listed may occur to accommodate installation of required infrastructure.

Construction: The off-site improvements related to the SR-138 intersections and utility crossings discussed above are located in areas with minimal or no vegetation, such as paved roads, gravel shoulders, and previously disturbed ground, meaning there is little to no fuel available to support wildfire ignition or spread. Specifically, Caltrans maintains transportation improvements, such as gravel shoulders, with little to no vegetation to reduce ignition potential. All construction activities for these off-site features are required to comply with the Project's Construction Fire Protection Plan, which mandates fire prevention measures and response protocols, further minimizing the likelihood of accidental ignition. Potential impacts during construction activities at the proposed off-site roadway locations would be temporary in nature and cease once work is completed. Paved areas are considered lower wildfire risk because they lack combustible vegetation, serve as firebreaks, reduce ember ignition potential, are maintained for safety, and support emergency response. ***As such, the minimal vegetation, fire protection compliance, and temporary nature of the activities would result in a significantly lower wildfire risk associated with these off-site improvements, and impacts from construction of off-site roadway improvements would be less than significant***.

Operations: Operational impacts related to wildfire from the proposed off-site roadway improvements would occur within an area with minimal or no vegetation, such as paved roads, gravel shoulders, and previously disturbed ground, with a low potential for fuel ignition or wildfire spread. In addition to limited vegetation, the off-site improvements would have relatively flat topography, and do not include features that would exacerbate fire behavior or access limitations for emergency response.

The Project would result in increased vehicle traffic along SR-138 and where off-site improvements are proposed. Wildfire ignitions along roads are generally caused by vehicles

with broken catalytic converters, dragging chains, parking over dry fuels, or directly from car fires spreading into adjacent vegetation. The potential for roadside ignitions is highest when fuels are cured and receptive to ignition from sparking. However, maintenance or the removal of vegetation from roadsides has been a proven strategy for reducing the potential for roadside ignitions (Monlina et. Al. 2019). Potential wildfire impacts associated with increase vehicle traffic on SR-138 would be reduced to less than significant due to compliance with all applicable State and LA County fire safety regulations, including vegetation management and fuel modification requirements, as applicable. All vegetation management activities are documented and coordinated with the County to ensure proper compliance. Paved areas are considered to have lower wildfire risk because they lack combustible vegetation, serve as firebreaks, reduce ember ignition potential, are maintained for safety, and support emergency response. With continued compliance with these existing regulatory frameworks and standard maintenance practices, the Project would not increase wildfire risk or exacerbate wildfire hazards during long-term operation. ***As such, the impacts from operations of off-site roadway improvements would be less than significant.***

Off-Site Wells and Water Infrastructure

Off-site groundwater wells are expected to be required within the existing Tejon Ranch Water Bank in Kern County as a result of the Project, and that water would require conveyance through the construction of new water pipelines from Kern County to the Project site. The proposed off-site wells and conveyance facilities (i.e., pipelines) would not involve modifications to existing roadways, nor would they require new access roadways. Connecting the Tejon Ranch Water Bank wells to the Project site would require trenching for water pipelines to connect the wellheads to the "untreated wellhead pipelines" to be installed along 300th Street West and a crossing of the California Aqueduct.

The system of off-site wellhead pipelines would convey all pumped groundwater requiring disinfection/treatment to the proposed on-site water treatment plant located near the West Branch of the California Aqueduct, where it would be treated and then delivered directly to the Project's water distribution system or blended with State Water Project (SWP) water, which would also be treated at that same location. The off-site wellhead pipelines would range from 12 to 30 inches in diameter and would be installed at a depth of approximately 4 to 5 feet deep via trenching the length of the pipe. The off-site pipelines would be installed slightly deeper if required to safely cross under existing utility lines or underground structures.

Construction: The proposed off-site well locations would be accessed via the existing dirt or decomposed granite (DG) roads serving the Tejon Ranch Water Bank. Construction activities for these off-site improvements would adhere to the requirements of the Project's Construction Fire Protection Plan, which mandates comprehensive fire prevention measures and response protocols throughout the duration of the work. These areas are characterized by minimal vegetation, and any work would occur within previously graded dirt roadways or within the boundaries of the water bank itself. This lack of combustible material significantly reduces the potential for wildfire ignition and spread. Additionally, potential

impacts during construction activities at the proposed off-site well locations would be temporary in nature and cease once work is completed. ***As such, the minimal vegetation, fire protection compliance, and temporary nature of the activities would result in a low wildfire risk associated with these off-site improvements, and impacts from construction of off-site well and water infrastructure improvements would be less than significant.***

Operations: Operational impacts related to wildfire from the proposed off-site wells and water improvements would occur within previously disturbed areas with minimal or no vegetation, which have a low potential for fuel ignition and wildfire spread. In addition to limited vegetation, the off-site improvements would have relatively flat topography, and do not include features that would exacerbate fire behavior or access limitations for emergency response. Operation and maintenance of the well and water infrastructure improvements would comply with all applicable State and LA County fire safety regulations, including vegetation management and fuel modification requirements, as applicable. All vegetation management activities are documented and coordinated with CAL FIRE and the County to ensure proper compliance. With continued compliance with these existing regulatory frameworks and standard maintenance practices, the Project would not increase wildfire risk or exacerbate wildfire hazards during long-term operation. ***As such, the impacts from operations of off-site well and water infrastructure improvements would be less than significant.***

Off-Site Aqueduct Crossings

The Project would require four crossings of the California Aqueduct, including the wellhead pipeline crossing of the East Branch of the Aqueduct. The Project would require an Encroachment Permit from the California Department of Water Resources (DWR) for the new and expanded bridge crossings of the Aqueduct and for the crossing of potable and recycled water pipes. The pipelines may extend over or under the Aqueduct, depending on DWR's requirements and the specific engineering conditions at each crossing location. Each of the four crossings of the California Aqueduct would be considered off-site impacts because the Aqueduct is not a part of the Project site. Aqueduct crossings are discussed below.

- Crossing 1 would involve an expansion to the existing National Cement Plant Road bridge crossing. The bridge would maintain its existing alignment, but would be widened to accommodate pedestrian/bicycle access. Water and recycled water pipelines would be either attached to the bridge structure or would cross beneath the Aqueduct.
- Crossing 2 would involve construction of a new bridge crossing that would be wide enough to accommodate vehicular travel and pedestrian/bicycle access. Water and recycled water pipelines would be either attached to the bridge structure or would cross beneath the Aqueduct.
- Crossing 3 would involve a trenched at-grade crossing of the Aqueduct south of the Oso Water Treatment Plant. At this location, the Aqueduct is underground. Therefore, water pipeline extensions from the Water Treatment Plant to the portions of the

Project site located to the east of the Aqueduct would require trenching across the subterranean Aqueduct. If DWR prefers to avoid a crossing in this area of the Aqueduct, then an alternative would be to install the water pipelines from the water treatment plant southerly along the western boundary of the Aqueduct within the DWR property to ensure avoidance of the SEA No. 17. Once the pipeline(s) are far enough south to avoid the SEA, then the pipelines would be continued on site and would cross the new bridge crossing to provide water supplies to the portions of the Project site located to the east of the Aqueduct.

- Crossing 4 would involve the attachment of a wellhead water pipeline to or beneath the existing 300th Street West bridge crossing of the East Branch immediately north of the Project site. No other changes to the existing bridge structure would be required.

Construction: Similar to development of off-site wells, construction of any off-site improvements related to aqueduct crossings would adhere to the applicable fire prevention measures and response protocols throughout the duration of the work. Vegetation is absent at these off-site aqueduct locations, as the aqueduct has been fully constructed and consists exclusively of concrete infrastructure which limits the potential for wildfire ignition and spread. Furthermore, as these off-site aqueduct crossings are constructed over or adjacent to a body of water, any potential wildfire impacts are greatly diminished as the presence of water acts as a natural barrier. Additionally, potential impacts during construction activities at the proposed off-site aqueduct crossing locations would be temporary in nature and cease once work is completed. ***Combined with the absence of vegetation and the use of non-combustible concrete infrastructure, the likelihood of wildfire occurrence or impact at these locations is considered negligible, and impacts from construction of off-site aqueduct crossing improvements would be less than significant.***

Operations: Operational impacts related to wildfire from the proposed off-site aqueduct crossing improvements would occur within a developed area with minimal or no vegetation and concrete infrastructure, with a low potential for fuel ignition or wildfire spread. In addition to limited vegetation, the off-site improvements would have relatively flat topography, and would not include features that would exacerbate fire behavior or access limitations for emergency response. Operation and maintenance of the aqueduct improvements would comply with all applicable State and LA County fire safety regulations, including vegetation management and fuel modification requirements, as applicable. All vegetation management activities are documented and coordinated with CAL FIRE and the County to ensure proper compliance. With continued compliance with these existing regulatory frameworks and standard maintenance practices, the Project would not increase wildfire risk or exacerbate wildfire hazards during long-term operation. ***As such, impacts from the operations of off-site aqueduct crossing improvements would be less than significant.***

Connections to Existing Off-Site Dry Utilities

Telephone

The preliminary extension of telephone lines would occur along Gorman Post Road in the current franchise area, entering the Project site at the most westerly entrance, or continuing overhead along the existing pole line along SR-138. This new extension would involve retrofitting and replacing the current overhead system that extends from the Frazier Park area to Gorman, and continuing to the site (described previously). This would involve use of existing poles, and no physical impacts would occur. AT&T would extend the facilities/lines within existing or proposed road right-of-way areas whenever possible. When not possible, easements would be obtained for facilities placed on private property within the Project site. Any permits or authorization required for the extension of telephone service to the Project site would be the responsibility of AT&T.

Construction: All construction activities associated with off-site telephone system improvements would be conducted in accordance with established utility construction and fire mitigation standards. At these off-site telephone line locations, vegetation is minimal or entirely absent, as existing utility poles are already installed, any new construction would be confined to existing roadways and disturbed corridors. The lack of natural fuel reduces the potential for wildfire ignition or spread in these areas. Additionally, potential impacts during construction activities at the proposed off-site telephone locations would be temporary in nature and cease once work is completed. ***By combining proactive fire protection compliance with the inherently non-combustible environment, the risk of fire occurring during or after construction of these off-site telephone improvements would be considered negligible, and impacts from construction of off-site telephone improvements would be less than significant.***

Operations: Operational impacts related to wildfire from the proposed off-site telephone line improvements would occur within a developed area with minimal or no vegetation, with a low potential for fuel ignition or wildfire spread. In addition to limited vegetation, the off-site improvements would occur in an area of relatively flat topography, and would not include features that would exacerbate fire behavior or access limitations for emergency response. Operation and maintenance of the telephone line would comply with all applicable State and LA County fire safety regulations, including vegetation management and fuel modification requirements, as applicable. All vegetation management activities are documented and coordinated with CAL FIRE and the County to ensure proper compliance. With continued compliance with these existing regulatory frameworks and standard maintenance practices, the Project would not increase wildfire risk or exacerbate wildfire hazards during long-term operation. ***As such, impacts from the operations of off-site telephone line improvements would be less than significant.***

Cable Television

Although a cable television service provider has not yet been identified, development of the Project could impact off-site cable television lines near the future service provider's plant or distribution facilities and may require an upgrade of existing facilities. The extension of these facilities to the Project site would be conducted by the future service provider.

Construction: All construction activities associated with off-site cable line improvements would be conducted in accordance with established utility construction and fire mitigation standards. Additionally, potential impacts during construction activities at the proposed off-site cable locations would be temporary in nature and cease once work is completed. ***Based on the proactive fire protection compliance and the temporary nature of the construction activities, the risk of fire occurring during or after construction of these off-site cable line improvements would be considered negligible, and impacts from construction of off-site cable line improvements would be less than significant.***

Operations: Operational impacts related to wildfire from the proposed off-site cable line improvements would likely occur within a developed area with minimal or no vegetation, with a low potential for fuel ignition or wildfire spread. Operation and maintenance of the telephone line would comply with all applicable State and LA County fire safety regulations, including vegetation management and fuel modification requirements, as applicable. All vegetation management activities are documented and coordinated with CAL FIRE and the County to ensure proper compliance. With continued compliance with these existing regulatory frameworks and standard maintenance practices, the Project would not increase wildfire risk or exacerbate wildfire hazards during long-term operation. ***As such, impacts from the operations of off-site cable line improvements would be less than significant.***

Electricity

Through coordination with SCE, two options were developed for providing additional electricity capacity to service the western portion of the Project site including: (1) reconfiguration of the existing Bailey Substation located off site along the property's western boundary and (2) upgrading the Gorman Substation and reconstructing the existing overhead transmission lines to handle the higher load. In either event, the improvements would occur entirely on lands owned by SCE, and not on the Project site. No existing off-site facilities other than those discussed herein would require upgrades or retrofitting to provide adequate electrical service to the Project site.

At this time, upgrade of the Bailey Substation is considered the primary option, and this Recirculated Partial Draft EIR assumes implementation of this option. Assuming the Bailey Substation would be upgraded, no upgrades to the Gorman Substation or other off-site facilities would be necessary to serve the first phase of Project implementation.

According to the *Dry Utilities Analysis: Centennial* prepared by BJ Palmer & Associates (BJ Palmer 2015), and prior communications with SCE, the improvements to the Bailey Substation would be contained within a parcel of land owned by SCE and would not extend onto the Project site. The existing substation parcel is graded, flat, developed with electrical

infrastructure, and includes graveled setbacks with no vegetation within the fenceline. The Bailey Substation is a transmission-only substation, and is currently not configured for the voltage distribution required to service the Project. However, the site of the Bailey Substation is large enough for the required reconfiguration. Reconfiguration would include the placement of a large transformer to take transmission voltage (66 kV) and convert it to distribution voltage (12 kV). Distribution voltage would be extended to the Project site on the existing overhead pole line along SR-138, or routed northerly overhead or underground around Quail Lake within the Project limits. This location would provide sufficient electricity capacity to serve the first phase of Project implementation. Potential infrastructure improvements necessary to serve the western portion of the Project site would be required by MM 20.2-2, as outlined in Section 5.20 of the Centennial EIR, Dry Utilities. In any event, the improvements implemented to serve the western portion of the Project site would occur entirely on land owned by SCE, and therefore would be off-site improvements.

Construction: The physical environmental impacts of these off-site features were addressed as part of the Project analyzed in this previous Centennial EIR. To the extent feasible, off-site improvements related to upgrading the Bailey Substation would be conducted by SCE and would take place on a flat and disturbed gravel pad currently being utilized by an existing sub-station. Vegetation is minimal or entirely absent, as the current land associated with the existing substation is disturbed, and already built out exclusively of concrete infrastructure, which limits the potential for wildfire ignition and spread. Additionally, potential impacts during construction activities at the proposed off-site electricity locations would be temporary in nature and cease once work is completed. ***Combined with the absence of vegetation and the use of non-combustible concrete infrastructure, the likelihood of wildfire occurrence or impact at these locations is considered negligible, and impacts from construction of off-site electricity improvements would be less than significant.***

Operations: Operational impacts related to wildfire from the proposed off-site electricity line improvements would occur within a developed area with minimal or no vegetation, with a low potential for fuel ignition or wildfire spread. In addition to limited vegetation, the off-site improvements would have relatively flat topography, and would not include features that would exacerbate fire behavior or access limitations for emergency response. Operation and maintenance of the electrical line would comply with all applicable State, County and SCE fire safety regulations, including vegetation management and fuel modification requirements, as applicable. Specifically, SCE would be required to comply with its WMP and execution of the Integrated Wildfire Mitigation Strategy (IWMS), which requires grid hardening, inspections, and vegetation management activities to ensure continued integrated wildfire mitigation. All vegetation management activities are documented and coordinated with CAL FIRE, the County, and SCE to ensure proper compliance. ***With continued compliance with these existing regulatory frameworks and standard maintenance practices, the Project would not increase wildfire risk or exacerbate wildfire hazards during long-term operation. As such, impacts from the operations of off-site electricity line improvements would be less than significant.***

Project Placement and Wildfire Risk

Project placement within the landscape relative to fire history, topography, and wind patterns significantly influences wildfire risk. In California, wildfire behavior is driven by topography, fuel, climatic conditions, and fire weather (such as low humidity and high winds). The planning and siting of a development project within the landscape influence its impact related to fire risk.

Project Placement in Relation to Climate, Topography and Vegetation

The region is influenced by both the arid continental climate to the east and the moister Mediterranean climate to the west; therefore, the region is described as having a hot-to-cold and semi-arid-to-sub-humid climate. The region is subject to Santa Ana winds, that occur near the end of fire season during late summer and early fall. The Project Site along with the entirety of Los Angeles County is occasionally subject to strong Santa Ana wind events, which are dry, warm winds that flow from the higher desert elevations in the east through the mountain passes and canyons which increase in velocity as they converge through the canyons. Wildfire risk increases during Santa Ana wind events.

Topography also influences fire risk because it affects the rate of fire spread. Steep terrain can result in faster fire spread up-slope and slower spread down-slope. Terrain that forms a funneling effect, such as chimneys, chutes, or saddles on the landscape can result in especially intense fire behavior, including faster spread and higher intensity. Conversely, flat terrain tends to have little effect on fire spread, resulting in fires that are driven by vegetation and wind. Topographic features that may present a fire spread facilitator are the slope and canyon alignments, which may serve to funnel or channel winds, thus increasing their velocity and potential for influencing wildfire behavior.

TABLE 2.3-7
EFFECTS OF TOPOGRAPHIC FEATURES ON FIRE BEHAVIOR

Topographic Feature	Effect
Narrow Canyon	Surface winds follow canyon direction, which may differ from the prevailing wind; wind eddies/strong upslope air movement expected, which may cause erratic fire behavior; radiant heat transfer between slopes facilitates spotting/ignition on opposite canyon side.
Wide Canyon	Prevailing wind direction not significantly altered; aspect significant contributor to fire behavior. Wide canyons are not as susceptible to cross-canyon spotting except in high winds.
Box Canyon/ Chute	Air is drawn in from canyon bottom; strong upslope drafts. No gaps or prominent saddles to let heated air escape. Fires starting at the canyon bottom can move upslope very rapidly due to a chimney-like preheating of the higher-level fuels and upslope winds.
Ridge	Fires may change direction when reaching ridge/canyon edge; strong air flows likely at ridge point; possibility for different wind directions on different sides of the ridge. Ridges experience more wind. Fires gain speed and intensity moving toward a ridge. Fires burning at a ridge can exhibit erratic fire behavior. Strong air flows can cause a whirling motion by the fire. As the wind crosses a ridge it usually has a leeward eddy where the wind rolls around and comes up the leeward side.
Saddle	Potential for rapid rates of fire spread; fires pushed through saddles faster during upslope runs. Winds can increase when blowing through saddles due to the funneling effect of the constricted pass. On the other side, winds will slow, but erratic winds potentially occur at the saddle due to eddies.
Sources: Teie 1994.	

According to the National Interagency Fire Center (NIFC), "Fire spread is generally less rapid on flat terrain compared to slopes because flames do not have the same upward momentum. The spread rate of a fire increases with slope due to the fact that heat and flames are preheated by the sloping surface" (NIFC, 2023). The Federal Emergency Management Agency (FEMA) notes, "Firefighting operations are more challenging and dangerous on slopes due to difficult access and increased fire behavior. Flat areas provide better access and safety for firefighting efforts" (FEMA, 2021). The International Association of Fire Chiefs (IAFC) states, "Preventative measures and fire-resistant infrastructure are more effectively implemented on flat land, reducing overall fire risk. Sloped areas present challenges for these measures due to increased difficulty in maintaining defensible spaces and infrastructure" (IAFC, 2023).

Project Site

The Project site's topography is variable; however, the majority is considered flat to rolling. As presented in Table 2.3-1, the majority of the Project site (87%) is less than 30% slope. The Project's proposed development areas are not located within the site's steeper, and thus riskier, areas. Roughly 80% of proposed development would occur in areas with existing slopes of less than 15%. The Project would result in grading within the developed portions

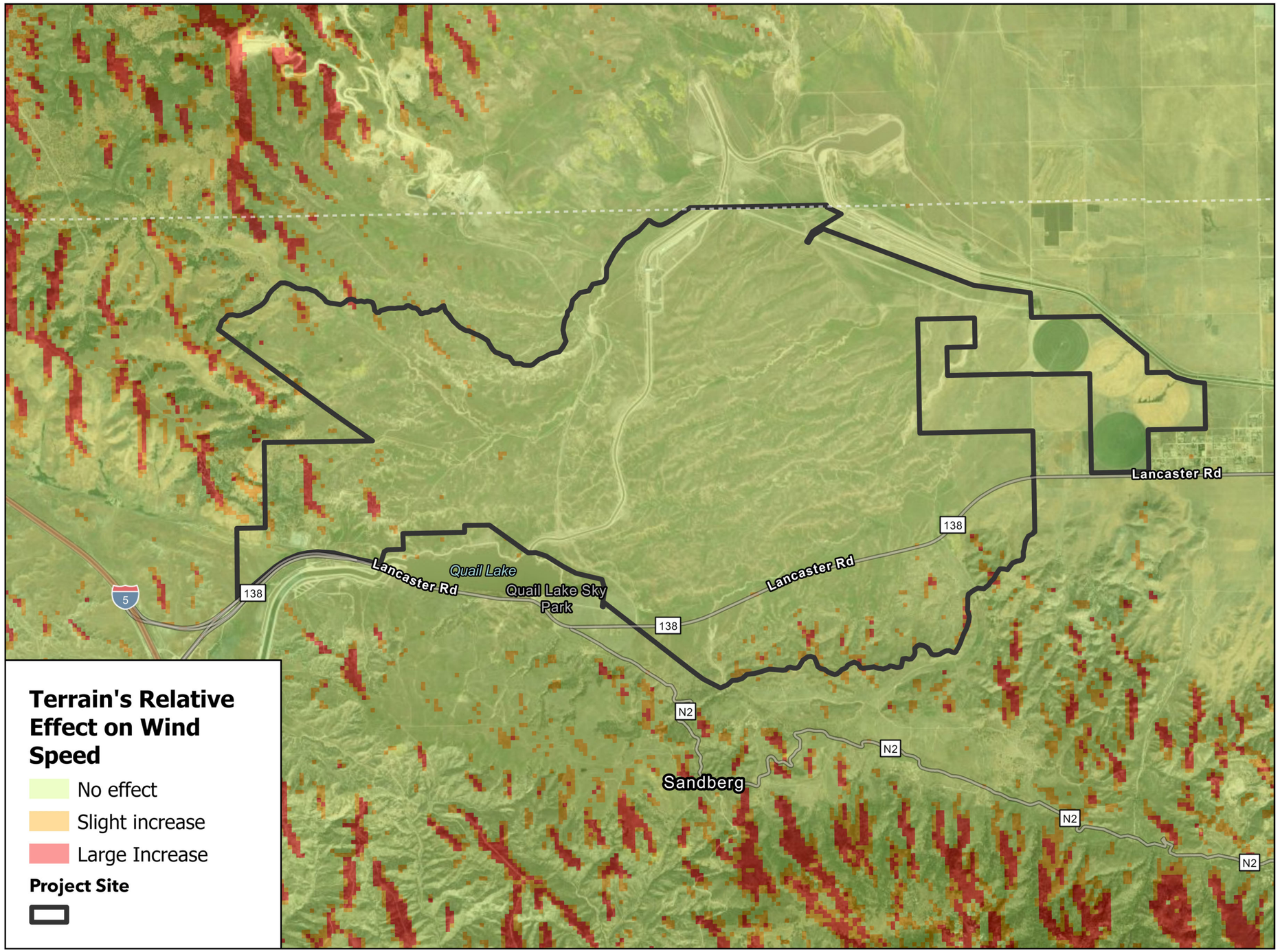
of the site, further reducing the sloped areas on the Project site proposed for development. Further, the Project's proposed development areas are not located near topographic features such as substantial ridgelines or narrow canyons that may exacerbate fire severity (NIFC, 2023). In fact, the proposed Specific Plan prohibits Project development along steep slopes and those portions of the Project site that can be characterized as rugged terrain and requires that these restricted areas be accessible to firefighting equipment via air and existing fire roads. Moreover, clearance for fire access roads and gates will be incorporated into the Project's subsequent subdivision map approval process in accordance with LACoFD requirements, thereby facilitating the provision of fire suppression services to this difficult terrain. Development in flat areas reduces risk compared to development in steep and varied terrain due to slower fire spread, generally lower fire intensity, easier fire suppression, and better implementation of preventative measures. These factors contribute to a generally safer environment for development in flat areas compared to slopes.

The Project site does not include topographic features that are likely to substantially increase wind speeds or alter wind patterns. The Project site is set back from large expanses of open space to the south, east and west and the terrain within the San Gabriel Mountains, including multiple sub-drainages and canyons. While these topographic features exist offsite, they are not likely to impact localized wind speeds and patterns within the Project site. To better understand the effect of terrain on winds within the Project site, Santa Ana wind conditions were modeled using the WindNinja software. WindNinja is a specialized software developed by the U.S. Forest Service aimed at simulating and predicting wind flow patterns in complex terrain, particularly useful for applications in wildland fire management. As provided in Figure 7, wind speeds are not exacerbated by topography across the vast majority of the Project site. Areas where wind speeds are exacerbated include scattered ridgeline in the far western and southern regions of the Project site located away from proposed development areas.

Where off-site improvements are proposed, the surrounding topography is generally consistent with that of the broader Project area, though it more often occurs in relatively flat terrain with slopes ranging from approximately 0 to 5 percent. These gentle slopes do not promote increased fire behavior or ignition potential. As a result, the topographic conditions associated with off-site improvements are not expected to increase the risk of fire ignitions related to off-site infrastructure or construction activities.

Vegetation can also influence fire risk by providing a fuel source that is subject to ignition. As detailed in Section 2.3.5 and Table 2.3-2, the Project site is dominated by grassland vegetation which covers roughly 76% of the site. In areas within 500-feet of proposed development specifically, 83% of vegetation is comprised of grass and herbaceous fuels. Although grass fuels exhibit high ignition risk due to seasonal drying and a high surface-area-to-volume, particularly when unmanaged, they typically result in faster moving fires with lower flame lengths and heat output.

While grass fires can move quickly, they tend to consume fuels more rapidly and produce less sustained heat, often resulting in more favorable conditions for direct suppression efforts and shorter periods of heat output for structures to sustain. (Nguyen et. al, 2025,



Source: Dudek 2024

Terrain's Relative Effect on Wind Speed

Figure 7

Centennial Recirculated Partial Environmental Impact Report

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Map not to scale

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Colorado State Forest Service, 2025.) In addition, grassland fires generate significantly fewer embers compared to fires in shrub and forest vegetation—an important distinction, as ember production is the leading cause of structure loss in California wildfires. (Zhou, 2019, Martin and Hillen, 2016.) Although wildfire can spread quickly through grasslands, the risk such a wildfire poses to structures is significantly reduced by the Project's comprehensive set of risk reduction measures as listed in Section 7 of the Centennial Wildfire Safety Plan. (See Appendix B.)

In addition, vegetative hazard from the Project site's grass fuels is reduced as a result of Tejon Ranch's historic and active grazing operations. The Project's proposal to locate development areas adjacent to grasslands reduces risks from wildfire compared to other more hazardous vegetation types (i.e. chapparal, dense forest). Structure ignitions most often occur from firebrands or radiant heat from directly adjacent fires (Cohen, 1995). Given rapid fuel consumption, grass fires do not expose structures to radiant heat for long periods compared to other high load fuel types. The threat to structures from potential grass fires within the Project site is further reduced given continuous perimeter Fuel Modification Zones which prevent structure exposure to direct and radiant heat.

Chapparal vegetation is considered the highest hazard vegetation type within the Project site. However, this vegetation type covers less than 1% of the Project site, with no chapparal vegetation present within 500 feet of planned development areas. Wildfire threat to structures from chaparral vegetation is determined to be negligible given its highly limited extent within the Project site and near proposed development. The nearest open space vegetation is separated from the site's ignition resistive structures by code compliant fuel modification zones. Fuels in the Project site are not conducive of widespread extreme fire intensity. Upon Project implementation, the Project would convert readily ignitable fuels that are on-site to buildings, roadways, and maintained landscaped areas. The Project's proposed structures would be built in accordance with state-of-the-art, ignition-resistant construction standards and building codes required by the County and the State, including Chapter 7A of the Los Angeles County Building Code (Title 26, Chapter 7A), which requires that the buildings are resistant to ignitions from direct flames, heat, and embers.

Vegetation conditions in areas where off-site improvements are proposed are generally similar to those across the broader Project site and are primarily characterized by low fuel–load grassland vegetation. In many locations, these areas are already disturbed and include existing paved surfaces or expanses of bare soil, which substantially limit the presence of continuous or receptive fuels. As a result, fuel availability is reduced compared to undisturbed areas. Given these conditions, vegetation associated with off-site infrastructure improvements is not expected to exacerbate the likelihood of ignitions resulting from off-site construction or operational activities of off-site infrastructure.

The Project would maintain open space uses throughout the Project site, with large open space areas within the western and southern portions of the Project site. While large open space would be in proximity to developed areas on the Project site, the Project would incorporate a 100-foot-to-200-foot fuel modification zones (FMZs) around the entire Project perimeter, which would provide defensible space, provide accessibility to firefighters and

fire-fighting equipment, and reduce fire intensity if ignition were to occur. FMZs thus mitigate conditions that might cause fire originating in an on-site structure to ignite off-site vegetation in the WUI area and, conversely, an on-site or off-site fire burning in vegetative fuels to transmit fire to buildings. Among other benefits, FMZs not only reduce fuel that is available to a fire but also eliminate landscape areas where embers can ignite vegetation and reduce flame lengths and the amount of heat produced by fire. Landscaping within the FMZs or Project landscaping throughout the site would include drought-tolerant, fire resistive trees, shrubs, and groundcovers. The planting list and spacing would be reviewed and approved by LACoFD, included on submitted landscape plans. The plantings would be consistent with LACoFD's Fuel Modification Plant Selection Guidelines (LACoFD 2021). Additionally, the Project would also include additional other fuel modification and landscaping requirements such as roadway fuel modification zones, stormwater basin vegetation management, and the prohibition of certain highly flammable plants which would further reduce the risk of fire ignition and spread.

Due to the presence of various vegetation communities and open space, the potential for wildfire on the Project site would be a significant impact. To address this impact, MM WILD-2 would require preparation of a Fuel Modification Plan (FMP) demonstrating compliance with the then-current LA County Fire Code Title 32 fuel modification standards, which must be approved by LACoFD in consultation with Cal Fire. The Specific Plan, pages 3-99 through 3-100, provides significant detail on the required content and implementation of the FMP. Moreover, MM WILD-2 requires the Project applicant to provide all new residents and business owners with recorded Covenants, Conditions and Restrictions (CC&Rs) that identify their responsibilities for maintaining FMZs located on their property, as defined in the approved Fuel Modification Plan, which CC&Rs are also subject to County approval to confirm that new property owners will be informed of their maintenance responsibilities.

Per applicable County fuel modification requirements, each fuel modification areas will incorporate three zones, these are 1) a setback zone, 2) an irrigated zone, and 3) a thinning zone. The widths of the zones will vary, depending on the anticipated fire behavior. The widths will either total 100, 150, or 200 feet, which widths well exceed the minimum widths required by Public Resources Code 4291, discussed in the Regulatory Setting section above. Landscaping on private lots directly adjacent the WUI will include standard County fuel modification requirements. Flammable plant species will be restricted, spacing standards implemented, and basic low fuel requirements will be applicable per LACoFD plant selection guidelines. The following descriptions provide details for the different fuel modification zones on site:

<u>Zone A (Setback Zone)</u>

- Irrigation by automatic or manual systems shall be provided to landscaping to maintain healthy vegetation with high live fuel moisture and greater fir resistance.
- Landscaping and vegetation in this zone shall consist primarily of green lawns, ground covers and adequately spaced shrubs and trees. The overall characteristics of the landscape shall provide adequate defensible space in a fire environment.

- Plants in Zone A shall be inherently highly fire resistant and spaced appropriately. Species selection should be made referencing Appendix E Fuel Modification Plant Reference. Other species may be utilized subject to approval by the Homeowners' Association (HOA).
- Except dwarf varieties or mature trees small in stature, trees are generally not recommended within Zone A, but are not prohibited.
- Vines and climbing plants shall not be allowed on any combustible structure.
- Target tree species (including but not limited to Eucalyptus, Pine, Juniper, Cypress, Cedar, Canary Island Date Palm, Mexican Fan Palm and Bougainvillea) shall not be allowed within 10 feet of combustible structure, defined as any accessory structure not required to be built to Chapter 7A building code standards (ex. Structures under 120 square feet).
- Within Zone A will be the Home Ignition Zone from 0 to 5 feet of the exterior wall surface of the building extending five feet on a horizontal plane.
    - This zone shall be continuous hardscape or limited to fire-resistive plantings acceptable to LACoFD.
    - Vegetation in this zone shall not exceed 6 to 18 inches in height and irrigation is required,
    - This zone shall be free of all combustible materials, and the use of mulch is prohibited.

<u>Zone B (Irrigated Zone)</u>

- Irrigation by automatic or manual systems shall be provided to landscaping to maintain healthy vegetation with high live fuel moisture and greater fire resistance.
- Landscaping and vegetation in this zone shall consist primarily of green lawns, ground covers, and/or adequately spaced shrubs and trees. The overall characteristics of the landscape shall provide adequate defensible space in a fire environment.
- Plants in Zone B shall be fire resistant and spaced appropriately. Species selection should be made referencing Centennial Specific Plan, Table 3-7, "Plant List," in Section 3.3, "Landscape Plan." Other species may be utilized subject to approval by the HOA.

<u>Zone C (Native brush thinning zone)</u>

- Irrigation systems are not required for this zone.
- Landscaping and vegetation in this zone may consist of modified existing native plants, adequately spaced ornamental shrubs and trees, or both. There may also be replacement landscape planting with ornamental or less flammable native species to meet minimum slope coverage requirements of County Public Works or Parks and Recreation Landscape or Hillside ordinances. In all cases the overall characteristics of the landscape shall provide adequate defensible space in a fire environment.

- Existing native vegetation shall be controlled by thinning and removal of species constituting a high fire risk; including but not limited to laurel sumac, chamise, ceanothus, sage, sage brush, buckwheat, and California juniper. Please reference the County Fuel Modification Plant Reference.
- Fuel loads shall be reduced by pruning up the lower one-third of remaining trees or shrubs and removing dead wood. Native plants may be thinned by reduced amounts as the distance from development increases.
- Plants in Zone C shall be spaced appropriately. Species selection should be made referencing the County Fuel Modification Plant Reference.
- General spacing for existing native shrubs is 15 feet between canopies. General spacing for existing native trees is 20 feet between canopies.

The distance requirements for each zone are described below:

- 200-foot Setback
    - Zone A extends 20 feet from the edge of any combustible structure, accessory structure, appendage or projection.
    - Zone B extends from the outermost edge of Zone A to 100 feet from structure (or 80 feet from the outermost edge of Zone A).
    - Zone C extends from the outermost edge to Zone B to 200 feet from structure (or 100 feet from the outermost edge of Zone B).
- 150-foot Setback
    - Zone A extends 20 feet from the edge of any combustible structure, accessory structure appendage, or projection.
    - Zone B extends from the outermost edge of Zone A to 50 feet from the structure (or 30 feet from the outermost edge of Zone A).
    - Zone C extends from the outermost edge of Zone B to 150 feet from the structure (or 100 feet from the outermost edge of Zone B).
- 100-foot Setback
    - Zone A extends 20 feet from the edge of any combustible structure, accessory structure, appendage, or projection.
    - Zone B extends from the outermost edge of Zone A to 50 feet from the structure (or 30 feet from the outermost edge of Zone A).
    - Zone C extends from the outermost edge of Zone B to 100 feet from the structure (or 50 feet from the outermost edge of Zone B).

In addition to compliance with the County's fuel modification regulations, the Project would provide additional restrictions in the Zone 0 area (0-5 feet from structures). Although Zone 0 regulations are not currently mandated, they are expected to be codified in 2026. The Project will be designed and constructed in compliance with the applicable Zone 0

requirements in effect at the time of build-out. This will be enforced through LACoFD approval of Fuel Modification Plans (LA County Fire Code 4906.3).

Open space areas on the Project Site would all be provided with fire-resistant landscaping that would be maintained on an ongoing basis and inspected annually, as required by applicable regulatory mandates. Additionally, many of the Project's interior open space areas are surrounded by development areas, limiting the potential for open spaces to function as pathways for wildfire to enter the interior of the Project. Many of the Project's open space areas will also be graded and re-vegetated with fire-resistant landscapes and would adhere to the County's Prohibited Plant List.

In accordance with the Specific Plan, the Master HOA must hire a Community Forester who is trained in urban forestry, arboriculture, horticulture, or landscape architecture to undertake tree management responsibilities. The Community Forester will also coordinate annual third-party FMZ inspections on the Project site to ensure that FMZ maintenance is being regulatory implemented in accordance with the Fuel Management Plan. The inspector would evaluate the FMZs for compliance with regulations and confirm that they are operating properly and would notify LACoFD of any FMZ compliance violations. The Community Forester is required to develop a policy for managing public trees on the Project site and educating Project residents about the importance of trees in the community and is responsible for implementing the Project's fire-resistant landscape plan. The Specific Plan further requires the Community Forester to develop programs that involve community organizations and residents in tree preservation, planting and tree care so as to ensure that community trees are, among other things, maintained in accordance with all Fire Code access requirements. Per the Specific Plan, the Community Forester must also prepare an annual tree management plan and implement programs to improve the communities tree canopy in a manner that complies with all Fire Code and LACoFD requirements. In addition, the Specific Plan requires the Community Forester to maintain the Project's fire-resistant plant palette and to consult with the County's staff biologist regarding proposed revisions to the community plant palette described in the Specific Plan. However, the LACoFD shall have final approval over the final plant palette for fuel modification zones and modifications thereto. ***Implementation of MM WILD-2 would reduce potential impacts related to on-site wildfire due to the presence of various vegetation communities and open space to a less than significant impact.***

Off-Site Project Features

Off-site project features are proposed in areas where generally vegetation is minimal or entirely absent, such as paved roads, gravel shoulders, and previously disturbed ground, meaning there is little to no fuel available to support wildfire ignition or spread. Vegetation management requirements associated with the Project's off-site improvements are intended to reduce ignition potential and maintain safe operating conditions around new and existing infrastructure. These requirements typically include clearing and maintaining vegetation to prevent the accumulation of combustible fuels adjacent to off-site improvements, particularly around access roads, utilities, and work areas.

Off-site improvements would be required to comply with applicable federal, state, and utility standards that collectively mandate vegetation management standards related to wildfire risk reduction. For example, California Public Utilities Commission General Orders 95, 165, and 166 further regulate overhead and underground electrical facilities, vegetation clearance, inspection, and maintenance practices to reduce wildfire risk.

State legislation, including Senate Bills 1028 and 901, strengthens wildfire mitigation, vegetation management, and utility accountability requirements, which are implemented through Southern California Edison's Wildfire Mitigation Plan and All-Hazards Plan. In addition, off-site improvements within or adjacent to state transportation corridors must comply with Caltrans maintenance and vegetation control requirements, including its Integrated Vegetation Management Plan. Together, these regulations and plans ensure that off-site infrastructure is designed, constructed, and maintained in a manner that manages vegetation, reduces ignition sources, and minimizes wildfire risk. ***With implementation of applicable federal, state, and utility requirements and standards regarding vegetation management for off-site project features, impacts related to off-site wildfire due to the presence of various vegetation communities and open space would be less than significant***.

Project Placement in Relation to Historic Fires

Fire history data provides valuable information regarding fire spread, fire frequency, ignition sources, and vegetation/fuel mosaics across a given landscape. Fire history data can be used to show whether large fires have occurred in the area of the Project site and areas proposed for development of Project off-site features, which indicates whether they may be possible in the future. As described above, the Project site and the surrounding vicinity have been subject to wildfires. Most of these fires have been within the direct vicinity of the Project site, however, some fires have occurred within the Project boundaries. Factors that contribute to the limited wildfire history at the Project site is believed to be largely due to the site's terrain, managed fuels, barriers to wildland fire spread, quick wildfire detection and response, the removal of fine fuels by cattle grazing and a lower risk for human-caused ignitions as compared to more urbanized areas off-site. Due to the fire break effectively created by the existing SR-138 right-of-way, wildfires advancing toward the Project site from the south rarely enter the interior of the site.

Based on fire history, wildfire risk for the Project site is associated primarily with a Santa Ana wind-driven wildfire burning or spotting onto the site from the north, southeast, or with a fire approaching from the west/northwest during more typical onshore weather patterns. The fire history record highlights very few wildfires originating to the east of the Project site. Agricultural and disturbed landscapes within this region of the Antelope Valley are not conducive to wildfire spread. The absence of dense, continuous fuel sources limits the potential for fire spread in agricultural and disturbed areas. As stated by the USFS, "Agricultural practices and land disturbances often lead to lower fuel loads due to regular crop harvesting and land clearing, which can reduce the risk of uncontrolled fire spread."

According to the FRAP database, 91 wildland fires have occurred on or within 5 miles of the Project since 1800, with 10 of these wildfires burning on-site at an average fire return interval, or the average time between successive wildfires in a specific area, of roughly 11 years. Analyzing wildfires within 5 miles of the Project Site generally provides a good overview of large fire spread in terrain and fuels similar to the project site, and highlights fires that may have resulted in direct or indirect impacts to the Project site. The most recent fire burning in the vicinity of the Project occurred in June 2024 (Post Fire) and burned roughly 3 miles west of the Project site on the west side of Interstate-5. Other recent fires near the Project include the White Fire (July 2024), and the Gorman Fire (May 2007).

Limited wildfire history at the Project site is believed to be largely due to the site's terrain, managed fuels, barriers to wildfire spread, and quick wildfire detection and response. Wildfire occurrence offsite is more common, particularly south of the Project in the Liebre Mountains. However, wildland fires encroaching onto the Project from the south rarely enter the interior of the site due to the position of SR-138 and its utilization as a fire break. While wildfires occur more frequently in the Tehachapi Mountains, none of these fires have spread to the Project site. This is due to the geographical location of the Antelope Valley which acts as a buffer between the steeper terrain and heavier fuels present in the Tehachapi Mountains.

Based on fire history (Figure 4), and landscape burn probability analysis (See Section 2.3.7), wildland fire risk for the Project site is associated primarily with a Santa Ana wind-driven wildfire burning or spotting onto the site from the north of southeast, although a fire approaching from the northwest during more typical onshore weather patterns is possible. From a regional perspective, wildfires are less likely to occur at the Project site compared to offsite regions to the north, west, and south.

While not in close proximity to the Project site, the 2025 Eaton and Palisades fires resulted in significant damages to the Pacific Palisades and Altadena communities. Yet, while located in the same County, Centennial's wildfire risk is substantially lower than those of the communities affected by the 2025 wildfires.

During both the Palisades and Eaton Fires of January 2025, wildfire was driven into the Palisades and Altadena communities by extreme Santa Ana winds exceeding 80 mph. This rare level of extreme weather combined with other factors, such as outdated home construction and dense urban vegetation without enforced or prevalent fuel modification, can contribute to urban conflagrations. Structural conflagration is defined as fire encompassing all of a given structure. A built environment conflagration can result from wildfires, where fire spreads uncontrollably from structure to structure. In both the Palisades and Eaton Fires, structures themselves became the main driver of wildfire spread (IBHS 2025). While methods for modeling the potential for structural conflagration and the resulting fire behavior are currently being researched, the key factors listed below are common community characteristics believed to have contributed to widespread structure losses during the Eaton and Palisades Fires (IBHS 2025). The Project's comparison to these features is also provided.

- The majority of the construction in the Palisades and Eaton neighborhoods took place in the 1950s, before the introduction of California's Chapter 7A, which regulates building standards in wildfire-prone areas.

The Project's proposed structures, as opposed to the structures discussed above in the Palisades and Eaton neighborhoods, would be built utilizing the most current construction methods designed to reduce wildfire exposure and reduce the likelihood for structure fires to spread into off-site areas. Construction methods intended to reduce wildfire exposure would comply with the wildfire protection and ignition resistant building construction requirements contained in the Los Angeles County Building Code and the 2022 CBC including the following: CBC, Chapter 7A; Los Angeles County Building Code, Chapter 7A; Los Angeles County Residential Code, Section R327; Los Angeles County Referenced Standards Code, Chapter 12-7A 7A, Materials and Construction Methods for Exterior Wildfire Exposure.

- Connective fuels laced between homes and hazardous plant species (palms, cypress, pines) created pathways for structure-to-structure fire spread and contributed of extreme fire behavior within the Palisades and Altadena communities.

Different than the Palisades and Altadena communities, the Project will require highly maintained, irrigated vegetative landscaping between homes and perimeter Fuel Modification Zones to keep an active flaming front at great distances from structures and support defensibility for the existing fire environment.

- Narrow roadways and road blockages caused by parked and abandoned vehicles prevented and slowed emergency response and limited direct wildfire suppression efforts.

All on-site roads, unlike those described in the Palisades and Altadena communities, would facilitate emergency ingress and ingress and will be constructed to County standards and would include a 28-foot-wide private access road that will be used for LACoFD access. In addition, the Project includes multiple evacuation routes that may be utilized during a wildfire event. (See Appendix H, Wildfire Evacuation Technical Report, for a detailed description of evacuation routes.) Further, the Project includes a robust wildfire education program which will educate residents and employees regarding wildfire evacuation and fire safety measures.

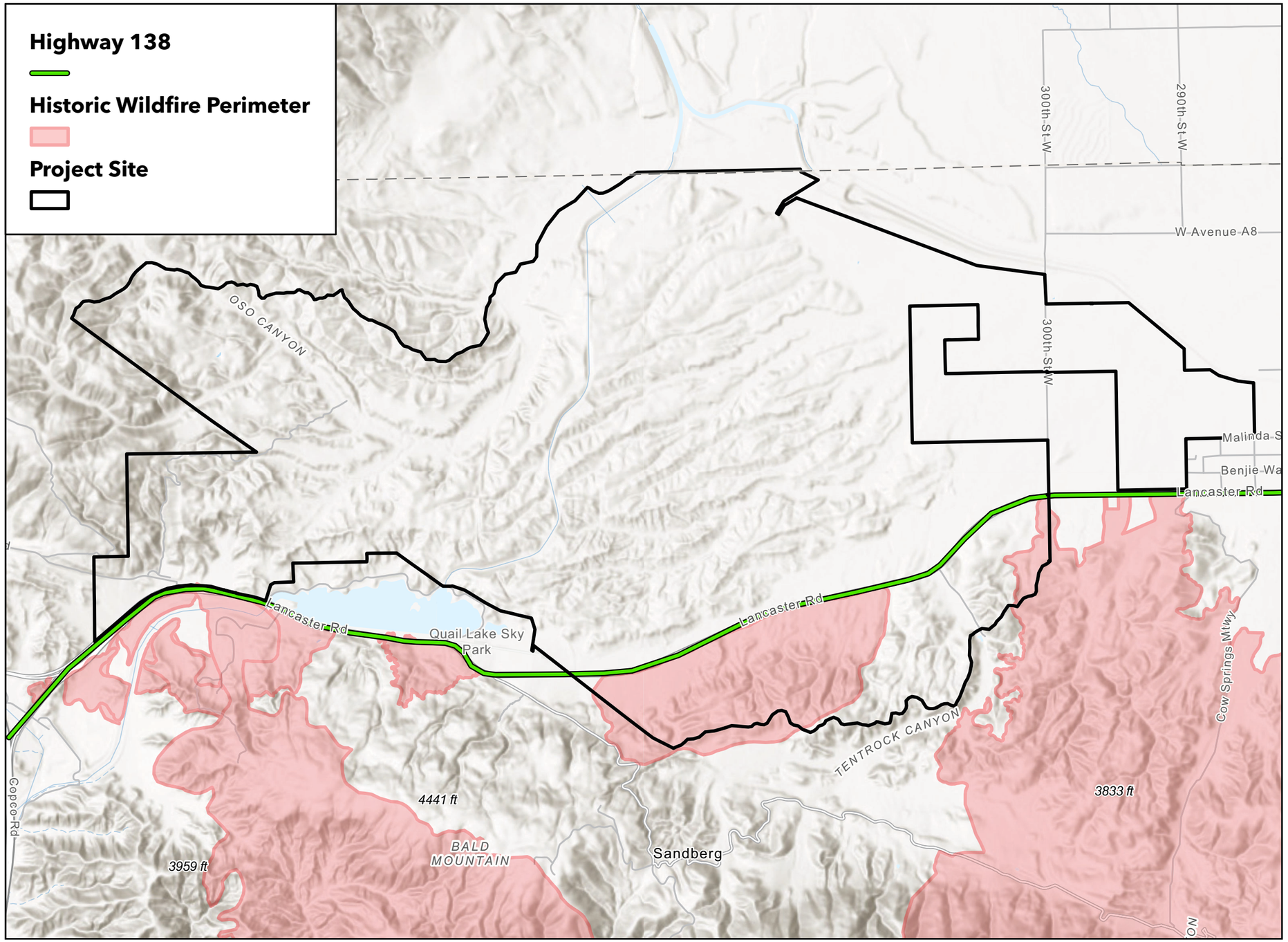
The community's fire-smart design in accordance with current and updated regulations would mitigate the potential for structure loss from wildfire. Additionally, the State Fire Marshal's data shows that homes constructed according to CBC Chapter 7A standards significantly reduce fire risks for properties located in the WUI and FHSZs. Therefore, newer, code-compliant master planned communities, such as the Project, provide a baseline level of high wildfire safety when designed to updated fire code requirements.

Project Placement in Relation to Wildland Fire Ignition Points

According to the IRWIN database, there have been 196 reported wildland ignitions within 5 miles of the Project since 2014. Given there have been only 91 historic wildfires (fires with a perimeter of generally 10 acres or more), the majority of ignitions in the region do not result in large wildfires. For reference, there have been 1,553 ignitions within 5 miles of the City of Santa Clarita since 2014. As presented graphically in Figure 6, regional wildland fire ignition locations documented in the IRWIN database are strongly associated with major roadways including Interstate-5, SR-138, and Pine Canyon Road, with the majority of ignitions occurring along Interstate-5 to the southwest of the Project Site. The vast majority of these ignitions have been kept to less than 10 acres and extinguished quickly, as many of these fires are not recorded in the historic wildfire perimeter database (CAL FIRE 2024). It should be noted that historic wildfire ignitions differ from historic wildfire perimeters. While ignitions refer to any vegetation fire no matter the size, wildfire perimeters are generally only recorded if greater than 10 acres.

To date, fire has played a limited role in shaping and maintaining the plant communities found on the Project site and in closely adjacent areas where off-site improvements are proposed. As indicated in Figure 5, the majority of burns taking place on the Project site occur in the southern and eastern portion of the property, south of SR-138 adjacent to larger expanses of open space in the Liebre Mountains and the Angeles National Forest. As pictured, wildfire occurrences within the Project site and its direct vicinity are substantially smaller and more infrequent compared to the greater region. This is likely caused by the mild topography and lighter fuel loads present within the Project site. When wildfires do occur on the Project site, they have been contained to small acreages compared to fires occurring in other regions of Los Angeles County. While large fires have occurred to the south and east and have encroached towards the Project site (2004 Pine Fire, 1968 Liebre Fire), lighter fuel loads and moderate topography in the southern region of the Project site relative to off-site areas appear to have prevented these large fires from encroaching into the Project site. In addition, SR-138 and the California Aqueduct have served several times as a fuel break to prevent fires burning onto much of the Project site from the south. Figure 8 shows historical fires near the Project site that have been contained as a result of the fuel break created by SR-138 and the California Aqueduct. Only two fires have crossed SR-138 within the Project site, and both of these fires were kept to small acreages (265 and 320 acres, respectively).

Other than the southern portion of the property, only five documented fires have burned within the interior portion of the Project site north of SR-138, all of which were contained to small acreages (average fire size of 303 acres each). The lack of significant historical fire activity on the majority of the Project site and where off-site improvements are proposed is likely attributed in part to lighter fuel loads, mild topography, and existing fuel breaks (SR-138, California Aqueduct). Table 2.3-3 summarizes the fire history on and near the Project site. Moreover, fire spread patterns on the property would be significantly interrupted once the Centennial Project site is built out because the Project's urban development would eliminate or separate what are presently continuous fuels across the Project site.



Source: Dudek 2024

Highway 138's Use as a Fuel Break

Figure 8

Centennial Recirculated Partial Environmental Impact Report

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Map not to scale

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Project Placement in Relation to Evacuation Routes and First Responder Ingress and Egress

The Project is located adjacent to regional transportation networks (ex. Interstate-5 and SR-138) with multiple points of access. The Project would provide five points of access to SR-138, but fire impacts would be significant without adequate emergency services. To address this impact, MM-16-2 would require LACoFD Developer Fee Program, MM-16-3 would require new fire stations, and MM-16-4 would require Law Enforcement Facilities Mitigation Fee. With implementation of these mitigation measures, the Project would have adequate emergency services to serve the site. The Project complies with the County General Plan and LACoFD response travel time standard for suburban areas when considering the three on-site fire stations (with an optional fourth if determined necessary by LACoFD) with fast response to all planned structures. In addition, the Project would provide an on-site Sherriff's substation. The Project provides new surface streets, limits dead-end cul-de-sacs and connects to existing streets and is near major highway/freeway corridors, facilitating emergency vehicle ingress. Further, implementation of MM-3-7 would require the preparation and LACoFD approval of an emergency response plan for each of the Project's tentative subdivision maps. ***With implementation of MM-16-2, MM-16-3, MM-16-4, and MM 3-7, the Project would have adequate emergency services to serve the site and the impact would be reduced to less than significant.***

The Project provides for parking restrictions and an HOA to enforce parking restrictions to ensure that fire apparatus access roads are not obstructed by designated parking areas and where parking is prohibited, signage and/or curb marking would be provided. Further, per the Los Angeles County Code Section 21.40.040 each tentative map must demonstrate that internal circulation system, site access, road dimensions, road connectivity, and other standards related to fire apparatus access are consistent with all applicable roadway and fire code standards. All interior roads must comply with all fire apparatus access road standards, including requirement that all interior roads with a fire hydrant be constructed to a minimum unobstructed road width of 26 feet, exclusive of shoulders, all roadways that provide parking must provide a minimum clear width of not less than 34 feet for parking on one side and 42 feet for parking on both sides.

The Project will establish five public roadway connections to SR-138, enhancing both resident mobility and emergency response access. The existing National Cement Plant Road will be upgraded from a private, emergency-only route to a public roadway built to Los Angeles County Public Works and Fire Department standards, ensuring safe and reliable access for first responders. Within residential villages, two-lane collector roads will serve subdivision neighborhoods and minimize dead-end streets without secondary access. Neighborhood roadway layouts will feature looped designs with multiple connections to main collectors, improving traffic flow and providing redundant routes for emergency vehicles to quickly access and evacuate the area during an incident.

The Project's proximity to SR-138 offers several benefits in the case of wildfire. As described above, SR-138 has previously acted as a fuel break to prevent fire from spreading onto the Project site. SR-138 would also be used as the primary evacuation route for Project

occupants in the case of an evacuation and the primary access point to the Project site for first responders located outside of the Project Boundary. Depending on the directional spread of wildfire and guidance from emergency services, SR-138 eastbound or westbound may be utilized. SR-138 westbound connects with Interstate-5 and is a major evacuation route in the region.

Nevertheless, during construction, the Project could result in a significant impact related to impairment of emergency response or evacuation plan. To address this impact, during Project construction, including construction of off-site improvements, the Project Applicant will prepare and implement a construction traffic management plan, as detailed in **MMs 3-8 and 10-5**, which requires minimization of obstructions in traffic lanes, maintenance of emergency access throughout construction activities through methods such as the use of flag persons to minimize obstructions along SR-138, signage, scheduling of vehicle movements to ensure traffic flow, and limiting schedule of deliveries and truck traffic, among other requirements. During the construction of widening the SR-138, a minimum of 2 lanes would remain open. Temporary detours may be needed at several locations along the corridor where the proposed facility intersects the existing to avoid full closure of the highway. Construction staging would require that one lane of traffic in each direction is open to the public at all times; the anticipated construction staging would allow construction of new lanes adjacent to the existing lanes (either north or south of the existing roadway), allowing traffic to continue to use the existing lanes and then allow traffic to use the new lanes during construction of the remaining lanes over the existing roadway. ***With implementation of MM 3-8 and MM 10-5, short-term construction-related impacts related to impairment of an emergency response or evacuation plan would be less than significant.***

Water Supply and Wildfire Risk

Water supply and infrastructure to address firefighting within the Project site and for Project off-site features are relevant to evaluating wildfire risk for the Project. Without an adequate water supply and code compliant water delivery systems, Project fire impacts would be potentially significant. Water supplies for the Project were analyzed in Section 7 of the Centennial EIR. As described in the Centennial EIR, the Project would receive water supplies from a variety of sources including the Tejon Ranch Company Water Bank, an onsite water banking facility, groundwater, imported water, recycled water from the onsite wastewater treatment.

A project-specific Water Supply Assessment (WSA) compliant with Senate Bill 610 (Chapter 643, Statutes of 2001) has been prepared for the Project and is included as Appendix 5.18 to the Centennial EIR. The WSA confirms that the Project water supplies would meet water demand for the Project, including for domestic and firefighting needs.

As indicated in the Wildfire Safety Plan (Appendix G), the Project will be consistent with County Title 20, Section 20.12.060 for fire flow and fire hydrant requirements. The Project would provide internal waterlines supplying sufficient fire flows and pressure to meet Los Angeles County Fire Department requirements for fire hydrants and interior fire sprinkler systems for all structures. Water supply must meet a 2-hour fire flow requirement of 2,500

gpm with 20-psi residual pressure, which must be over and above the daily maximum water requirements for the Project. Building permit applications for the Project will be required to include evidence demonstrating a reliable water supply and will require a certificate from the LA County Fire Department that there is sufficient water supply for fire protection. Further, as required by the LA County Fire Code 3313, the Project is required to provide an approved and adequate water supply for fire protection be made available at construction sites once combustible building materials arrive or vertical construction begins, ensuring firefighting water is on site during critical phases of building construction.

In addition, the Project includes multiple on-site surface water source locations for aerial firefighting resources including Quail Lake and the California Aqueduct. These secondary water resources provide ample and easily accessible water supply for aerial fire suppression which promotes quick extinguishment of fires burning onto or threatening the Project site and areas proposed for development with off-site Project features.

Water would be provided via a delivery system meeting Fire Code standards, including hydrants at County spacing requirements and fire flow meeting pressure and duration standards. The water supply for fire protection is proposed to be a looped public water system and shall be designed and installed to the water district's standards. A looped water system is a water distribution network where pipes are connected in a continuous loop (or multiple interconnected loops) rather than ending in dead-end lines. Advantages of a looped system include water flow from multiple directions and increased reliability in water flow id one section of the system were to fail or become damaged. The water delivery system would be designed to minimize damage and service interruptions as a result of seismic activity. If a private water system is utilized, it would be required to comply with NFPA standard 24, which sets standards for the installation of private fire service mains and their appurtenances supplying private hydrants and water-based fire protection systems.

As required by the LA County Fire Code, the water system must have an adequate number of isolation valves and shall provide two sources of supply to the mains. Two sources of supply to the mains are necessary should one water source fail (earthquake) or be shut off, there needs to be a secondary source for supply to the mains.

The water supply to the fire sprinkler systems shall be designed to the water district and Fire Department standards and the NFPA 13 standards, with design, coverage, and plans subject to Fire Department approval. Sprinkler systems will be required in residences and commercial and industrial buildings as approved by the Fire Marshal. ***The final design criteria and sprinkler standard used (13-D, 13-R or 13) shall be subject to Fire Marshal approval. Accordingly, the Project would not have a significant fire-related impact due to inadequate water supplies or inadequate water delivery infrastructure.***

Project Density and Design, Building Construction, With Respect to Wildfire Risk

Project Density and Design

Development density influences how likely a fire is to start or spread, and how likely it is that the development and its occupants would be in danger when a fire starts. Thus, urban and suburban development should be sufficiently dense so as to hinder fire spread by eliminating or significantly breaking up wildland vegetation. Density in this context relates to the amount of interface between homes and wildland vegetation (as opposed to a general units per acre metric). This type of development (so-called "interface development") minimizes the amount of interface between homes and wildland vegetation (Syphard et al., 2012). In contrast, lower density developments with wildland vegetation interspersed between structures (so-called "intermix development") are more conducive to ignition risks fire spread within developments and structure loss and should be avoided in fire prone areas (Syphard et al., 2019).

Research indicates that clustered planned developments, like the Project, are not associated with increased wildfire risk. As shown in Exhibits 1 through 3 housing layouts directly influences susceptibility to fire due to the amount of exposure of the community perimeter to the wildlands.

EXHIBIT 1

Example wildland urban interface master planned community that is ignition resistant and excludes readily ignitable vegetative fuels throughout and provides a perimeter fuel modification zone. This type of new development requires fewer fire resources to defend and can minimize the likelihood of on-site fires spreading off-site.

EXHIBIT 2

Example of semi-rural, wildland-urban intermix development. Homes are located on larger properties and include varying levels of ignition resistance and landscape / fuel modification provision and maintenance. This type of development results in a higher wildland exposure level for all homes and does not provide the same buffers from wildfire encroaching onto the site or starting at a structure and moving into the wildlands as a master planned community.

EXHIBIT 3

Example of rural/large parcel development where homes are intermixed amongst wildland fuels, are of varying ages, and include varying levels of fuel modification zone setbacks. Homes are exposed on most or all sides by flammable vegetation and properties rely solely on owners for maintenance, are often far distances from the nearest fire station, and have minimal buffer from on-site fire spreading to wildlands.

Developments in wildland areas generally resemble either wildland urban interface or intermix as defined below.

Wildland Urban Interface:

- The Wildland-Urban Interface refers to areas where urban or suburban development directly borders or is in close proximity to undeveloped wildlands or natural landscapes. Interface areas demonstrate clear boundaries between development areas and the surrounding wildlands.

Wildland Urban Intermix:

- The Wildland-Urban Intermix refers to areas where wildland and urban or suburban development are intermixed, meaning that urban and wildland areas are interspersed rather than having a clear boundary separating development areas from

surrounding wildlands. Wildfires have a high likelihood of spreading through intermix areas due to wildfire receptive vegetation dispersed throughout development areas.

The housing layout of the Centennial master planned community development includes one continuous wildland-urban interface (the community perimeter) with the wildlands, similar to the layout shown in Exhibit 1. This is unlike rural and semi-rural intermix development shown in Exhibits 2 and 3, which create more structural exposure to wildlands, with less frequent or no ongoing landscape maintenance. The more spread out the development, the more difficult it is for fire resources to protect homes. Intermix development is characterized by housing situated amongst unmaintained vegetative fuels, whereas the Project would convert all vegetative fuels within the Project development footprint and provide a wide, managed fuel modification zone (FMZ) that separates homes from unmaintained fuel thereby creating an interface condition that facilitates the defense of onsite structures and reduces the risk of onsite fires migrating to offsite wildland areas. Research explains that "[t]he WUI, where housing spacing is low to intermediate, is an apparent influence in most ignition maps," further enforcing the conclusion that more rural/large parcel housing poses a higher ignition risk than master planned communities with more urbanized landscapes. (Syphard and Keeley, 2015). Further, Lampin-Maillet et. al., 2010 state "Below 30% of wildland vegetation cover, the connectivity of burnable vegetation is lost and fire spread is limited. When the proportion of urbanized area is high, the continuity of burnable wildland is interrupted (Syphard et al., 2007b), which was the case of very dense clustered WUIs (more than 60% of urbanized area)." This article suggests that the Project does not include design features that are likely to increase fire frequency. Although the Project includes approximately 10,000 units of "very low-density residential development," in Centennial this term refers strictly to building density—not to the presence of wildland vegetation between homes. All developed areas, regardless of density, will be clustered and surrounded by maintained, irrigated landscapes rather than unmanaged wildland vegetation.

One study suggests that interface developments have experienced a greater proportion of structure losses from wildfire as compared to intermix developments (Kramer et al. 2019). This research examines wildfire losses from 1985-2013, as well as the 2017 Tubbs Fire. The research determined that, from 1985 to 2013, the wildfire destruction rate was higher in the wildland-urban interface compared to wildland-urban intermix, with destruction rates at 15.6 and 11.6 percent, respectively. The same was observed during the 2017 Tubbs Fire, with a 72.4 percent destruction rate in the interface, and a 61.5 percent destruction rate in the intermix. This study is an outlier, however, and fails to consider other factors influencing structure loss including building construction that complies with modern building standards. Unlike the communities at issue in the Kramer study, which were generally constructed prior to Building Code updates specifically tailored to development in fire prone areas, modern master-planned communities built to modern ignition resistant standards provide passive fire protection that is highly successful at minimizing damage and loss of structures (CBIA, 2022).

The State Fire Marshal's statistics demonstrate that homes built to current California Building Code Chapter 7A standards effectively reduce fire risks to homes built in the wildland urban interface (WUI) and fire hazard severity zones (CBIA, 2022). When those homes are built as part of a properly planned and mitigated master-planned community, like the Project, the risk of significant structural loss is extremely low (FEMA, 2023). As evidenced in the OSFM Property Loss Data, no master-planned community built after the adoption of California Building Code Chapter 7A has suffered extensive structural losses to wildfire. The available evidence demonstrates that California's wildland fire structure losses are associated with poorly planned residential developments and older existing home stock that was built before modern Chapter 7A standards went into effect. Extensive analysis of State Fire Marshal data regarding recent impacts from California's mega-fires has been conducted and the data demonstrates that over 98.5% of structural damage or loss occurs with homes built before modern Chapter 7A standards. Of those new homes that were damaged, most involved isolated new construction surrounded by existing, high-risk homes (e.g., new homes lost in the Camp fire) located in high-risk areas. These are homes commonly built in the WUI that are overgrown by many drought-ridden fuel types (brush, shrubs, trees, etc.) that are ready to burn rapidly. Many have narrow roads, inadequate fire access and evacuation routes, and inadequate water supplies. In stark contrast, new master-planned communities in the WUI must go through a strenuous environmental review under the California Environmental Quality Act and are typically planned, approved and implemented with numerous fire-safety features and measures. The Project would be built to be an ignition resistant community designed to include professionally managed and maintained fire protection components, modern fire code compliant safety features and specific measures provided where ignitions are most likely to occur (such as roadways). Regardless of the Fire Hazard Severity Zone classification, the Project would comply with Chapter 7A of the building code in addition to Title 14 of the California Code of Regulations.

Firefighters may have difficulty accessing disconnected and remote developments and, without timely emergency services, fire impacts would be significant. Implementation of Mitigation Measure MM 16-3, would require provision of up to four onsite fire stations. These on-site fire stations would provide rapid response to the entirety of the Project site by firefighters in compliance with County response standards. In addition, the Project site is located near major roadways such as Interstate-5 and SR-138 which provide efficient access for offsite emergency responders.

In addition to ignition resistant construction standards and clustered design, perimeter fuel modification zones (FMZs) have been proven to protect communities from encroaching wildfires, even during extreme weather conditions. During the 2020 Silverado Fire occurring in Orange County northeast of Irvine, Santa Ana winds gusting as high as 80 miles per hour spread the fire rapidly towards the Orchard Hills community. Built in 2018, this community was designed with 170-200-foot-wide permitter FMZs surrounding structures. As presented in Exhibit 4, FMZs buffered structures from flames by moderating fire behavior due to irrigated landscape conditions. When paired with ignition resistant building construction to mitigate risks from airborne embers, permitter FMZs greatly protect structures from wildfire exposure, while also providing conditions favorable to safe and effective fire suppression.

Implementation of MM WILD-2 would require 100-foot-to-200-foot fuel modification zones (FMZs) around the entire Project perimeter, which would provide defensible space and reduce fire intensity if ignition were to occur. The Project proposes a clustered, interface design and complies with LA County Fire Code requirements found to protect communities within fire hazard severity zones. The Project would provide FMZ to reduce the potential for wildfire encroachment whether originating onsite or offsite.

Implementation of MMs 16-3 and WILD-2 would reduce impacts related to development within the wildland urban interface to less than significant levels.

EXHIBIT 4

Effectiveness of interface-clustered development design and perimeter FMZs surrounding the Orchard Hills Community during the 2020 Silverado Fire.

Project Building Construction - Building Standards and Fire Risk

Fire hardening structures decreases the likelihood of structure ignition. In WUI areas, homes can be considered fuel as well as an ignition point for wildfires; therefore, it is important to

reduce the likelihood of building ignition occurring (Zhou, 2013). Research demonstrates that structural characteristics, especially roofing, play a significant role in reducing a structure's vulnerability to fire and the likelihood of burning (Gorte, 2011; Knapp et al., 2021; Kolden & Henson, 2019; Manzello et al., 2011; Syphard et al., 2017; Zhou, 2013). Further, reducing a structure's likelihood of ignition reduces the risk for the individual homeowners and the risk associated with fire spreading to other homes or wildland areas (Mockrin et al., 2020).

The Project's proposed structures would be built utilizing the most current construction methods designed to reduce wildfire exposure and reduce the likelihood for structure fires to spread into offsite areas. Construction methods intended to reduce wildfire exposure would comply with the wildfire protection and ignition resistant building construction requirements contained in the Los Angeles County Building Code and the 2025 CBC including the following:

- California Building Code, Chapter 7A
- Los Angeles County Building Code, Chapter 7A
- Los Angeles County Residential Code, Section R327
- Los Angeles County Referenced Standards Code, Chapter 12-7A

Each of the critical fire hardening building features summarized below has been addressed within Chapter 7A to minimize the potential for structural ignition from wildfire exposure and to reduce the likelihood of structural fires spreading into off-site areas:

- Roofing Assemblies
- Vents and Openings
- Exterior Wall Covering
- Open Roof Eaves
- Closed Roof Eaves and Soffits
- Floor Projections and Underfloor Protection
- Underfloor Appendices
- Windows, Skylights, and Doors
- Exterior Doors
- Decking
- Accessory Structures

When communities incorporate the regulatory fire hardening requirements summarized above, they offer a safer landscape that is resistant to WUI fire disasters. For example, in the unincorporated area of Montecito in Santa Barbara County designated as VHFHSZ that had experienced wildfire-related home loss, the Montecito Fire Protection District implemented

place-based fire hardening strategies similar to those now required by Chapter 7A. These strategies focused on recurring structural ignition potential, fire-resistant materials, structural modifications, increasing defensible space, fire scaping, and developing a fire protection code. As a result, when the Thomas Fire spread to Montecito in 2017, the area experienced minimal damage and was largely passed over compared to the surrounding areas (Kolden & Henson 2019). By implementing mitigation measures across the entire community rather than just in wildland interface areas, Montecito protected the whole area effectively.

The 2007 Witch Creek fire was one of the most destructive fires in California's history and destroyed thousands of homes in San Diego County. However, after the 1990 Paint Fire in Santa Barbara and the 1991 Oakland Hills Tunnel Fire, five communities in San Diego County implemented measures to adapt to a very high fire hazard environment, such as implementing home hardening measures similar to Chapter 7A requirements and vegetation restrictions; all of which were maintained and enforced by the HOA (Mutch et al., 2011). As a result, when the Witch Creek fire spread to Rancho Santa Fe, no homes were lost in the five communities that adopted this fire-hardening approach, while older communities that did not implement fire-hardening measures were heavily impacted (Mutch et al., 2011).

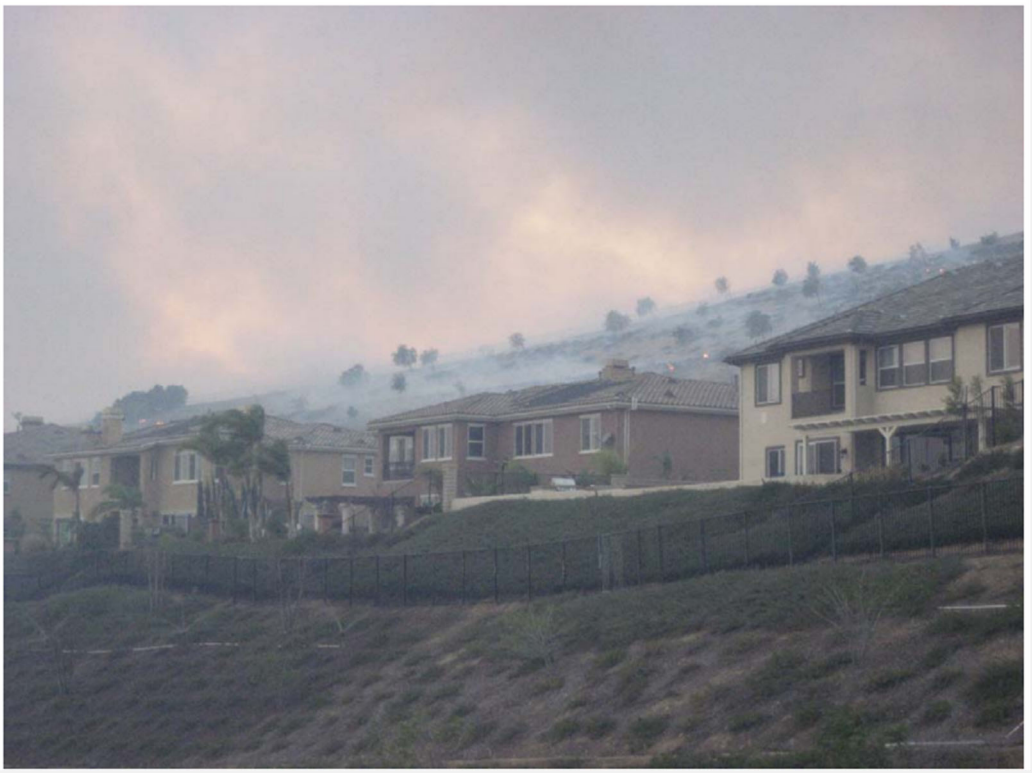
EXHIBIT 5

Ranch Santa Fe, 2007 which fire. Structural hardening measures similar to those required in Chapter 7A of the CBC are believed to have prevented extensive structure losses in this community.

Similarly, the 2008 Freeway Complex Fire near Yorba Linda tested the effects of enhanced building construction. In 1996, the City of Yorba Linda adopted construction requirements similar to those currently reflected in Chapter 7A of the California Building Code. Notably, even though structures were exposed to severe fire behavior and airborne ember storms, no homes built after 1996 were lost during the fire. As presented below in Exhibit 5, the Casino Ridge community built with fire resistant materials and methods and maintained FMZs was able to withstand impacts of the wildfire and experienced no structure losses. In fact, firefighters were able to focus protection efforts on other, more at-risk communities, knowing Casino Ridge was built to withstand wildfire with little to no fire protection efforts.

EXHIBIT 6

Casino Ridge Community during the 2008 Freeway Complex Fire highlighting ignition resistant construction and permitter Fuel Modification Zones. No structures were lost during the fire.



While structure loss from wildfire may occur even when structures are constructed to modern ignition resistant building requirements, Knapp et al. (2021), these losses are most commonly caused by radiant heat from nearby burning structures or direct flame contact from ignited combustible materials near the home. Wildfire researcher Yana Valachovic stated, “This research suggests a strong neighborhood effect, where the condition and proximity of an outbuilding or a neighbor's home can have a significant influence on a

building's survival given the radiant heat exposure from a neighboring building burning (Kan-Rice, 2022)". One of the primary threats to home survival is radiant heat from nearby burning structures. Even with ember-resistant features mandated by Chapter 7A, intense radiant heat can break windows and ignite interiors. Therefore, the benefits of Chapter 7A construction increase dramatically when a structure and the directly adjacent structures are all constructed to Chapter 7A requirements. Fire risk and the potential for structure loss is extremely low when homes are built as part of a properly planned and mitigated master-planned community (FEMA, 2023). According to the Office of the State Fire Marhsall (OSFM) Property Loss Data, no master-planned community built after the adoption of California Building Code Chapter 7A has been reported as having suffered extensive structural losses.

While some studies such as Knapp et al. 2021 highlight structure losses of modern homes, they do not consider the fire resistance of nearby structures and the resulting impact on structural loss. Further, this article concluded that higher structural survival was noted with lower canopy cover within 0-30m of newer homes. This emphasizes the importance of a multi-layered approach to fire-safety which includes adequate defensible space in tandem with fire-resistant building construction. The Project will require ignition resistant landscaping throughout the entirety of the Project site.

To further fire harden the Project, the Centennial Specific Plan and the County's subdivision ordinance mandate that all proposed electric transmission lines be undergrounded, thereby eliminating the potential for fires that may be caused by electrical transmission line blowdowns in high wind events or by other line failures or anomalies. As described above, the Project is designed to not only be hardened against fire but designed to prevent fires from occurring and quickly suppressing them when they do occur. The Project would include a multi-scaled approach to fire protection through wildfire education, ignition prevention, fuels management, increased response capacity, and ignition-resistant construction.

Wildfire risks to the Project's buildings would be less than significant due to compliance with regulatory requirements. Implementation of Mitigation Measures WILD-2, WILD-3, WILD-4, MM 7-13, MM 11-13, and MM 16-3 would further reduce the risk to buildings from wildfire.

Off-Site Project Features

As discussed in further detail above, the Project includes off-site components such as a roadway aqueduct crossing, water and well infrastructure improvements, and connections to and upgrades of existing off-site utility systems. The Project would be required to adhere to applicable building standards and fire risk mitigation protocols during construction of the off-site features. Similar to the on-site Project features, construction activities would utilize the most current construction methods designed to reduce wildfire exposure, including the Los Angeles County Building Code and the 2025 CBC. Additionally, a majority of the off-site impacts would occur on areas with minimal vegetation such as paved roads, gravel shoulders, and previously disturbed ground, that serve as natural fire breaks, and would further prevent off-site wildfire impacts. ***Implementation of these design features and***

adherence to prescribed construction methods would ensure that a less than significant impact related to building design and fire safety would occur.

Wildfire Modeling and Wildfire Risk

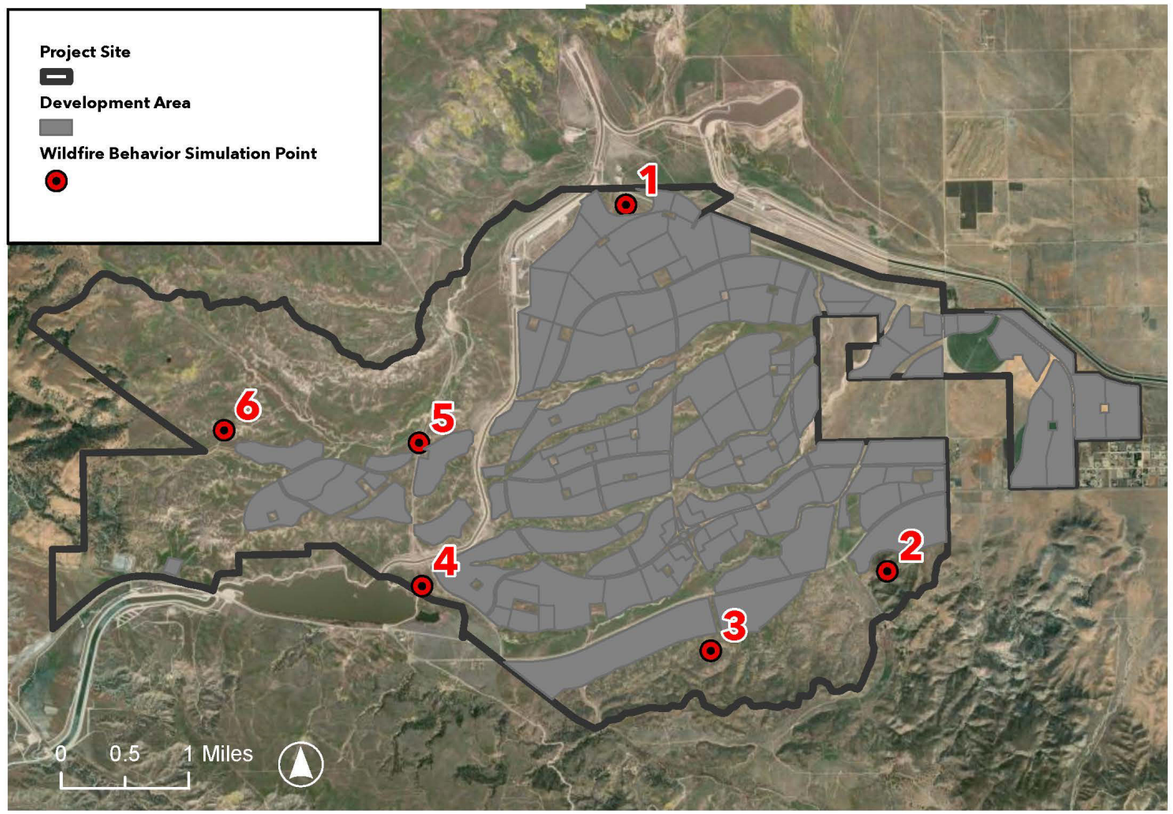
To understand how the Project may exacerbate the risk of wildfire, fire modeling was conducted to quantify pre- and post-development wildfire risks to the extent feasible. As explained below, these models account for various siting and design elements, as well as a variety of different fire scenarios. Wildfire modeling for the Project was conducted using industry standard fire behavior models including Behave Plus to estimate fire intensity, flame lengths, and spread rates. Modeled scenarios included fire behavior at the Project Site during average and extreme weather conditions. Landscape Burn Probability and Fire Progression modeling was also conducted using the Interagency Fuel Treatment Decision Support System (IFTDSS).

Flame Length, Fireline Intensity, and Rate of Spread Modeling

Field data collection and fire behavior modeling was completed to document the predicted type and intensity of fire that would be expected on the Project site given characteristic site features such as topography, vegetation, and weather. Fire behavior modeling is conducted based on the existing conditions. Understanding the anticipated fire behavior on the site pre-construction provides insight into how to best address the risk that the open space areas that would remain in post-development conditions present. Naturally, the areas that are converted to urban landscapes would result in a reduced fire risk and reduced fire intensity. Areas subject to hardscape and irrigated landscaping post-development can be expected to have flame lengths and intensity well below areas on the periphery of the community.

An analysis utilizing the BehavePlus software package was conducted to evaluate pre- and post-project flame lengths, intensities, and spread rates within the Project's development edges. These fire scenarios incorporated observed fuel types representing the dominant vegetation and slope gradients in the Project's planned Fuel Modification Zones. Modeling also represented the 97th percentile weather and wind conditions, which is considered an industry standard "worst-case" weather condition to modeling wildfire behavior during extreme weather conditions (IFTDSS, 2024). Modeling scenario locations were selected to better understand different fire behavior that may be experienced on or adjacent to the site. Identification of fire scenarios' locations is presented graphically in Figure 9.

Baseline vegetation types (Table 2.3-2), which were derived from the field assessment for the Project Site, were classified into a fuel model. Fuel models are simply tools to help fire experts realistically estimate fire behavior for a 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). For post-development conditions, fuel models were assigned to illustrate post-project fire behavior changes in the Project's planned perimeter Fuel Modification Zones. As



Model Input Variables

Model Variable	50th Percentile Weather	95th Percentile Weather (w/ Max. Wind)
1 h fuel moisture	5%	2%
10 h fuel moisture	6%	3%
100 h fuel moisture	12%	6%
Live herbaceous moisture	60%	30%
Live woody moisture	70%	60%
20 ft wind speed (mph)	7 mph	47 mph (maximum observed Fall wind speed)
Wind direction	Up-slope	Up-slope
Slope steepness	Variable by location	Variable by location

Fuel Model Assignment	Vegetation Description	Location	Fuel Bed Depth (Feet)
8	Zone A – irrigated, landscapes	Perimeter fuel modification zone	<3.0 ft.
Gr1	Zone B/Zone C: grasses cut to 6 inches in height	Perimeter fuel modification zone	<0.5 ft.
GR2	Non-native grasslands	Hillsides and open spaces surrounding the sites	<1.0 ft.
Sh1	Zone B: 50% thinning shrubs	Perimeter fuel modification zone	
GS2	Moderate Load, Dry climate grass/shrub	Hillsides and open spaces surrounding the sites	<1.5 ft.
TL6	Oak woodland lead leaf litter	Select hillsides and open spaces surrounding the sites	<0.3 ft.

BehavePlus Modeling Results – Pre-Project Baseline Conditions

Fire Scenarios	Flame Length (feet)	Fireline Intensity (Btu¹/feet/second)	Spread Rate (mph²)
Scenario 1: Non-Native Grasslands and, 5-10% slope, 97th Percentile Weather			
Fuel Model GR2	14	1,000 +	4.2
Scenario 2: Moderate Load Grass-shrub vegetation, 5-10% slope, 97th Percentile Weather			
Fuel Model GS2	24	1,000 +	6.6
Scenario 3: Oak woodland vegetation, 5-10% slope, 97th Percentile Weather			
Fuel Model TL6	12	500-1,000	1.5
Fuel Model GR2	14	1,000 +	4.2
Scenario 4: Non-Native Grasslands and, 5-10% slope, 50th Percentile Weather			
Fuel Model GR2	6	>0-500	0.7
Scenario 5: Moderate Load Grass-shrub vegetation, 5-10% slope, 50th Percentile Weather			
Fuel Model GS2	7	>0-500	0.6
Scenario 6: Oak woodland vegetation, 5-10% slope, 50th Percentile Weather			
Fuel Model TL6	4	<100	0.1
Fuel Model GR2	6	>0-500	0.7

BehavePlus Modeling Results – Post-Project Conditions

Fire Scenarios	Flame Length (feet)	Fireline Intensity (Btu¹/feet/second)	Spread Rate (mph²)
Scenario 1: Fuel Modification Zones, Non-Native Grasslands and, 5-10% slope, 97th Percentile Weather			
Fuel Model 8 (Zone B)	3	<100	0.1
Fuel Model GR1 (Zone C)	3	<100	0.5
Scenario 2: Fuel Modification Zones, Moderate Load Grass-shrub vegetation, 5-10% slope, 97th Percentile Weather			
Fuel Model 8 (Zone B)	3	<100	0.1
Fuel Model SH1 (Zone C)	9	>500-1000	1.2
Scenario 3: Fuel Modification Zones, Oak woodland vegetation, 5-10% slope, 97th Percentile Weather			
Fuel Model 8 (Zone B)	3	<100	0.1
Fuel Model GR1 (Zone C)	3	<100	0.5
Scenario 4: Fuel Modification Zones, Non-Native Grasslands and, 5-10% slope, 50th Percentile Weather			
Fuel Model 8 (Zone B)	1	<100	<0.1
Fuel Model GR1 (Zone C)	2	<100	0.2
Scenario 5: Fuel Modification Zones, Moderate Load Grass-shrub vegetation, 5-10% slope, 50th Percentile Weather			
Fuel Model 8 (Zone B)	1	<100	<0.1
Fuel Model SH1 (Zone C)	1	<100	<0.1
Scenario 6: Fuel Modification Zones, Oak woodland vegetation, 5-10% slope, 50th Percentile Weather			
Fuel Model 8 (Zone B)	1	<100	<0.1
Fuel Model GR1 (Zone C)	2	<100	0.2

Source: Dudek 2023

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Behave Plus Fire Behavior Analysis

Figure 9

Centennial Recirculated Partial Environmental Impact Report

N W E S

Map not to scale

PSOMAS

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depicted in Figure 10, the vast majority of development areas are located adjacent to low hazard grass fuels.

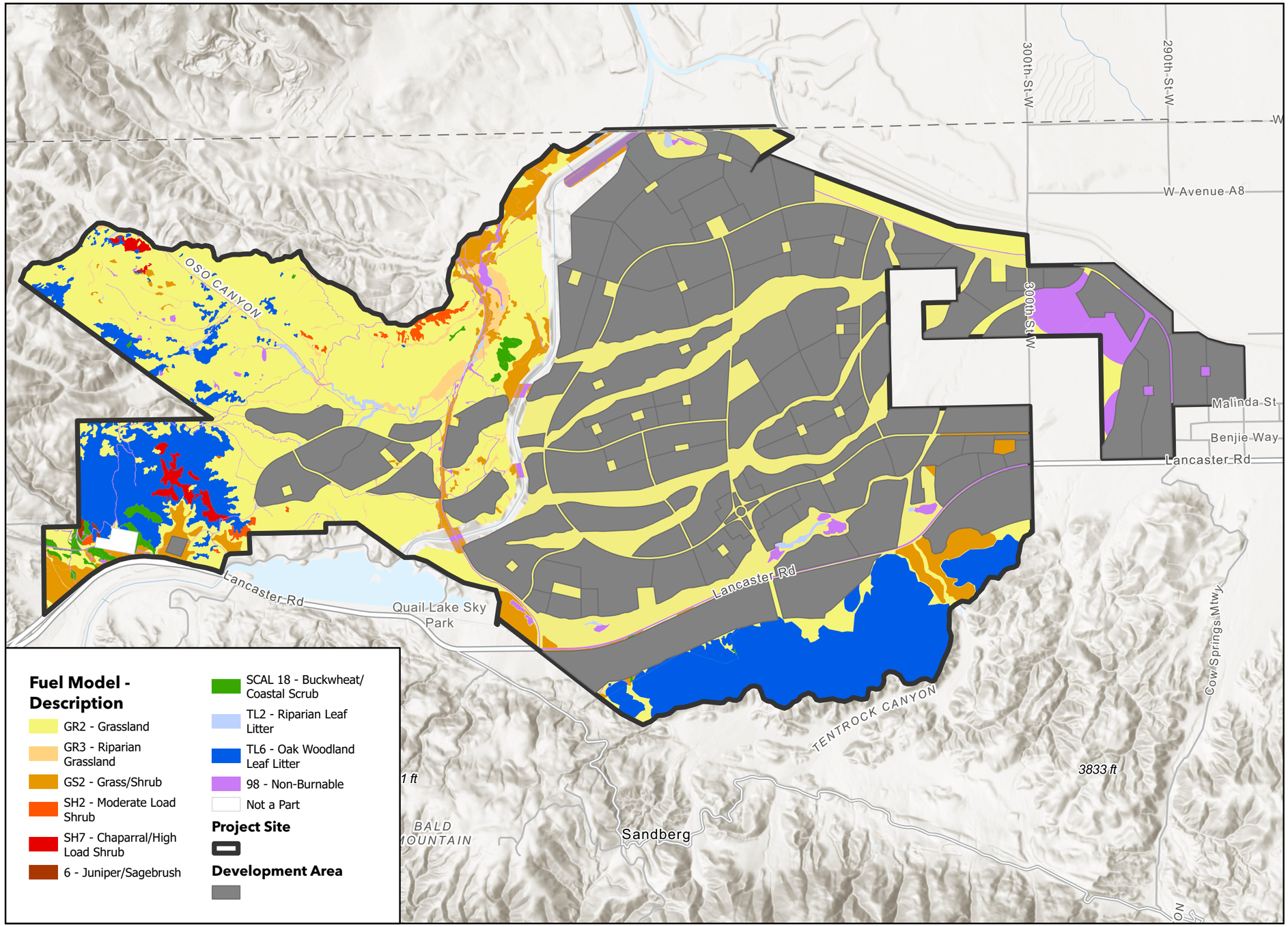
Outputs

Flame length, fireline intensity, and fire spread rates are the relevant outputs of wildfire modeling. Flame length is the measure of the length of the flame of a spreading surface fire within the flaming front. Flame length is measured from midway in the active flaming combustion zone to the average tip of the flames (Andrews, Bevins, and Seli 2004). Understanding modeled flame length is extremely important to fireline personnel in evaluating fireline intensity and is therefore, an important fire variable. Fireline intensity is a measure of heat output from the flaming front. Fireline intensity affects the potential for a surface fire (i.e., a fire that burns surface fuels) to transition to a crown fire (i.e., a fire that burns aerial fuels). Fire spread rate represents the speed at which the fire progresses through surface fuels and is another important variable in initial attack and fire suppression efforts. The information in Table 2.3-8 presents an interpretation of these fire behavior variables as related to fire suppression efforts.

TABLE 2.3-8
FIRE SUPPRESSION INTERPRETATION

Flame Length (feet)	Fireline Intensity (Btu/ft/s)	Interpretations
Under 4	Under 100	Fires can generally be attacked at the head or flanks by persons using hand tools. Hand line should hold the fire.
4 to 8	100 to 500	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	500 to 1000	Fires may present serious control problems—torching out, crowning, and spotting. Control efforts at the fire head would probably be ineffective.
Over 11	Over 1000	Crowning, spotting, and major fire runs are probable. Control efforts at head of fire are ineffective.
Source: BehavePlus 3.0.2 fire behavior modeling program (Andrews, Bevins, and Seli 2004)		

The results of baseline fire behavior modeling analysis are presented in Table 2.3-9 for pre-project conditions and Table 2.3-10 for post-project conditions. Post-project conditions include fuel model characteristics to represent the reduced fuels, high plant moisture, and engineered landscapes that result in reduced flame lengths, spread rates, and fire intensity.



Source: Dudek 2023

Vegetation – Fuel Models (Post-Development)

Figure 10

Centennial Recirculated Partial Environmental Impact Report

N W E S

Map not to scale

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TABLE 2.3-9
BEHAVEPLUS MODELING RESULTS – PRE-PROJECT BASELINE CONDITIONS FOR THE PROJECT AREA

Fire Scenarios	Flame Length (feet)	Fireline Intensity (Btu[1]/feet/second)	Spread Rate (mph[2])
Scenario 1: Non-Native Grasslands and, 5-10% slope, 97th Percentile Weather			
Fuel Model GR2	14	1,000 +	4.2
Scenario 2: Moderate Load Grass-shrub vegetation, 5-10% slope, 97th Percentile Weather			
Fuel Model GS2	24	1,000 +	6.6
Scenario 3: Oak woodland vegetation, 5-10% slope, 97th Percentile Weather			
Fuel Model TL6	12	500-1,000	1.5
Fuel Model GR2	14	1,000 +	4.2
Scenario 4: Non-Native Grasslands and, 5-10% slope, 50th Percentile Weather			
Fuel Model GR2	6	>0-500	0.7
Scenario 5: Moderate Load Grass-shrub vegetation, 5-10% slope, 50th Percentile Weather			
Fuel Model GS2	7	>0-500	0.6
Scenario 6: Oak woodland vegetation, 5-10% slope, 50th Percentile Weather			
Fuel Model TL6	4	<100	0.1
Fuel Model GR2	6	>0-500	0.7

TABLE 2.3-10
BEHAVEPLUS MODELING RESULTS – POST-PROJECT CONDITIONS FOR THE PROJECT AREA

Fire Scenarios	Flame Length (feet)	Fireline Intensity (Btu[1]/feet/second)	Spread Rate (mph[2])
Scenario 1: Fuel Modification Zones, Non-Native Grasslands and, 5-10% slope, 97th Percentile Weather			
Fuel Model 8 (Zone B)	3	<100	0.1
Fuel Model GR1 (Zone C)	3	<100	0.5
Scenario 2: Fuel Modification Zones, Moderate Load Grass-shrub vegetation, 5-10% slope, 97th Percentile Weather			
Fuel Model 8 (Zone B)	3	<100	0.1
Fuel Model SH1 (Zone C)	9	>500-1000	1.2
Scenario 3: Fuel Modification Zones, Oak woodland vegetation, 5-10% slope, 97th Percentile Weather			
Fuel Model 8 (Zone B)	3	<100	0.1
Fuel Model GR1 (Zone C)	3	<100	0.5
Scenario 4: Fuel Modification Zones, Non-Native Grasslands and, 5-10% slope, 50th Percentile Weather			
Fuel Model 8	1	<100	<0.1
Fuel Model GR1	2	<100	0.2

TABLE 2.3-10
BEHAVEPLUS MODELING RESULTS – POST-PROJECT CONDITIONS FOR THE PROJECT AREA

Fire Scenarios	Flame Length (feet)	Fireline Intensity (Btu[1]/feet/second)	Spread Rate (mph[2])
Scenario 5: Fuel Modification Zones, Moderate Load Grass-shrub vegetation, 5-10% slope, 50th Percentile Weather			
Fuel Model 8	1	<100	<0.1
Fuel Model SH1	1	<100	<0.1
Scenario 6: Fuel Modification Zones, Oak woodland vegetation, 5-10% slope, 50th Percentile Weather			
Fuel Model 8	1	<100	<0.1
Fuel Model GR1	2	<100	0.2

Notes (for Tables 2.3-9 and 2,3-10)
1 Btu = British thermal unit(s)
2 mph = miles per hour

Modeled Wildfire Behavior Summary

Pre-Project Baseline Conditions

Given the climatic, vegetation, and topographic characteristics along with the fire history and fire behavior modeling results discussed in the Wildfire Safety Plan, the Project site was determined to be potentially vulnerable to wildfire starting in, burning onto, or spotting onto the site. Based on this information, the anticipated Project-related human population growth and corresponding increase in potential ignition sources, and the fire history of the area, it is expected that wildfires may occur on this site in the future, although over half of the currently available fuels would be converted to urban, irrigated landscapes under Project conditions, representing a reduction in the potential ignition and spread of wildfire.

Under extreme fall weather conditions (97th percentile fuel moistures and maximum wind speeds of 47 mph), fire can move rapidly through the site's fuels. The most common type of fire anticipated in the vicinity of the Project site is a fire burning onto the Project site from the south (e.g., originating along SR-138), or one approaching the Project site from I-5. Worst-case flame lengths near planned development areas were calculated at approximately 24 feet in grass-shrub vegetation types. Spread rates on site may exceed 6 mph in dry flashy fuels (grasses and scrub) under extreme weather and slope conditions. Finally, under extreme weather and wind conditions, fireline intensity values may exceed 1,000 Btu/feet/second limiting the options for fire response personnel and emphasizing the importance of fuel modification and defensible space for the planned community.

Post-Development Conditions

As presented in Table 2.3-10, modeling of the Project Site was conducted for post-development conditions with FMZs in place. Fuel modification includes the establishment of irrigated and thinned zones on the periphery of the Project's planned development areas. For modeling the post-FMZ treatment condition, fuel model assignments were re-classified for the FMZ Zone A (Fuel Model 8) and FMZ Zone B (50% thinning zones – Fuel Model GR1, Fuel Model Sh1). The FMZ areas experience a significant reduction in flame length and intensity. The maximum 20-foot (Annual Grassland and Grass-shrub Fuels) and 11-foot (Oak woodland) tall flames predicted during pre-treatment modeling during extreme weather conditions are reduced to less than 11 feet tall at the outer edges and less than 4 feet in the near the structures of the development due to the higher live and dead fuel moisture contents. While not presented, the fire intensity and flame lengths in untreated, open space areas beyond the permitter FMZs would remain the same.

The models confirm that the Project's FMZ buffers are sufficient to slow wildfire spread and keep it from impacting the site. FMZs thereby provide a dual benefit of buffering communities and structures from encroaching wildfires while separating the new community and structures (and potential introduction of new ignition sources associated with the new community) from surrounding open space, fuel sources, or habitat areas (Bhandary and Muller 2009; Braziunas et al. 2021; Cochrane et al. 2012; Fox et al. 2018). Research has also indicated that the likelihood of ignitions occurring in a given location is significantly influenced by the existing vegetation/fuel available (Elia et al. 2019). Likewise, neighboring developed areas and their provided protections required by LACoFD perform a similar function during wildfires in the Project area.

Modeling Results When Including Ongoing Livestock Grazing

The Project, along with the larger Tejon Ranch, benefits from reduced fire ignitions and fire behavior resulting from the ongoing Tejon Ranch agricultural and grazing activities. Areas of the Project site under active management by grazing have short and sparse grassland as shown on Exhibit 7. Specifically, the livestock grazing program utilizes practices implemented on the greater Ranch over and continues these practices as part of the holistic land management approach and managing wildfire risk simultaneously.

EXHIBIT 7

Photograph taken at the Project Site showing short and sparse grassland fuels which have been managed by historical and ongoing cattle grazing (Fuel Model GR1). Note that the steeper hillsides are outside of the Project development area.

This modeling described above conservatively does not consider any benefits from Tejon's ongoing grazing operations by analyzing the Project site's fire behavior with a vegetation baseline condition that is assumed to be untreated/undisturbed, native fuel beds. This conservative approach ensures that the provided FMZ widths are adequate for protecting the structures and future populations even if the ongoing grazing operations were to cease for a period of time in the future.

However, for information purposes, modeling also considered the scenario with ongoing livestock grazing, which results in reduced fire behavior in terms of flame lengths, fire spread rates, heat output, and overall intensity. For example, flame lengths are reduced throughout the treated area and the highest modeled flame lengths were reduced from 14 feet to 3 feet (See Table 2.3-11). It is anticipated that the livestock grazing program would continue to provide these benefits, but even if the program is halted at some future date, the Project's

planned FMZs provide the necessary setbacks and protection and do not rely on livestock treatments. Thus, the ongoing livestock grazing program provides additional benefits with respect to wildfire protection but is not necessary for the purpose of this evaluation.

TABLE 2.3-11
DIFFERENCES IN WILDFIRE BEHAVIOR ACROSS THREE GRASS FUEL MODELS (GR1 AND GR2)

Fuel Model	BehavePlus Output	97th Percentile Weather Fire Behavior
GR1 (Grazed grass fuels)	Surface Rate of Spread	0.47
	Flame Length	3.1 ft.
	Fireline Intensity	<100 BTU-ft-sec
GR2 (Ungrazed grass fuels)	Surface Rate of Spread	4.1 mph
	Flame Length	14.0 ft.
	Fireline Intensity	1000+ BTU-ft-sec

Landscape Burn Probability Modeling

Landscape burn probability (LBP) represents the likelihood that a given location in a landscape would burn, considering the model inputs used. Burn probability is related to the size of fires that occur on a given landscape, where larger fires produce higher burn probabilities than smaller fires. Because fire size is a function of wildfire spread rate and wildfire duration, weather conditions that reduce spread rates reduce burn probability (USDOI and USDA 2022b). In this analysis, weather conditions were set to 97th percentile and 50th percentile conditions to mimic extreme and average fire weather conditions that would be experienced at the Project site. LBP results are useful to identify the relative likelihood of fire occurring at the landscape level.

The modeling results for burn probability are displayed with seven distinct categories describing relative probability. The first two classes represent pixels that did not burn:

- Non-burnable – Pixels have a non-burnable fuel model and cannot burn.
- Burnable but did not burn – Pixels have burnable fuels but did not burn (e.g., a fire never reached the pixel, or a fire started within the pixel, but it was unable to burn out of the pixel because the fire spread rate was too slow).

The other five classes are dynamic and based on the maximum value of burn probability for the model run:

- Lowest (0–20% of maximum)
- Lower (20–40% of maximum)

- Middle (40–60% of maximum)
- Higher (60–80% of maximum)
- Highest (80–100% of maximum)

Results

As displayed in Figures (11 and 12), the Project site is situated away from areas with greater burn probabilities during both average (50th percentile) and extreme Santa Ana conditions (97th percentile).

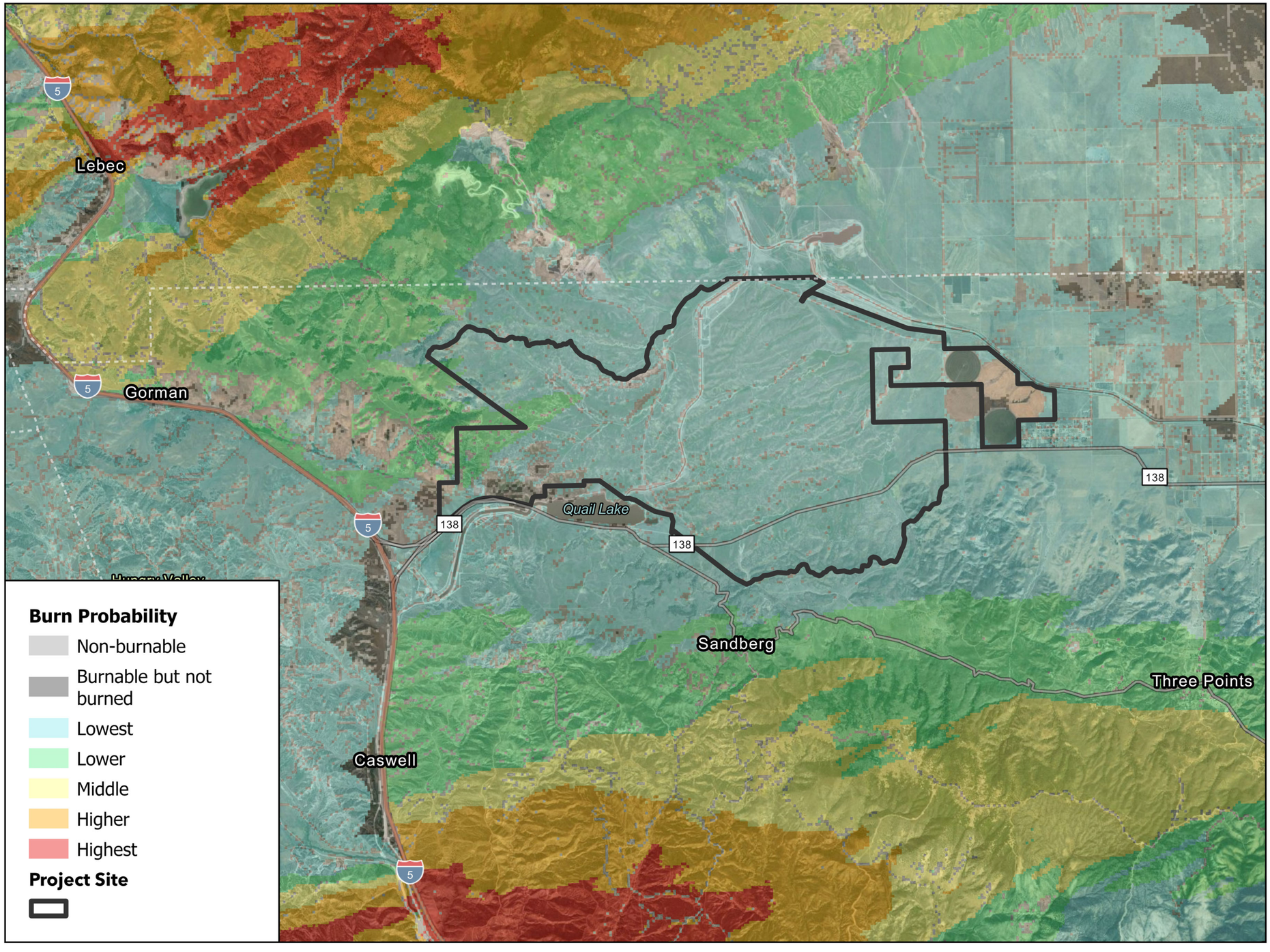
Santa Ana Weather

During Santa Ana conditions, large wildfires are much more likely to occur in the steep, heavily vegetated, and mountainous terrain to the south and north of the Project site as presented in Figure 14. The location of the Project site makes it less susceptible to significant and direct wildfire impacts during Santa Ana weather. Although Santa Ana winds blow strongly from the northeast, the fuel conditions and terrain in that direction are not likely to lead to large, high-intensity wildfires reaching the Project site. This area, at the western edge of the Antelope Valley, consists of light fuel loads in grasslands and agricultural land. If a wildfire were to ignite to the northeast or east of the Project site, it would likely be a grass fire with minimal risk to developed areas. Furthermore, the offsite areas to the northeast have many access points that firefighters can use to contain any wildfires approaching the Project site. The California Aqueduct and the adjacent disturbed areas also border the Project site's northeastern edge, serving as a permanent fuel break during wind-driven grass fires.

If wildfires occur southeast of the Project site, Santa Ana winds from the northeast are likely to push the fires southwest, where the terrain and fuel conditions are more conducive to fire spread. It is possible that these fires could reach the southeastern edge of the Project site, where commercial development is planned. However, this development is set back from the more hazardous fuels found in the steeper terrain to the south, thus reducing fire risks to such development. Additionally, fires in this area during Santa Ana conditions are likely to move parallel to the wind direction, known as a flank fire. Flank fires typically burn at lower intensities compared to head fires, which spread in the wind's direction. Potential wildfire impacts in this area would be further reduced by perimeter parking areas (which act as fire breaks), Fuel Modification Zones (FMZs), and fire-hardened commercial buildings constructed in compliance with modern fire code requirements.

Average Weather

During typical weather conditions, large wildfires are more likely to occur in areas northwest and south of the Project site as presented in Figure 15. Fires to the south are not expected to move directly towards the site due to the prevailing northwest wind direction. While wildfires to the northwest could spread towards the Project site, the grassland fuels and moderate terrain in this region are not conducive to high-intensity fires. This is especially true during average weather conditions, when fuel moisture is higher and wind speeds are



Source: Dudek 2023

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Landscape Burn Probability (Santa Ana Weather)

Figure 11

Centennial Recirculated Partial Environmental Impact Report

N W E S

Map not to scale

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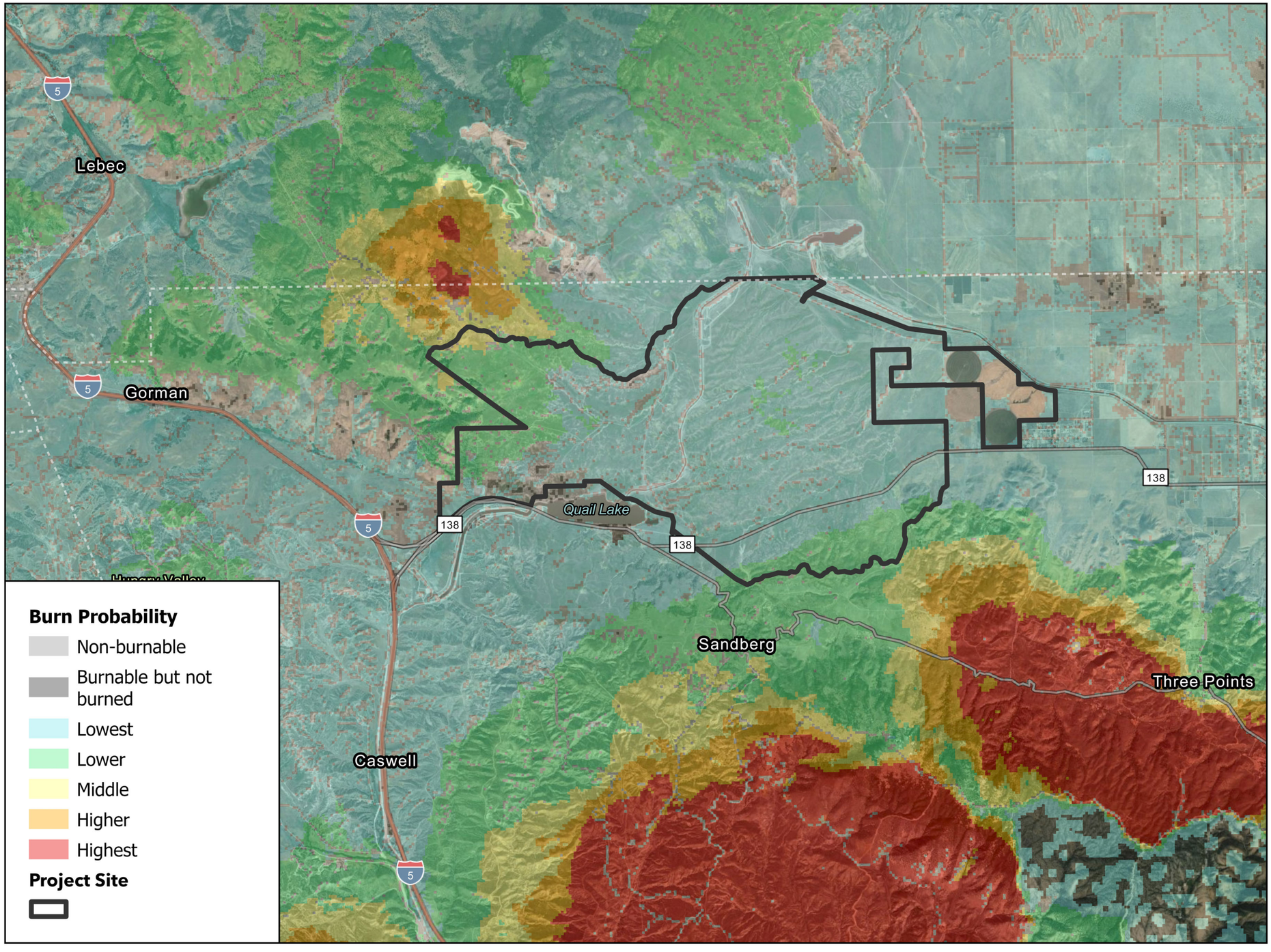

Source: Dudek 2023

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Landscape Burn Probability (50th Percentile Weather)

Figure 12

Centennial Recirculated Partial Environmental Impact Report

N W E S

Map not to scale

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lower. An analysis of historic wildfires shows that no fires have ever encroached on the Project site from the north or northwest.

Integrated Hazard Modeling

Integrated Hazard is quantified and categorized using the Landscape Burn Probability Model embedded within the Interagency Fuel Treatment Decision Support System (IFTDSS) fire behavior modeling system. Integrated Hazard is a term used in fire behavior modeling to evaluate (1) the probability of a fire occurring at a specific point under a specified set of conditions, and (2), if a fire does occur, the fire intensity at that specific point.

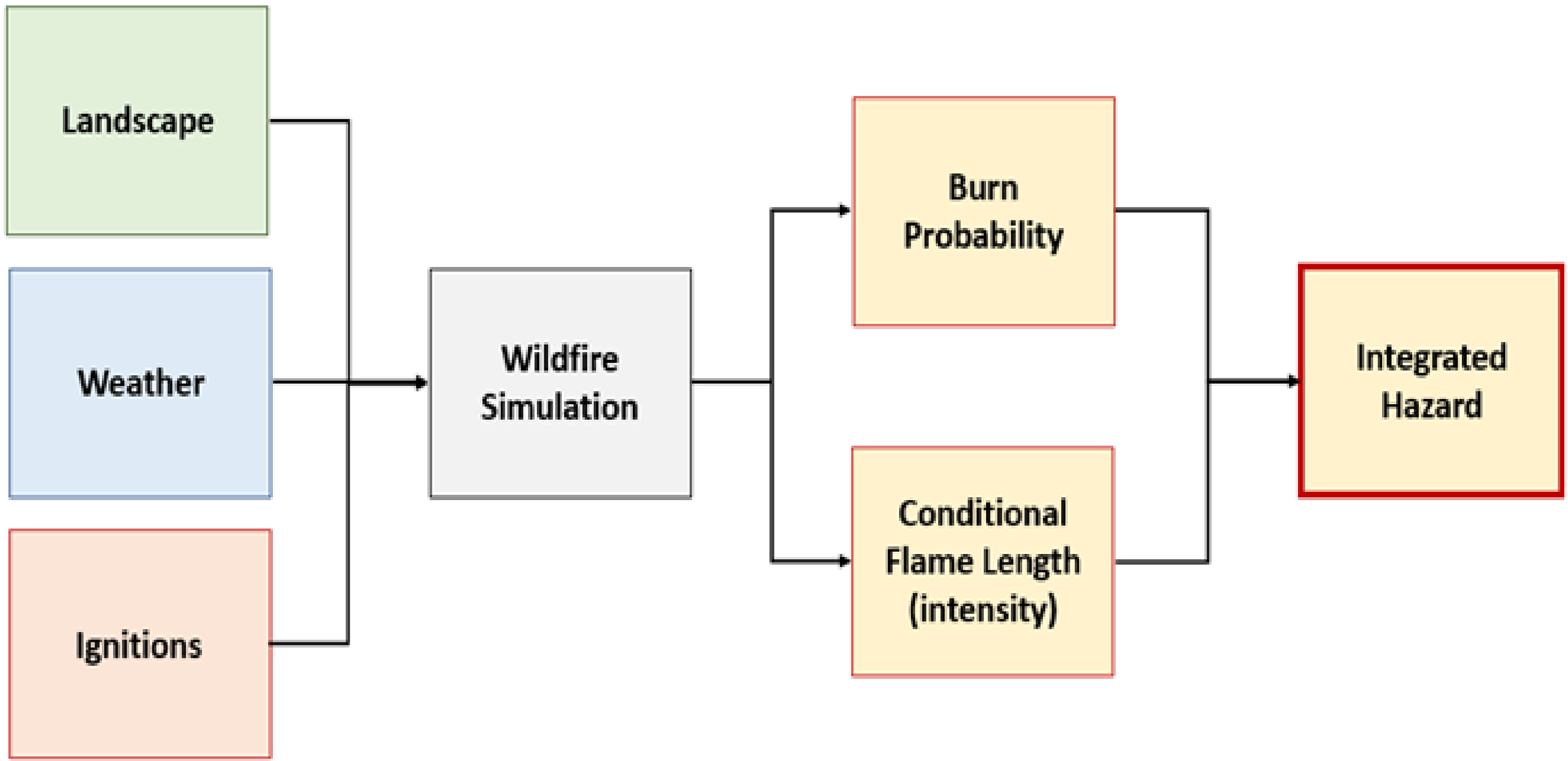
A diagram of the Integrated Hazard analysis process is provided in Figure 13. IFTDSS Integrated Hazard is categorized into seven distinct hazard classes. The first two are for pixels that did not burn, and the remaining five classes are dynamic based on the integrated hazard matrix presented in Figure 14. The seven classes are as follows:

- Non-Burnable
- Burnable but Not Burned
- Lowest Hazard
- Lower Hazard
- Middle Hazard
- Higher Hazard
- Highest Hazard

Results

Integrated hazard modeling outputs for the Project site and surrounding areas during average and Santa Ana weather conditions are provided in Figures 15 and 16, and Table 2.3-12. In both scenarios, greater wildfire intensity and likelihood is expected in offsite areas to the north, northwest, and south due to heavier fuels and steeper terrain compared to conditions within the Project site itself.

During average weather conditions, wildfire hazard within the Project site is considered low, with 72% percent of the Project site considered lowest hazard. As expected, due to higher wind speeds and lower fuel moistures, wildfire hazard within the Project site during Santa Ana weather increases the areas considered middle and higher hazard. However, areas mapped as lowest and lower hazard still remain dominant, accounting for 68 and 81% percent of the Project site during Average and Santa Ana weather conditions, respectively.



Source: Dudek 2022

IFTDSS Integrated Hazard Model Diagram

Figure 13

Centennial Recirculated Partial Environmental Impact Report

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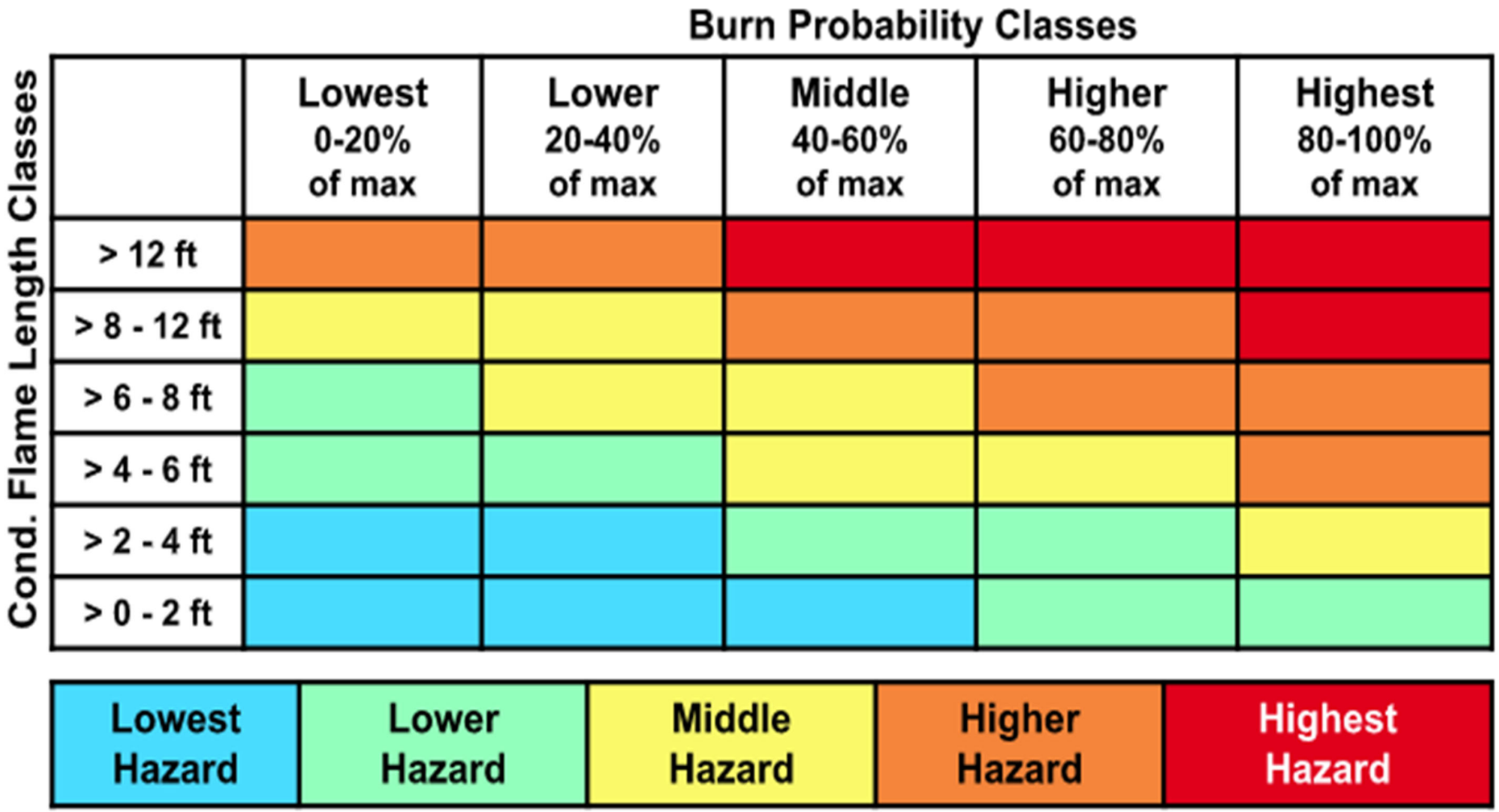

Source: Dudek 2022

IFTDSS Integrated Hazard Matrix

Figure 14

Centennial Recirculated Partial Environmental Impact Report

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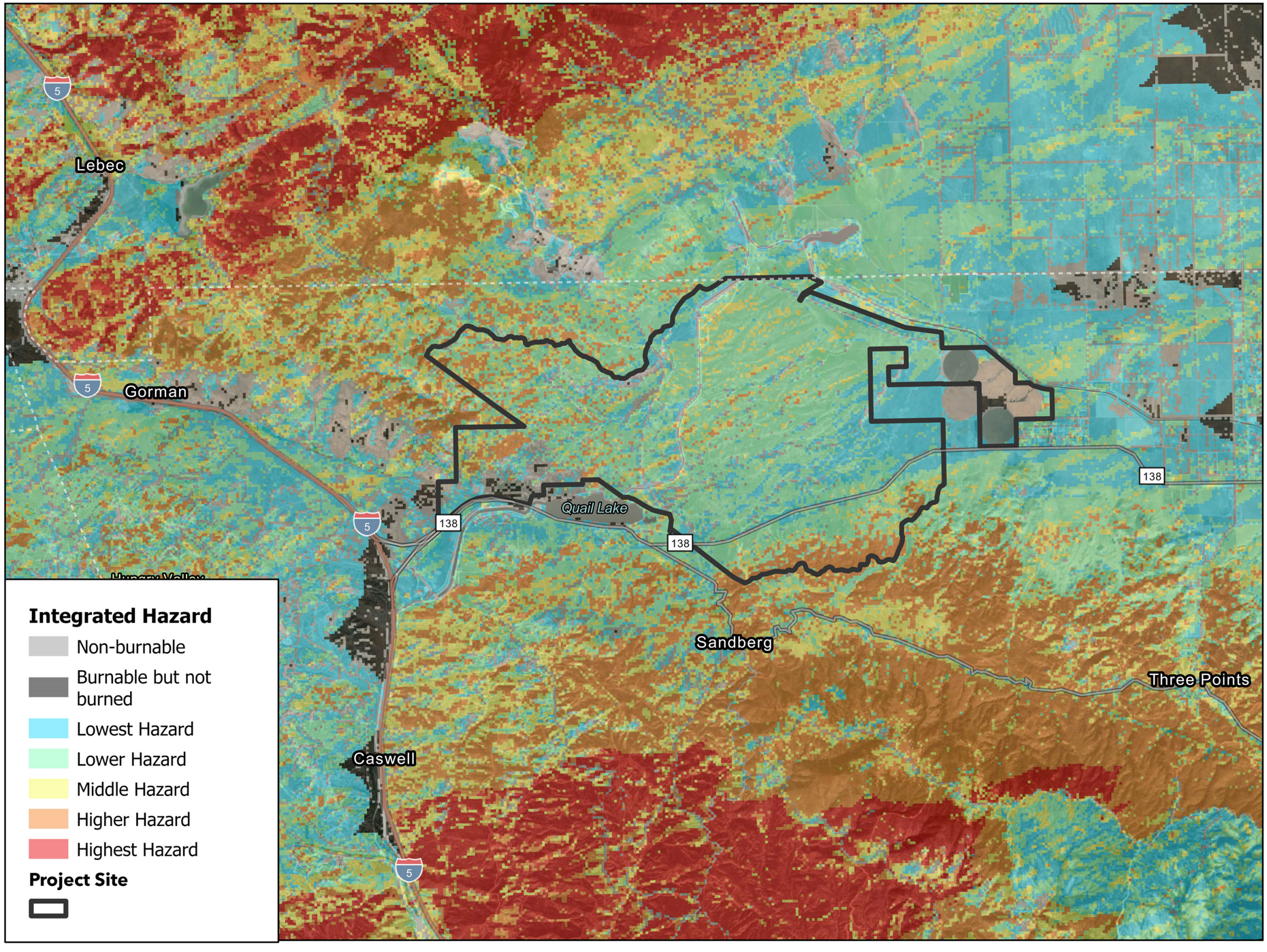

Source: Dudek 2023

Integrated Hazard (50th Percentile Weather)

Figure 15

Centennial Recirculated Partial Environmental Impact Report

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Map not to scale

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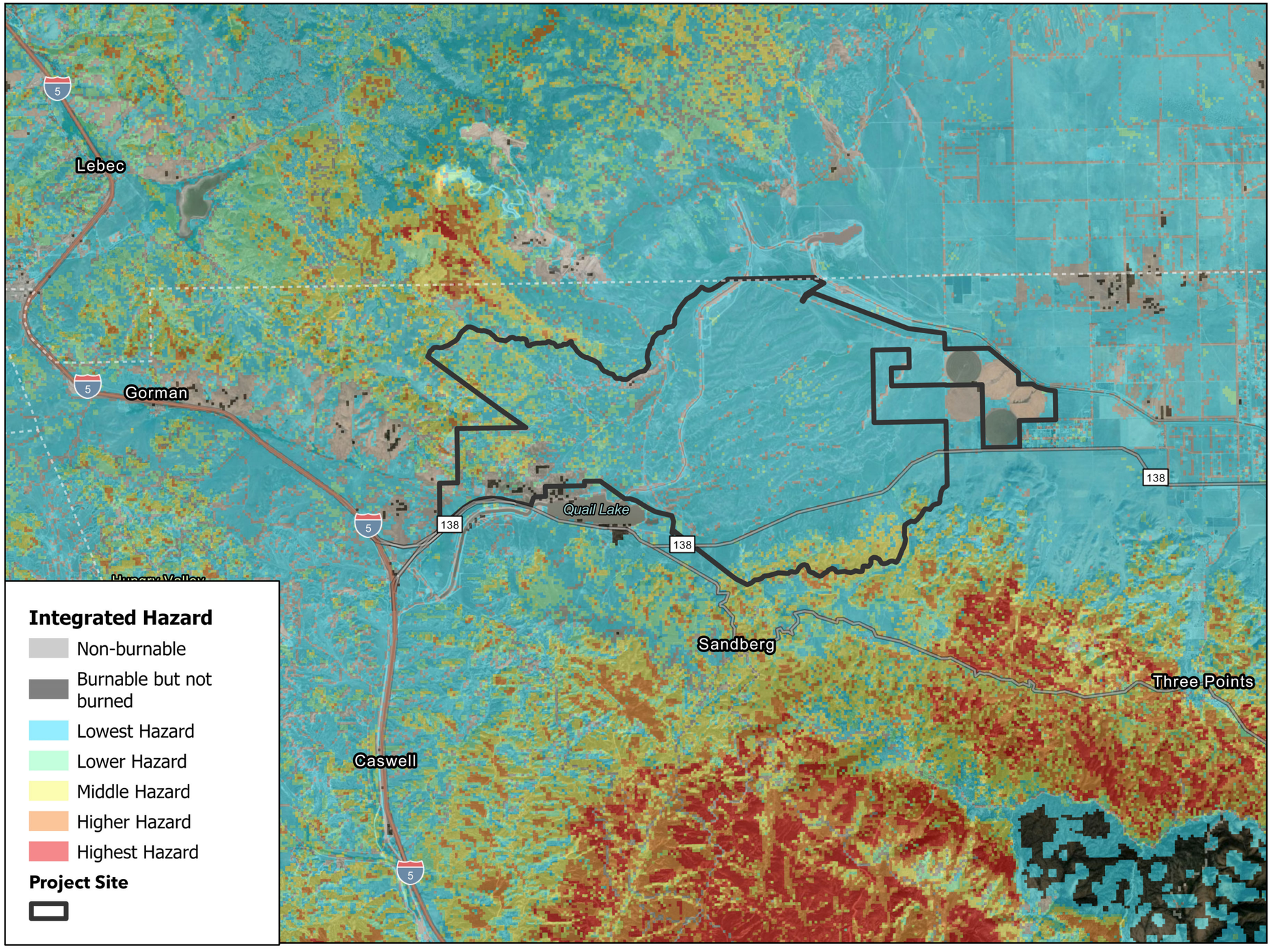

Source: Dudek 2023

Integrated Hazard (Santa Ana Weather)

Figure 16

Centennial Recirculated Partial Environmental Impact Report

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Map not to scale

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TABLE 2.3-12
INTEGRATED HAZARD WITHIN THE PROJECT SITE
DURING AVERAGE SANTA ANA WEATHER CONDITIONS

Integrated Hazard Score	Santa Ana Conditions (97th Percentile)	Average Conditions (50th Percentile Weather)
Non-burnable	13%	13%
Burnable, not burned	<1%	<1%
Lowest Hazard	15%	72%
Lower Hazard	53%	9%
Middle Hazard	9%	5%
Higher Hazard	8%	<1%
Highest Hazard	0%	0%

Wildfire Progression Modeling

Wildfire Spread and Evacuation

Wildfire Progression Modeling was performed to assess how wildfires may spread towards the Project site and how fires may influence Project evacuations. Fire progression modeling predicts how a fire will spread over time by simulating its behavior based on current conditions such as fuel types, weather, and topography. These simulations forecast the fire's intensity, spread, and perimeter under specific conditions. Using hypothetical ignition locations, the simulations depict fire arrival times based on predicted wildfire spread.

Through a review of fire history records and landscape burn probability model results, wind patterns, terrain, and vegetation, three scenarios were modeled to simulate likely fire events in the Project's vicinity. Ignition points were mapped out in a linear fashion to consider various possible starting points for wildfires in each scenario. Model inputs are provided in Table 2.3-13 below and include information on the ignition points for each scenario along with the corresponding weather conditions.

TABLE 2.3-13
FIRE PROGRESSION MODELLING SCENARIOS

Scenario	Ignition Location	Weather
1	Interstate-5 Eastern Roadside	50th Percentile Weather, winds 7 mph from the NW
2	Undeveloped land to the north	97th Percentile Santa Weather, winds 47 mph from the NE
3	Undeveloped land to the southeast	97th Percentile Santa Weather, winds 47 mph from the NE

Wildfires encroaching on the site from the south were not modeled as wind patterns are not conducive to wildfire spread towards the Project site from these directions. While Santa Ana winds do blow from the east, wildfire spread towards the Project from fires burning directly from the east was also not modeled due to substantial agricultural areas and sparse fuel loads present in the Antelope Valley which prevent wildfire ignition and spread (See Fire History, Figure 4). In addition, the burn probability modeling results as presented in Figures 17 and 18 indicate a low likelihood of fire occurrence and spread within the region to the east of the Project site.

Results

In all modeled scenarios, the direction and speed of wildfire spread are influenced by various factors. Weather conditions, particularly wind speed and direction, play a significant role, alongside low humidity, high temperatures, and dry conditions, which can accelerate fire propagation. Additionally, topography, including slope and aspect, impacts the fire's path and speed, with steep slopes often facilitating faster movement. Fuel availability and moisture content also contribute; dry, dense vegetation ignites more easily and burns more rapidly than moist or sparse vegetation. The ignition source affects the initial spread and, once ignited, fire behavior, including flame intensity and ember spotting, further dictates spread patterns. Fire suppression is not accounted for during this analysis.

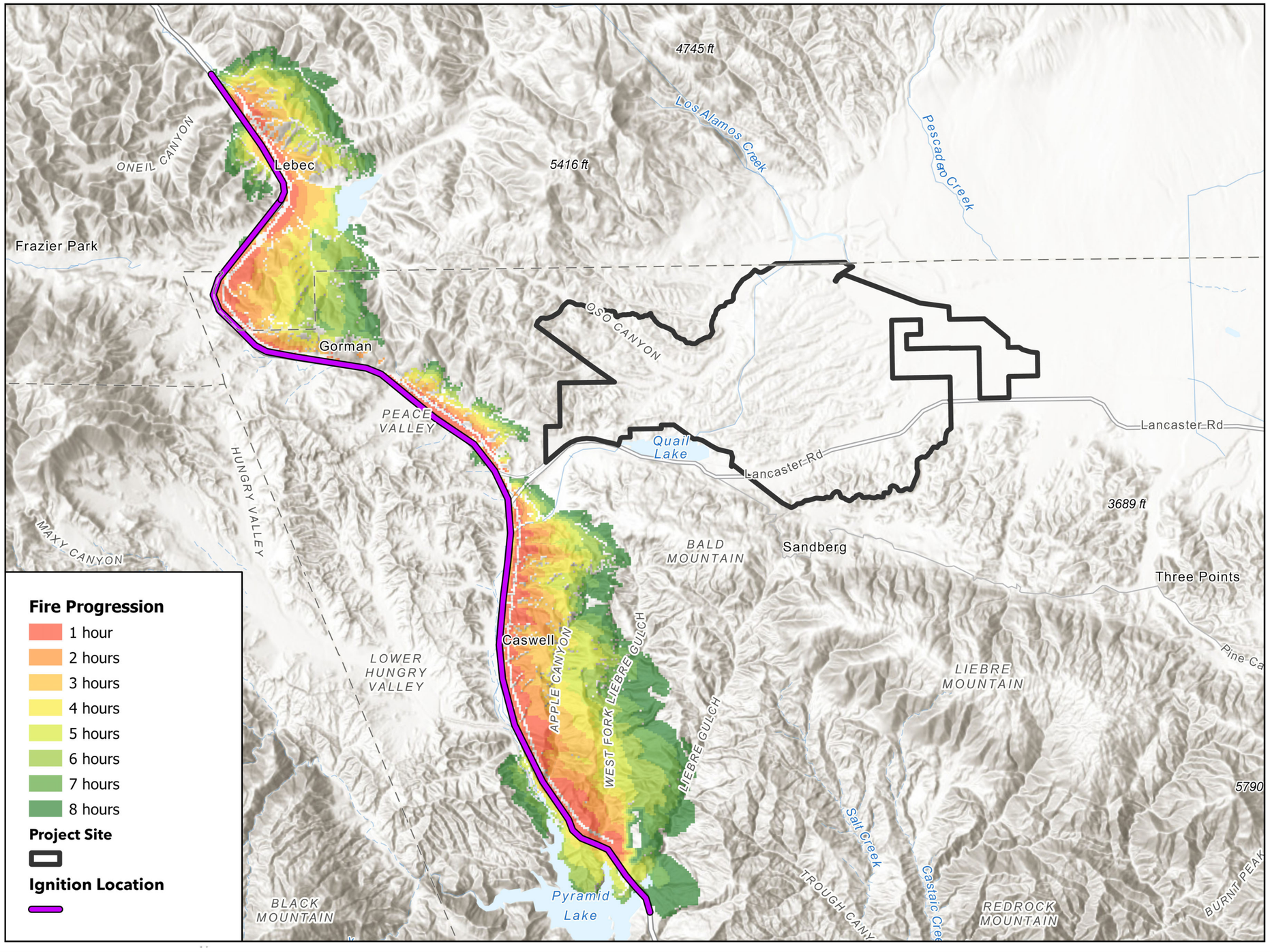
Scenario 1 – Fire Approaching from the Northwest

This scenario assumes a wildfire that ignites along Interstate-5 northwest of the Project site and spreads in a southeast/eastern direction toward the Project site. Wildfire spread is slow due to lighter wind speeds during these weather conditions. The wildfire is not predicted to reach the Project site within the 8-hour simulation period. While a shelter in place approach at the Project site is likely during this scenario, evacuation via SR-138 east is unlikely to be impacted by wildfire as displayed in Figure 17.

Scenario 2 – Fire Approaching from the Northeast

As provided in Figure 19, this scenario assumes a wildfire that ignites northeast of the Project site and spreads in a southwest direction through undeveloped areas to the northeast of the Project site. This scenario further assumes that wildfire is driven by strong Santa Ana winds and moves at a rapid rate of spread. Assuming no fire suppression efforts, the wildfire is modeled to reach development areas in the northern extreme of the Project site within 245 minutes (approximately 4 hours). The fire skirts the northern edge of the Project site and continues to travel southwest.

While the fire is modeled to reach the Project site (assuming no fire suppression efforts), the predicted fire behavior near planned development areas is modeled to be generally of low to moderate intensity. Fireline intensity is lower in these areas due to light fuels and moderate terrain which are not conducive to extreme fire behavior (See Figure 17 &18). Perimeter FMZs bordering development areas would act to further reduce Fireline intensity near development areas.



Source: Dudek 2024

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Fire Progression – Northwest Ignition (50th Percentile Weather)

Figure 17

Centennial Recirculated Partial Environmental Impact Report

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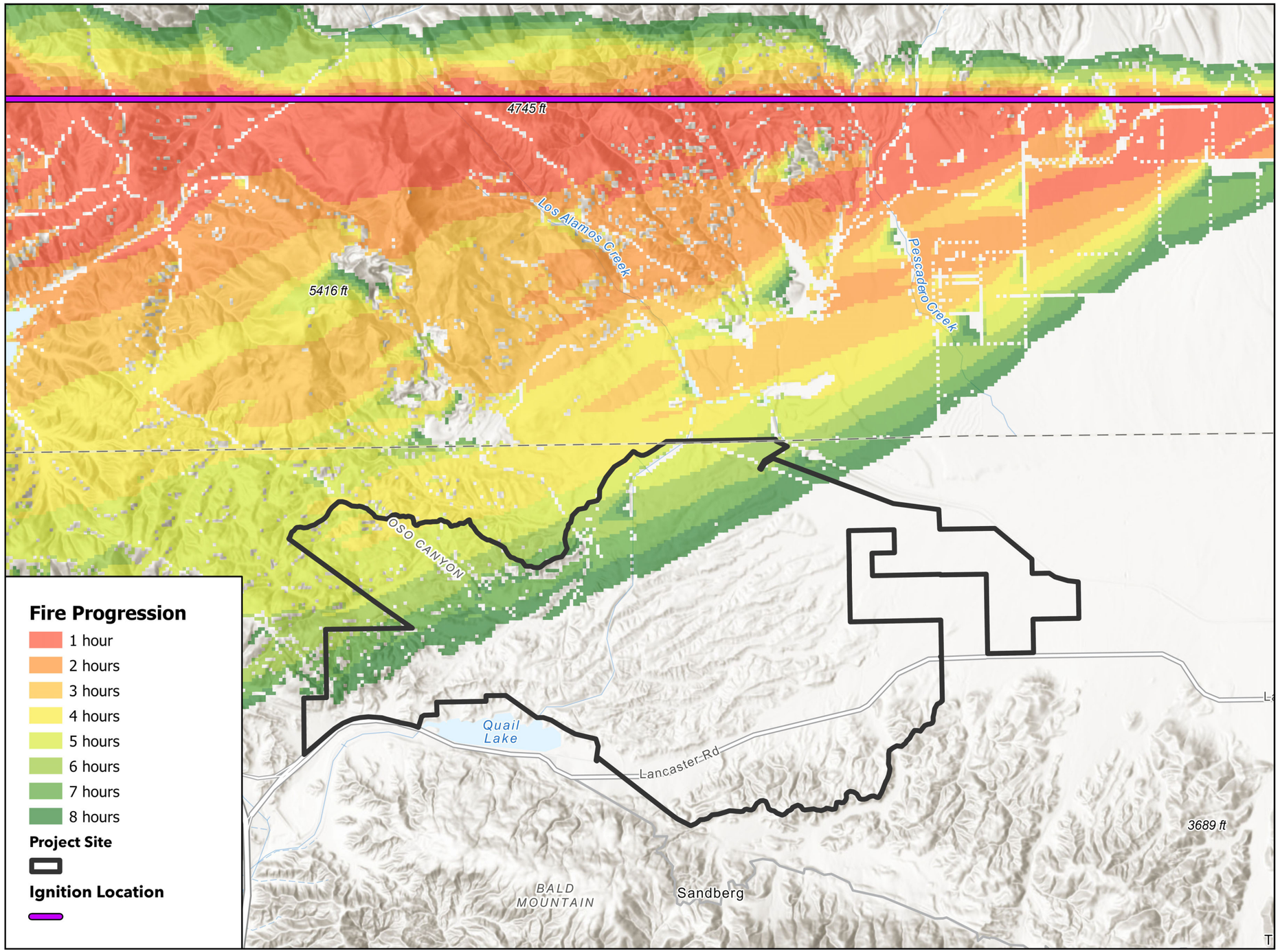

Source: Dudek 2024

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Fire Progression – North Ignition (Santa Ana Weather)

Figure 18

Centennial Recirculated Partial Environmental Impact Report

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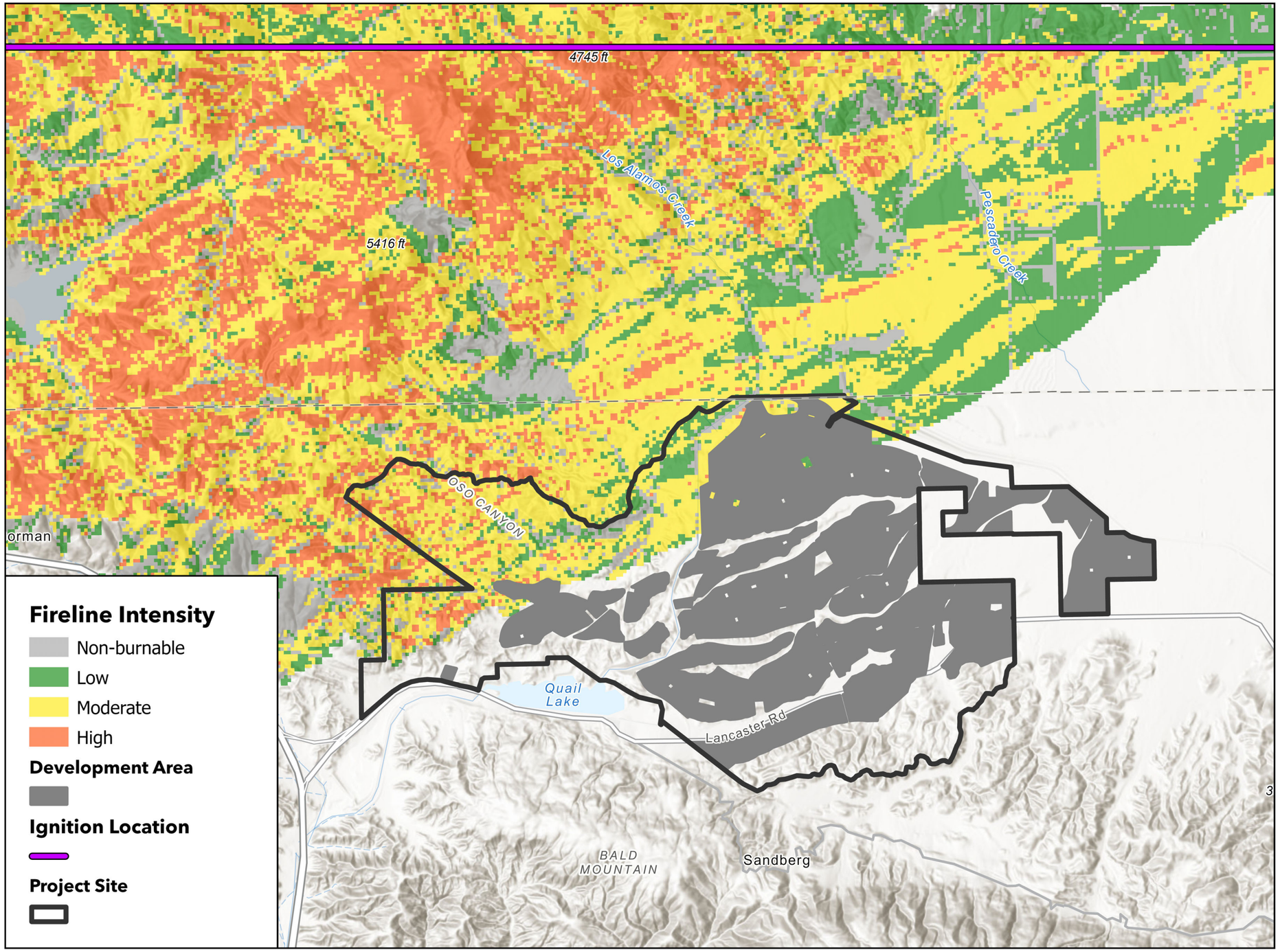

Source: Dudek 2024

Fireline Intensity – North Ignition (Santa Ana Weather)

Figure 19

Centennial Recirculated Partial Environmental Impact Report

N W E S

Map not to scale

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When considering evacuations during this scenario, SR-138 eastbound and westbound is not expected to be impacted by wildfire.

Scenario 3: Fire Approaching from the Southeast:

As provided in Figure 20, this scenario assumes a wildfire that ignites southeast of the Project site and spreads in a southwest direction through undeveloped areas to the south of the Project site. The wildfire is driven by strong Santa Ana winds and moves at a rapid rate of spread. Assuming no fire suppression efforts, the wildfire is modeled to reach far southeastern development areas within 295 minutes (roughly 5 hours). The fire skirts the northern edge of the Project site and continues to travel southwest.

Similar to Scenario 2, fire intensity where the fire is modeled to reach the southern edge of the proposed development areas is considered low (Figure 21). Given the fire's southwest direction of spread which is not directly towards the Project site, fire behavior along the Project's southern edge would represent a flanking fire. Unlike head fires, which move in the direction of the wind and exhibit greater fire severity, flank fires move parallel to the wind direction and therefore burn at reduced severity. In addition to increased likelihood of successful suppression of a flank fire in the Project's southern edge, potential wildfire impacts in this area would be reduced by perimeter parking areas, Fuel Modification Zones (FMZs), and fire-hardened commercial buildings.

For each of the three scenarios, less than significant impacts would occur.

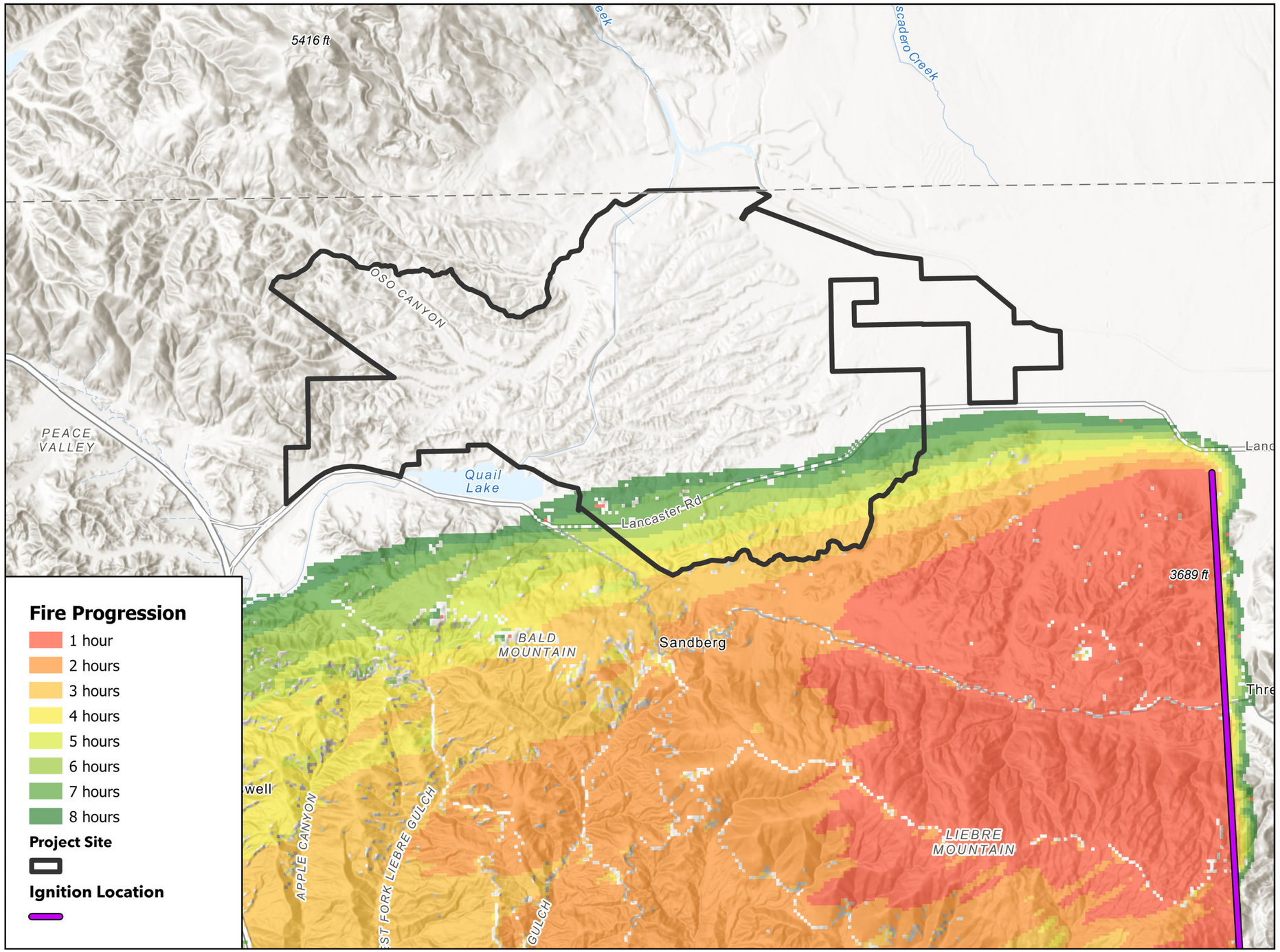
Effects of Fuel Modification Zones on Slowing Offsite Wildfire Spread

The impacts of perimeter FMZs on slowing the off-site spread of wildfires originating on site was also modeled. Fuel models in perimeter FMZ areas were edited to reflect vegetation conditions corresponding to the various FMZ standards. Off-site wildfire spread is modeled to slow substantially when accounting for the effects of perimeter FMZs during both average and extreme weather conditions. Graphical presentations of these results are provided in Figure 22, Off-site Fire Progression (50th Percentile Weather) and Figure 23, Off-site Fire Progression (97th Percentile Weather).

Wildfire Modeling Summary

Wildfire modeling results for predicted flame lengths, landscape burn probability, and integrated hazard conclude that the fire environment at the Centennial Project site is conducive to wildfire-safe development. Key findings include:

- The Project's assessment of wildfire hazard and risk is based on extreme weather conditions characteristic of Santa Ana wind events. The Project's wildfire risk reduction measures are specifically designed to mitigate wildfire risk under these severe conditions and will remain in effect year-round. In addition to accounting for wind-driven fire behavior, both the Recirculated Partial Draft EIR and the Wildfire Safe Plan consider the broader impacts of climate change—such as increased temperatures, prolonged drought, and reduced fuel moisture—that contribute to



Source: Dudek 2024

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Fire Progression – Southeast Ignition (Santa Ana Weather)

Figure 20

Centennial Recirculated Partial Environmental Impact Report

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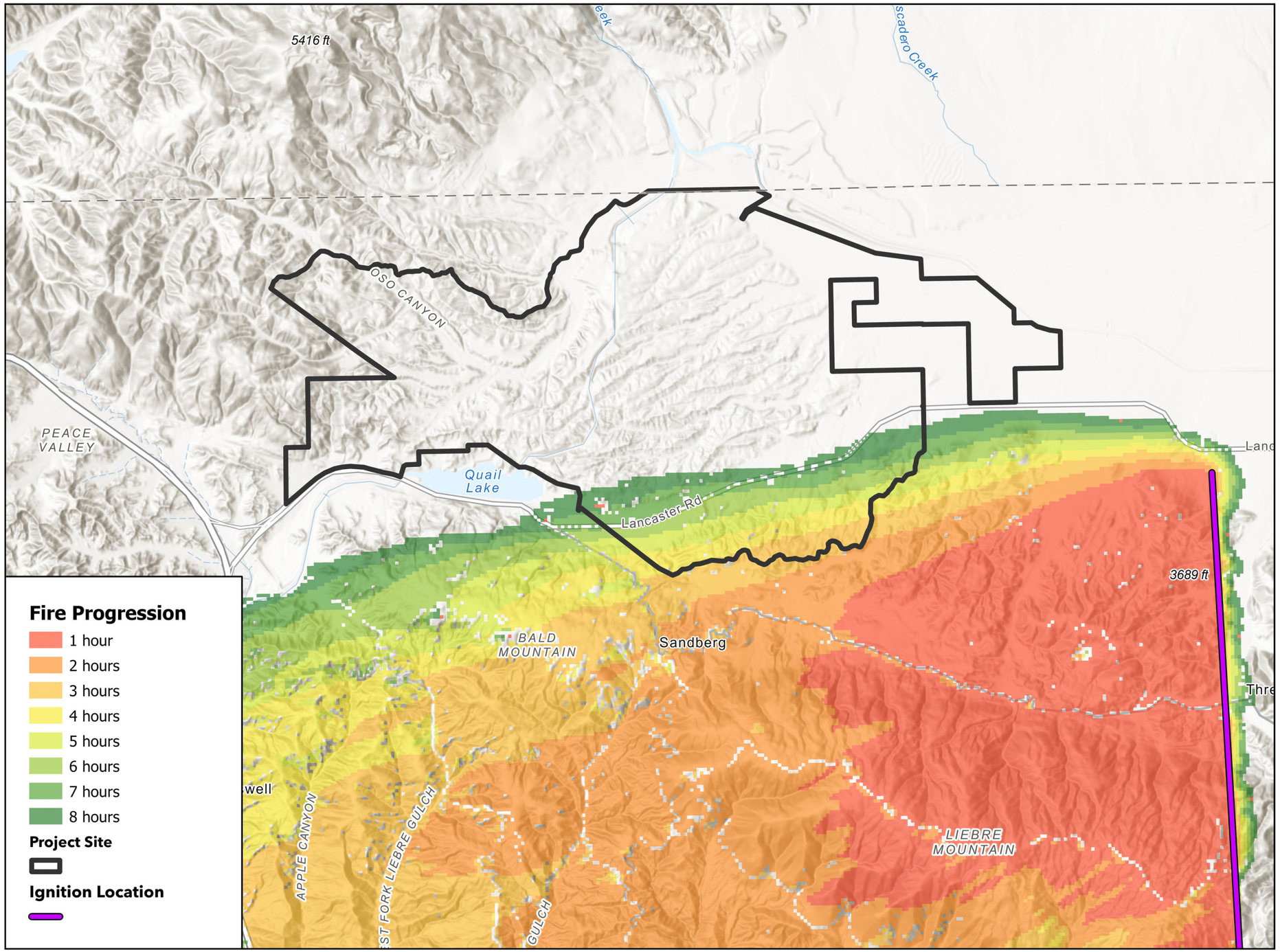

Source: Dudek 2024

Fireline Intensity – Southeast Ignition (Santa Ana Weather)

Figure 21

Centennial Recirculated Partial Environmental Impact Report

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Map not to scale

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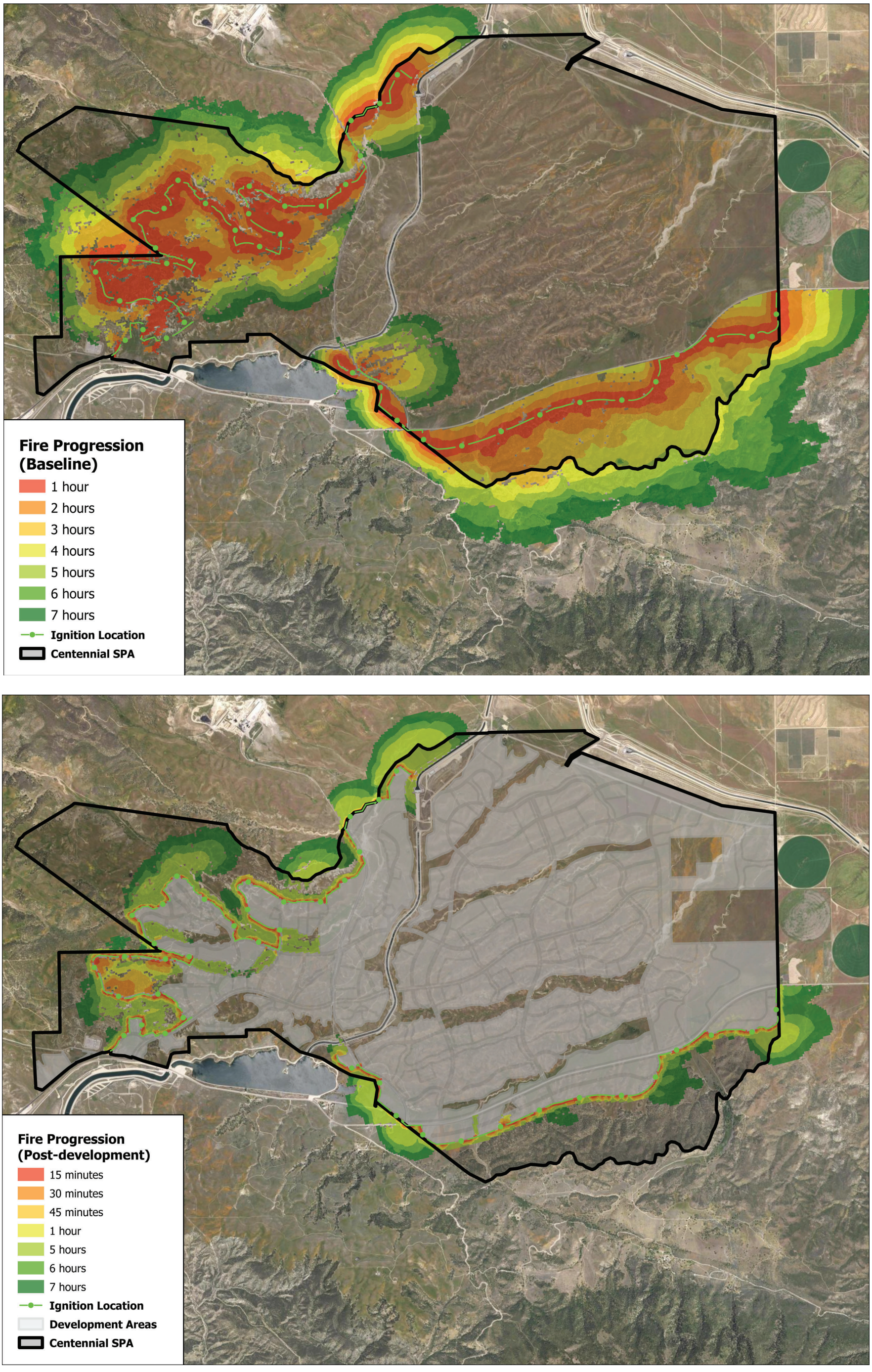

Source: Dudek 2024

Offsite Fire Progression (50th Percentile Weather)

Figure 22

Centennial Recirculated Partial Draft Environmental Impact Report

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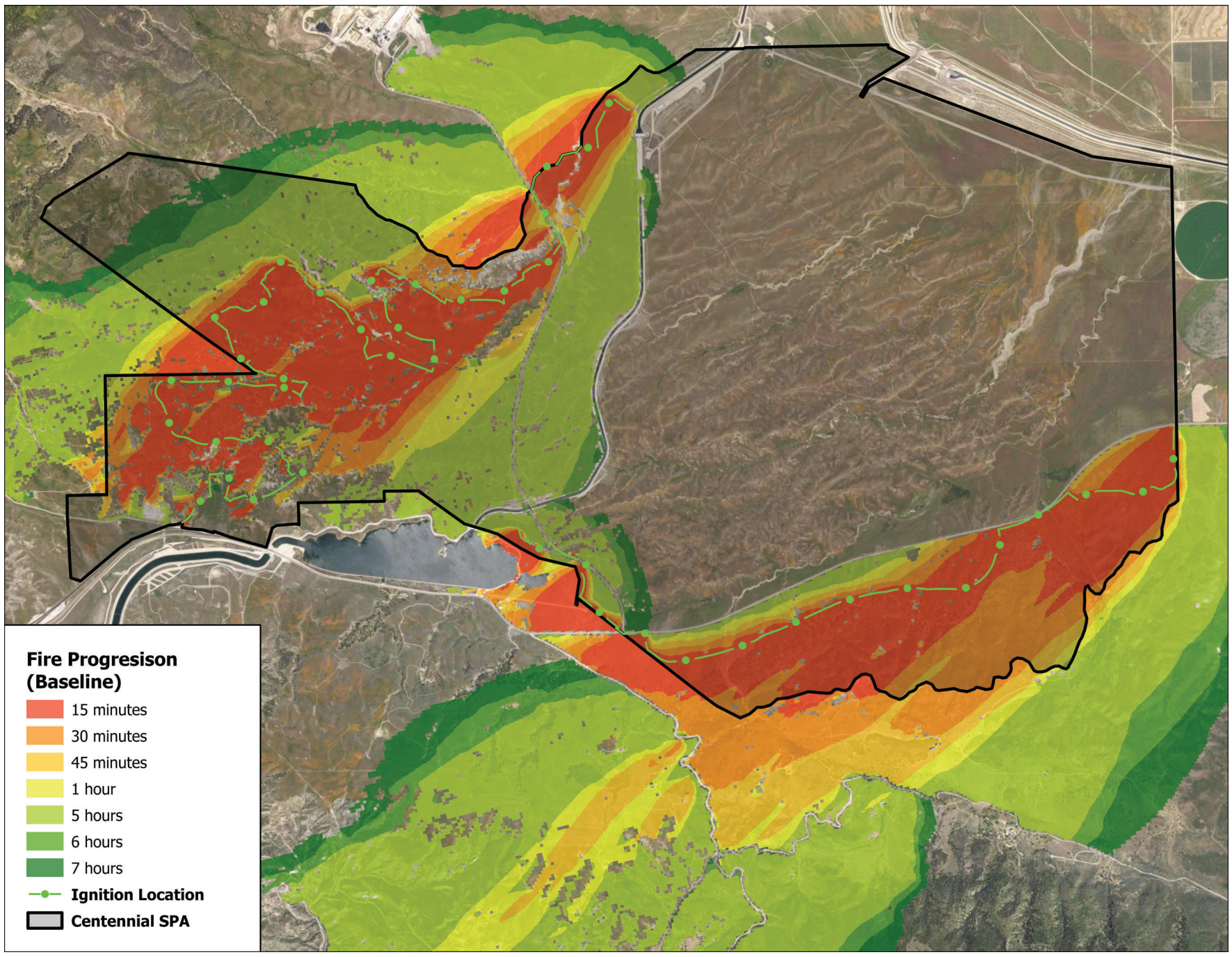

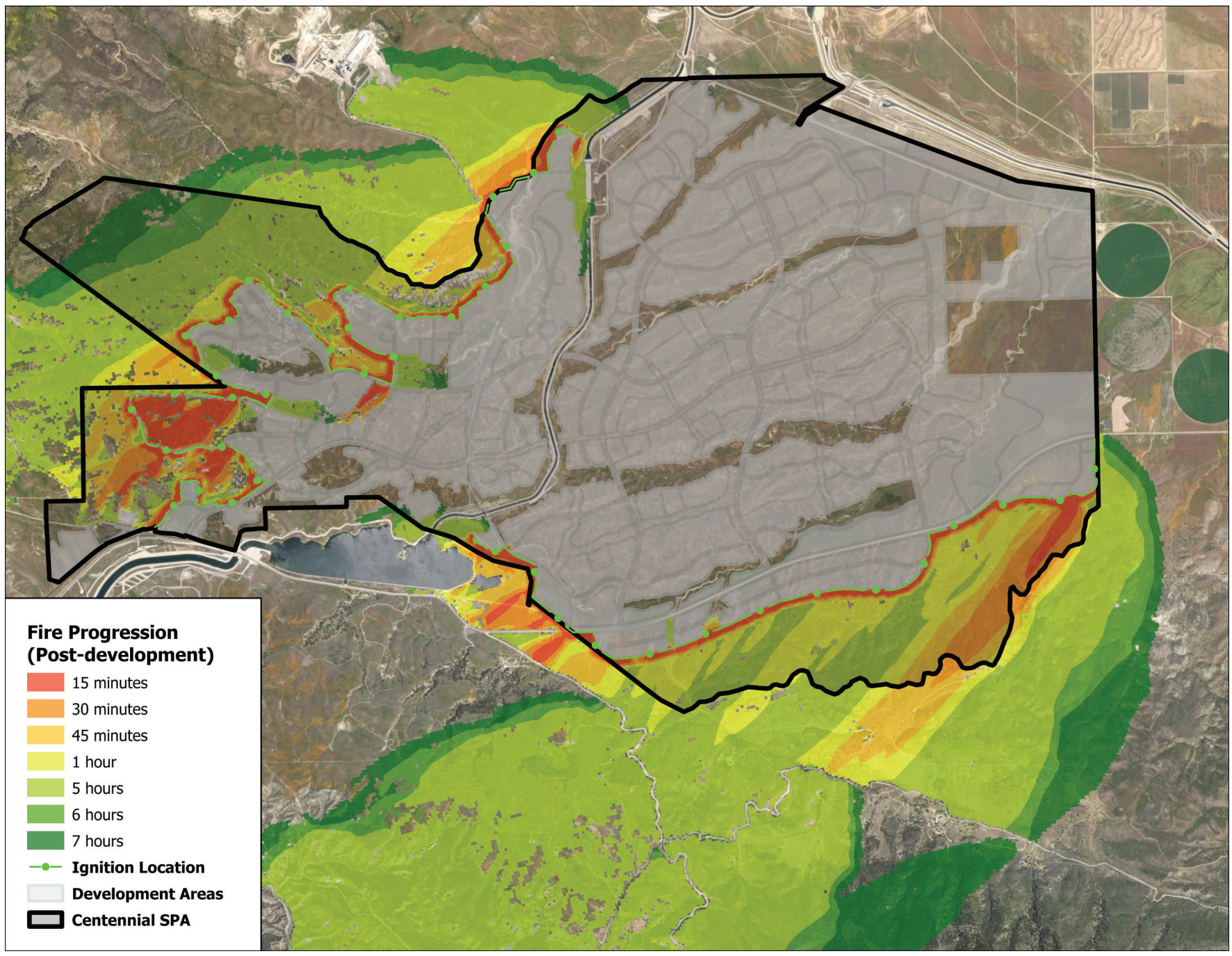

Source: Dudek 2024

Offsite Fire Progression (97th Percentile Weather)

Figure 23

Centennial Recirculated Partial Environmental Impact Report

N
W E
S

Map not to scale

PSOMAS

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more frequent and intense wildfire conditions. These factors were integrated into the fire behavior modeling assumptions and informed wildfire risk reduction measures.

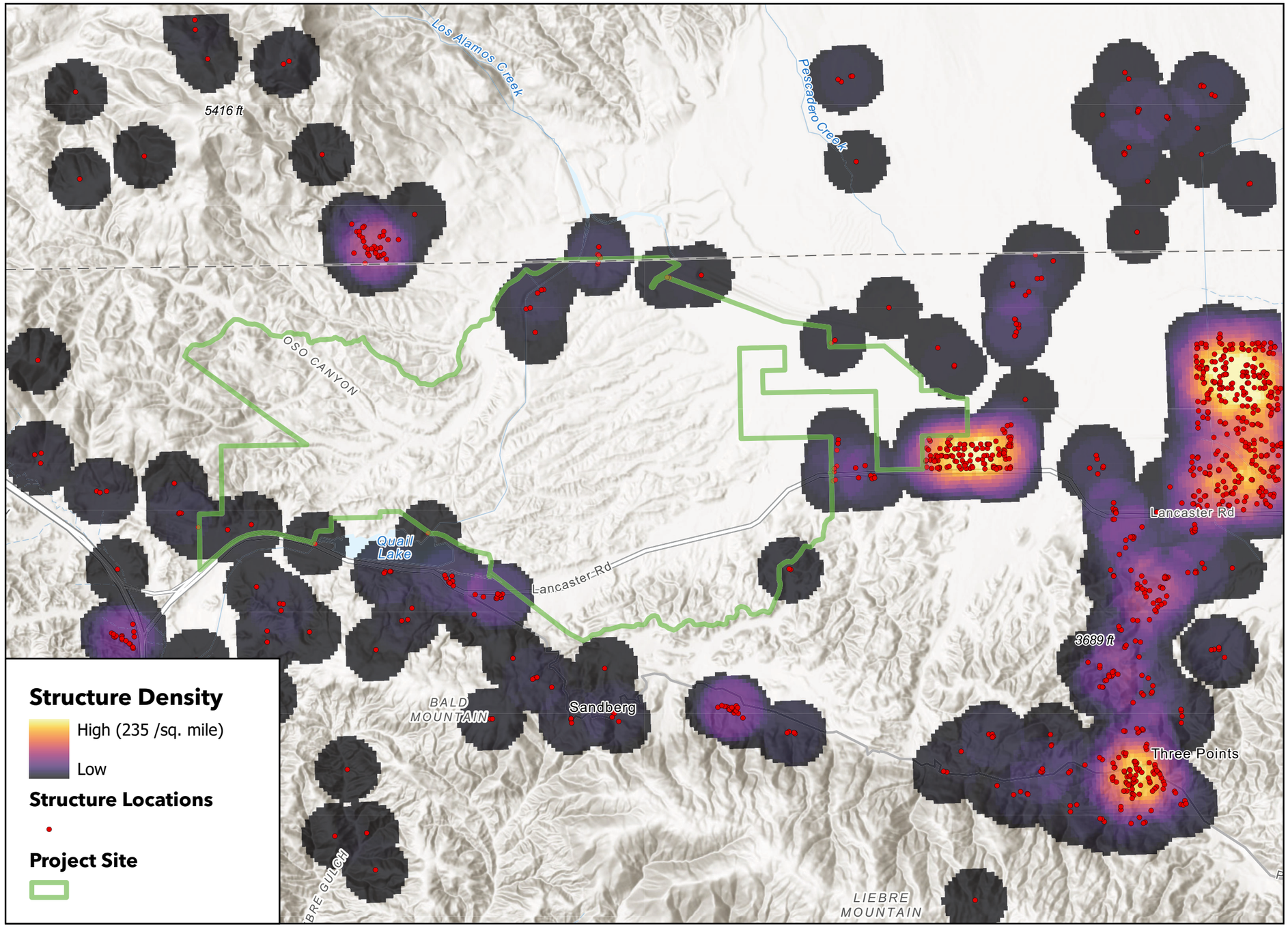
- Worst-case flame lengths near planned development areas were calculated at approximately 24 feet in grass-shrub vegetation types. In most areas adjacent to proposed development, flame lengths average 14 feet in the Project's grassland fuels. Perimeter FMZs will be 6-8 times the width of predicted worst-case flame lengths, providing wide separation between structures and natural fuels.
- Wildfire likelihood is low at the Project site and near planned off-site improvements from a regional perspective. Large wildfires are less likely to occur at the Project site compared to open spaces to the south, north, and northwest of the Project site. Wildfires are not likely to spread to the Project site from the east due to sparse fuels associated with agriculture and disturbed areas.
- Wildfire hazard is considered low at the Project site and near planned off-site improvements from a regional perspective. During average and Santa Ana weather conditions, areas considered lowest and lower hazard comprise 68 and 81 percent of the Project site, respectively.
- If wildfires do occur in the Project's vicinity, they are more likely to spread from the north/northeast, northwest, or southeast.
- Perimeter Fuel Modification Zones are predicted to slow the ignition spread of wildfires to offsite areas in the rare event that they would ignite onsite (Bhandary and Muller 2009; Braziunas et al. 2021; Cochrane et al. 2012; Fox et al. 2018: Elia et al. 2019).

Risk Analysis of Onsite Ignitions to Offsite Resources

To date, there is no recognized scientific method for analyzing off-site ignition risk impacts of a proposed master-planned community such as the Centennial Specific Plan. There are various data available that can be used to evaluate some aspects of the potential for a population to result in ignitions but understanding how specific and targeted design features and mitigation measures reduce potential ignition risk, if not prevent it altogether, have not been formalized. In many cases, the Project's features and measures also provide a public benefit beyond lessening the potential for increased on-site ignitions and off-site fire spread, as discussed herein. To that end, this analysis provides a comprehensive approach to evaluating the potential for an on-site ignition to cause an off-site ignition and spread-related impacts for a new master-planned community in any Fire Hazard Severity Zone (FHSZ). This assessment also applies this method to the Project to better understand the Project's potential fire-related impacts.

Project Vicinity and Land Uses

Existing land uses within 10 miles of the Project site were analyzed to identify off-site resources at risk from potential wildfires originating from ignitions that may occur on the Project site. The immediate vicinity of the Project site is generally bound by the Tehachapi Mountains to the north; the Antelope Valley is to the east; the northern edges of the Liebre



Source: Dudek 2023

Offsite Existing Structures

Figure 24

Centennial Recirculated Partial Environmental Impact Report

N W E S

Map not to scale

PSOMAS

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and San Gabriel Mountains (Angeles National Forest) are approximately one mile to the south; privately owned vacant land is immediately adjacent to the site to the west; and the Los Padres National Forest is approximately seven miles to the west. The Project site is approximately 35 miles north of the City of Santa Clarita in Los Angeles County; approximately 50 miles south of the City of Bakersfield in Kern County via SR-99 and I-5; and approximately 36 and 43 miles west of the cities of Lancaster and Palmdale, respectively, in Los Angeles County via SR-138. The community of Gorman in Los Angeles County is adjacent to the I-5 approximately four miles north of the I-5/SR-138 junction.

The Project's surroundings are a mix of agriculture, grassland-dominated open space, Quail Lake and aqueduct, rural large-lot residential, lower-density residential, school, I-5 freeway and SR-138, and various disturbed landscapes. The majority of adjacent lands can be categorized as undeveloped or agricultural. Vast open spaces in the Project's vicinity include the Angeles National Forest, Bureau of Land Management lands, Tejon Ranch, Hungry Valley State Vehicular Recreation Area, Los Padres National Forest, and various private landowners. Proximal human development is generally limited to small enclaves along major roadways. Existing communities are rural large-lot residential and lower-density residential and are generally confined to the areas of Lebec, Gorman, Caswell, Sandberg, Three Points, and Neenach. According to the Microsoft Building Footprints database, 1,064 structures currently exist within 10 miles of the Project site, the majority of which are located to the east near Three Points and Neenach, in the opposite direction that wildfire under extreme conditions would spread. Structure locations and density in the Project's vicinity are presented graphically in Figure 24, Off-site Existing Structures. Other adjacent land uses include but are not limited to the following:

- California Department of Water Resources—the California Aqueduct and Quail Lake.
- Pacific Gas and Electric (Kern County), Southern California Gas Company, and Southern California Edison—major transmission facilities currently traverse Tejon Ranch and adjacent areas and are constantly monitored and regularly upgraded.
- SCE maintains one existing substation (known as the Bailey Substation) in the immediate vicinity of the Project site, located north of SR 138 in southwestern corner of the Project site. This substation currently serves as a transmission-only substation (220 kilovolt [kV]/66 kV) and is not currently equipped for distribution (12 kV) capability.
- SCE also maintains the existing Gorman distribution substation, located approximately 3.6 miles northwest of the Project site along Gorman Post Road. This substation is equipped for distribution voltage and serves as the primary electric distribution facility in the Project area. It is from this facility that the existing 12-kV lines extend east along Gorman Post Road toward and within the Project site. The current capacity of the existing 12-kV facilities extending from the Gorman Substation along SR 138 can accommodate approximately 300 dwelling units.
- There are existing SoCalGas gas lines within and near the Project boundary. There is one high-pressure gas main in the vicinity. It is a 33-inch diameter, north-south running gas transmission line (Line 225) within a SoCalGas-owned easement that

originates at SR-138 just east of the I-5. A six-inch high-pressure distribution line branches from Line 225 and travels east to serve the National Cement Plant. Existing natural gas service to the Project site is available through a medium-pressure gas distribution main in SR-138, which branches from Line 225 and travels east to the Quail Lake area (SCGC 2006).

- Multiple telecommunications carriers—communications facilities and fiber optic easements currently traverse Tejon Ranch and adjacent areas.
- National Cement—major mining operations.
- Agricultural and farming operations.

Risk Assessment Framework

The analysis utilized the following formula to quantify a development's potential to contribute to off-site wildfire ignition risk:

Fire Hazard + Ignition Risk – Mitigation = Risk

This methodology has precedence in previous studies (Dicus et al. 2014, Leyshon 2015, Leyshon et al. 2015). As here, the previous studies utilized California Fire Hazard Severity Zones (FHSZs) as the basis for fire hazard and explored mitigation actions to reduce the potential for structural loss (risk) in various communities of San Diego County that varied in housing density, age, and demographics. For purposes of this analysis, the term "mitigation" as used in the formula "Fire Hazard + Ignition Risk – Mitigation = Risk" refers to natural or project-provided fire reduction features that reduce overall ignition risk, whether those features are code-based, go above and beyond code requirements, are inherent to the project design (e.g., proposed density), or are naturally occurring or otherwise present in the existing environment.

Hazard Analysis

Fire hazard was selected as the methodology starting point as it reflects the "default" existing condition of the landscape and site. To convey relative fire hazard across California, CAL FIRE categorizes all lands in which the State has primary fire protection responsibilities into one of three specific FHSZs: Moderate, High, or Very High. These categories are based upon the probability of a wildfire occurring (a product of historic fire occurrence) and the likely behavior of the fire following ignition (a product of the expected mature vegetation at the site, extreme fire weather, and slope steepness).

By design, the State does not consider any planned actions that reduce the potential fire hazard in a given area when designating a specific hazard rating. Instead, FHSZs are based on worst-case conditions, including extreme fire weather in mature (and untreated) vegetation. FHSZs are not designated with the intention to prohibit development but are instead meant to be used as a tool to illustrate the relative fire potential if no steps are taken to reduce the threat in a given area and to trigger the more restrictive construction

requirements for buildings, roads, water, and other fire protection and safety features mandated by applicable regulations (CAL FIRE 2019).

Ignition Risk Analysis

This ignition risk analysis evaluates how Project development, including off-site Project features, could impact potential fire ignitions. Even though ignition probability is inherently built into FHSZs via past fire history, changes to the landscape through development could change the probability of ignition via human activities.

While the proportion changes regionally across California, the vast majority of wildfires in California are started by human activities and are near developed areas (Syphard et al. 2007; Balch et al. 2017), or near human infrastructure (Syphard and Keeley 2016). Historically, the WUI expansion has been linked with increasing ignition probability (Faivre et al. 2014, Radeloff et al. 2018, Syphard et al. 2019), but wildfires in those studies occurred almost exclusively in older, existing communities that were not subject to modern regulatory requirements to lower fire risk. Since 2008, when the California Building Code was expanded to include Chapter 7A, Materials and Construction Methods for Exterior Wildfire Exposure, all new construction in WUI areas include the "hardening" features outlined in that new code section.

Ignition Risk Mitigation Analysis

Even with diligent efforts to prevent wildfire, not all ignitions can be averted. Thus, mitigation and preparatory efforts would reduce the risk of life/safety impacts to residents and loss of structures, both on- and off-site, even if fire suppression is precluded in a given area. If fighting wildfire is considered to be a battle to protect lives, buildings, and infrastructure, then preemptive fire reduction measures must be incorporated so as to shape the proverbial battlefield to best enable success. Hence, the next step of the risk assessment methodology is to analyze the Project's proposed protection features and design elements and their effectiveness in reducing the risk.

Wildfire Ignition Risk Assessment Matrix to Off-Site Resources

This analysis includes a risk assessment matrix that can be utilized for development projects located in fire hazard severity zones, such as the Project, as part of the Recirculated Partial Draft EIR document to address the potential for off-site impacts. However, the present focus of the methodology centers on the Project and the characteristics therein. Essentially, modeling or other tools are used to analyze ignition risk[5] and reveal the potential impacts that proposed development projects may have on adjacent lands or communities.

[5] "Risk" is the potential damage a fire can do to the area under existing conditions, accounting for any modifications such as fuel reduction projects, defensible space, and ignition-resistant building construction (CAL FIRE 2023).

Risk Assessment Equation

The overall risk assessment is based on a model developed in 2015 (Leyshon) that starts with the hazard of a site based on the FHSZ rating and then subtracts the mitigation for the site to arrive at a risk score for the site.

Hazard - Mitigation = Risk

For purposes of determining the potential off-site risk for a development, the Leyshon equation was modified to add an Ignition Risk factor to represent the potential for on-site ignitions; the sum is reduced by the fire reduction measures a proposed project is providing. The result then represents the potential Off-site Risk.

Hazard + Ignition Risk – Mitigation = Off-site Risk

1. The first variable in the equation is Hazard. A given site's overall wildfire hazard may be analyzed using a variety of models and approaches. Given CAL FIRE's expertise with respect to FHSZ modeling, it is prudent to incorporate that model into this assessment of off-site ignition risk. Therefore, the FHSZ ratings are incorporated as the potential wildfire Hazard and simplified using the following ranking:

Hazard: CAL FIRE FHSZ; Very High (3); High (2); Moderate (1)

2. The second variable in the equation is Ignition Risk. Ignition Risk is associated with a variety of site and project factors that either increase or decrease the potential for a vegetation ignition. The various factors are incorporated as the potential Ignition Risk and simplified using the following ranking:

Ignition Risk: High risk factor (3); Moderate risk factor (2); Low risk factor (1)

3. The third variable in the equation is Mitigation, which, based on natural or project-provided fire reduction features, reduce overall ignition risk, whether the mitigation is code-based, goes above and beyond code requirements, is inherent to the project design, or is naturally occurring or otherwise present in the existing environment. Examples include:

- Structural Mitigation Variables: hardening features, period of urban development, house size
- Non-structural Mitigation Variables: defensible space, housing density, distance from wildland vegetation
- Natural: bodies of water, non-burnable landscape

The measures are incorporated into the equation as Mitigation and simplified using the following ranking:

Mitigation: High reduction of ignition risk (3); Moderate reduction of ignition risk (2); Low reduction of ignition risk (1)

Off-site Ignition Risk Assessment Method

Wildfire Hazard Assessment

For purposes of this analysis, the CAL FIRE FHSZ classification system is used to represent the de facto hazard conditions of a project or area. The CAL FIRE hazard rating reflects the inherent natural physical conditions of the site that create a likelihood of fire ignition and expected fire behavior and burn probability for a potential wildfire that may be ignited within the project vicinity. Listed below are the CAL FIRE FHSZs and their corresponding hazard ranking, which would be identified for the project being evaluated and entered into the assessment equation. Projects located in a FHSZ would be assigned a hazard rating as classified by CAL FIRE: Moderate, High or Very High.

Fire Hazard Severity Zone	Hazard Ranking
Moderate	1
High	2
Very High	3

The FHSZ classification is determined by referring to the CAL FIRE Office of the State Fire Marshal map designation. A lower ranking represents a lower level of risk.

Wildfire Ignition Risk Assessment

Table 2.3-14 summarizes the variables of a project's design and ranks them by category based on the Attorney General wildfire guidance document's assessment of features and characteristics that result in increased or decreased ignition risk. The ranking was determined by comparing the variables with each other, analyzing whether each element was more or less of a risk than other variables. A lower ranking represents a lower risk; a higher ranking represents a higher risk.

TABLE 2.3-14
IGNITION RISK: WILDFIRE IGNITION RISK ASSESSMENT FOR DEVELOPMENT PROJECTS[1]

Wildfire Ignition Risk Variables	Ignition Risk Impact Factor	Ranking
Wildfire Risk Variables Related to the Project's Design		
Variable A. Project Density		
Choose either A1 or A2, but not both; in addition, select A3 if applicable. For example, a remote, intermix project would be assigned a rank of 4 (A2 + A3).	A1. Interface development: concentrated (disrupts fire spread)	1
	A2.Intermix development: not concentrated, fragmented, isolated patches of development (more exposure to wildland vegetation)	2
	A3. Remote or disconnected from existing development (difficult fire department access)	3
Variable B. Project Location in the Landscape		
Select all that apply.	B1. Structures sited in gentle terrain and not within a wind corridor	0
	B2. Structures sited in rugged terrain or on top of steep hills (may increase wildfire risk)	2
	B3. Structures sited in rugged terrain or on top of steep hills (may increase wildfire risk)	3
Variable C. Water Supply and Infrastructure		
Select all that apply.	C1. The Project's water supply and infrastructure are adequate for firefighting needs	0
	C2. There is a potential for loss of water pressure during a fire that may decrease available water supply	1
	C3. There is a potential for loss of power that may eliminate the water supply	2
	Sum of Ignition Risk Assessment Ranking*	**13**

[1] Based on California Attorney General Guidance.
Note: *Ignition Risk Assessment Ranking: High risk factor (ranking sum of 11 to 13 = 3); Moderate risk factor (ranking sum of 6 to 10 = 2); Low risk factor (ranking sum of 2 to 5 = 1); Not a risk factor (ranking sum of 0 to 1 = 0).

As provided above in Table 2.3-14, wildfire ignition risk is related to a project's design, location in the landscape, and water supply and infrastructure. Projects with the highest ignition risk would resemble wildland-urban intermix development with low or intermediate density development and high exposure to wildland vegetation. In addition, they would be remote and disconnected from existing developments resulting in difficult fire department access. A project's ignition risk would be further increased if aboveground power lines are present (particularly in a wind corridor), or if structures are sited in rugged terrain or at the top of steep slopes. Finally, wildfire ignition risk would be considered higher if a project's water supply is vulnerable to a loss of pressure or if power loss is possible that may eliminate water supply. Project's that align with these wildfire ignition risk factors would be assigned an ignition risk assessment ranking score of 13.

In contrast, projects with a lower ignition risk would resemble wildland-urban interface developments characterized by higher density, clustered buildings, and distinct boundaries separating development areas from wildland vegetation. Additionally, they would not include aboveground powerlines but instead would underground all new powerlines. Further, siting development areas in gentle terrain and near existing fuel breaks reduces ignition risks. Water supply that is adequate for firefighting needs and not susceptible to pressure and power losses also decreases a project's ignition risks. Project's that effectively mitigate wildfire ignition risks to the lowest level would be assigned an ignition risk assessment ranking score of 1.

Wildfire Ignition Risk Mitigation Assessment

Table 2.3-15 provides a description of additional mitigation measures that build upon the AG Guidance and are used to evaluate a project's potential for igniting fires that spread off-site into adjacent wildlands. A project specific assessment of these measures is provided later in Table 2.3-15 which considers the Project's implementation of these risk reduction measures.

TABLE 2.3-15
WILDFIRE IGNITION RISK REDUCTION MEASURES

Wildfire Ignition Risk Reduction Measure[1]	Category	Ranking for On-site Ignition Risk[2]	Ranking for Off-site Ignition Risk[3]
Siting projects to maximize the role of low-flammability landscape features to buffer the development from fire spread	Project siting	2	2
Limiting development along steep slopes and amid rugged terrain (decreases exposure to rapid fire spread and increases accessibility for firefighting)	Project siting	2	1
Placement of development close to existing or planned ingress/egress and designated evacuation routes (for efficient evacuation while allowing emergency access and rapid-fire suppression)	Project siting	1	1
Placement of projects close to adequate emergency services	Project siting	3	2
Increasing housing density and consolidated design, relying on higher-density infill developments as much as possible	Housing density	3	2

TABLE 2.3-15
WILDFIRE IGNITION RISK REDUCTION MEASURES

Wildfire Ignition Risk Reduction Measure[1]	Category	Ranking for On-site Ignition Risk[2]	Ranking for Off-site Ignition Risk[3]
Avoidance and minimization of low-density exurban development patterns or leapfrog-type developments	Housing density	3	0
Decreasing the extent and amount of "edge" or interface area that is adjacent to undeveloped wildlands	Housing density	3	2
Construction of additional points of ingress and egress and modification of evacuation routes	Ingress/egress	2	0
Undergrounding power lines	Infrastructure	3	3
Requiring fire-hardened communication to the Project site	Infrastructure	1	0
Parking limitations to ensure roads are not clogged with parked vehicles	Infrastructure	1	1
On-site water supply/storage to augment ordinary supplies	Infrastructure	2	2
Fire hardening structures and homes to requirements provided in Chapter 7A of California Building Code (CBC) and Section R237 of the California Residential Code (resistance to heat, flames, and embers)	Construction features	2	1
Creation of buffer zones and defensible space within and adjacent to the development	Vegetation management/FMZ / defensible space	3	2
Ensuring that vegetation will not touch structures or overhang roofs	Vegetation management/FMZ / defensible space	2	1
Structure legal obligations so that defensible space measures are retained over time	Vegetation management/FMZ / defensible space	1	0[6]
Enhanced communication to the Project population about emergency evacuation plans and evacuation zones[7]	Training	1	0

[6] Legal obligations would only apply to the project or its future residents and not to off-site lands or neighbors. Therefore, the obligations would only be able to directly address on-site risk factors. The risk of an on-site ignition spreading to off-site is always a possibility, but legal obligations would not have a significant impact in that regard.

4 While evacuation communication may not on its face seem to play a role in reducing ignition risk, the practice of regular communication keeps residents engaged in the preparedness process and more aware of wildfire hazards/risks and their role in prevention and response. See the points below from the U.S. Fire Administration.

- By regularly communicating evacuation procedures and the consequences of not evacuating promptly, residents are more likely to heed warnings and take necessary actions to protect themselves and their property.

TABLE 2.3-15
WILDFIRE IGNITION RISK REDUCTION MEASURES

Wildfire Ignition Risk Reduction Measure[1]	Category	Ranking for On-site Ignition Risk[2]	Ranking for Off-site Ignition Risk[3]
Risk Reduction Ranking Sum*		**35**	**20**

Notes: FMZ = Fire Management Zone.
1 Potential mitigation measures and design alternatives that may reduce wildfire risk impacts (not exclusive).
2 Potentially impacting existing structures within the new development.
3 Potentially impacting existing structures proximal to the development.
* On-site Mitigation Ranking: High reduction of risk (ranking sum of 25 to 35 = 3); Moderate reduction of risk (ranking sum of 14 to 24 = 2); Low reduction of risk (ranking sum of 4 to 13 = 1); Not a risk factor (ranking sum of 0 to 3 = 0).
* Off-site Mitigation Ranking: High reduction of risk (ranking sum of 14 to 20 = 3); Moderate reduction of risk (ranking sum of 8 to 13 = 2); Low reduction of risk (ranking sum of 3 to 7 = 1); Not a risk factor (ranking sum of 0 to 2 = 0).

As detailed in Table 2.3-15 above, project design features and risk reduction measures concerning project siting, housing density, ingress and egress, infrastructure, construction features, vegetation management, and training affect both on-site and off-site ignition risks. On-site risks are associated with the structures within the project, while off-site risks refer to the potential impact on nearby structures. When implemented, these measures can reduce on-site ignition risks, and in some cases, they may simultaneously decrease both on-site and off-site ignition risks through specific mitigation strategies. Projects that implement all risk reduction measures described in Table 2.3-15 will result in total ignition risk rankings of 35 and 20 for on-site and off-site ignition risks, respectively.

Application of the Wildfire Off-site Ignition Risk Assessment Matrix

Based on the variables and ranking parameters for each risk factor and AG Guidance risk reduction measure (See Table 2.3-16 below), an experienced professional fire protection planner evaluated the Project from an overall wildfire risk and mitigation perspective to assess the Project in terms of its potential to result in off-site ignitions that may threaten off-site habitats and communities (Dudek, 2025).

Based on the site-specific analysis and considering the various input factors for the fire environment, the Project's (including off-site features) hazard, ignition risk measures, and the overall Project Wildfire Off-Site Ignition Risk Level is considered to result in a Moderate level, as shown below and in Appendix J (Dudek, 2025).

Hazard Ranking + Risk Factor Ranking – Mitigation Level Ranking= Off-site Risk

- Active communication with residents helps build awareness of fire risks, encourages proactive measures like defensible space creation, and fosters a sense of preparedness within the community
- When residents are informed about potential wildfire threats early, they have time to prepare their homes, gather essential items, and make informed decisions about evacuation, reducing the likelihood of rushed actions that could lead to accidental ignition.

Step 1. Hazard Ranking: Very High Fire Hazard Area **= 3**

Fire Hazard Severity Zone	Hazard Ranking
Moderate	1
High	2
Very High	**3**

Step 2. Risk Factor Ranking: Moderate = **1**

TABLE 2.3-16
CENTENNIAL SPECIFIC IGNITION RISK: WILDFIRE IGNITION RISK ASSESSMENT FOR DEVELOPMENT PROJECTS[1]

Wildfire Ignition Risk Variables	Ignition Risk Impact Factor*	Ranking
Wildfire Risk Variables Related to the Project's Design		
Variable A. Project Density		
Choose either A1 or A2, but not both; select A3 if applicable.	**A1. Interface: concentrated (disrupts fire spread)**	**1**
	A2. Low or intermediate density: not concentrated, fragmented, isolated clusters (more exposure to wildland vegetation)	2
	A3. Remote or disconnected from existing development (difficult fire department access)	3
Variable B. Project Location in the Landscape		
Select all that apply.	**B1. Structures sited in gentle terrain and not within a wind corridor**	**0**
	B2. Structures sited in rugged terrain or on top of steep hills (may increase wildfire risk)	2
	B3. Aboveground power lines (power lines located in a wind corridor may become a source of ignition)	3
Variable C. Water Supply and Infrastructure		
Select all that apply.	**C1. The project's water supply and infrastructure are adequate for firefighting needs**	**0**
	C2. There is a potential for loss of water pressure during a fire that may decrease available water supply**	**1**
	C3. There is a potential for loss of power that may eliminate the water supply***	**2**
Centennial Project Sum of Ignition Risk Assessment Ranking		**4**

[1] Based on California Attorney General Guidance.
Note: *Ignition Risk Assessment: High risk factor (3); Moderate risk factor (2); Low risk factor (1); Not a risk factor (0).
**While the Project will be constructed with a water supply system and infrastructure that is adequate for firefighting needs, this analysis assumes that there could always be a potential for loss of water pressure during a fire event.
*** While the Project will be constructed with a water supply system and infrastructure that is adequate for firefighting needs, this analysis assumes that there could always be a potential for loss of power during a fire event.

TABLE 2.3-16
CENTENNIAL SPECIFIC IGNITION RISK: WILDFIRE IGNITION RISK ASSESSMENT FOR DEVELOPMENT PROJECTS[1]

Wildfire Ignition Risk Variables	Ignition Risk Impact Factor*	Ranking
Wildfire Risk Variables Related to the Project's Design		
Variable A. Project Density		

Sum of Ignition Risk Factors Ranking	Ranking for Matrix
Sum of 0 to 1: Not a risk factor	0
Sum of 2 to 5: Low risk factor	**1**
Sum of 6 to 10: Moderate risk factor	2
Sum of 11 to 14: High risk factor	3

Notes:
1 Select the applicable risk impact factors based on the project's density, location, and water supply variables.
2 Select the corresponding value on the table.
3 Sum the values.
4 Select the appropriate matrix ranking based on the sum of risk factors.
5 Enter the Wildfire Ignition Risk Assessment ranking on the Wildfire Ignition Risk Matrix.

Step 3. Mitigation Level Ranking: High = **3**

TABLE 2.3-17
CENTENNIAL-SPECIFIC MITIGATION: WILDFIRE IGNITION RISK REDUCTION MEASURES APPLICABLE TO ON-SITE AND OFF-SITE PROJECT FEATURES[8]
(The Project will Implement all of the Measures Described in this Table)

Wildfire Ignition Risk Mitigation Measure	Category	Ranking for On-site Ignition Risk	Ranking for Off-site Ignition Risk
Siting projects to maximize the role of low-flammability landscape features to buffer the development from fire spread	Project siting	**2**	**2**
Limiting development along steep slopes and amid rugged terrain (decreases exposure to rapid fire spread and increases accessibility for firefighting)	Project siting	**2**	**1**
Placement of development close to existing or planned ingress/egress and designated evacuation routes (for efficient evacuation while allowing emergency access and rapid fire suppression)	Project siting	**1**	**1**

[8] When incorporated, these measures reduce the likelihood of a fire igniting and spreading away from on-site or off-site project features.

TABLE 2.3-17
CENTENNIAL-SPECIFIC MITIGATION: WILDFIRE IGNITION RISK REDUCTION MEASURES APPLICABLE TO ON-SITE AND OFF-SITE PROJECT FEATURES[8]
(The Project will Implement all of the Measures Described in this Table)

Wildfire Ignition Risk Mitigation Measure	Category	Ranking for On-site Ignition Risk	Ranking for Off-site Ignition Risk
Placement of projects close to adequate emergency services	Project siting	**3**	**2**
Increasing housing density and consolidated design, relying on higher-density infill developments as much as possible	Housing density	**3**	**2**
Avoidance and minimization of low-density exurban development patterns or leapfrog-type developments	Housing density	**3**	**0**
Decreasing the extent and amount of "edge" or interface area that is adjacent to undeveloped wildlands	Housing density	**3**	**2**
Construction of additional points of ingress and egress and modification of evacuation routes	Ingress/egress	**2**	**0**
Undergrounding power lines	Infrastructure	**3**	**3**
Requiring fire-hardened communication to the project site	Infrastructure	**1**	**0**
Parking limitations to ensure roads are not clogged with parked vehicles	Infrastructure	**1**	**1**
On-site water supply/storage to augment ordinary supplies	Infrastructure	**2**	**2**
Fire hardening structures and homes to requirements provided in Chapter 7A of California Building Code (CBC) and Section R237 of the California Residential Code (resistance to heat, flames, and embers)	Construction features	**2**	**1**
Creation of buffer zones and defensible space within and adjacent to the development	Vegetation management/FMZ / defensible space	**3**	**2**
Ensuring that vegetation will not touch structures or overhang roofs	Vegetation management/FMZ / defensible space	**2**	**1**
Structure legal obligations (e.g., CC&Rs) so that defensible space measures are retained over time	Vegetation management/FMZ / defensible space	**1**	**1**

TABLE 2.3-17
CENTENNIAL-SPECIFIC MITIGATION: WILDFIRE IGNITION RISK REDUCTION MEASURES APPLICABLE TO ON-SITE AND OFF-SITE PROJECT FEATURES[8]
(The Project will Implement all of the Measures Described in this Table)

Wildfire Ignition Risk Mitigation Measure	Category	Ranking for On-site Ignition Risk	Ranking for Off-site Ignition Risk
Enhanced communication to the project population about emergency evacuation plans and evacuation zones	Training	**1**	**0**
	Mitigation Rating Sum	**35**	**21**
Notes : FMZ = Fire Management Zone.			

Centennial Specific Sum of On-Site Mitigation Measures	Ranking for Matrix
Sum of 0 to 3: No significant reduction of ignition risk	0
Sum of 4 to 13: Low reduction of ignition risk	1
Sum of 14 to 24: Moderate reduction of ignition risk	2
Sum of 25 to 35: High reduction of ignition risk	**3**

Centennial Specific Sum of Off-Site Mitigation Measures	Ranking for Matrix
Sum of 0 to 2: No significant reduction of ignition risk	0
Sum of 3 to 7: Low reduction of ignition risk	1
Sum of 8 to 13: Moderate reduction of ignition risk	2
Sum of 14 to 20: High reduction of ignition risk	**3**

Notes:
1 Select the applicable wildfire ignition risk mitigation measures based on the project's design (siting, density, ingress/egress, infrastructure, construction, and FMZ).
2 Select the corresponding ranking on the table for on-site or off-site ignition.
3 Sum the rankings.
4 Select the appropriate matrix ranking based on the risk factor ranking categories.
5 Enter the wildfire ignition risk mitigation measures ranking on the Wildfire Ignition Risk Matrix.

Enter the assigned ranking from each step into the risk assessment formula and sum.

3 (Hazard) + 1 (Ignition Risk) – 3 (Mitigation) = 1 (Off-site Ignition Risk)

Step 4. Wildfire Off-site Ignition Risk Level: 1 = Moderate

Once the matrix was used to identify the appropriate Hazard, Ignition Risk and Mitigation rankings for the Project, the rankings were entered as terms into the risk equation to determine the Off-site Ignition Risk ranking and the corresponding Off-site Ignition Risk Level.

Hazard + Ignition Risk – Mitigation = Off-site Ignition Risk

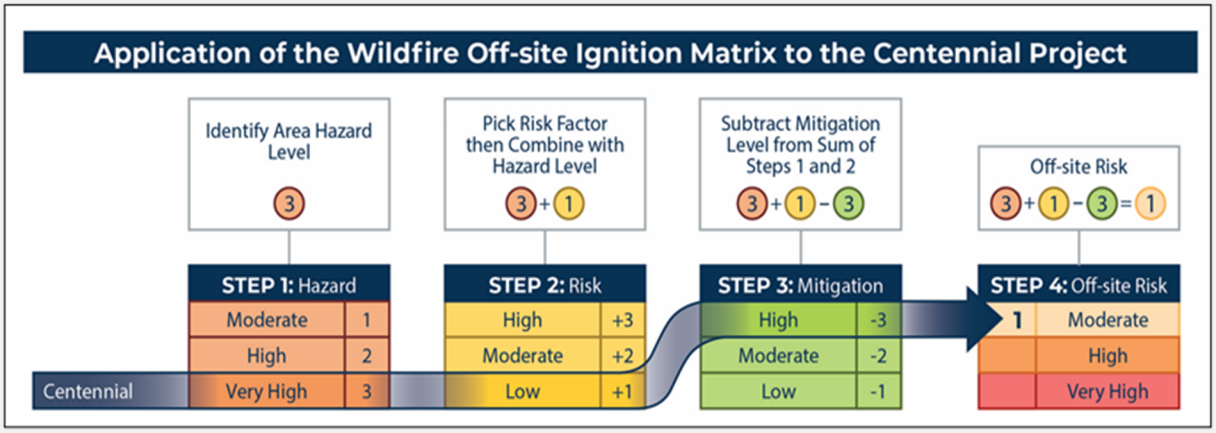
The risk results can be classified into the following categories:

TABLE 2.3-18
OFF-SITE IGNITION RISK LEVEL CATEGORIES

Ranking	Off-site Ignition Risk Level
WOIRL ≤ 1	Moderate
1 < WOIRL < 4	High
WOIRL ≥ 4	Very High
WOIRL = Wildfire Off-site Ignition Risk Level	
Project Off-site Ignition Risk Ranking	**Project Wildfire Off-site Ignition Risk Level**
Ranking (1) ≤ 1	Moderate Risk
Moderate risk represents an acceptable level of risk based on the risk vs. mitigation evaluation. "Risk" is the potential damage a fire can do to the area under existing conditions, accounting for any modifications such as fuel reduction projects, defensible space, and ignition-resistant building construction (CAL FIRE 2023). "Hazard" is based on the physical conditions that create a likelihood and expected fire behavior over a 30- to 50-year period without considering mitigation measures such as home hardening, recent wildfire, or fuel reduction efforts (CAL FIRE 2023).	

Exhibit 8 provides a graphical representation of following the four steps to determine the Wildfire Off-site Ignition Risk Level.

EXHIBIT 8



Moderate risk represents an acceptable level of risk based on the risk vs. mitigation evaluation.

High risk represents a potential cause for concern and the possible need for additional mitigation measures to reduce to a Moderate level unless a specific site condition or overriding determination is justified and found acceptable to the local fire authority.

Very High risk would be unacceptable and subject to additional mitigations to reduce the potential ignition risks to Moderate (or High with overriding acceptance from the fire authority).

Off-Site Ignition Risk Determination

Based on the site-specific analysis and considering the various input factors for the fire environment, the Project's hazard, ignition risk and mitigation measures, the overall Project Wildfire Off-Site Ignition Risk Level is considered to result in a Moderate level, as shown below and within Appendix J (Dudek, 2025) which represents a less than significant impact.

Hazard + Ignition Risk – Mitigation = Off-site Ignition Risk

Step 1. Hazard Ranking: High Fire Hazard Area = 2

Step 2. Risk Factor Ranking: Moderate = 2

Step 3. Mitigation Level Ranking: High = 3

Step 4. Wildfire Off-site Ignition Risk Level: 1 = Moderate

Moderate risk reflects an acceptable level of exposure based on the evaluation of risk in relation to mitigation measures. Although the term "moderate" is relative, in the context of this analysis it indicates that the Project fully complies with all applicable regulatory requirements for ignition risk and incorporates additional measures beyond the minimum standards. As a result, the Project implements comprehensive measures to minimize the potential for off-site ignitions. Although located within a CAL FIRE Very High Fire Hazard Severity Zone, the Project achieves the lowest possible ignition risk score for this FHSZ by fully complying with all applicable safety regulations and incorporating additional measures beyond the minimum requirements as described in the tables within Appendix F of Appendix J.

While it is infeasible to eliminate all ignition risk anywhere in the wildland-urban interface (WUI), Project compliance with regulatory requirements and additional safety measures provides an acceptable level of risk by systematically addressing the most significant ignition and spread factors as detailed in the California Fire Code (CFC), California Building Code Chapter 7A, and Public Resources Code (PRC) requirements. These regulatory requirements specifically target the primary mechanisms by which development can contribute to off-site wildfire ignitions, including structural ember generation, vegetation-related ignition sources, utility-related ignitions, and construction- or maintenance-related ignitions.

Ignition-resistant building materials, ember-resistant design features, defensible space and fuel modification requirements, and ongoing vegetation management substantially reduce the probability that Project structures or associated activities would generate embers capable of igniting adjacent off-site vegetation.

In addition, code-compliant emergency access, adequate water supply, and emergency response provisions improve the ability to quickly suppress any localized ignition before it can spread off site. These measures are specifically intended to interrupt ignition pathways and reduce fire intensity at the point of origin, thereby limiting the potential for a site-based

ignition to transition into a broader wildfire affecting surrounding properties or wildland areas.

From a planning and risk management perspective, a moderate level of risk is considered less than significant because it reflects a balance between residual wildfire exposure and the effectiveness of regulatory requirements. In moderate-risk areas, compliance with regulatory requirements effectively reduces both the likelihood of ignition and the potential for off-site fire spread. ***While some residual risk remains as it must in any wildland-urban interface setting, these measures ensure that the risk is manageable. and potential impacts to people and property are minimized and represent a less than significant impact.***

Firebrand Hazard and On-Site and Off-Site Risk

To evaluate whether new development in the WUI may result in offsite wildfires due to airborne ember (firebrand) production from onsite structure fire, this section examines firebrand dynamics, including how they are produced, transported, and how they ignite vegetation. In addition, the potential for ember production caused by structure fires and subsequent offsite ignitions is discussed.

Firebrand Generation, Transport, and Ignitions

Airborne embers, commonly referred to as firebrands, are burning materials which become airborne and carried for some distance in an airstream (Babrauskas 2020). Firebrands can serve as ignition sources through a phenomenon defined as spotting. Spotting occurs when firebrands are lofted into the air and ignite small fires called spot fires ahead of the main fire front when landing on a receptive fuel bed. Wildfire spotting is multi-faceted and occurs at varying levels of severity. Main drivers of wildfire spotting include (NWCG, 2021):

- Firebrand Source, Size, and Amount
- Firebrand travel distance
- Probability of ignition where firebrands land

Firebrands pose significant risk to communities. In extreme cases, California chapparal has been found to cause ignitions up to four miles away from the main front of an ongoing wildfire. However, these risks can be mitigated through the implementation of fire-resistant construction methods, properly maintained landscaping, Fuel Modification Zones, and ignition resistant landscaping (NIST, 2022). While the majority of home losses in the WUI are due to firebrands (NIST, 2021), a review of structural loss data highlights that modern master-planned communities are extremely unlikely to be destroyed by wildfires (CBIA, 2022). Of all wildfires in California since 2017, less than 1% of structures lost were structures built after 2010 (CBIA, 2022). ***Structural hardening requirements mandated through Chapter 7A of the California Building Code and implementation of adequate defensible space at the community and parcel scale are designed to effectively reduce structural ignition risks from firebrands, thus resulting in a less than significant impact.***

The following section discusses wildfire hazards caused by firebrands. Factors influencing firebrand production, transport, and ignition are highlighted, emphasizing the importance of fire-resistant construction methods and defensible space.

Firebrand Transport

Firebrand transport is the most commonly studied component of firebrands. This is likely because the processes behind firebrand transport are the simplest to model. In addition, understanding maximum firebrand transport provides important information for firefighters and emergency managers during wildfires. Models predicting maximum firebrand transport or spotting distance account for factors such as fuel type, tree height and crown width, wind speed, spotting location (ex. Ridgetop, valley) (Albini 1979, Chase 1981, Rothermel 1983, Albini 1983, Chase 1984). Before firebrands can travel downwind in the atmospheric air current, they first must be lofted into the air. Ember lofting leads to firebrands and is influenced by fire intensity, fuel loading, and terrain features (NWCG, 2021). Once airborne, firebrand transport distance is mainly driven by wind speed and firebrand size (Manzello and Suzuki, 2023).

Firebrand Generation

In extreme cases, fire spread by firebrands can become the dominant form of fire spread and overwhelm fire suppression efforts. In order for firebrands to pose a hazard, they must have had sufficient initial size to sustain enough heat during transport to ignite a receptive fuel bed (Babrauskas 2020). Firebrand size is influenced by an array of factors including fuel type, fire intensity, and wind speed (Adusumilli and Blunck, 2023, Suzuki and Manzello, 2022). However, the complex nature of firebrand production and spread remains relatively unstudied. Limited research exists regarding processes of firebrand generation and its relation to the source materials which produce firebrands (Manzello and Suzuki, 2023). The vast majority of available of firebrand research is focused on transport of firebrands, with little research focused on the burnout process of firebrands following generation and transport.

Unlike firebrand transport processes, which can be modeled, no computer models currently exist for predicting firebrand generation. Instead, research into the topic relies on experimental studies. In general, greater fire intensity is found to generate more firebrands (Thomas et al. 2021). Fuel load, or the total amount of combustible fuels, has been found to be related to the severity of firebrand production. The total number of burning firebrands has been observed to increase alongside an increase in the height of burning trees or shrubs (Adusumilli et al., 2021).

Firebrand Ignition

Several properties influence a firebrand's ignition potential upon landing. Firebrand characteristics such as mass and size, thermal degradation or burnout, and environmental conditions (i.e. weather) greatly influence the potential for new ignition caused by firebrands (Bearinger et al., 2020). For example, firebrands may burnout completely in the atmosphere, or, after landing, undergo glowing combustion and die out, smolder, or transition into

flaming and grow into a larger fire (Manzello et al, 2021). While the relationship between firebrand characteristics and ignition potential is understudied, several factors are known to mitigate structure losses from firebrands in the WUI. It is known from general understanding of thermodynamics that the condition of the receptive fuels, both urban and natural, is a significant predictor of new ignitions from firebrands.

Ensuring code compliant defensible space surrounding structures has been found to mitigate structure losses from firebrands in the WUI. Defensible space is often created in the form of Fuel Modification Zones, which create buffers between natural vegetation and structures. In many jurisdictions, Fuel Modification Zones within 30 feet of structures are required to be irrigated, further limiting the potential for firebrand ignitions. New research has shown that vegetation, decorations, and additional flammable material attached to the house are of the most important factors contributing to structure ignition from firebrands (IBHS, 2023). Research has shown that firebrands more easily collect around the edges of structures and can significantly contribute to structure ignitions if fuels are readily ignitable (IBHS, 2023). In response to these findings, CAL FIRE has created a new defensible space zone, Zone 0, which requires the first 5 feet from structures to be devoid of combustible materials.

The condition of building materials themselves greatly determines structure losses from firebrands (NIST, 2022). Studies suggest that building construction is as, if not more, important than defensible space in determining structure losses in the WUI (Syphard et al. 2017). As mentioned previously, firebrands are responsible for the majority of all structure losses in the WUI. Chapter 7A of the California Building Code has been developed through partnership with experimental research into structure losses. Incorporating the building construction and design requirements outlined in Chapter 7A (ex. Roof type and assembling, exterior decking, siding materials, etc.) have been proven to reduce structure losses from firebrand ignitions (NIST, 2022).

Firebrand Production from Urban Fuels

The following sections discuss the potential for firebrand production from structure fires in modern master-planned communities, noting the effectiveness of building design features and fire safety measures in reducing the risk producing firebrands from onsite wildfires. Historical data on wildfires caused by structure fires are also presented, identifying common characteristics associated with wildfire incidents caused by structure fires.

Historical Wildfires Caused by Structure Fires

CAL FIRE maintains fire history data throughout the state and includes ignition causes when available (CAL FRAP, 2023). According to the historical fire record, wildfires caused by structure fires account for only <1% percent of all wildfires where the cause is known. Wildfires by cause in California is summarized below in Table 2.3-19.

TABLE 2.3-19
WILDFIRE OCCURRENCES IN CALIFORNIA BY CAUSE

Fire Cause	Frequency	Percent of All Causes
1 - Lightning	3483	22%
9 - Miscellaneous	3458	22%
2 - Equipment Use	1325	8%
7 - Arson	945	6%
5 - Debris	757	5%
10 - Vehicle	534	3%
11 - Powerline	444	3%
4 - Campfire	391	3%
3 - Smoking	337	2%
8 - Playing with fire	192	1%
18 - Escaped Prescribed Burn	103	1%
6 - Railroad	78	<1%
15 - Structure	**27**	**<1%**
19 - Illegal Alien Campfire	17	<1%
16 - Aircraft	15	<1%
13 - Non-Firefighter Training	11	<1%
12 - Firefighter Training	5	<1%

Source: CAL FIRE FRAP, 2024
Note**:** Does not include wildfires with Unknown cause

Through a detailed assessment of wildfires caused by structure fires, clear patterns and characteristics related to community design and the surrounding landscape are identified. These include:

- Wildland Urban Intermix stye development with substantial vegetation surrounding structures.
- Limited setback from wildland vegetation with structures located in close proximity to unmaintained natural vegetation.
- Adjacent wildland vegetation often resembles heavy fuels. Vegetation surrounding structures is rarely herbaceous.
- Surrounding terrain is often steep with structures located on steep slopes.
- Structures are often positioned atop slopes.
- Development can be described as rural, with structures located far from existing communities or fire stations.
- Structure age is considered old.

Appendix C of the Centennial Off-Site Ignition Risk Assessment (Appendix J) provides a graphical depiction of historical wildfires caused by structure fires. These occurrences

exemplify many or all of the characteristics identified above. It is important to note that the Project does not share these characteristics and instead features a clustered master plan design with code compliant design features that minimize the potential for onsite structure fires to result in offsite ignitions. The Project's development footprint does not include unmaintained vegetation near structures. Structures would be constructed in accordance with the latest building code requirements for fire safety and each structure would be equipped with automatic interior fire sprinklers. Development edges feature one, continuous interface between development and offsite grassland fuels buffered by annually maintained Fuel Modification Zones. Planned development pads are not located on steep terrain or on ridgelines. Further, the Project would include three onsite fire stations with an optional fourth as determined necessary by LACoFD to ensure rapid response to potential onsite structure fires.

As discussed in further detail above, the off-site Project features, include roadway, aqueduct crossing and water/well infrastructure improvements, and connections and upgrades to existing off-site utility systems, which would also be required to adhere to applicable building standards and fire risk mitigation protocols during construction and operations, Similar to the on-site Project features. The off-site improvements are predominately located in areas with minimal or no vegetation, such as paved roads, gravel shoulders, and previously disturbed ground, meaning there is little to no fuel available to support wildfire ignition or spread. In addition, operation and maintenance of the off-site features would comply with all applicable State and LA County fire safety regulations, including vegetation management and fuel modification requirements, as applicable.

The potential for on-site structure fires to cause off-site ignitions would be less than significant due to compliance with regulatory requirements. Implementation of Mitigation Measures WILD-1, WILD-2, WILD-3, WILD-4, WILD 5, MM 3-7, MM 7-13, MM 11-13, and MM 16-3 would further reduce the risk of on-site structure fires and off-site ignitions.

Potential for Firebrand Production from Structure Fires in Modern Master Planned Communities

It is possible for structure fires to produce firebrands when the structures are assembled with combustible materials (Manzello and Suzuki, 2023). However, firebrand production from structure fires is highly dependent on fire safety features, building construction, and structure fire intensity.

The installation of Interior Automatic Fire Sprinklers is understood as the single most effective tool for extinguishing structure fires in their early stages (NFPA, 2021). Structural fire suppression aims to extinguish fires early or contain the fire to its original point of origin without spreading to additional portions of the structure. In buildings equipped with automatic fire sprinklers, 95% of fires were confined to their room of origin, a 24% increase compared to buildings without automatic fire sprinklers. In addition, structure losses have been reduced by up to 68% when equipped with automatic fire sprinklers (NFPA, 2021). It can be concluded that firebrand production from structure fires is likely to occur when the

structure and its exterior become engulfed in flames. When fires are confined to the interior of the structure, it is not likely that firebrands would escape its interior. Therefore, automatic fire sprinkler systems are an effective way to prevent firebrand production from structure fires.

As with vegetative fuels, characteristics of structure fuels influence ember production, transport, and offsite ignitions. Heydayati et al. (2020) found that a modern wall assembly utilizing fiber cement siding produced 28.6 percent less firebrands under high winds than a wall assembly utilizing cedar siding. Suzuki and Manzello (2016) found that firebrands produced by cedar siding had large projected areas and low mass that caused them to be easily lofted long distances under applied wind as compared to assemblies with only studs and sheathing. Roofing characteristics have been observed to substantially influence firebrand production from structure fires, specifically, avoiding wooden roofing assemblies. Wood-shake roof shingles are notorious for producing large firebrands that can travel extensive distances. The maximum spotting distance recorded from untreated wood shake roofs was 8 miles (Wilson 1962). This figure stemmed from a large-scale conflagration known as the Bel Air Fire that created significant convective air currents capable of lofting firebrands far in advance of the flaming front. It can be concluded that constructing buildings with fire-resistant building materials reduces the potential for ember production from structure fires.

As described above, the potential for firebrand production from structure fires is influenced by fire safety building design features, building construction, and structure fire intensity. Modern master planned communities like the Project do not include design features that are likely to contribute to high intensity structure fires that may ignite offsite wildfires.

All Project structures would be equipped with interior automatic fire sprinklers which have proven to effectively keep fires from spreading beyond their point of origin (NFPA 2021). Therefore, if they do occur, structure fires are unlikely to reach high intensities that may result in active combustion of the entire structure and related firebrand production. In addition to interior fire sprinklers, fire response time plays a large role in preventing extreme losses during structure fires. Buffington and Ezekoye (2019) found that fire response times were strongly correlated with extreme damage to at least one story of a structure. The Project's planned onsite fire stations are designed to ensure quick fire response in the event of a structure fire occurring onsite. Quick fire fighter response at the Project is likely to reduce the severity of structure fires leading to a decrease in firebrand production.

As discussed in further detail above, the off-site Project features, include roadway, aqueduct crossing and water/well infrastructure improvements, and connections and upgrades to existing off-site utility systems, which would also be required to adhere to applicable building standards and fire risk mitigation protocols during construction and operations, Similar to the on-site Project features, the off-site improvements would be required to comply with all applicable State and LA County fire safety regulations. As these off-site improvements are related to utilities and infrastructure, no residential structures are proposed. The off-site improvements are predominately located in areas with minimal or no

vegetation, such as paved roads, gravel shoulders, and previously disturbed ground, meaning there is little to no fuel available to support wildfire ignition or spread.

As described, greater fire intensity is found to increase firebrand production. In an urban environment, fire intensity and fire suppression difficulty increase dramatically when multiple structures are burning simultaneously. This phenomenon is referred to as an urban conflagration when offsite wildfires encroach upon communities and destroy multiple structures in one event. Code compliant master planned communities such as the Project are designed to prevent the occurrence of urban conflagration as proven in multiple studies (FEMA, 2023). Code compliancy across structures, fire department access, and community design create a layered approach towards reducing the potential for conflagrations. Preventing conflagrations, started by either offsite or onsite fires, and confining structure fires to their structure of origin is influential towards decreasing the amount of firebrands produced from structure fires.

While design features of modern master planned communities are largely designed to prevent losses to structures from wildfires originating offsite, the same features can be concluded to prevent losses to offsite resources caused by structure fires originating onsite. In the scenario of a structure fire, ignitions to neighboring structures are effectively mitigated through code-compliant ignition-resistant building construction which significantly reduces structural ignition through features such as dual pane windows, non-combustible siding, and Class A non-combustible roofing, among others. In addition, ignition resistant landscaping achieved through maintained Fuel Modification Zones including the implementation of Zone 0 Ember Resistant Zone within the first 5 feet of structures further reduces the potential for spot fires caused by structure fires to ignite adjacent structures and vegetation.

Conclusion

As discussed above, the Project would be located in or near state responsibility areas or land classified as very high fire hazard severity, and it would introduce approximately 57,150 residents into these areas, which could exacerbate the risk of wildfire. Without mitigation, the Project could constitute a dangerous fire hazard or otherwise expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires, which would be a significant impact.

However, the Project's proposed development, including off-site Project features, would not be placed in an area characterized by high-risk topography and vegetation. The Project would be developed as fire hardened, modern master planned community with a clustered, interface design and would comply with current state-of-the-art, ignition-resistant construction standards for all new residential, non-residential, and public facility buildings meeting Chapter 7A of the California Building Code, Title 26 of the County of Los Angeles Building Code, and LA County Fire requirements. These mandated standards require, among many other measures, fire-resistant roofing to resist ignition from embers or building-to-building fires, vent covering and opening limitations to avoid ember intrusion, noncombustible or ignition-resistant exterior walls, ignition-resistant eaves, and porch

ceilings, insulated windows and exterior doors, fire-resistant exterior decks and walkways, and ignition-resistant under-flooring and appendages. Project buildings would be constructed of fire-retardant materials and indoor fire sprinkler systems thus reducing ember generation in the event of a structure fire that could threaten on-site and off-site resources. These standards have proven to substantially reduce the risk of buildings catching fire or spreading fires during a wildfire event.

In addition, the Project would incorporate FMZs ranging 100-200 feet, which modeling demonstrates would protect the Project site from off-site wildfires, limit the spread of on-site fires to off-site locations, and provide access to firefighters and fire-fighting equipment to suppress both on-site and off-site fires (MM WILD-2). The Project would provide three, and up to four, fully equipped fire stations to ensure adequate fire service response times (MM 16-3). The Project would have a sufficient water supply to serve fire suppression needs and would be constructed with code compliant fire hydrant systems with adequate water flows to fight fire. The Project's code compliant internal circulation system and parking restrictions would ensure that firefighting apparatus would have appropriate access to, in, and around the Project site as necessary to provide fire suppression services, and the Project would provide sufficient access points to ensure safe and timely ingress and egress to and from the Project site to serve the needs of both first responders and potential evacuees.

With respect to SCE construction of upgrades to its system to serve the Project, SCE would comply with its best management practices and all regulatory requirements related to vegetation clearance and fire prevention measures associated with its equipment, as detailed in Section 2.3.3, Regulatory Setting. With respect to highway improvements to service the Project, Caltrans would comply with its best management practices and all regulatory requirements related to vegetation clearance and fire prevention measures associated with its facilities, as detailed in Section 2.3.3, Regulatory Setting. Additionally, off-site improvements would be located in areas with minimal or no vegetation, such as paved roads, gravel shoulders, and previously disturbed ground, meaning there is little to no fuel available to support wildfire ignition or spread, and would be required to adhere to applicable building standards and fire risk mitigation protocols during construction and operations.

Implementation of MM WILD-2, which includes Project CC&Rs and HOA enforcement authority, combined with regulatory oversight, would ensure that Project FMZs and fire-safe landscaping are properly and timely maintained over the life of the Project and would ensure the implementation of a communitywide fire-safe education program to ensure that Project occupants are fully informed of their fire-related maintenance obligations and how to respond to a fire emergency, should one occur, thus ensuring impacts would be less than significant. To further ensure ongoing maintenance of Project FMZs, adequate access to the site, and timely emergency response, the Project would implement mitigation measures MM 3-7, MM 3-8, MM 16-2, MM 16-3, MM 16-4, and MM WILD-2. (See Section 2.3.10, below for complete text of mitigation measures.) ***With implementation of these mitigation measures and compliance with regulatory standards, the Project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires, and impacts would be less than significant.***

Threshold 2.3-2

Would the Project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

Portions of the Project site are subject to landslides, flooding, and mudflows. As described in Section 5.1 of the Centennial EIR, Geotechnical, the Proposed Project would completely avoid areas identified as having high potential for landslide in proximity to Oso Canyon and would designate these areas as open space. Off-site improvements would also not occur in these areas and would be developed to have minimal, if any, impacts to overall drainage flow. As further described in Section 5.2 of the Centennial EIR, Hydrology and Flood, portions of the Project site are located within a 100-year flood zone, however, as required by MM 2-3, habitable structures would not be located within 100-year floodplain areas on site. Additionally, the Project would include on-site basins near slopes in excess of 25% to capture mudflows that may result on site. ***Therefore, hazards associated with downslope flooding or landslides as a result of post-fire slope instability are less than significant without mitigation.***

Slope failures, mudflows, and landslides are common in areas where steep hillsides and embankments are present, and such conditions would be exacerbated in a post-fire environment where the vegetative cover has been removed. Vegetation plays a vital role in maintaining existing drainage patterns and the stability of soils. Plant roots stabilize the soil, and leaves, stems, and branches intercept and slow water, allowing it to percolate into the soil more effectively. Removal of surface vegetation reduces the ability of the soil surface to absorb rainwater and can allow for increased runoff that may include large amounts of debris and mudflows. If hydrophobic conditions exist post-fire, the rate of surface water runoff is increased since water percolation into the soil is reduced (Moench and Fusaro 2012). The potential for surface runoff and debris flows, therefore, increases significantly for areas recently burned by large wildfires (Moench and Fusaro 2012). The most recent fire burning in the vicinity of the Project site (within 1 mile) occurred in May of 2007 (Gorman Fire), which burned west of the property and west of I-5. Since the occurrence of those fires, vegetation has rebounded and slopes have been restabilized.

While vegetation management activities associated with the Project, including off-site Project features, would reduce fire risk at the site, vegetation removal because of vegetation management could result in changes to drainage patterns and slope stabilization. Caution must be used to avoid causing erosion, ground (including slope) instability, or water runoff due to vegetation removal, vegetation management, maintenance, landscaping, or irrigation. This would be accomplished through HOA landscape plan reviews (See Appendix F, Measure 13); landscape contractor monitoring of irrigation components (See Appendix F, Measure 6); adherence to the fuel modification plan (MM WILD-2); SCE plans and best management practices as discussed in Section 2.3.3, Regulatory Setting; Caltrans regulations as discussed in Section 2.3.3, Regulatory Setting; regular landscape and fuel modification zone inspection by the LA County Fire Department (See Appendix F, Measure 6), and maintenance conducted

by the Project HOA as required by the LA County Fire Department (See Appendix F, Measures 4 & 6).

With respect to SCE construction of upgrades to its system to serve the Project, SCE would comply with all regulatory requirements related to vegetation clearance and fire prevention measures associated with its equipment. With respect to highway improvements to service the Project, Caltrans would comply with its best management practices (Integrated Vegetation Management system (IVM) and all regulatory requirements related to vegetation clearance and fire prevention measures associated with its facilities. The FMZs would also function to reduce fire behavior and intensity as determined by the fire behavior modeling detailed in the Wildfire Safety Plan (see Appendix G). As described above, the Project would include several features and implement several fire hardening measures that would reduce fire risk at the site. ***As a result, if fire were to occur, it is unlikely it would result in extreme fire severity and post-fire slope instability due to the lack of available fuels and fire protection measures; therefore, impacts would be less than significant and no mitigation is required.***

While the following mitigation measures are not specifically designed to address hazards associated with post-fire flooding, landslides, or slope instability, the Project would implement mitigation measures MM 3-7, MM 3-8, , MM 16-2, MM 16-3, MM 16-4 and MM WILD-2 (see complete text in Section 2.3.10), which are intended to reduce wildfire ignition potential and limit fire spread within and surrounding the Project site. By reducing the likelihood and severity of wildfire, these measures would also provide ancillary benefits by lowering the potential for post-fire conditions that can contribute to increased erosion, slope instability, flooding, and downslope or downstream debris movement. The Project would not constitute a dangerous fire hazard or otherwise expose people or structures, either directly or indirectly, to a significant risk of loss associated with downslope or downstream flooding, landslides, runoff, post-fire slope instability, or drainage changes. While project mitigation measures will further reduce impacts, this impact is less than significant and no mitigation measures are required.

Threshold 2.3-3

Due to slope, prevailing winds, and other factors, would the Project exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or uncontrolled spread of a wildfire?

The eastern portion of the Project site is mapped in a moderate and high FHSZ in an SRA and the western portion of the site is mapped as a VHFHSZ in an SRA. The Project would include the development of a large-scale community which would include residential units, commercial uses, institutional/Civic uses, schools, commercial recreation, parks, open space, streets, and utilities, including off-site Project features such as utility upgrades and road improvements. As described in Section 5.9 of the Centennial EIR, Population and Housing, the Project is anticipated to introduce approximately 57,150 people to the Project site. The Project would introduce this new population in an area that has been historically subject to wildfire. The increased number of people residing at the Project site and increased human

activity on the Project site and surrounding area could increase the potential for accidental ignitions or exacerbate wildfire risks. Project construction activities associated with the Project would introduce potential ignition sources related to construction activities, construction equipment, and construction-related vehicle use. During operation, the Project would introduce new fuel sources to the Project site through the construction of new structures and associated landscaping. Additionally, the Project would introduce a new population to the Project site and homes in the WUI. As described further under Threshold 2.3-1, research has suggested that growth of the wildland-urban interface has resulted in more wildland fire ignitions (Radeloff et al. 2018). The introduction of people to an area that is subject to wildfire could result in a potentially significant impact related to exacerbating wildfire risk, and thereby exposing people to pollutant concentrations from wildfire or the uncontrolled spread of a wildfire. However, determining the direct correlation between ignition risk and the increasing population in the WUI is challenging. For instance, there is no standardized approach to predict how many new ignitions might occur by adding approximately 57,150 people to the WUI, given the dynamic nature of wildfire risks and ignition factors. However, as evident from many studies, wildfire risk to structures and the potential for human-caused ignitions are not consistent across all forms of WUI development.

For example, both wildfire risk and ignition risk have been found to be higher where homes are located near or intermingle with vegetation prone to wildfire, such as in the Wildland-Urban Interface (WUI) (Radeloff et al., 2018; Theobald et al., 2007; Stewart et al., 2007; Sirca et al., 2007). Research indicates that "[t]he WUI, where housing density is low to intermediate, is a significant factor in most ignition maps," supporting the conclusion that rural or large-parcel housing carries a higher ignition risk compared to master-planned communities with more urbanized landscapes (Syphard and Keeley, 2015). As development expands closer to wildfire-prone vegetation, the potential for both vegetative ignition and wildfire increases. This relationship holds true not only for wildfire risks to structures but also for the likelihood of ignitions spreading offsite. In contrast, the potential for human-caused ignitions in higher-density developments with clear boundaries between urban and wildland areas (the WUI) is inherently lower, as these areas typically feature minimal or no wildfire-prone vegetation between structures and roadways. Therefore, relying solely on the number of new residents in the WUI to assess increased wildfire ignition risk overlooks critical factors, including WUI form (Intermix vs. Interface), defensible space, Fuel Modification Zone requirements (such as roadside fuel reduction), emergency response capabilities, homeowner education, HOA enforcement of wildfire safety measures, adjacent wildland vegetation conditions, undergrounding of power lines, and other wildfire mitigation strategies. Factors that can exacerbate fire risk and impact level of exposure include topography, climate, vegetation, ignition potential, location of a site within the landscape, proximity to firefighting services, and fire risk reduction measures. These factors are described in the following sections.

Topography

As discussed under Threshold 2.3-1, proposed development areas, including off-site Project features, are primarily located on flat to gentle rolling slopes, with roughly 80% percent of development occurring on slopes less than 15%. From a regional perspective, the Project site is located in the western extent of the Antelope Valley. This region exhibits much flatter terrain compared to the Tehachapi and San Gabriel ranges to the north and south, respectively. Further, the Project's proposed development areas are not located near topographic features such as substantial ridgelines or narrow canyons that may exacerbate fire severity. The Project would result in grading within the developed portions of the site, further reducing the sloped areas on the Project site proposed for development and fire risks associated with sloped topography.

Climate

As discussed under Threshold 2.3-1 the region is influenced by both the arid continental climate to the east and the moister Mediterranean climate to the west; therefore, the region is described as having a hot-to-cold and semi-arid-to-sub-humid climate. The region is subject to Santa Ana winds, that occur near the end of fire season during late summer and early fall. The Project Site and nearby areas are occasionally subject to strong Santa Ana wind events, which are dry, warm winds that flow from the higher desert elevations in the east through the mountain passes and canyons which increase in velocity as they converge through the canyons. Wildfire risk increases during Santa Ana wind events.

Vegetation

As discussed under Threshold 2.3-1 vegetation on the Project site primarily consists of grassland (76% of vegetative cover), mixed oak woodland (12% of vegetative cover) as well as scrub vegetation types (8% of vegetative cover). While this fuel type can burn intensely under strong, dry wind patterns, it does not produce the high fire intensity and fast-spreading wildland fires found within chaparral fuel types, which cover less than 1% of the site. The remaining cover on site (less than 4%) consists of disturbed or un-vegetated areas (roads, aqueduct, etc.), riparian scrub, and riparian woodland habitats. Grassland fuel types spread fire more rapidly compared to other fuels on site. However, due to the grazing program described above, these grassland fuel loads have been reduced.

Vegetation conditions in areas where off-site improvements are proposed are generally similar to those across the broader Project site and are primarily characterized by low fuel–load grassland vegetation. In many locations, these areas are already disturbed and include existing paved surfaces or expanses of bare soil, which substantially limit the presence of continuous or receptive fuels. As a result, fuel availability is reduced compared to undisturbed areas. Given these conditions, vegetation associated with off-site infrastructure improvements is not expected to exacerbate the likelihood of ignitions resulting from off-site construction or operational activities of off-site infrastructure.

Upon Project implementation, the Project would convert readily ignitable fuels to buildings and maintained landscaped areas. The proposed structures as part of the Project would be built in accordance with the most state-of-the-art, ignition-resistant construction standards and building codes required by the County and the State, including Chapter 7A of the Los Angeles County Building Code (Title 26, Chapter 7A), which requires that the buildings are resistant to ignitions from direct flames, heat, and embers. The Project would maintain open space uses throughout the Project site, with large open space areas within the western and southern portions of the Project site. While large open space would be in proximity to developed areas on the Project site, the Project would incorporate a 100-foot-to-200-foot fuel modification zones (FMZs) around the entire Project perimeter, which would provide defensible space and reduce fire intensity if ignition were to occur. Landscaping within the FMZs or Project landscaping throughout the site would include drought-tolerant, fire resistive trees, shrubs, and groundcovers. The planting list and spacing would be reviewed and approved by LACoFD, included on submitted landscape plans. The plantings would be consistent with LACoFD's Fuel Modification Plant Selection Guidelines (LACoFD 2021) Additionally, the Project would also include additional other fuel modification and landscaping requirements such as roadway fuel modification zones, stormwater basin vegetation management, and the prohibition of certain highly flammable plants which would further reduce the risk of fire ignition and spread. With respect to SCE construction of upgrades to its system to serve the Project, SCE would comply with its best management practices and all regulatory requirements related to vegetation clearance and fire prevention measures associated with its equipment. With respect to highway improvements to service the Project, Caltrans would comply with its best management practices and all regulatory requirements related to vegetation clearance and fire prevention measures associated with its facilities.

Project Siting

Planning and siting of a development project within the landscape can impact fire risk. As discussed under Threshold 2.3-1, the Project site and the surrounding vicinity have been subject to wildfires, most of which have been within the direct vicinity of the Project site, and some fires have occurred within the Project boundaries. Factors that contribute to the limited wildfire history at the Project site is believed to be largely due to the site's terrain, managed fuels, barriers to wildland fire spread, quick wildfire detection and response, the removal of fine fuels by cattle grazing and a lower risk for human-caused ignitions than for more urbanized areas off-site. Further, due to the position of SR-138 and its use as a fire break, wildfires encroaching onto the Project site from the south are unlikely to enter the interior of the site.

Proximity to Fire Stations and Fire Fighting Access

The County's General Plan includes a response time goal consistent with National Fire Protection Association (NFPA) standards (NFPA Standard 1720, 2020 edition). It should be noted that there are no national standards for response times to vegetation fires, but a 5-minute response and a 1.5-mile service radius is used in the County for typical urban response. Common measures for projected slower emergency response for residential

structural fires includes the inclusion of additional firefighting resources closer to the assets and/or the use of interior fire sprinklers. Fire Stations in close proximity to assets, including the Project's off-site improvements, result in reduced travel distance and correspondingly reduced response time. Conversely, interior sprinklers minimize the need for additional Fire Stations by extinguishing interior fire or extending the time for "flashover" of structure fires. This corresponds directly to enabling more time for firefighting resources to arrive on site and begin attack.

According to these response standards, the current Fire Station distribution does not include a station that could respond according to the minimal proposed standards, which would represent a significant impact. Implementation of **MM 16-3** requires the Project Applicant/Developer to provide land, convey title, and to construct and equip, to the specifications and requirements of the Los Angeles County Fire Department, up to four new Fire Stations to be provided to the Los Angeles County Fire Department. The approved final plans and specifications for the Project shall identify locations of the fire stations. The Los Angeles County Fire Department shall have final approval over the fire station site locations. The timing for the construction of the on-site fire stations shall be established by the Los Angeles County Fire Department dependent upon the phasing of development, with the first on-site fire station operational no later than the time the 1,000th dwelling unit is built on site (Mitigation Measure MM 16-3). Additionally, **MM 16-1** requires, at buildout, the Los Angeles County Fire Department fire stations shall be located such that response times to the Project site shall be 5 minutes or less for fire service responses and 8 minutes or less for the advanced life support (paramedic) unit responses within the Project site. Appendix J of the Centennial EIR provides approximate locations of existing and proposed fire stations. Further, implementation of **MM 16-2** requires the Developer to pay developer fees in accordance with the County Developer Fee Program until such time as the Developer has conveyed an approved, operational fire station to Los Angeles County Fire Department, unless otherwise agreed to by the Developer and Los Angeles County Fire Department in accordance with the County Developer Fee Program's land-in-lieu of fees provisions.

As described above, the Project is located adjacent to regional transportation networks (ex. Interstate-5 and SR-138) and would provide five points of access to SR-138. ***With implementation of MM-16-2 (County Developer Fee Program), MM-16-3 (new fire stations), MM-16-4 (Law Enforcement Facilities Mitigation Fee), the Project would have adequate emergency services to serve the site, including off-site Project features and this impact would be reduced to less than significant.*** These fire stations would be located throughout the Project site with fast response to all planned structures in the case that an ignition occurs onsite.

Pollutants

Pollutant concentrations or exposure from a wildfire event near the Project site could occur if a wildfire is not suppressed soon after it starts. Smoke released during a wildfire event can have a detrimental effect on air quality and lead to health risks from smoke inhalation. Risks associated with pollutants at the Project site would be similar to or less than that experienced across southern California. As described above, the Project would include

several features to reduce overall fire risk in the area and would not exacerbate wildfire risks and exposure to smoke inhalation. Accordingly, the Project would not worsen the detrimental effect on air quality and health risks from smoke inhalation to users of the site or within the surrounding community.

As described above, the Project would result in a population increase at the Project site that have the potential to be exposed to pollutant concentrations from a wildfire event. In areas where the public might be experiencing wildfire smoke, the U.S. Environmental Protection Agency recommends that public health and air quality agencies provide advice on strategies to limit exposure, which include staying indoors, limiting physical activity, reducing indoor air pollution sources, effectively using air conditioners and air filters or cleaners, creating cleaner air shelters, and using respiratory protection appropriately. The most common advisory during a smoke episode is to stay indoors, where people can better control their environment. Whether at home or in a public space, indoor environments that have filtered air and climate control can provide relief from smoke and heat (EPA 2019).

Conclusion

The Project, including off-site Project features, would be located in or near state responsibility areas or land classified as very high fire hazard severity. The Project would introduce a new population and activities to a VHFHSZ and high FHSZ, and an area that is susceptible to wildfire, which could result in potentially significant impacts related to exacerbating wildfire risk and exposing Project occupants to wildfire or wildfire pollutants. However, as discussed under Impact Threshold 2.3-1 the Project would include several fire hardening design features and would implement mitigation measures to reduce fire risk at the site. The Project would reduce fire risks during construction through the implementation of a project-specific Construction Fire Prevention Plan (MMs 3-8 and 10-5), Fuel Modification Plan and annual fuel modification maintenance and inspection (MM WILD-2).

As discussed under Threshold 2.3-1, master-planned communities built to modern ignition resistant standards provide passive fire protection that is highly successful at minimizing damage and loss of structures. The State Fire Marshal's statistics demonstrate that homes built to California Building Code standards adopted in Chapter 7A effectively reduce fire risks to homes built in the WUI and fire hazard severity zones. When those homes are built as part of a properly planned and mitigated master-planned community, like the Project, the risk of significant structural loss is extremely low. No master-planned community built after the adoption of California Building Code Chapter 7A has suffered extensive structural losses as evidenced in the Office of the State Fire Marshall (OSFM) Property Loss Data.

The Project would incorporate FMZs ranging 100-200 feet that modeling demonstrates would protect the Project site from off-site wildfires, limit the spread of on-site fires to off-site locations, and provide access to firefighters and fire-fighting equipment to suppress both onsite and offsite fires. With respect to SCE construction of upgrades to its system to serve the Project, SCE would comply with its best management practices and all regulatory requirements, as detailed in Section 2.3.3, Regulatory Setting, related to vegetation clearance and fire prevention measures associated with its equipment. With respect to highway

improvements to service the Project, Caltrans would comply with its best management practices and all regulatory requirements, as detailed in Section 2.3.3, Regulatory Setting, related to vegetation clearance and fire prevention measures associated with its facilities.

Project buildings would be constructed of fire-retardant materials and would include indoor fire sprinkler systems thus reducing ember generation in the event of a structure fire that could threaten onsite and offsite resources. The Project would provide three, and up to four, fully equipped fire stations to ensure adequate fire service response times (MM 16-3). The Project would have a sufficient water supply to serve fire suppression needs within the Project site and at off-site Project features and would be constructed with code compliant fire hydrant systems with adequate water flows to fight fire. The Project's code-compliant internal circulation system and parking restrictions would ensure that firefighting apparatus would have appropriate access to, in, and around the Project site as necessary to provide fire suppression services, and the Project would provide sufficient access points to ensure safe and timely ingress and egress to and from the Project site to serve the needs of both first responders and potential evacuees. Project CC&Rs and HOA enforcement authority, combined with regulatory oversight, would ensure that Project FMZs and fire-safe landscaping are properly and timely maintained over the life of the Project and would ensure the implementation of a communitywide fire-safe education program to ensure that Project occupants are fully informed of their fire-related maintenance obligations and how to respond to a fire emergency, should one occur..

Implementation of a project-specific Construction Fire Prevention Plan (MMs 3-8 and 10-5) and Fuel Modification Plan (MM WILD-2), compliance with annual fuel modification maintenance and inspection code requirements, compliance with Chapter 12 of the California Fire Code for BESS, compliance with SCE plans and standards for off-site upgrades to utility facilities, compliance with Caltrans regulations for off-site highway improvements, and compliance with regulatory restrictions limiting development in floodplains and steep terrain and ridgelines would further ensure that Project would not cause significant fire risks related to downslope or downstream flood or landslides. To ensure ongoing maintenance of Project FMZs, adequate access to the site, and timely emergency response necessary to reduce this impact to less than significant level, the Project would implement mitigation measures **MM 3-7, MM 3-8, MM 16-2, MM 16-3, MM 16-4, and MM WILD-2**. Additionally, in the case of a wildfire, Project occupants would be advised on strategies to limit exposure by their local health and air quality officials to reduce exposure to pollutants. ***Impacts related to exacerbating wildfire risk and exposure of Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire would be less than significant with mitigation incorporated.***

Threshold 2.3-4

Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

Evacuation Modeling Methodology, Assumptions, and Scenarios

An evacuation model analysis was performed by Chen Ryan Associates (CRA) and Dudek for the Project to determine how long it would take for occupants of the Project and the surrounding communities to evacuate to nearby urban areas and/or freeways in case of a fire emergency. This analysis was performed in accordance with the requirements of the EOP for the calculation of evacuation times. The following provides a summary of the methodology, assumptions and scenarios considered in the evacuation time analysis presented herein.

Current evacuation practice typically targets the scope of the evacuation only to the area in immediate danger and placing a larger area on standby for evacuation. This practice allows for better evacuation operations, reduces gridlock, and reserves sufficient travel way for emergency vehicles. The Project evacuation model utilizes a worst- case simultaneous evacuation of all existing uses/occupants within the modeled area. However, the likelihood of each of these populations being evacuated at the same time is low. In an actual evacuation scenario, the IC would prioritize evacuation of land uses located closest to the area with immediate risk, depending on the location of the fire, which may result in reduced evacuation timeframes compared to this modeling. Phased Evacuation, by targeting the area in immediate danger allows for better evacuation operations, reduces gridlock, and reserves sufficient travel way for emergency vehicles. Under this approach, first responders or law enforcement personnel will direct traffic at all major intersections during the evacuation process.

A total of fifteen evacuation scenarios were analyzed, which are shown in Table 2.3-20 below and graphically represented in Figures 1-15 of Attachment C in Appendix H.

TABLE 2.3-20
STUDY SCENARIOS AND EVACUATING VEHICLES CALCULATION

Scenario	Phases	Build Land Use	Fire Approach Direction	Evacuation Direction/Routes	Area Under Evacuation	Evacuating Vehicles
1	Phase 1-2	Village 1 & Village 3	South/ Southeast	75% via SR-138 westbound toward I-5	Village 1	3,783
				25% via internal road toward I-5	Village 3	3,878
				—	Existing	200
2	Phase 1-2	Village 1 & Village 3	North/ Northeast	25% via SR-138 westbound toward I-5	Village 1	3,783
				25% via internal road toward I-5	Village 3	3,878
				25% via internal road toward Lancaster	Existing	200
				25% via SR-138 eastbound toward Lancaster	—	—
3	Phase 1-2	Village 1 & Village 3	West/ Northwest	75% via SR-138 eastbound toward Lancaster	Village 1	3,783
				25% via internal road toward Lancaster	Village 3	3,878
				—	Existing	200
4	Phase 1-4	Village 1, Village 3, Village 7, Business Park West, Institutional & Civic	South/ Southeast	50% via SR-138 westbound toward I-5	50% of Village 7	1,490
				50% via internal roadway toward Village 1	Business Park West	1,875
				—	Institutional & Civic	2,958
5	Phase 1-4	Village 1, Village 3, Village 7, Business Park West, Institutional & Civic	North/ Northeast	25% via SR-138 westbound toward I-5	50% of Village 3	2,085
				50% via internal roadway toward Village 1	Village 7	2,979
				25% via SR-138 eastbound toward Lancaster	Existing	200

TABLE 2.3-20
STUDY SCENARIOS AND EVACUATING VEHICLES CALCULATION

Scenario	Phases	Build Land Use	Fire Approach Direction	Evacuation Direction/Routes	Area Under Evacuation	Evacuating Vehicles
6	Phase 1-4	Village 1, Village 3, Village 7, Business Park West, Institutional & Civic	West/ Northwest	50% via internal roadway toward Village 7 and the Institutional/Civic land use	Village 1	3,783
				50% via SR-138 eastbound toward Lancaster	30% of Village 3	1,251
				—	Business Park West	1,875
				—	Existing	200
7	Phase 1-6	Village 1, Village 3, Village 6, Village 7, Village 9 West, Business Park West, Business Park Central, Institutional & Civic	South/ Southeast	25% via SR-138 westbound toward I-5	50% of Village 7	1,490
				25% via internal roadway toward Village 1	Business Park West	1,875
				25% via internal roadway toward Village 3	Business Park Central	1,250
				25% via internal roadway toward Village 6	Institutional & Civic	2,958
8	Phase 1-6	Village 1, Village 3, Village 6, Village 7, Village 9 West, Business Park West, Business Park Central, Institutional & Civic	North/ Northeast	25% via SR-138 westbound toward I-5	Village 6	3,488
				50% via internal roadway toward Village 1 and Village 3	Village 7	2,979
				25% via SR-138 eastbound toward Lancaster	—	—
9	Phase 1-6	Village 1, Village 3, Village 6, Village 7, Village 9 West, Business Park West, Business Park Central, Institutional & Civic	West/ Northwest	50% via internal roadway toward Village 7 and the Institutional & Civic	Village 1	3,783
				50% via SR-138 eastbound toward Lancaster	Village 9 West	2,218
				—	Existing	200

TABLE 2.3-20
STUDY SCENARIOS AND EVACUATING VEHICLES CALCULATION

Scenario	Phases	Build Land Use	Fire Approach Direction	Evacuation Direction/Routes	Area Under Evacuation	Evacuating Vehicles
10	Phase 1-8	Village 1, 3, 7 E & West, Village 9 West, Village 6, Village 9 East, Village 8 West, Village 2, Village 4 South	South/ Southeast	25% via SR-138 westbound toward I-5	50% of Village 7	1,490
				25% via internal roadway toward Village 1	Business Park West	1,875
				25% via internal roadway toward Village 3	Business Park Central	1,250
				25% via internal roadway toward Village 6	Business Park East	1,186
				—	30% of the Institutional & Civic	887
11	Phase 1-8	Village 1, Village 2, Village 3, Village 6, Village 7, Village 9, Village 8 West, Village 4 South, Business Park West, Business Park Central, Business Park East, Institutional & Civic	North/ Northeast	25% via internal roadway toward Village 1	30% of Village 2	738
				25% via internal roadway toward Village 3	Village 4 South	2,269
				25% via internal roadway toward Village 7	50% of Village 6	1,744
				25% via internal roadway toward Institutional & Civic	Village 8 West	1,922
				—	30% of Village 9	979

TABLE 2.3-20
STUDY SCENARIOS AND EVACUATING VEHICLES CALCULATION

Scenario	Phases	Build Land Use	Fire Approach Direction	Evacuation Direction/Routes	Area Under Evacuation	Evacuating Vehicles
12	Phase 1-8	Village 1, Village 2, Village 3, Village 6, Village 7, Village 9, Village 8 West, Village 4 South, Business Park West, Business Park Central, Business Park East, Institutional & Civic	West/ Northwest	25% via internal roadway toward Village 3	30% of Village 1	1,135
				25% via internal roadway toward Village 7	30% of Village 2	738
				25% via internal roadway toward Business Park	Village 4 South	2,269
				25% via internal roadway toward Institutional & Civic	Village 9	3,264
13	Phase 1-10	Buildout	South/ Southeast	25% via SR-138 westbound toward I-5	Business Park West	1,875
				25% via internal roadway toward Village 1	Business Park Central	1,250
				25% via internal roadway toward Village 3	Business Park East	1,186
				25% via internal roadway toward Village 6/Village 5	30% of the Institutional & Civic	887
				—	50% of Village 7	1,490
				—	Village 8 East	3,678

TABLE 2.3-20
STUDY SCENARIOS AND EVACUATING VEHICLES CALCULATION

Scenario	Phases	Build Land Use	Fire Approach Direction	Evacuation Direction/Routes	Area Under Evacuation	Evacuating Vehicles
14	Phase 1-10	Buildout	North/ Northeast	25% via internal roadway toward Village 1/ Village 2	30% of Village 4	1,284
				25% via internal roadway toward Village 3	Village 5	10,333
				25% via internal roadway toward Village 7/Institutional & Civic	30% of Village 6	1,046
				25% via SR-138 Westbound toward Business Park	Village 8 West	1,922
				—	Village 8 East	3,678
15	Phase 1-10	Buildout	West/ Northwest	25% via internal roadway toward Village 3	30% of Village 2	738
				25% via internal roadway toward Village 7	50% of Village 4	2,140
				25% via internal roadway toward Business Park	50% of Village 5	5,167
				25% via internal roadway toward Institutional & Civic	Village 9	3,264

Source: Dudek, 2025.

Evacuation Time

Fire evacuation orders, like most evacuation events, can be issued any time, day or night, depending on a wildfire's location and movement, making it unpredictable when an evacuation order might occur. Considering that the Project is a Specific Plan, a conservative analysis assumes the evacuation order would be issued during a weekend noontime period when residents are home and commercial centers are operational. It is assumed that schools are not in session, and that supporting land uses such as parks and recreation areas are primarily utilized by the Project's residents, therefore not generating additional vehicles. These assumptions provided for an extremely conservative analysis but, in a real evacuation, it is unlikely that all land uses would be at full capacity. These conservative assumptions are, however, consistent with best practices to understand expected worst-case evacuation scenario timelines.

Primary Evacuation Routes and Capacity

It is assumed that traffic evacuating from both the Project and nearby communities/land uses would use the closest available evacuation routes for leaving the area. Evacuation routes were selected based upon review of the Project site, available evacuation routes, and the quickest way to leave the at-risk areas. The number of evacuation roadways accessible to each village depends on the development phase of the specific plan. Attachment C outlines the evacuation roadways by development phases, while Attachment C of Appendix H displays available backbone roadways (note that internal roadway locations are not known at the time of this analysis but will provide numerous connections to the modeled backbone roads).

No contraflow lanes[9] were assumed, and access for first responders and law enforcement would be via inbound roadways. Two-way travel was assumed, with evacuating vehicles traveling outbound to the designated Safe Zone. It is assumed that first responders, law enforcement or other coordinating agency personnel will direct traffic at identified intersections and on/off ramps during the evacuation process, as detailed in the County of Los Angeles Operational Area Emergency Operation Plan. Should evacuation managers determine whether contraflow is preferred or necessary, evacuation capacity would increase while evacuation times would decrease.

The Centennial Specific Plan Traffic Study conducted by Stantec in May 2017 and the Centennial Specific Plan Supplemental Traffic Study, both collectively referred to as 2017 Traffic Studies, assumed that the Project would improve SR-138 to a four-lane expressway from I-5 to 240th Street West and to a limited access conventional four-lane highway from

[9] Contraflow or lane reversal involves directing traffic to use lanes coming from the source of a hazard to move people away from the hazard. Such a strategy can be used to eliminate bottlenecks in communities with road geometries that prevent efficient evacuations or to facilitate traffic flow out of a major urban area. Among the considerations in planning emergency contraflow are whether sufficient traffic control officers are available, potential negative impact on responding fire apparatus, access management, merging, exiting, safety concerns, and labor requirements. Contraflow configurations must be carefully planned based on on-site factors and should not be implemented in an ad-hoc fashion. Dudek July 2014. "Wildland Fire Evacuation Procedures Analysis" for City of Santa Barbara, California, page 65.

240th Street West to 190th Street West, with right-of-way reserved for a six-lane expressway between Gorman Post Road and 300th Street West, or comparable improvements consistent with the Northwest 138 Corridor. However, to be conservative, it is assumed that SR-138 would remain as a two-lane highway for all analysis scenarios.

Control of Downstream Intersections

As part of evacuations operations, as demonstrated in Border Fire 32, first responders or law enforcement will direct traffic at all major downstream intersections out of the area during the evacuation process. As possible, intersection traffic may be managed at appropriately equipped signals to assist in the movement of traffic from areas of higher potential exposure to areas of lower exposure.

Wildfire Progression Modeling Scenarios

A total of fifteen evacuation scenarios were analyzed, which are shown in Table 2.3-21 below, were determined through fire progression model results for three fire spread scenarios and varying levels of Project buildout as described in Section 2.3.7 and provided below. Wildfires encroaching the site from the south were not modeled as wind patterns are not conducive to wildfire spread towards the Project site from these directions. While Santa Ana winds do blow from the east, wildfire spread towards the Project from fires burning directly from the east was also not modeled due to substantial agricultural areas and sparse fuel loads present in the Antelope Valley which prevent wildfire ignition and spread (See Fire History Figure 5). In addition, the burn probability modeling results as presented in Figures 14 & 15 suggest a low likelihood of fire occurrence and spread within the region to the east of the Project site.

Scenario 1 – Fire Approaching from the Northwest

During this scenario, wildfire spreads in a southeast/eastern direction after igniting along Interstate-5. Wildfire spread is slow due to lighter wind speeds during these weather conditions. The wildfire is not predicted to reach the Project site within the 8-hour simulation period. While a shelter in place approach at the Project site is likely during this scenario, evacuation via SR-138 east is not likely to be impacted by wildfire and would likely be utilized as the Project evacuation route.

If a fire were to encroach on the Project site from the west or northwest, a phased evacuation approach would likely evacuate the Project's western villages first, followed by interior Villages.

Scenario 2 – Fire Approaching from the Northeast

During this scenario, wildfire spreads in a southwest direction through undeveloped areas to the north of the Project site. The wildfire is driven by strong Santa Ana winds and moves at a rapid rate of spread. Assuming no fire suppression efforts, the wildfire is modeled to reach development areas in the northern extreme of the Project site within 245 minutes

(roughly 4 hours). The fire skirts the northern edge of the Project site and continues to travel southwest.

While the fire is modeled to reach the Project site (assuming no fire suppression efforts), the predicted fire behavior near planned development areas is modeled to be generally of low to moderate intensity. Fireline intensity is lower in these areas to due light fuels and moderate terrain which are not conducive to extreme fire behavior (See Figure 22). Perimeter FMZs bordering development areas would act to further reduce Fireline intensity near development areas.

When considering evacuations during this scenario, SR-138 eastbound and westbound are not expected to be impacted by wildfire. If a fire were to encroach on the Project site from the north or northeast, a phased evacuation approach would likely evacuate the Project's northern villages first, followed by interior villages.

Scenario 3: Fire Approaching from the Southeast

During this scenario, wildfire spreads in a southwest direction through undeveloped areas to the south of the Project site. The wildfire is driven by strong Santa Ana winds and moves at a rapid rate of spread. Assuming no fire suppression efforts, the wildfire is modeled to reach development areas within 295 minutes (roughly 5 hours). The fire skirts the northern edge of the Project site and continues to travel southwest.

Similar to in Scenario 2, fire intensity where the fire is modeled to reach the southern edge of the proposed development areas is considered low. Given the fire's southwest direction of spread, fire behavior along the Project's southern edge would represent a flanking fire. Unlike head fires, which move in the direction of the wind and exhibit greater fire severity, flank fires move parallel to the wind direction and therefore burn at reduced severity. In addition to increased likelihood of successful suppression of a flank fire in the Project's southern edge, potential wildfire impacts in this area would be mitigated by perimeter parking areas, Fuel Modification Zones (FMZs), and fire-hardened commercial buildings.

If a fire were to encroach on the Project site from the west or northwest, a phased evacuation approach would likely evacuate the Project's southern villages first, followed by interior villages.

Study Scenarios

As previously discussed, fire evacuation is not a one size fit all approach, and even though mass evacuation provides a conservative analysis, current evacuation practice indicates that this approach is not desirable due to the potential of creating high level of congestion and prevent those in at risk area from evacuating safety. Thus, the analysis presented in this report follow current fire evacuation approaches, which assume that Incident Command Post (ICP) staff and law enforcement would issue targeted evacuation warnings and orders to areas that are at risk instead of a full evacuation of the specific plan.

As the Project would be constructed over multiple years, the development phases were grouped together to analyze the different potential evacuation scenarios that may occur as the project is developed over time. The phases are grouped together in set of every two phases, resulting in five different land use scenarios.

Based on a review of historical fire conditions and fire modeling, landscapes around the Project site could potentially support wildfire that, in the most likely scenarios, would approach the Project site from the south/southeast, north/northeast, or west/northwest, depending on the fire's point of origination. Therefore, for each land use scenario, an analysis was conducted for each potential direction of fire approach, resulting in 15 different scenarios. These scenarios are summarized in Table 2.3-21 below.

Safe Zone

Based on review of the area's fire history, fires have halted along developed areas adjacent to wildland fuels and have not historically progressed into the more densely urbanized, irrigated, and hardscaped areas. Specifically, none of the historical fires encroached beyond the periphery areas within the wildland urban interface area of the Los Angeles County. Recent fires such as the Max Fire (2024), Post Fire (2024), Jerry Fire (2019), Merwin Fire (2015), and Lago Fire (2011) were all stopped at or prior to reaching the urbanized area or I-5. Thus, it is assumed that during the earlier phases of the specific plan, evacuees are considered "safe" once their vehicles reach an area outside the evacuation order zone. For scenarios 1 through 3, which would occur early in the project's buildout process, evacuees are considered "safe" when their vehicles arrive at either the I-5/SR-138 interchange to the west, or the community of Neenach to the east. In the later scenarios, which would occur later in the project's buildout process, it is assumed that some evacuees will be directed to other villages or developed areas (e.g., Institutional & Civic) within the project site that are not at risk of fire and/or to offsite locations, In such later scenarios, evacuees are considered "safe" once they arrive at the respective receiving villages or at the onsite or offsite evacuation point otherwise indicated in Table 2.3-21.

Evacuating Vehicles

The projected number of vehicles evacuating from or within the study area is based on a combination of various data sources: Parcel Quest's parcel map data for land use, vehicle ownership averages from the US Census Bureau, aerial imagery from Nearmap, and relevant environmental documents. Breakdown of the calculations for evacuating vehicles is as follows:

***Existing Residential*:** This is obtained by multiplying the total number of households (from Parcel Quest parcel map data) with the average vehicle ownership, which stands at 2.07 vehicles per household as per the US Census Bureau.

For this analysis, it is assumed that during the earlier phases of the Project, existing land use to the east of the Project site will evacuate in the same direction as the Project's traffic. Once the Project is developed, the Project site can serve as an evacuation zone for existing land uses that need to evacuate westward toward the Project site. Therefore, the evacuation times

for existing land uses are only included in scenarios where the Project's traffic would potentially share the same evacuation roadway as the existing land uses.

Proposed Project: This is calculated by multiplying the quantities of land use by the following sources:

Residential Land Use: Total number of dwelling units x average vehicle ownership.

Nonresidential Land Uses: Total square footage x parking rate derived from the Institute of Transportation Engineer (ITE) Parking Generation Manual.

Land use quantities were obtained from Stantec and Appendix E of the Centennial Specific Plan Traffic Study (November 2017).

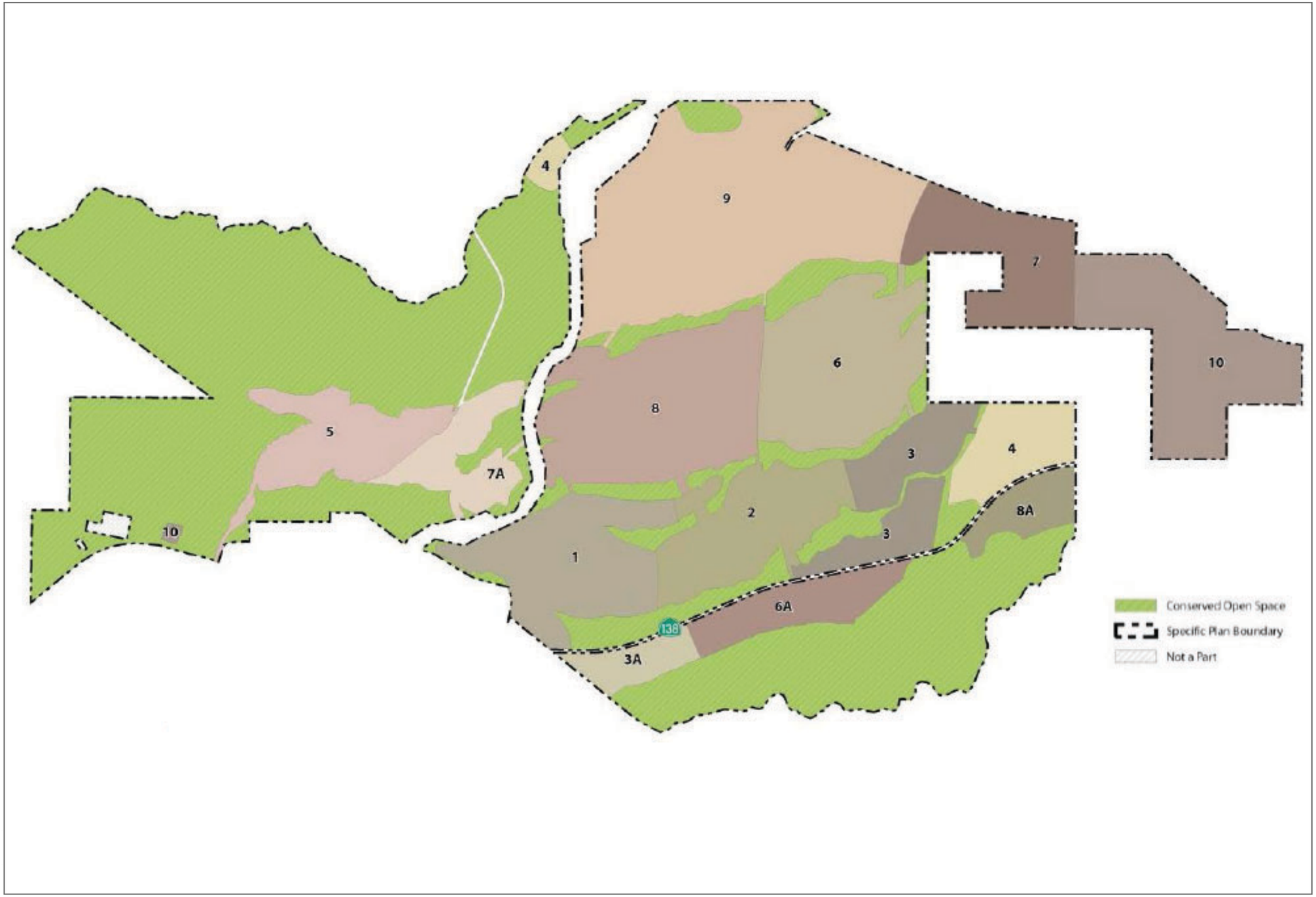
Shadow Evacuees: These are individuals who choose to evacuate out of an abundance of caution, even without an official evacuation order. The "Review of California Wildfire Evacuations from 2017 to 2019" report found that approximately 30% of evacuees fall into this category.

For a reasonable analysis, these scenarios assumed that two percent (2%)[10] of the evacuating vehicles are heavy vehicles (trucks with trailers). Two percent is the nationally acceptable ratio of heavy vehicles to all vehicles.

Average vehicle ownership, residential units, and evacuating vehicles calculations are provided in Evacuation Travel Time Technical Analysis of Appendix H. Table 2 of Appendix C displays the number of vehicles evacuating under each scenario. Figure 25 demonstrates phasing of the Project, and Figure 26 shows the proposed villages.

Under emergency evacuation conditions and consistent with the OEP and practices employed during prior emergency evacuation events in the County, traffic signals would revert to special timing plans and/or traffic personnel will be deployed at key intersections to help regulate traffic flow for primary evacuation approaches.

[10] https://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_599.pdf (p.5).



Source: Dudek 2024

Conceptual Project Phasing Plan

Figure 25

Centennial Recirculated Partial Environmental Impact Report

N
W E
S

Map not to scale

PSOMAS

(03/12/2025 PLO) R:\Projects\CEN\3CEN000307\Graphics\EIR\ex_Project_Phasing.pdf

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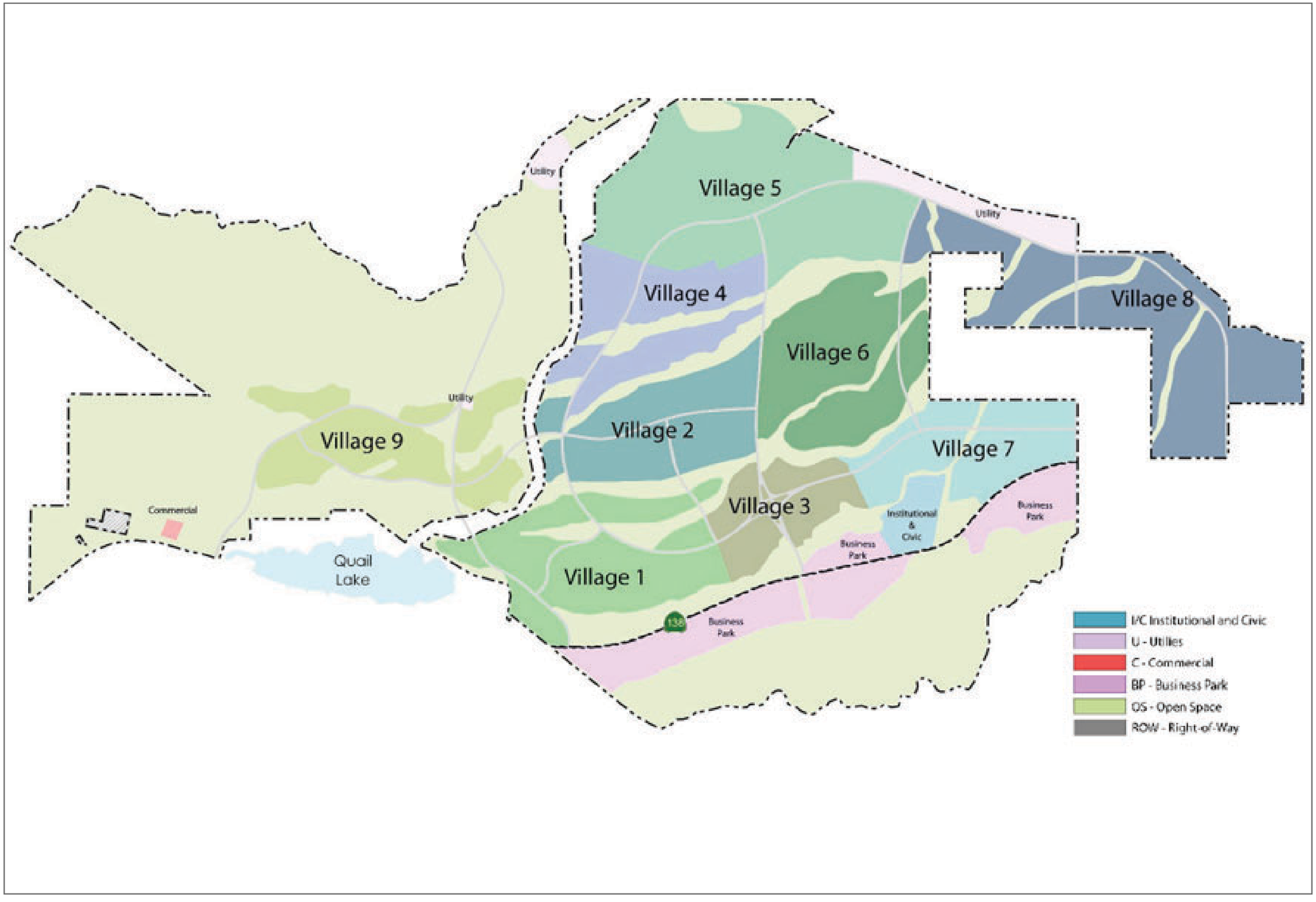

Source: Dudek 2024

Proposed Villages

Figure 26

Centennial Recirculated Partial Environmental Impact Report

N
W E
S

Map not to scale

PSOMAS

(03/12/2025 PLO) R:\Projects\CEN\3CEN000307\Graphics\EIR\ex_Proposed_Villages.pdf

D:\Projects\3CEN\Centennial\Graphics\SEIR\ex_Proposed_Villages.ai

Construction

During construction of the Project, short-term off-site infrastructure improvements (e.g., water, sewer and widening of SR-138) would result in temporary lane closures along the segment of SR-138 approximate to the Project site, which would impact access to I-5. Also, as the Project is a Specific Plan that will be developed in phases over many years, temporary lane closures of internal Project roadways used for evacuation may also occur due to development during each phase of the Project. If an evacuation of the Project site were to occur during the installation of the proposed on- or off-site improvements, use of SR-138 and internal Project roadways could be limited for evacuation of existing and Project populations, resulting in a significant impact.

Implementation of MMs 3-8 and 10-5 would require preparation and implementation of a construction traffic management plan which requires minimization of obstructions in traffic lanes, maintenance of emergency access throughout construction activities through methods such as the use of flag persons to minimize obstructions along SR-138, signage, scheduling of vehicle movements to ensure traffic flow, and limiting schedule of deliveries and truck traffic, among other requirements. During the construction of widening the SR-138, a minimum of 2 lanes would remain open. Temporary detours may be needed at several locations along the corridor where the proposed facility intersects the existing to avoid full closure of the highway. Construction staging would require that one lane of traffic in each direction is open to the public at all times; the anticipated construction staging would allow construction of new lanes adjacent to the existing lanes (either north or south of the existing roadway), allowing traffic to continue to use the existing lanes and then allow traffic to use the new lanes during construction of the remaining lanes over the existing roadway. ***With incorporation of MM 3-8 and MM-10-5, short-term construction-related impacts related to impairment of an emergency response or evacuation plan would be less than significant.***

Operation

Long-term operation of the Project would introduce a permanent residential population to the Project site that could require evacuation in a wildfire emergency. The additional traffic generated by the Project's occupants in an emergency evacuation could contribute to congestion on the existing roadway system, which has the potential to substantially impair an adopted emergency response plans or emergency evacuation plans. The following discussion addresses this potential impact and consists of (1) a description of applicable evacuation plans and routes, (2) a summary of results from detailed evacuation modeling of the Project and nearby areas.

Compliance with Roadway Requirements

As detailed in Section 3.4 of the Centennial Wildfire Safety Plan (see Appendix G), the Project's site access, including road widths and connectivity, would be consistent with the then current County roadway standards (Title 21), LA County Fire Code Section 503, and Public Resources Code Section 4290. To ensure adequate access for emergency responders

and safe evacuation, the Project's cul-de-sacs and fire apparatus turnarounds would meet requirements and Los Angeles County Fire Department cul-de-sac length restrictions (County Code § 21.24.190). In addition, fire apparatus roads would be required to have an unobstructed width of not less than 20 feet, exclusive of shoulders, except for approved security gates in accordance with Section 503.6, and an unobstructed vertical clearance clear to the sky to allow aerial ladder truck operation (LA County Fire Code § 503.2.1). Further, interior circulation streets include all roadways that are considered common or primary roadways for traffic flow through the site and fire department access serving all proposed residential and commercial structures. Any dead-end streets serving new buildings or dwellings that are longer than 150 feet would be required to have approved provisions for fire apparatus turnaround in accordance with LA County Fire Code Section 503.2.5. (See Appendix G, Wildfire Safety Plan, Section 3.4 for a complete description of the Project's roadway requirements.)

Evacuation Plans and Evacuation Routes

Wildland fires are a high-priority hazard in the County (County of Los Angeles 2019a). The Project site is within the service area of the Los Angeles County Fire Department, which would provide emergency operation response to the Project site. More specifically, as discussed in Section 2.3.2, Environmental Setting and detailed further in Appendix H, the Project is subject to the Los Angeles County Operation Area Emergency Response Plan (OA ERP). Currently, the County does not have a Countywide evacuation plan; rather, evacuation procedures are outlined in the OA ERP. The County's Office of Emergency Management is responsible for maintaining the County/Operational Area Emergency Operations Center (EOC) in a state of operational readiness and would coordinate a centralized emergency operation for the OA in the event of an emergency/disaster in the unincorporated County or a multijurisdictional event. The County sheriff serves as the Director of Emergency Operations and would facilitate the EOC's emergency response, including evacuation. The County sheriff would also be responsible for law enforcement response during an emergency event. In an emergency, the EOC gathers, analyzes, and distributes information using the Standardized Emergency Management System (SEMS) to all responding agencies within the OA to support emergency response and coordinate mutual aid and evacuation. Additionally, the EOC provides resources during a disaster, such as public information, evacuation orders/routes, recovery programs, and mitigation to reduce future disasters.

As stated in the Los Angeles County General Plan Safety Element, evacuation routes are determined by emergency responders who decide at the time of the emergency the routes that should be used for evacuation after assessing the conditions and location of the emergency to avoid endangering the lives of others or causing personal injury or death. Evaluating a route for safety and viability is situational, context-specific, and subject to change. Figure 12.9 of the County's Safety Element identifies roads that are public, paved, and through-ways, which may be used for evacuation if they are viable routes during an actual emergency. These evacuation routes are not all inclusive and may not be the most suitable routes since actual emergency events necessitate day-of-event conditions and risks assessments (County of Los Angeles 2025b). In the area of the Project site, SR-138 is designated as a potential evacuation route. If an evacuation warning or order is issued, the

"Alert LA County" mass notification system is designed to notify those who live and work in the County of the necessary information during emergency events via text, call, or email, such as disaster notifications and evacuation orders (County of Los Angeles 2018).

Evacuation routes for the Project would utilize the existing and internal Project roadways, which would connect evacuating vehicles to major transportation corridors, including SR-138 (east–west), I-5 (north–south), and SR-14 (north–south).

As the Project is a Specific Plan that would be developed in multiple phases over multiple years, all of the Project's roadways would be developed to support the Project's population, as well as provide additional evacuation alternatives for existing communities, which would provide additional evacuation routes and a hardened and fire-safe community in which to seek temporary refuge that is significantly closer than Lancaster or other urbanized areas. The Project would establish regional access to the Project site via five connections to SR–138, which intersects the southern portion of the Project. I–5 is approximately 1.2 miles west of the Project and is accessed via SR-138. Additionally, the LA County Fire Code describe the applicable County access standards (i.e., roadway widths, all-weather surface requirements, length of streets, turning requirements, grade restrictions, maintenance requirements, and parking restrictions), which would be implemented by the Project as part of code compliance.

During a wildfire emergency, circumstances may arise in which the Los Angeles County Fire Department or law enforcement determines that sheltering in place would be safer than evacuating, in which case the Project would provide temporary refuge area for firefighters, occupants, and nearby residents to shelter. Temporary refuge areas are pre-planned areas (planned shortly after firefighters arrive on scene) where firefighters may take refuge and temporary shelter for short-term thermal relief, without using a fire shelter in the event that escape routes to an established safety zone are compromised. For the Project, temporary refuge areas would likely include navigating to the interior roadways of neighborhoods where fuel modification zones provide defensible space and maintained landscapes are provided, along with ignition-resistant structures built to California Fire and Building Code standards that offer numerous opportunities for temporary refuge. Temporary refuge areas would not replace the principles of Ready! Set! Go!, the County's public awareness and preparedness program targeted to individuals living and/or working in WUI areas but rather would provide an additional option to aid in the safe evacuation of the Project site.

Evacuation Analysis

An evacuation analysis was performed for the Project to determine how long it would take for occupants of the Project and the surrounding communities to evacuate under most likely scenarios to nearby urban areas/freeway access in case of a fire emergency. Current evacuation practice typically targets the scope of the evacuation only to the area in immediate danger and placing a larger area on standby for evacuation. This practice allows for better evacuation operations, reduces gridlock, and reserves sufficient travel way for emergency vehicles. It is assumed that first responders or law enforcement would direct traffic at all major intersections during the evacuation process.

During the evacuation process, which can proceed aided by the roadside fuel modification zones and unexposed corridors, wildfire spread and encroachment may be slowed by fire-fighting efforts that would likely include fixed wing and helicopter fire-fighting assets. Hand crews would also be deployed toward containment. None of the evacuation scenarios assumed counter-flow lanes, as these lanes are reserved for first responders, law enforcement, and fire fighters in case of unforeseen circumstances. Given that the Project is a Specific Plan and that structures (residential and commercial) within the Project site would need to adhere to the latest Building Code, it is unlikely that all of the Project would need to evacuate simultaneously during a wildfire scenario. Therefore, this analysis considers the "most likely" worst-case evacuation scenarios, which were established based on an evaluation of the Project's fire environment (Dudek 2025) and the proposed ignition resistant construction for Project structures. Evaluating the "most-likely" worst-case scenario is also an approach supported under the AG Guidance (October 2022) and the Court of Appeal's decision in the *Sierra Watch v. County of Placer, et al.* (2021) 69 Cal.App.5th 86, which concluded that evacuation time alone does not require a jurisdiction to find a project's potential impacts as significant. The Court's decision relied on the fire chief evaluation of the fire environment and expert opinion that a mass evacuation of the area as a result of a wildfire would be a "very, very, very unlikely event". Here, the "most likely" worst-case scenario would not represent a mass evacuation, but rather a staggered evacuation under a hypothetical evacuation scenario on a Saturday afternoon when it is anticipated that all residents within the Project and neighboring evacuation areas would be home, most businesses within the Project site would be in operation, and all evacuating populations would be evacuating simultaneously. In an actual evacuation scenario, the Unified Command, which includes representatives from different agencies (such as fire departments, law enforcement, public health, and emergency management), would likely order an evacuation of areas that are more at risk, and the central area of the Project may act as an evacuation location, resulting in fewer evacuating vehicles.

Phased Evacuation Approach

The purpose of a phased evacuation is to reduce congestion and transportation demand on designated evacuation routes by controlling access to evacuation routes in stages and sections. This strategy can also be used to prioritize the evacuation of certain communities that are in proximity to immediate danger. A phased evacuation effort would need to be enforced by law enforcement agencies and coordinated with the EOC and affected jurisdictions.

In an actual "real-life" wildfire event, a phased evacuation would be implemented where orders are given to evacuate based on vulnerability, location, and/or other factors, which reduces or prevents traffic surges on major roadways and improves traffic flow. The phased evacuation strategy also prioritizes the evacuation of occupants in proximity to immediate danger, giving emergency managers the ability to monitor the fire situation and decide in real time based on changing conditions whether to order additional evacuations as needed, or not.

The Department of Homeland Security provides supporting data for why jurisdictions have moved to the surgical, phased evacuation approach that leverages the power of situation awareness to support decision making. According to the Department of Homeland Security Planning Considerations: Evacuation and Shelter in Place document[11], delineated zones provide benefits to the agencies and community members. Evacuation and shelter-in-place zones promote phased, zone-based evacuation targeted to the most vulnerable areas, which allows jurisdictions to prioritize evacuation orders to the most vulnerable zones first and limit the need to evacuate large areas not under the threat. Zones help:

- Jurisdictions to understand transportation network throughput and capacity, critical transportation and resource needs, estimated evacuation clearance times, and shelter demand.
- Planners to develop planning factors and assumptions to inform goals and objectives.
- Community members to understand protective actions to take during an emergency.
- Shelters to limit traffic congestion and select locations suitable for the evacuated population.

The amount of time needed to evacuate the Project would vary by the type of incident, the number of evacuation routes utilized, the amount of mobilization time, actual areas at risk, and other factors. It has also been established that the targeted approach would minimize the size of the area being evacuated and use a phased approach, which may further reduce the evacuation time estimates.

In an actual evacuation scenario, it is most likely that Los Angeles County Sheriff Department in coordination with the Los Angeles County Fire Department and the County Office of Emergency Management would implement a phased evacuation where orders are given to evacuate based on vulnerability, location, and/or other factors, which enables the subsequent traffic surges on major roadways to be smoothed over a longer timeframe, thus improving traffic flow. A phased strategy can also be used to prioritize the evacuation of certain communities that are in proximity to immediate danger.

LA County Evacuation Practices

Based on the review of the EOP, the 2025 County of Los Angeles AHMP (2025), recent wildfire evacuation efforts, and other relevant information, the current evacuation practices are led by the local incident commander or the incident command post (ICP). These practices involve collaboration between fire departments and various law enforcement agencies. Depending on the nature of the emergency, multiple departments may work together during the evacuation process. The responsibilities of these departments are detailed in the County OA EOP and summarized below:

[11] https://www.fema.gov/sites/default/files/2020-07/planning-considerations-evacuation-and-shelter-in-place.pdf

Fire Department Responsibilities

- Establish command of the Incident
- Conduct a situation assessment and evaluate the need for evacuations
- Establish an Incident Command Post (ICP) with sufficient room for representatives from other assisting agencies and announce its location
- Request Agency Representative from Law Enforcement to respond to the ICP.

Law Enforcement Responsibilities

- Assign supervisor of the rank of Sergeant or above to the Incident Command Post and request a Deputy to locate with Operations Section Chief
- Maintain ingress and egress routes for emergency vehicles
- Establish perimeter control, keeping unauthorized vehicles and pedestrians out of the involved area. Conduct evaluations, if required, at the direction of the Incident Commander
- Establish anti-looting security patrols, when safe to do so, for evacuated areas within the perimeter
- Maintain a Unit log

Joint Fire and Law Enforcement Responsibilities

- Evaluate and determine whether Law Enforcement role will be as an Agency Representative or Unified Incident Commander, depending on the scope of the Incident
- Assign a Law Enforcement supervisor to work closely with the Operations Section Chief or Incident Commander, whomever is determining the areas to be evacuated
- Assess and validate the need for an Evacuation Warning, Evacuation Order, and/or Shelter in Place — Determine the location, potential size, and direction of Incident travel or spread
- Unified Commanders determine potential for Incident spread and request the appropriate resources to complete the evacuation and mitigate the Incident concurrently

Methodical and strategic evacuation orders ensure that resources are deployed where needed and support a manageable traffic flow out of the area under threat. This approach is demonstrated through several recent wildfires where evacuation orders were issued to target populations, several examples of recent evacuations are provided below:

Border Fire 32, San Diego County

During the Border Fire 32 in August 2022[12] for example, on August 31st, the San Diego County Sheriff's Department shut down SR-94 at 2:57 p.m. before issuing an evacuation order at 3:28 p.m.[13] Such road closures are typically implemented to ensure that evacuating traffic has priority and to maintain clear pathways for law enforcement, first responders, and firefighting equipment.

Lilac Fire December 2017, San Diego County[14]

Early in the fire, Sheriff's deputies and firefighters focused on evacuating and rescuing residents in immediate danger. County and local agencies implemented a phased evacuation of potentially affected areas with 14 separate evacuation campaigns (notifications sent to affected areas) – sequencing of evacuation areas occurring between 12/7/2017 at 1:52 pm to 12/7/2017 10:17 pm. The Oceanside Police Department utilized 3 separate notification campaigns as the fire moved toward and into their jurisdiction between 5:49 pm and 9:19 pm 12/7/2017.

The Sheriff's Department deployed a platoon of 50 deputies, including four sergeants and a lieutenant, 24 hours a day for the first several days of the incident. Sheriff's deputies prepare for wildfires with mandatory annual training, which includes fire behavior, evacuations, and emergency operations

Thomas Fire 2017, Ventura County

During the Thomas Fire, a targeted evacuation order was issued only to areas in immediate danger. Law enforcement first targeted communities in the Carpinteria area with specific emphasis that the evacuation order is only for the identified communities in order to reduce the number of evacuees on roadways being utilized for evacuation. Evacuation orders continued to change throughout the duration of the fire, focused only on the highest risk populations. This approach has been confirmed by numerous fire and law enforcement agencies at project meetings, public hearings, and interviews.

Additionally, targeted evacuation order/warning aims to ensure proper traffic flow and reduce stress at evacuation sites, some people may still choose to evacuate even if they are not facing an immediate threat. These individuals are known as shadow evacuees, and they increase the demand on the roadway network. The number of shadow evacuees varies from incident to incident, depending on their proximity to the actual fire, though it can be assumed that approximately 30% of evacuees fall into this category.

While the amount of time needed to evacuate the Project would vary by the type of incident, the number of evacuation routes utilized, the amount of mobilization time taken by occupants, actual areas at risk, and other factors, the targeted approach would minimize the size of the area being evacuated and use a phased approach, which would likely reduce

12 https://x.com/SDSheriff/status/1565096377494818817
13 https://x.com/SDSheriff/status/1565104232688074752
14 Lilac Fire After Action Report. County of San Diego 107 pp.

evacuation time below the above evacuation time estimates. Accordingly, roadway capacity would remain adequate to undertake safe and effective evacuations with development of the Project and would not expose people or structures to a significant risk of loss, injury or death.

Potential for Project Evacuation Impact

In coordination with Los Angeles County Department of Regional Planning, the Project would provide five public roadway connections to SR-138 to allow residents multiple access points for regional circulation. This would include changing the National Cement Plant Road from being a private road with emergency access only to a public road that would meet County Public Works and Fire Department road and safety standards. In addition, the use of 2 lane collectors that would service subdivision housing neighborhoods within the villages would limit the numbers of homes located on a dead-end street with no secondary access. The circulation and design of roadways for these neighborhoods should encourage looped design with multiple connections to main collectors, allowing the flow of traffic to be optimal and provide multiple points of access for emergency vehicles.

Evacuation Time

Based on the analysis methodology described in the previous section, Table 2.3-21 summarizes the evacuation time for each analysis scenario. The evacuation time does not depict the evacuation time for each individual person within an evacuation area, but rather the total amount of time needed to evacuate all populations modeled from an area. Populations located in closer proximity to the IC designated safe zone will safely evacuate sooner than the total calculated evacuation time identified in Table B of Appendix H. Detailed evacuation travel time analysis information is provided in the Evacuation Travel Time Technical Analysis of Appendix H**.**

Table 2.3-21 below summarizes the modeled evacuation time for each scenario:

TABLE 2.3-21
EVACUATION TIME SUMMARY

Scenario	Phases	Build Land Use	Fire Approach Direction	Evacuation Direction/Routes	Area Under Evacuation	Evacuating Vehicles	Evacuating Time (Hours: Minutes)
1	Phase 1-2	Village 1 & Village 3	South/Southeast	75% via SR-138 westbound toward I-5	Village 1	3,783	2:04
				25% via internal road toward I-5	Village 3	3,878	3:37
					Existing	200	0:42
2	Phase 1-2	Village 1 & Village 3	North/Northeast	25% via SR-138 westbound toward I-5	Village 1	3,783	1:33
				25% via internal road toward I-5	Village 3	3,878	1:34
				25% via internal road toward Lancaster	Existing	200	0:17
				25% via SR-138 eastbound toward Lancaster			
3	Phase 1-2	Village 1 & Village 3	West/Northwest	75% via SR-138 eastbound toward Lancaster	Village 1	3,783	2:03
				25% via internal road toward Lancaster	Village 3	3,878	1:36
					Existing	200	0:17
4	Phase 1-4	Village 1, Village 3, Village 7, Business Park West, Institutional & Civic	South/Southeast	50% via SR-138 westbound toward I-5	50% of Village 7	1,490	1:00
				50% via internal roadway toward Village 1	Business Park West	1,875	1:54
					Institutional & Civic	2,958	1:46

TABLE 2.3-21
EVACUATION TIME SUMMARY

Scenario	Phases	Build Land Use	Fire Approach Direction	Evacuation Direction/Routes	Area Under Evacuation	Evacuating Vehicles	Evacuating Time (Hours: Minutes)
5	Phase 1-4	Village 1, Village 3, Village 7, Business Park West, Institutional & Civic	North/Northeast	25% via SR-138 westbound toward I-5	50% of Village 3	2,085	1:07
				50% via internal roadway toward Village 1	Village 7	2,979	1:23
				25% via SR-138 eastbound toward Lancaster	Existing	200	0:17
6	Phase 1-4	Village 1, Village 3, Village 7, Business Park West, Institutional & Civic	West/Northwest	50% via internal roadway toward Village 7 and the Institutional/Civic land use	Village 1	3,783	2:26
				50% via SR-138 eastbound toward Lancaster	30% of Village 3	1,251	0:41
					Business Park West	1,875	2:21
					Existing	200	0:17
7	Phase 1-6	Village 1, Village 3, Village 6, Village 7, Village 9 West, Business Park West, Business Park Central, Institutional & Civic	South/Southeast	25% via SR-138 westbound toward I-5	50% of Village 7	1,490	0:39
				25% via internal roadway toward Village 1	Business Park West	1,875	0:50
				25% via internal roadway toward Village 3	Business Park Central	1,250	1:07
				25% via internal roadway toward Village 6	Institutional & Civic	2,958	1:20

TABLE 2.3-21
EVACUATION TIME SUMMARY

Scenario	Phases	Build Land Use	Fire Approach Direction	Evacuation Direction/Routes	Area Under Evacuation	Evacuating Vehicles	Evacuating Time (Hours: Minutes)
8	Phase 1-6	Village 1, Village 3, Village 6, Village 7, Village 9 West, Business Park West, Business Park Central, Institutional & Civic	North/Northeast	25% via SR-138 westbound toward I-5	Village 6	3,488	3:27
				50% via internal roadway toward Village 1 and Village 3	Village 7	2,979	1:49
				25% via SR-138 eastbound toward Lancaster			
9	Phase 1-6	Village 1, Village 3, Village 6, Village 7, Village 9 West, Business Park West, Business Park Central, Institutional & Civic	West/Northwest	50% via internal roadway toward Village 7 and the Institutional & Civic	Village 1	3,783	1:22
				50% via SR-138 eastbound toward Lancaster	Village 9 West	2,218	1:11
					Existing	200	0:17
10	Phase 1-8	Village 1, 3, 7 E & West, Village 9 West, Village 6, Village 9 East, Village 8 West, Village 2, Village 4 South	South/Southeast	25% via SR-138 westbound toward I-5	50% of Village 7	1,490	1:21
				25% via internal roadway toward Village 1	Business Park West	1,875	1:07
				25% via internal roadway toward Village 3	Business Park Central	1,250	0:47
				25% via internal roadway toward Village 6	Business Park East	1,186	1:19
					30% of the Institutional & Civic	887	0:26

TABLE 2.3-21
EVACUATION TIME SUMMARY

Scenario	Phases	Build Land Use	Fire Approach Direction	Evacuation Direction/Routes	Area Under Evacuation	Evacuating Vehicles	Evacuating Time (Hours: Minutes)
11	Phase 1-8	Village 1, Village 2, Village 3, Village 6, Village 7, Village 9, Village 8 West, Village 4 South, Business Park West, Business Park Central, Business Park East, Institutional & Civic	North/Northeast	25% via internal roadway toward Village 1	30% of Village 2	738	0:53
				25% via internal roadway toward Village 3	Village 4 South	2,269	0:53
				25% via internal roadway toward Village 7	50% of Village 6	1,744	0:53
				25% via internal roadway toward Institutional & Civic	Village 8 West	1,922	1:02
					30% of Village 9	979	0:49
12	Phase 1-8	Village 1, Village 2, Village 3, Village 6, Village 7, Village 9, Village 8 West, Village 4 South, Business Park West, Business Park Central, Business Park East, Institutional & Civic	West/Northwest	25% via internal roadway toward Village 3	30% of Village 1	1,135	0:52
				25% via internal roadway toward Village 7	30% of Village 2	738	0:57
				25% via internal roadway toward Business Park	Village 4 South	2,269	0:48
				25% via internal roadway toward Institutional & Civic	Village 9	3,264	2:58

TABLE 2.3-21
EVACUATION TIME SUMMARY

Scenario	Phases	Build Land Use	Fire Approach Direction	Evacuation Direction/Routes	Area Under Evacuation	Evacuating Vehicles	Evacuating Time (Hours: Minutes)
13	Phase 1-10	Buildout	South/Southeast	25% via SR-138 westbound toward I-5	Business Park West	1,875	1:07
				25% via internal roadway toward Village 1	Business Park Central	1,250	0:55
				25% via internal roadway toward Village 3	Business Park East	1,186	1:32
				25% via internal roadway toward Village 6/Village 5	30% of the Institutional & Civic	887	0:26
					50% of Village 7	1,490	1:32
					Village 8 East	3,678	2:20
14	Phase 1-10	Buildout	North/Northeast	25% via internal roadway toward Village 1/Village 2	30% of Village 4	1,284	0:51
				25% via internal roadway toward Village 3	Village 5	10,333	6:41
				25% via internal roadway toward Village 7/Institutional & Civic	30% of Village 6	1,046	0:34
				25% via SR-138 Westbound toward Business Park	Village 8 West	1,922	4:32
					Village 8 East	3,678	3:06

TABLE 2.3-21
EVACUATION TIME SUMMARY

Scenario	Phases	Build Land Use	Fire Approach Direction	Evacuation Direction/Routes	Area Under Evacuation	Evacuating Vehicles	Evacuating Time (Hours: Minutes)
15	Phase 1-10	Buildout	West/Northwest	25% via internal roadway toward Village 3	30% of Village 2	738	1:11
				25% via internal roadway toward Village 7	50% of Village 4	2,140	1:08
				25% via internal roadway toward Business Park	50% of Village 5	5,167	2:37
				25% via internal roadway toward Institutional & Civic	Village 9	3,264	1:53

Shelter in Place

Given the Project's location and size, a shelter-in-place option on the Project site would be available to the responding emergency managers (e.g., incident commander, Los Angeles County Sheriff). This alternative would include the option for all or a portion of the onsite population to shelter in place within the Project Site. This would provide emergency managers with a safer alternative to risking a late evacuation. This information will be provided to law enforcement and fire agencies for use in pre-planning scenarios to better inform in the field decisions made pursuant to adopted Emergency Response Plans required by **MM 3-7**. Emergency personnel who issue an evacuation order may consider these time estimates in determining when and where to issue evacuation orders. In a real evacuation scenario, emergency managers may use alternative actions/options to further expedite evacuation. Such actions may include providing additional lead time in issuing evacuation orders, prioritizing area at higher risks, providing alternative signal control at downstream intersections, utilizing additional off-site routes or directing traffic to roadways with additional capacity, implementing contra-flow lanes, issuing "shelter-in-place" orders when determined to be safer than evacuation, or considering the possibility of a delayed evacuation where parts of the population could be directed to remain on-site until the fire burns through the fuels around the evacuation route. As concluded in the evacuation analysis included as Appendix H, a safe evacuation of the Project and surrounding community is possible in all modeled scenarios.

Impacts

As discussed above, the Project would include a phased development which would result in changing of roadways and temporary construction impacts, some of which may require the closure of lanes or entire roadways. While a safe evacuation is possible from the Project site, given the phasing of the Project, which would result in changes to the Project site over time, an emergency evacuation could be impaired if there was not updated information available to emergency responders and Project occupants during an evacuation. This could result in confusion for evacuees and emergency personnel on which routes are available for evacuation. If this were to occur, the Project would result in significant impacts related to evacuation of the site.

To address impacts related to the potential impediment of an evacuation, the Project would implement Mitigation Measures **MM-3-**7, **MM 3-8, and MM 10-5. MM-3-7** would include the preparation and updating of an Emergency Response Plan which will reflect the changes proposed for each tentative map, which will be provided to all Project occupants and made available for emergency managers to see updated conditions. **MM-3-8** would include a construction Traffic Control Plan which shall identify traffic-control measures implemented to maintain traffic flow in all directions. MM 10-5 would require minimization of obstructions in traffic lanes, maintenance of emergency access throughout construction activities through methods such as the use of flag persons to minimize obstructions along SR-138, signage, scheduling of vehicle movements to ensure traffic flow, and limiting schedule of deliveries and truck traffic, among other requirements.

Together, these measures would ensure that in the case of an evacuation during construction, there would be routes available in all directions. Moreover, the Project's proposed Development Agreement obligates the Project applicant to require the Project's Master HOA to implement the Emergency Response Plan, which must include shelter-in-place and evacuation plans, as well ensure the provision of first aid and emergency electric power supplies. The proposed Development Agreement further obligates the Project applicant to provide Project occupants educational information about the health and safety benefits of emergency preparation to respond to natural disasters, which information must be provided at the initial point of property sale, and annually thereafter though the community's required intranet service.

Conclusion

As discussed above, detailed evacuation modeling has been prepared for the Project to determine whether the Project would adversely affect evacuations in the Project site and surrounding area. While the Project may increase evacuation times relative to existing conditions, the modeling results demonstrate that evacuation timeframes for Project residents and existing residents of nearby communities would fall within established guidelines for evacuation timeframes. Nevertheless, as described above, communication of changes to the Project site as the Project is built out to Emergency Managers and project occupants during an evacuation is required in order to reduce and/or avoid problems with an effective evacuation and reducing potential impediments to successful evacuations

The Project would occur within the OA ERP and is adjacent to SR-138 and proximate to the I-5, both of which are identified as evacuation routes within the Antelope Valley Planning Area. As discussed above, the County does not have a Countywide evacuation plan. However, the Wildfire Evacuation Technical Report (Appendix H) demonstrates that the Project would not impair the County's OA ERP and would not permanently impact identified evacuation routes. Implementation of **MM 3-7,** and **MM 3-8** would ensure that changes to the Project over time would be communicated to emergency manager and occupants during an evacuation. The Project's implementation of **MM 3-7**,**MM 3-8, and MM 10-5** would ensure that the Project would be consistent with applicable General Plan policies related to access and evacuations. ***Therefore, with compliance with regulations and implementation of MM 3-7, MM 3-8, and MM 10-5, the short-term construction and long-term operations of the Project would not substantially impair evacuation or interfere with the established emergency operation plans, and impacts would be less than significant with mitigation.***

Threshold 2.3-5

Would the Project require 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?

As discussed under the previous thresholds, Project implementation would require a series of on-site and off-site improvements to ensure the provision of adequate utilities, roadway access, and water supply infrastructure.

On-site Infrastructure

As previously discussed, a portion of the Project site is located in a VHFHSZ, and the remainder of the site is located in high and moderate FHSZ. The Project would include the development of a large-scale community, which would include new roads, utilities, fuel modification zones, and provision of at least three, and up to four, fully equipped onsite fire stations. Construction and maintenance of proposed roads, utility lines, fuel modification zones, and fire stations would increase fire risk from the use of heavy machinery and the potential for sparks during welding activities or other hot work. The Project would include the construction and maintenance of roads as part of the development. As required under the Los Angeles County Fire Code, fire engine apparatus roads would be maintained with a minimum 20-foot-wide roadway that is clear to the sky, and all flammable vegetation or other combustible growth would be removed for a minimum of 20 feet on each side of the roadway (Title 32 Section 325.10). Additionally, roads would include roadside fuel modification (minimum of 20 feet), be adjacent to FMZs, and ignition resistant structures. Utilities that would be installed and maintained as part of the Project would include water, wastewater, stormwater drainage, electric power, natural gas, and telecommunications services and would connect to existing utilities. The Project's power lines would be undergrounded. The environmental impacts of constructing the Project's new roads, fuel modifications, and fire stations are analyzed throughout the Centennial EIR.

All utility installation and maintenance related construction activities would be required to adhere to the regulations for fire prevention as detailed in Section 2.3.3, Regulatory Setting, and implementation of the CFPP, which is a requirement of the LA County fire code and MM WILD-1. The Project also includes the installation and maintenance of fuel modification zones in accordance with an approved Fuel Modification Plan as required by the LA County fire code. The fuel modification zones would result in the introduction of equipment to areas with existing fuels that have the potential to ignite during installation and maintenance activities during fuel modification activities. Increased fire risk would be temporary and would be reduced after the fuel modification zones are completed. Further, these fuel modification zones would decrease overall fire risk to the Project site and surrounding areas. Moreover, all maintenance activities would be conducted according to regulatory requirements and occur adjacent to the Project's fuel modification zones, which would be installed prior to the start of construction and maintained throughout the life of the Project. However, impacts related to exacerbating wildfire risks during the installation and

maintenance of roads and utilities would be significant, as construction activities within a FHSZ and adjacent open space and unmaintained fuel beds has the potential to result in accidental ignitions. Implementation of MM WILD-1, requiring compliance with an approved Construction Fire Prevention Plan would ensure that construction impacts would be less than significant.

In the absence of fire-safe Project design, regulatory compliance and mitigation, it is possible that installation or maintenance of infrastructure (such as roads, fuel breaks, utilities, facilities to maintain acceptable levels of service standards and response times) could significantly exacerbate fire risks. However, as described above, the Project's proposed development would not be placed in an area characterized by high-risk topography and vegetation. Moreover, the Project would be developed as fire hardened, modern master planned community with a clustered, interface design and would comply with current state-of-the-art, ignition-resistant construction standards for all new residential, non-residential, and public facility buildings meeting Chapter 7A of the California Building Code, Title 26 of the County of Los Angeles Building Code, and LA County Fire requirements. These standards require, among many other measures, fire-resistant roofing to resist ignition from embers or building-to-building fires, vent covering and opening limitations to avoid ember intrusion, noncombustible or ignition-resistant exterior walls, ignition-resistant eaves, and porch ceilings, insulated windows and exterior doors, fire-resistant exterior decks and walkways, and ignition-resistant under-flooring and appendages. These standards have proven to substantially reduce the risk of buildings catching fire or spreading fires during a wildfire event.

In addition, the Project would incorporate FMZs ranging 100-200 feet that modeling demonstrates would protect the Project site from offsite wildfires, limit the spread of onsite fires to offsite locations, and provide access to firefighters and fire-fighting equipment to suppress both onsite and offsite fires. Project buildings would be constructed of fire-retardant materials and indoor fire sprinkler systems thus reducing ember generation in the event of a structure fire that could threaten onsite and offsite resources. The Project would provide three, and up to four, fully equipped fire stations to ensure adequate fire service response times. The Project would have a sufficient water supply to serve fire suppression needs and would be constructed with code compliant fire hydrant systems with adequate water flows to fight fire. The Project's code compliant internal circulation system and parking restrictions would ensure that firefighting apparatus would have appropriate access to, in, and around the Project site as necessary to provide fire suppression services, and the Project would provide sufficient access points to ensure safe and timely ingress and egress to and from the Project site to serve the needs of both first responders and potential evacuees. Project CC&Rs and HOA enforcement authority, combined with regulatory oversight, would ensure that Project FMZs and fire-safe landscaping are properly and timely maintained over the life of the Project and would ensure the implementation of a communitywide fire-safe education program to ensure that Project occupants are fully informed of their fire-related maintenance obligations and how to respond to a fire emergency, should one occur. Project implementation of a project-specific CFPP and Fuel Modification Plan, compliance with annual fuel modification maintenance and inspection code requirements, and compliance with regulatory restrictions limiting development in

floodplains and steep terrain and ridgelines would further ensure that Project would not cause significant fire risks related to installation of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities), including new facilities to maintain acceptable levels of service and response times. Moreover, to further ensure ongoing maintenance of Project FMZs, adequate access to the site, and timely emergency response, the Project would implement mitigation measures **MM 3-7, MM 3-8, MM 16-2, MM 16-3, MM 16-4, and MM WILD-2**. (See full text in Section 2.3.10 below.) Therefore, this impact would be **less than significant with mitigation**.

Off-Site Infrastructure

Utility Improvements

Utility improvements would include installation of underground dry utility corridors within roadway rights-of-way to accommodate electricity, natural gas, telephone, and cable facilities.

Natural gas service would be initiated through a new tap into the high-pressure main along Gorman Post Road, supported by regulator stations to allow phased expansion. Installation of a high-pressure gas tap and regulator stations would introduce low-probability but potentially higher-consequence hazards. Compliance with pipeline safety standards and design requirements (e.g., Title 49 CFR Part 192-193, General Order No. 58-A, General Order No. 112-F, CPUC – Division 1, etc.), and coordination with local fire agencies would minimize both ignition and public-safety risks. With these measures in place, potential wildfire impacts from natural gas utility improvements would be less than significant given compliance with applicable regulatory requirements as detailed in Section 2.3.3, Regulatory Setting.

Construction activities, including trenching, equipment operation, welding, and temporary power, would present short-term ignition hazards. However, these risks are considered typical of utility construction, would be temporary in nature, and would be reduced to less-than-significant levels through compliance with the CPUC regulations detailed in Section 2.3.3, Regulatory Setting, and best management practices.

Through coordination with SCE, two options were developed for providing additional electricity capacity to service the western portion of the Project site including: (1) reconfiguration of the existing Bailey Substation located off site along the property's western boundary and (2) upgrading the Gorman Substation and reconstructing the existing overhead transmission lines to handle the higher load. In either event, the improvements would occur entirely on lands owned by SCE, and not on the Project site. No existing off-site facilities other than those discussed herein would require upgrades or retrofitting to provide adequate electrical service to the Project site.

At this time, upgrade of the Bailey Substation is considered the primary option, and this Recirculated Partial Draft EIR assumes implementation of this option. Assuming the Bailey Substation would be upgraded, no upgrades to the Gorman Substation or other off-site facilities would be necessary to serve the first phase of Project implementation. According to

the *Dry Utilities Analysis: Centennial* prepared by BJ Palmer & Associates (BJ Palmer 2015), and prior communications with SCE, the improvements to the Bailey Substation would be contained within a parcel of land owned by SCE that is graded, improved with electrical infrastructure, and the ground cover is graveled within the fenceline. The Bailey Substation is a transmission-only substation, and is currently not configured for the voltage distribution required to service the Project. However, the site of the Bailey Substation is large enough for the required reconfiguration. Reconfiguration would include the placement of a large transformer to take transmission voltage (66 kV) and convert it to distribution voltage (12 kV). Distribution voltage would be extended to the Project site on the existing overhead pole line along SR-138, or routed northerly overhead or underground around Quail Lake within the Project limits. This location would provide sufficient electricity capacity to serve the first phase of Project implementation. Potential infrastructure improvements necessary to serve the western portion of the Project site would be required by MM 20.2-2, as outlined in Section 5.20 of the Centennial EIR, Dry Utilities.

Portions of existing Southern California Edison (SCE) transmission and distribution lines would be relocated or removed along SR-138, Gorman Post Road, and within portions of the Project site. Offsite utility improvements may include installation of additional transformers, reconstruction of pole lines, and extension of overhead or underground distribution lines.

Undergrounding and SCE's wildfire mitigation practices, as outlined in the WMP, would reduce ignition risks associated with conductors; however, above-ground facilities such as poles, transformers, substations, and regulator stations would continue to present localized risks. These risks are addressed through siting, clearance requirements, and equipment standards contained in SCE's Wildfire Mitigation Plan. Importantly, these baseline risk conditions associated with existing aboveground utility infrastructure exist currently and would not be exacerbated by Project. As discussed in Section 4.5.10, Dry Utilities, of the original Draft EIR, the Project may add new powerlines to existing poles, and the Project would underground new powerlines where existing poles are not available. The existing poles and lines are located generally along rights-of-way and are not proximate to trees.

Implementation of these electrical utility improvements would not result in a significant wildfire impact given compliance with applicable fire and utility codes and standard practices required statewide and within Los Angeles County including:

- **California Public Resources Code 4292,**
- **California Public Resources Code 4293**
- **California Public Resources Code 4294**
- **California Public Resources Code 4295.5**
- **California Public Resources Code 4296**
- **CPUC General Order 95**
- **CPUC General Order 128**
- **CPUC General Order 165**
- **CPUC General Order 165**

- **Assembly Bill-111: Wildfire agencies: public utilities: safety and insurance.**
- **Assembly Bill-1054: Public utilities: wildfires and employee protection.**
- **Public Utilities Cose 8386.3: Wildfire Mitigation Plans (WMPs)**

Roadway Improvements

Off-site roadway improvements would include the realignment of National Cement Plant Road at Quail Lake and intersection improvements at 290th Street West and SR-138, which would consist of acceleration and deceleration lanes, turn pockets, and traffic signal installation. Additional improvements would include construction of two underpasses and one overpass of SR-138 to facilitate safe pedestrian and bicycle crossings.

Implementation of the proposed off-site roadway improvements would not, by themselves, be expected to cause a significant wildfire impact provided the Project implements standard construction-phase fire prevention, Caltrans encroachment and mandated roadside vegetation controls, and applicable Los Angeles/County fire code requirements including Section 325.10 which requires removal of flammable vegetation adjacent to roadways

Construction activities would introduce a temporary, localized increase in wildfire ignition potential that can be reduced to less-than-significant levels through Caltrans' Maintenance Manual & Vegetation Control (Chapter C2 / HDM guidance) and Integrated Vegetation Management Plan (IVP) requirements, described below.

Caltrans manages vegetation in state highway rights-of-way to reduce fire risk, requires clearing of the clear-recovery/clear-zone, prescribes integrated vegetation management practices, and sets standards for slope protection and revegetation after construction. Roadway work within or adjacent to SR-138 will be subject to Caltrans' vegetation control, HDM clear-recovery and roadside management requirements and likely require a Caltrans encroachment permit with conditions.

Caltrans implements an Integrated Vegetation Management (IVM) Program to manage vegetation within State highway rights-of-way (ROW). The IVM approach combines different control methods to achieve multiple objectives including reducing fire hazards. Rather than relying on a single practice, IVM establishes site-specific treatment plans that balance safety, environmental, and maintenance needs.

Together, these practices reduce ignition likelihood and fire spread potential along highways, which are historically some of the most common ignition corridors in California. For off-site projects requiring roadway improvements within SR-138 or other State facilities, compliance with Caltrans' IVM standards and maintenance requirements provides a regulatory mechanism ensuring roadside vegetation is managed to minimize wildfire ignition risk.

Operational elements of the roadway improvements do not inherently increase ignition sources. For example, paved surfaces and properly designed lighting equipment present low ongoing ignition risk if installed to electrical code and maintained. Long-term wildfire

exposure along the right-of-way, including risk of sparking from cars and human-caused ignition sources (e.g., smoking), is managed by Caltrans' roadside vegetation control and maintenance programs, which manage roadside vegetation conditions to substantially reduce the probability that roadside vegetation will serve as a persistent ignition source along roadways (Caltrans Maintenance Manual & Vegetation Control (Chapter 2) and Integrated Vegetation Management Plan). With continued compliance with these existing regulatory frameworks and standard maintenance practices, the Project would not increase wildfire risk or exacerbate wildfire hazards during long-term operation.

Construction tasks that will occur for realignment, intersection work, underpass and overpass construction, and trenching can create hot-work and spark sources. These short-term ignition risks are typical of roadway projects and can be reduced to less than significant levels by implementing a Construction Fire Prevention Plan, Caltrans encroachment permitting conditions, Caltrans' Integrated Vegetation Management Plan, hot-work permitting, equipment best practices, and on-site fire suppression readiness during high-risk periods, all of which are regulatory requirements, as described below. Potential impacts during construction activities at the proposed off-site roadway locations would be temporary in nature and cease once work is completed.

Water Supply Improvements

Off-site water supply improvements would consist of new groundwater wells within the Tejon Ranch Water Bank in Kern County and would require the construction of new conveyance pipelines to deliver untreated water to the Project site. Connection of the wells would involve trenching for installation of wellhead pipelines along 300th Street West and multiple crossings of the California Aqueduct, including four separate pipeline crossings to ensure reliable conveyance.

The proposed off-site water supply improvements would not be expected to exacerbate wildfire risk because they would comply and adhere to applicable electrical and fire codes for pump/station installations. Temporary construction activities such as trenching, heavy equipment, hot work, and equipment staging do present a short-term increase in ignition potential, however, these risks would be less-than-significant as a result of enforceable regulatory requirements such as hot-work permits (Cal/OSHA Hot-Work Rules 8 CCR § 6777), on-site suppression and fire watch (LA County Fire Code 3504.2) seasonal work windows and permitting (LA County Fire Code 3501.2), and contractor qualifications (LA County Fire Code 3503.4). Potential impacts during construction activities at the proposed off-site roadway locations would be temporary in nature and cease once work is completed.

2.3.7 MITIGATION MEASURES

The Project includes a comprehensive set of mitigation measures that address wildfire safety and emergency preparedness, consisting of both measures previously included in the Centennial EIR and new mitigation measures introduced in this RPDEIR. The measures from the Centennial EIR are denoted as "Existing" in parentheticals to clearly indicate the reference to the Centennial EIR and the new measures are denoted as "WILD".

The following MMs would be implemented to reduce the wildfire impacts of the Project:

MM 3-7 **Emergency Response Plan (Existing Centennial EIR MM 3-7).** The Project Applicant/Developer shall prepare an Emergency Response Plan for the Project, which shall be updated as needed for each Tentative Map and shall be submitted to the County for review and approval. The Project Applicant/Developer shall be responsible for distributing the current Emergency Response Plan to each purchaser or tenant of each property within Centennial and shall distribute the Plan to all landowners through the Transportation Management Agency (TMA).

MM 3-8 **Traffic Control Plan (Existing Centennial EIR MM 3-8).** The Project Applicant/Developer shall prepare a Traffic Control Plan in accordance with the California Manual on Uniform Traffic Control Devices (MUTCD). The Traffic Control Plan shall be reviewed and approved by the California Department of Transportation (Caltrans), and all construction activities in the public right-of-way shall comply with the approved Traffic Control Plan to the satisfaction of Caltrans. Documentation of Caltrans approval shall be provided to the County for any Tentative Map involving construction within SR-138 right-of-way.

MM 7-13 **Landscape Plan (Existing Centennial EIR MM 7-13).** The Project Applicant/Developer shall develop a Landscaping Plan for review and approval by the County Biologist. The Landscaping Plan shall be (1) prepared by a qualified biologist, (2) submitted to the County for approval with each tentative map, (3) provided to builders, (4) provided to future project occupants as described in the Specific Plan, and (5) include a plant palette composed of non-invasive species that are adapted to the conditions found on the Project site and do not require high irrigation rates. The Landscaping Plan will also include a list of invasive plant species prohibited from being planted on the Project site. In addition, retail sales of these invasive plant species will be prohibited at any businesses (nurseries) located within the Project site. Landscape plans shall encourage planting of local natives typical of native vegetation within ten miles of the Project site.

The Homeowners Associate shall supply future residents of the Project site with the list of invasive plant species from the Landscaping Plan that will be prohibited from being planted on the Project site and educational materials that emphasize the importance of adhering to the list. The prohibition shall be clearly described and distributed to home buyers through their home purchase contracts and CC&Rs. A list of local native plants and educational materials shall be provided to homeowners and shall be posted on the community intranet.

MM 7-21 **Implementation Plan (Existing Centennial EIR MM 7-21).** In order to ensure that no direct impacts to Significant Ecological Area (SEA) 17 occur, brush clearance zones shall be contained within the current Project impact boundary and no overlap with the adjacent SEA 17 shall occur. Vegetation management for fire abatement purposes is not authorized in SEA areas. An Implementation Plan, including fire risk abatement measures (including but not limited to vegetation management) required to comply with State and LA County fire prevention and response legal requirements, shall be submitted as part of the tentative tract map for portions of the Project site that border an SEA or mitigation preserve area. The Plan shall include: (a) a summary of applicable State and LA County fire risk abatement requirements; (b) a prohibition on the use of vegetation clearance within SEA 17 or mitigation preserve areas. The Plan shall be submitted to the County for approval with the first tentative map, and shall be updated to include new or modified State or LA County fire risk abatement requirements as part of each subsequent tentative tract map submittal.

MM 10-5 **Construction Traffic Control Plan (Existing Centennial EIR MM 10-5).** The Project Applicant/Developer shall submit Traffic Management Plans to the County for review and approval. The Traffic Management Plans shall describe traffic-control measures that shall be implemented to maintain traffic flow in all directions, including where utilities and other improvements are being implemented in existing roadways. The Traffic Management Plans shall identify the following: construction haul routes; duration and location of lane closures; location of parking for the public and construction workers during construction phases; use of flag persons; and any pedestrian-related impacts to sidewalks and intersection crossings. The Traffic Management Plan shall be implemented during all stages of Project construction that generate traffic impacts.

MM 11-3 **Ban on Wood Burning Fireplaces (Existing Centennial EIR MM 11-3).** The Project's plans and specifications shall prohibit wood-burning fireplaces as required by SCAQMD Rule 445 in single-family residences throughout the entire Project site, including residences that are 3,000 or more feet about mean sea level at which the SCAQMD prohibition

would otherwise not apply. Natural gas fireplaces shall be limited to a total of 13,954. These requirements shall be posted on the community intranet and shall be clearly described and distributed to home buyers through their home purchase contracts and CC&Rs.

MM 16-2 **Developer Fees (Existing Centennial EIR MM 16-2).** The Project Applicant/Developer shall pay developer fees in effect at the time of construction permit approval, in accordance with the LACFD Developer Fee Program until such time the Project Applicant/Developer has conveyed an approved, operational fire station to the LACFD. As an alternative to fee payment, the Developer Fee Program allows the LACFD and the Project Applicant/Developer to agree on a program whereby the Project Applicant/Developer would provide land and would construct and equip the fire stations required for the Project in exchange for a credit towards the Project's fee payments.

MM 16-3 **Construct and Equip Fire Stations (Existing Centennial EIR MM 16-3).** The Project Applicant/Developer shall provide, convey title, and shall construct and equip to the specifications and requirements of LACFD, for up to four new Fire Stations to the LACFD. The approved final plans and specifications for the Project shall identify location of the fire stations. The timing for the construction of the on-site fire stations shall be established by the LACFD dependent upon the phasing of development, with the first on-site fire station operational no later than the time the 1,000th dwelling unit is built on site.

MM 16-4 **Law Enforcement Facilities Mitigation Fee (Existing Centennial EIR MM 16-4).** The Project Applicant/Developer shall pay Law Enforcement Facilities Mitigation Fee (LEFMF) to the Los Angeles County Sheriff's Department (LASD) pursuant to the requirements established in County Ordinance No. 2008-0033. The amount of fees to be paid would be determined based on the established fee in Section 22.74.030 of the County Code. The Project incorporates a temporary "store front" sub-station, followed by construction of a permanent LASD Station included on the Project site, in lieu of a portion of the LEFMF, as allowed under Section 22.74.090 (Consideration in Lieu of Fee) of the County Code. Costs associated with the construction of the temporary "store front" sub-station and permanent LASD Station would be credited against the LEFMF.

Prior to completion of the permanent LASD Station, the "store front" sub-station may be located on site in Village 1 on the north side of the SR-138. This temporary sub-station shall be properly outfitted in accordance with applicable occupancy requirements of the LASD for such "store front" facilities and shall be operational prior to the

approval of the first certificate of occupancy for the first phase of Project development.

The Centennial Land Use Plan identifies a conceptual location for one LASD Station in the Business Park area on the Project site north of the SR-138. The permanent LASD Station shall be constructed immediately following completion of the first phase of development. The LASD shall have final approval over the temporary sub-station and permanent LASD Station site locations.

MM – WILD-1 **Construction Fire Prevention Plan (New Mitigation Measure).** Prior to the issuance of grading or building permits, the project proponent/operator shall implement all protocols for reducing the potential of ignitions during construction set forth in the Project's proposed Construction Fire Prevention Plan (Appendix I to the RPDEIR). The project proponent/operator shall submit the plan, along with maps of the project site and access roads, to the Los Angeles County Fire Department for review and approval. A copy of the approved Construction Fire Prevention Plan shall be submitted to the Department of Regional Planning. The Construction Fire Prevention Plan shall provide standard protocols and approaches for reducing the potential of ignitions for typical construction site activities, including, but not limited to, the following:

a. Emergency notification and evacuation procedures.

b. Designation of a Site Safety Officer whole shall understand the CFPP and its mandates for fire prevention, fire suppression, and evacuation and shall have authority to stop project work activities that pose a fire hazard or are not in compliance with the approved CFPP.

c. Vehicles shall be equipped with specified fire prevention equipment.

d. All internal combustion engines, both stationary and mobile, shall be equipped with spark arresters.

e. Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials.

f. Red Flag Warning Weather and Hot Work restrictions.

d. Fire rules shall be posted on the project bulletin board at the contractor's field office and areas visible to employees.

e. Procedures shall be established for minimizing potential ignition, including, but not limited to, vegetation clearing and management, parking requirements/restrictions, idling

restrictions, smoking restrictions, and proper use of gas-powered equipment.

e. Personnel shall be trained in the practices of the CFPP relevant to their duties. Construction and maintenance personnel shall be trained and equipped to extinguish small fires to prevent them from growing into more serious threats.

f. The project proponent/operator shall restrict the use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to days when the Los Angeles County Fire Department Daily Fire Danger Rating is low. When the above tools are used, water tanks equipped with hoses, fire rakes, and axes shall be easily accessible to personnel.

MM WILD-2 **Fuel Modification Plan (Supersedes 2019 EIR MM 3-9).** The Project Applicant/Developer shall prepare a Fuel Modification Plan demonstrating compliance with the LA County Fire Code Title 32 and shall provide all new residents and business owners with recorded Covenants, Conditions, and Restrictions (CC&Rs) or disclosure statements that identify the responsibilities for maintaining the fuel modification zone(s) on their property, as defined in the approved Fuel Modification Plan. The CC&Rs or disclosure statements prepared by the Project Applicant/Developer shall be submitted to the County to confirm that new property owners would be informed of their responsibilities for maintaining the fuel modification zone(s) on their property.

MM WILD-3 **Fire-Safe Landscaping (New Mitigation Measure).** Consistent with the Specific Plan's Green Development Program and Hillside Design Guidelines, the Project shall implement fire-safe landscaping techniques consistent with the Specific Plan's plant palette to reduce fire risks to biological resources and human safety in fuel modification zones. The Project shall include landscaping in the Open Space Zone dominated by native and/or drought tolerant trees, shrubs and ground cover, taking into consideration fuel modification requirements, such as using plants that are fire resistant and avoid plants with characteristics that make them more readily combustible such as plants with oils, wax or resin content, plants that accumulate dead material or shed bark, and/or plants that grow rapidly. Plants selected will be consistent with LACFD Planting Guideline regarding prohibited species and appropriate plant spacing with respect to zone location.

MM WILD-4 **Ban on Outdoor Fire Pits and Fireplaces (New Mitigation Measure).** The Project's plans and specifications shall prohibit outdoor fire pits and outdoor freestanding fireplaces throughout the Project site. This requirement will be enforced at the time of building permit

issuance and site plan review. Compliance with this Fire Safety Requirement shall also be confirmed by County building inspectors prior to issuance of certificates of occupancy for each single-family home.

MM WILD-5 **Operational Emergency Response Enforcement (New Mitigation Measure).** The Project Applicant/Developer shall submit the Emergency Response Plan required by MM 3-7 to the Fire Department and/or County Sheriff's Department and California Department of Forestry and Fire for review and approval. The Emergency Response Plan shall utilize existing information from Los Angeles County Office of Emergency Management, coordinate with County emergency planners, and provide site specific procedures for various emergency situations including wildfire. The Property CC&Rs shall require future residential and commercial property owners associations to develop and implement an emergency preparation and response plan, including shelter-in-place and evacuation plans as well as first aid and emergency electric power supplies.

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3.0 CUMULATIVE IMPACTS

The California Environmental Quality Act (CEQA) Guidelines require that a project's cumulative impacts be discussed when "the incremental effect is cumulatively considerable" (*California Code of Regulations* [CCR], Title 14, Section 15130). Section 15065(a)(3) of the State CEQA Guidelines specifies that cumulatively considerable means "that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects". Further, Section 15355 of the State CEQA Guidelines defines cumulative impacts as follows:

> . . . two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.
>
> a) The individual effects may be changes resulting from a single project or a number of separate projects.
>
> b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonable foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

When addressing cumulative impacts, Section 15130(b) of the State CEQA Guidelines states that an adequate discussion of significant cumulative impacts involves one of the following two elements, either:

> A. A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or
>
> B. A summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect. Such plans may include: a general plan, regional transportation plan, or plans for the reduction of greenhouse gas emissions. A summary of projections may also be contained in an adopted or certified prior environmental document for such a plan. Such projections may be supplemented with additional information such as a regional modeling program. Any such document shall be referenced and made available to the public at a location specified by the lead agency.

Section 7.0 of the 2019 Centennial EIR provides the full approach to cumulative impact analysis, including the regional growth discussion and related projects list. The following analysis updates the cumulative analysis for the issues addressed in this Recirculated Partial Draft EIR, specifically, biological resources, climate change, and wildfire. As discussed in Section 1.0 of this Recirculated Partial Draft EIR, for all other resource areas, there is no new

significant new information concerning new significant cumulative impacts or a substantial increase in such impacts that were not previously disclosed and analyzed in the Centennial EIR.

As described in Section 7.2 of the Centennial EIR, the cumulative analysis for the Project includes both the list and projection approach. The cumulative analysis below uses the list of cumulative projects identified in the Centennial EIR, which includes similar master developments that would occur over many years. Further, the analysis includes the regional projections developed by the Southern California Association of Governments (SCAG) and Kern Council of Governments (Kern COG). As discussed in Chapter 7.0 of the Centennial EIR, the Project would be within the growth projections for North Los Angeles County and Kern County. Cumulative projects identified in the Centennial EIR include master planned residential, commercial, and industrial developments as well as improvements to SR-138. Since the Centennial EIR was prepared, one project (Gorman Post Ranch) has been removed from consideration as it is no longer reasonably foreseeable, and no new projects have been proposed or have otherwise become reasonably foreseeable such that meaningful analysis of cumulative impacts would be possible.

3.1.1 BIOLOGICAL RESOURCES

Threshold 2.1-1

Have a Substantial Adverse Effect, Either Directly or Through Habitat Modifications, on Any Species Identified as a Candidate, Sensitive, or Special Status Species in Local or Regional Plans, Policies, or Regulations, or by the CDFW or USFWS (Crotch's bumble bee analysis)

As discussed in Section 2.1 of this Recirculated Partial Draft EIR, the Project site includes suitable habitat for Crotch's bumble bee, and the species is presumed to be on-site. The Project's Mitigation Preserve Program (Project Design Feature 7-1) includes a 27,408-acre preserve system consisting of approximately 3,861 acres of unimpacted/Significant Ecological Area lands on-site and 23,547 acres in additional off-site areas, including lands on Tejon Ranch. Through the Mitigation Preservation Program, the Project would provide an approximately 4:1 preservation-to-impact ratio for potentially suitable Crotch's bumble bee habitat. The Recirculated Partial Draft EIR includes Mitigation Measure 7-23 to address potential direct impacts to Crotch's bumble bee during ground disturbance, which requires preconstruction surveys, nest buffers, grubbing restrictions, construction vehicle speed limits, and consultation with CDFW if known nests cannot be avoided. Other applicable mitigation measures for sensitive plants and wildlife species would also reduce adverse effects to Crotch's bumble bee habitat (**MM 7-3, MM 7-4, MM 7-10, MM 7-11, MM 7-12, MM 7-13, MM 7-15, MM 7-16, MM 7-17, MM 7-18, MM 7-21**, **MM 7-22, and MM BIO-1**). With implementation of these measures, the Project would have less than significant impacts to Crotch's bumble bee.

Cumulative projects that require CEQA review and could impact Crotch's bumble bee would be expected to comply with similar measures. Further, if the species remains a candidate

species or is listed, take of Crotch's bumble bee would be prohibited under the California Endangered Species Act. Thus, if the project or a cumulative project would take Crotch's bumble bee, an incidental take permit issued by CDFW would be required and that permit would include conditions of approval to protect Crotch's bumble bee. Therefore, the Project, in combination with other past, present, and reasonably foreseeable future projects, would not result in a significant cumulative impact to Crotch's bumble bee.

3.1.2 CLIMATE CHANGE

Threshold 2.2-1

Generate greenhouse gas emissions, either directly or indirectly, that May Have a Significant Effect on the Environment

As discussed in Section 2.2 , *Climate Change*, the effects of greenhouse gas (GHG) emissions are considered in a global context, that is, global warming and climate change, because no single project alone would produce enough emissions to cause a measurable climate change impact.[1] Instead, existing global development has already created the significant cumulative impact called climate change and the goal is to analyze whether a project would make a cumulative considerable contribution to that significant cumulative impact.

As discussed further in Section 2.2, *Climate Change*, to fulfill the Settlement Agreement (SA) obligations, the Project has a contractual obligation to reduce GHG emissions by 500,000 metric tons per year, exceeding what would be necessary to achieve "net-zero" through implementation of various GHG reduction measures specified in the Settlement Agreement. As demonstrated in Section 2.2, with incorporation of project design features (PDFs) and SA **Mitigation Measures (SA MM-1, SA MM-2, SA MMs-6–9, SA MM-11, SA MM-12, SA MM-14,** and **SA MM-15**), the Project would reduce more GHG emissions than it would generate and achieve "net zero" GHG emissions. Therefore, the Project would not make a cumulatively considerable contribution to significant cumulative impacts from GHG emissions.

Threshold 2.2-2

Conflict with an Applicable Plan, Policy or Regulation adopted for the purpose of reducing the emissions of greenhouse gases

As discussed further in Section 2.2, *Climate Change*, because the Project would achieve "net zero" GHG emissions, it would not conflict with any applicable plans, policies or regulations adopted for the purpose of reducing the emissions of GHGs, including the 2035 General Plan Air Quality Element, the 2045 Climate Action Plan, CARB's 2022 Scoping Plan, the Southern California Association of Governments' (SCAG) 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), or SCAG's 2024-2050 RTP/SCS. Because the Project would not conflict with these applicable plans, it also would not combine with

[1] BAAQMD, 2022 CEQA Guidelines, § 3.3, available at https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa-guidelines-2022/ceqa-guidelines-chapter-3-thresholds_final_v2-pdf.pdf?la=en.

other past, present, and reasonably foreseeable future projects to result in a cumulatively considerable conflict with these plans.

3.1.3 WILDFIRE

Threshold 2.3-1

Exposure of People or Structures, Either Directly or Indirectly, to a Significant Risk of Loss, Injury, or Death Involving Wildland Fires

As discussed in Section 2.3, *Wildfire*, the Project would be located in or near state responsibility areas or land classified as very high fire hazard severity, and it would introduce approximately 57,150 residents into these areas, which could exacerbate the risk of wildfire. Without mitigation, the Project could constitute a dangerous fire hazard or otherwise expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires, which would be a significant impact. However, the Project's proposed development, including off-site Project features, would not be placed in an area characterized by high-risk topography and vegetation. The Project would be developed as fire hardened, modern master planned community with a clustered, interface design and would comply with current state-of-the-art, ignition-resistant construction standards for all new residential, non-residential, and public facility buildings meeting Chapter 7A of the California Building Code, Title 26 of the County of Los Angeles Building Code, and County Fire requirements. These mandated standards require, among many other measures, fire-resistant roofing to resist ignition from embers or building-to-building fires, vent covering and opening limitations to avoid ember intrusion, noncombustible or ignition-resistant exterior walls, ignition-resistant eaves, and porch ceilings, insulated windows and exterior doors, fire-resistant exterior decks and walkways, and ignition-resistant under-flooring and appendages. Project buildings would be constructed of fire-retardant materials and indoor fire sprinkler systems thus reducing ember generation in the event of a structure fire that could threaten on-site and off-site resources. These standards have proven to substantially reduce the risk of buildings catching fire or spreading fires during a wildfire event.

In addition, the Project would incorporate fuel modification zones ranging 100-200 feet, which modeling demonstrates would protect the Project site from off-site wildfires, limit the spread of on-site fires to off-site locations, and provide access to firefighters and fire-fighting equipment to suppress both on-site and off-site fires (**MM WILD-2**). The Project would provide three, and up to four, fully equipped fire stations to ensure adequate fire service response times (**MM 16-3**). The Project would have a sufficient water supply to serve fire suppression needs and would be constructed with code compliant fire hydrant systems with adequate water flows to fight fire. The Project's code compliant internal circulation system and parking restrictions would ensure that firefighting apparatus would have appropriate access to, in, and around the Project site as necessary to provide fire suppression services, and the Project would provide sufficient access points to ensure safe and timely ingress and egress to and from the Project site to serve the needs of both first responders and potential evacuees. To further ensure ongoing maintenance of Project fuel modification zones,

adequate access to the site, and timely emergency response, the Project would implement mitigation measures **MM 3-7, MM 3-8, MM 16-2, MM 16-3, MM 16-4,** and **MM WILD-2**. With implementation of these mitigation measures and compliance with regulatory standards, the Project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires, and impacts would be less than significant.

During the construction phase, ignition risks are heightened by the use of heavy equipment and tools. Earth-moving equipment, vehicles, chainsaws, welders, grinders, woodchippers, torches, and blasting activities (if required) can generate sparks, heat, or fuel leaks that may ignite dry vegetation. To address this impact, Mitigation Measure WILD-1 requires the project proponent/operator to implement all protocols for reducing the potential of ignitions during construction set forth in the Project's proposed a Construction Fire Prevention Plan to minimize construction-phase ignition risks by establishing comprehensive controls on combustible materials, equipment use, and site operations. Additionally, Mitigation Measures 3-8 and 10-5 require implementation of a construction Traffic Control Plan, which would require coordination with public agencies with respect to construction traffic and would ensure that evacuation routes are not impeded. With implementation of MMs 3.8, 10-5, and WILD-1, impacts related to construction at the Project Site would be less than significant.

As further discussed in Section 2.3, *Wildfire*, the Project requires the construction of off-site features consisting of roadway improvements and connections and upgrades to existing off-site utility systems. Off-site roadway improvements, wells and water infrastructure, aqueduct crossings, and dry utilities are located in areas with minimal or no vegetation, such as paved roads, gravel shoulders, and previously disturbed ground, with little to no fuel available to support wildfire ignition or spread. All construction activities for these off-site roadway features are required to comply with the Project's Construction Fire Protection Plan (MM WILD-1), which mandates fire prevention measures and response protocols, further minimizing the likelihood of accidental ignition. The minimal vegetation, fire protection compliance, and temporary nature of the activities would result in a significantly lower wildfire risk associated with off-site roadway improvements, and impacts from construction of off-site roadway improvements would be less than significant. Regarding off-site electrical improvements, improvements to the Bailey Substation would be contained within a parcel of land owned by SCE and would not extend onto the Project site. The existing substation parcel is graded, flat, developed with electrical infrastructure, and includes graveled setbacks with no vegetation within the fenceline. Reconfiguration would include the placement of a large transformer to take transmission voltage (66 kV) and convert it to distribution voltage (12 kV). Distribution voltage would be extended to the Project site on the existing overhead pole line along SR-138, or routed northerly overhead or underground around Quail Lake within the Project limits. Combined with the absence of vegetation and the use of non-combustible concrete infrastructure, the likelihood of wildfire occurrence or impact at these locations is considered negligible, and impacts from construction of off-site electricity improvements would be less than significant.

Potential wildfire impacts associated with increase vehicle traffic on SR-138 would be reduced to less than significant due to compliance with all applicable State and County fire safety regulations, including vegetation management and fuel modification requirements, as applicable. With continued compliance with these existing regulatory frameworks and standard maintenance practices, the Project would not increase wildfire risk or exacerbate wildfire hazards on off-site roadways during long-term operation. As such, the impacts from operations of off-site roadway improvements would be less than significant. Operational impacts related to wildfire from the proposed off-site wells and water improvements, aqueduct crossings, and dry utilities would occur within previously disturbed areas with minimal or no vegetation, which have a low potential for fuel ignition and wildfire spread. These off-site improvements would have relatively flat topography, and do not include features that would exacerbate fire behavior or access limitations for emergency response. Operation and maintenance of the well and water infrastructure improvements would comply with all applicable State and County fire safety regulations, including vegetation management and fuel modification requirements, as applicable. As such, the impacts from operations of off-site wells and water improvements, aqueduct crossings, and dry utilities would be less than significant. Regarding off-site electricity line improvements, those would occur within a developed area with minimal or no vegetation, with a low potential for fuel ignition or wildfire spread. In addition to limited vegetation, the off-site improvements would have relatively flat topography, and would not include features that would exacerbate fire behavior or access limitations for emergency response. Operation and maintenance of the electrical line would comply with all applicable State, County and SCE fire safety regulations, including vegetation management and fuel modification requirements, as applicable. Specifically, SCE would be required to comply with its WMP and execution of the Integrated Wildfire Mitigation Strategy (IWMS), which requires grid hardening, inspections, and vegetation management activities to ensure continued integrated wildfire mitigation. With continued compliance with these existing regulatory frameworks and standard maintenance practices, the Project would not increase wildfire risk or exacerbate wildfire hazards during long-term operation. As such, impacts from the operations of off-site electricity line improvements would be less than significant.

Similar to the Project, the related projects would also be required to comply with the Los Angeles and Kern County's vegetation clearance requirements, as required by the Los Angeles County or Kern County Municipal Code, as applicable. The Project and all other future residential development projects in the service area would be subject to review by the Los Angeles and/or Kern County Fire Departments and would be required to comply with the relevant County Fire Codes and other relevant County Code requirements and applicable regulations related to fire safety, building construction, access, fire flow, and fuel modification. Thus, cumulative impacts related to exposure of people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires would be less than significant.

Threshold 2.3-2

Exposure of People or Structures to Significant Risks, Including Downslope or Downstream Flooding or Landslides, as a Result of Runoff, Post-Fire Instability, or Drainage Changes

As discussed in Section 2.3, *Wildfire*, under Threshold 2.3-2, the Project would not constitute a dangerous fire hazard or otherwise expose people or structures, either directly or indirectly, to a significant risk of loss associated with downslope or downstream flooding, landslides, runoff, post-fire slope instability, or drainage changes. Additionally, while the following mitigation measures are not specifically designed to address hazards associated with post-fire flooding, landslides, or slope instability, the Project would implement mitigation measures **MM 3-7, MM 3-8, MM 3-9, MM 16-2, MM 16-3,** and **MM 16-4,** which are intended to reduce wildfire ignition potential and limit fire spread within and surrounding the Project site. By reducing the likelihood and severity of wildfire, these measures would also provide ancillary benefits by lowering the potential for post-fire conditions that can contribute to increased erosion, slope instability, flooding, and downslope or downstream debris movement. Project-related and cumulative impacts related to slope instability and landslides were analyzed in the Section 5.1, *Geotechnical*, and Section 7.3.1 of the Centennial EIR and were determined to have no cumulative impact. Because the Project would proactively manage runoff and stabilize slopes, it would not contribute additional load to downstream drainage systems or exacerbate existing hydrologic or geomorphic conditions.

Cumulative impacts related to slope instability or landslides could only occur if cumulative projects were connected to a single area that is vulnerable to landslides where the activities of the projects together might combine to exacerbate the hazard (e.g., multiple projects cutting into the toe of a landslide) and there was an increase in fire risk that would potentially result in post-fire instability. The Burrows property and the Northwest 138 Corridor Improvement Project share a boundary with the Project. The Burrows property does not contain steep slopes that would be susceptible to landslides or slope instability. Similar to the Project, related projects in the area could include the removal of vegetation that could lead to slope instability, however, all cumulative development would be required to comply with the California Building Code, which includes slope stability requirements, as well as subject to their respective geotechnical report and recommendations.

Therefore, when considered in combination with other past, present, and reasonably foreseeable future projects, the Project would not substantially increase cumulative risks associated with post-fire runoff, slope instability, or drainage changes, and the cumulative impact would be less than significant.

Threshold 3.2-3

Due to Slope, Prevailing Winds, and Other Factors, Exacerbate Wildfire Risks, and Thereby Expose Project Occupants to, Pollutant Concentrations From a Wildfire or the Uncontrolled Spread of a Wildfire

As described in Section 2.3, *Wildfire*, the Project, including off-site Project features, would be located in a moderate, high, and very high FHSZ in an area that is susceptible to wildfire. The Project would introduce a new population and activities to a VHFHSZ and high FHSZ, and an area that is susceptible to wildfire, which could result in potentially significant impacts related to exacerbating wildfire risk and exposing Project occupants to wildfire or wildfire pollutants. The Project, combined with other projects in the region, would increase the population in the region, which may increase the potential for exposure to pollutant concentrations to occupants in the area. More specifically, the Burrows Property, Tejon Mountain Village, and the Grapevine Project all propose residential developments that would directly result in an increase in population.

The related projects also have the potential to indirectly induce population growth through the establishment of employment opportunities and increased access in the case of the 138-improvement project. Additionally, the increased population has the potential to increase potential ignition sources to the area and wildfire risk. However, Project buildings would be constructed of fire-retardant materials and would include indoor fire sprinkler systems thus reducing ember generation in the event of a structure fire that could threaten onsite and offsite resources. The Project would provide three, and up to four, fully equipped fire stations to ensure adequate fire service response times (**MM 16-3**). Additionally, **MM 16-1** requires, at buildout, the Los Angeles County Fire Department fire stations shall be located such that response times to the Project site shall be 5 minutes or less for fire service responses and 8 minutes or less for the advanced life support (paramedic) unit responses within the Project site. Further, implementation of **MM 16-2** requires the Developer to pay developer fees in accordance with the County Developer Fee Program until such time as the Developer has conveyed an approved, operational fire station to Los Angeles County Fire Department, unless otherwise agreed to by the Developer and Los Angeles County Fire Department in accordance with the County Developer Fee Program's land-in-lieu of fees provisions.

The Project would have a sufficient water supply to serve fire suppression needs within the Project site and at off-site Project features and would be constructed with code compliant fire hydrant systems with adequate water flows to fight fire. The Project's code-compliant internal circulation system and parking restrictions would ensure that firefighting apparatus would have appropriate access to, in, and around the Project site as necessary to provide fire suppression services, and the Project would provide sufficient access points to ensure safe and timely ingress and egress to and from the Project site to serve the needs of both first responders and potential evacuees. Project CC&Rs and HOA enforcement authority, combined with regulatory oversight, would ensure that Project FMZs and fire-safe landscaping are properly and timely maintained over the life of the Project and would ensure the implementation of a communitywide fire-safe education program to ensure that Project

occupants are fully informed of their fire-related maintenance obligations and how to respond to a fire emergency, should one occur. The Project would further reduce fire risks during construction through the implementation of project-specific Construction Fire Prevention and Construction Traffic Control Plans (**MMs 3-8, 10-5,** and **WILD-1**), Fuel Modification Plan and annual fuel modification maintenance and inspection (**MM WILD-2**).

With respect to SCE construction of upgrades to its system to serve the Project, SCE would comply with its best management practices and all regulatory requirements, as detailed in Section 2.3.3, Regulatory Setting, related to vegetation clearance and fire prevention measures associated with its equipment. With respect to highway improvements to service the Project, Caltrans would comply with its best management practices and all regulatory requirements, as detailed in Section 2.3.3, Regulatory Setting, related to vegetation clearance and fire prevention measures associated with its facilities. Additionally, individual projects located within Los Angeles and Kern Counties are required to comply with all applicable County fire and building codes, which include fire prevention and protection features that reduce the likelihood of ignition and spread of fire. These codes also protect projects from wildfires that may occur in the area through the implementation of brush management and fuel management zones, ensuring adequate water supply, preparation of fire protection plans, and other fire risk reduction measures.

Similar to the Project, the related projects in the area would be expected to follow public health and air quality agencies strategies to limit exposure to pollutant concentrations during a wildfire, which include staying indoors, limiting physical activity, reducing indoor air pollution sources, effectively using air conditioners and air filters or cleaners, creating cleaner air shelters, and using respiratory protection appropriately to reduce exposure to pollutants. Thus, cumulative impacts related to exposure of Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire would not be significant.

Threshold 3.2-4

Substantially Impair an Adopted Emergency Response Plan or Emergency Evacuation Plan

As discussed in Section 2.3, *Wildfire*, if an evacuation of the Project site were to occur during the installation of the proposed on- or off-site improvements, use of SR-138 and internal Project roadways could be limited for evacuation of existing and Project populations, resulting in a significant impact. However, with incorporation of **MM 3-8** and **MM-10-5**, short-term construction-related impacts related to impairment of an emergency response or evacuation plan would be less than significant. During Project operation, the Project would result in significant impacts related to evacuation of the site if there was not updated information available to emergency responders and Project occupants during an evacuation. To address impacts related to the potential impediment of an evacuation, the Project would implement Mitigation Measures **MM-3-7, MM 3-8,** and **MM 10-5**. **MM-3-7** would include the preparation and updating of an Emergency Response Plan which will reflect the changes proposed for each tentative map, which will be provided to all Project occupants and made

available for emergency managers to see updated conditions. **MM-3-8** would include a construction Traffic Control Plan which shall identify traffic-control measures implemented to maintain traffic flow in all directions. **MM 10-5** would require minimization of obstructions in traffic lanes, maintenance of emergency access throughout construction activities through methods such as the use of flag persons to minimize obstructions along SR-138, signage, scheduling of vehicle movements to ensure traffic flow, and limiting schedule of deliveries and truck traffic, among other requirements.

Together, these measures would ensure that in the case of an evacuation during construction, there would be routes available in all directions. Moreover, the Project's proposed Development Agreement obligates the Project applicant to require the Project's Master HOA to implement the Emergency Response Plan, which must include shelter-in-place and evacuation plans, as well ensure the provision of first aid and emergency electric power supplies. The proposed Development Agreement further obligates the Project applicant to provide Project occupants educational information about the health and safety benefits of emergency preparation to respond to natural disasters, which information must be provided at the initial point of property sale, and annually thereafter though the community's required intranet service. Therefore, with mitigation, the Project would not substantially impair emergency response or evacuation or interfere with established emergency plans, and impacts would be less than significant.

Similar to the Project, the related projects described in Section 7.2.2 of the 2019 Centennial EIR would result in additional vehicles evacuating during construction and operation. These related projects also have the potential to either directly or indirectly induce population growth. More specifically, the Burrows Property, Tejon Mountain Village, and the Grapevine Project all propose residential developments that would directly result in an increase in population. The related projects also have the potential to indirectly induce population growth through the establishment of employment opportunities and increased access in the case of the 138-improvement project. While the projects would result in an increased population to the area, resulting in additional people evacuating the area in case of a wildfire evacuation scenario, the only project that would potentially share the evacuation routes to get to I-5 with the Project would be the Burrows Property project. Any additional time resulting from an increase of vehicles on the road does not necessarily generate a greater safety risk, because evacuation orders from emergency personnel will take into full account the additional time needed should an increase in vehicles on the road occur, preventing further safety risk. Risk to nearby development, including the Project or existing communities, is assessed on a regular basis in a wildfire event. Further, the Incident Commander would direct a focused evacuation of zones situated near the wildland–urban interface (WUI), which are at higher risk.

Similar to the Project, other related projects would contribute to public service facilities and or fees as applicable through Los Angeles and Kern County's Developer Fee Programs and address any potential impediments to evacuation during project phasing. Further, all projects would be required to comply with applicable emergency access standards, including requirements related to roadway design, minimum access width, provision of secondary access where necessary, and the maintenance of clear emergency routes throughout

construction. In addition, projects are subject to discretionary review and would be evaluated on a case-by-case basis to ensure that they do not adversely affect emergency response or evacuation conditions. Therefore, cumulative impacts related impairment of an emergency response or evacuation plan would not be significant.

Threshold 3.2-5

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

Introduction of infrastructure, both on- and off-site, can have potential to increase cumulative fire risk from the increased ignition potential from construction and maintenance activities of associated infrastructure, or by placing infrastructure in an area with highly flammable fuel loads. As described in Section 2.3, *Wildfire*, the Project's implementation of a project-specific Construction Fire Prevention Plan, Fuel Modification Plan, and annual fuel modification maintenance and inspection would reduce risk at the Project site. On-site Project utilities would be undergrounded, substantially reducing ignition risks in the area associated with construction, maintenance, or location of infrastructure. Off-site infrastructure would be located in areas with minimal or no vegetation, such as paved roads, gravel shoulders, and previously disturbed ground, with a low potential for fuel ignition or wildfire spread. During construction and operations, off-site infrastructure, including utility, roadway, and water supply improvements, would comply with all applicable State and County fire safety regulations, including vegetation management and fuel modification requirements, as applicable, resulting in a less than significant impact.

Similar to the Project, all of the related projects would require the installation and maintenance of new utility infrastructure, some of which would include the undergrounding of utilities, substantially reducing ignition risks in the area. The related projects would also be required to comply with the Los Angeles and Kern County's vegetation clearance requirements, as required by the Los Angeles County or Kern County Municipal Code, as applicable. The Project and all other future residential development projects in the service area would be subject to review by the Los Angeles and/or Kern County Fire Departments and would be required to comply with the relevant County Fire Codes and other relevant County Code requirements and applicable regulations related to fire safety, building construction, access, fire flow, and fuel modification. Thus, cumulative impacts related to the installation and maintenance of associated infrastructure would be less than significant.

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Appendix A

Court of Appeal Opinion

Filed 6/26/25

CERTIFIED FOR PARTIAL PUBLICATION*

IN THE COURT OF APPEAL OF THE STATE OF CALIFORNIA

SECOND APPELLATE DISTRICT

DIVISION SEVEN

COURT OF APPEAL – SECOND DIST.
FILED
Jun 26, 2025
EVA McCLINTOCK, Clerk
C.Meza Deputy Clerk

CENTER FOR BIOLOGICAL DIVERSITY et al.,

Plaintiffs and Appellants,

v.

COUNTY OF LOS ANGELES et al.,

Defendants and Respondents;

CENTENNIAL FOUNDERS, LLC, et al.,

Real Parties in Interest and Appellants.

B330610

(Los Angeles County Super. Ct. No. 19STCP02100)

APPEAL from a judgment of the Superior Court of Los Angeles County, Mitchell Beckloff, Judge. Affirmed.

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* Pursuant to California Rules of Court, rules 8.1100 and 8.1110, this opinion is certified for publication with the exception of parts I.D.-E. and II. in the Discussion.

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Holland & Knight, Jennifer L. Hernandez, Bradley B. Brownlow and Emily M. Lieban, for Real Parties in Interest and Appellants Tejon Ranch Co., Centennial Founders, LLC; and Tejon Ranchcorp.

Matthew Gelfand and Allyson Richman for Californians for Homeownership as Amicus Curiae on behalf of Real Parties in Interest and Appellants.

Meyers Nave, Deborah J. Fox, Amrit S. Kulkarni and Margaret W. Rosequist for National Community Renaissance of California as Amicus Curiae on behalf of Real Parties in Interest and Appellants.

Strumwasser & Woocher, Beverly Grossman Palmer and Salvador E. Perez for Climate Resolve as Amicus Curiae on behalf of Real Parties in Interest and Appellants.

INTRODUCTION

In 2019, the County of Los Angeles (County) approved the Centennial Specific Plan, an expansive development on 12,000 acres of land in the Antelope Valley (the Centennial project). The Centennial project was proposed by real parties in interest Tejon Ranch Company, Centennial Founders LLC, and Tejon

Ranchcorp (collectively, Tejon). The multi-year approval process was subject to the California Environmental Quality Act (CEQA). (Pub. Resources Code, § 21000 et seq.) Before approving the Centennial project, the County Board of Supervisors (Board) certified an environmental impact report (EIR) and adopted CEQA findings and a statement of overriding considerations pursuant to Public Resource Code section 21081, subdivisions (a) and (b).

Environmental groups challenged the County's approval of the Centennial project. The Center for Biological Diversity and the California Native Plant Society (collectively, the Center) filed a petition for a writ of mandate, as did another organization, Climate Resolve. The superior court ruled the County's approval of the Centennial project violated CEQA by (1) improperly relying on state cap-and-trade regulations to offset the estimated unmitigated greenhouse gas emissions of the project,[1] and (2) failing to analyze wildfire impacts beyond the project site. After extensive briefing following Climate Resolve's settlement with Tejon, the court ultimately entered a judgment in favor of the Center and issued a peremptory writ of mandate ordering the

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[1] The California cap-and-trade program, as described further in the Discussion, seeks to reduce greenhouse gas emissions by "capping" the emissions of certain industrial facilities and fuel and power suppliers and permitting these entities to trade emission allowances and offset credits to comply with the cap. (See Health & Saf. Code, §§ 38562, 38570; Cal. Code Regs., tit. 17, §§ 95801-96022; *Golden Door Properties, LLC v. County of San Diego* (2020) 50 Cal.App.5th 467, 485; *Our Children's Earth Foundation v. State Air Resources Bd.* (2015) 234 Cal.App.4th 870, 876.)

County to decertify the EIR and set aside the Centennial project approvals.

Tejon appeals, arguing the EIR's discussion of greenhouse gas emissions and the cap-and-trade program, as well as the discussion of offsite wildfire risks were not misleading. It also challenges the superior court's authority to grant the Center's petition on the grounds briefed by Climate Resolve. The Center cross appeals from the superior court's denial of its petition on other grounds, arguing the EIR failed to: (1) adequately discuss the Centennial project's impacts on wildlife movement and habitat connectivity; (2) disclose or mitigate the project's harm to native vegetation; and (3) analyze any alternatives that would substantially lessen the project's adverse impacts.

In the published part of the opinion, we address Tejon's arguments regarding the EIR's discussion of greenhouse gas emissions and the cap-and-trade program and conclude the superior court did not err by ruling the EIR was prejudicially misleading. As we explain, the County failed to proceed in a manner required by law when it applied the cap-and-trade program to the Centennial project's estimated unmitigated greenhouse gas emissions, which minimized the project's environmental impact and rendered the EIR prejudicially misleading. The project itself is not a covered entity under the cap-and-trade program, and the CEQA Guidelines contain an additionality requirement which forecloses applying an energy provider's or fuel supplier's obligatory cap-and-trade compliance to offset the estimated greenhouse gas emissions of a land-use project. (See Guidelines for the Implementation of the California Environmental Quality Act (Cal. Code Regs., tit. 14, §§ 15000 et seq. (hereafter, Guidelines), § 15126.4, subd. (c)(3).)

In the nonpublished part of the opinion, we address Tejon's arguments relating to the EIR's discussion of offsite wildfire risks, Tejon's procedural challenges to the superior court's ruling, and the Center's cross-appeal arguments. We conclude the superior court did not err by ruling the EIR was prejudicially misleading based on the discussion of offsite wildfire risk, and that it did not abuse its discretion by allowing the Center to prevail based on arguments briefed by Climate Resolve. We further conclude the superior court did not err by rejecting the Center's arguments relating to wildlife, native vegetation, and alternatives to the project.

In sum, we conclude the County violated CEQA by approving the Centennial project, reject the arguments raised on the appeal and cross-appeal, and we affirm.

FACTUAL AND PROCEDURAL BACKGROUND

A. *The Centennial Project and the EIR*

The Centennial project seeks to develop approximately 12,323 acres of the historic Tejon Ranch in the Antelope Valley, south of Kern County. The site is surrounded by the Tehachapi Mountains to the north, the Antelope Valley to the east, the Liebre and San Gabriel Mountains of the Angeles National Forest to the south, and private vacant land and the Los Padres National Forest to the west. The site is approximately one mile east of Interstate 5 (I-5) and would be primarily served by State Route 138 (SR-138), which runs through the southern portion of the site.

The Centennial project would consist of 19,333 residential units on 40 percent of the site, with business, commercial, and industrial uses on another 15 percent, leaving 45 percent of the

site open space. This would result in approximately 6,699 developed acres and 5,624 acres of open space. As finally approved in 2019, the project is a smaller version of a larger scale development that Tejon originally proposed in 2003. As originally proposed, the project was to include 7,847 developed acres and 3,829 acres of open space, with 22,998 residential units.

The County issued notices of preparation of an EIR in 2004 and 2015, and it issued a draft EIR (DEIR) for public comment in 2017. The County released a final EIR for public comment in May 2018, followed by a consolidated final EIR (CFEIR) in November 2018 for Board certification. The Board held its final hearing on the Centennial project in December 2018, and on April 30, 2019, it certified the EIR and adopted CEQA findings of fact and a statement of overriding considerations. (See Pub. Resources Code, § 21081, subds. (a) and (b).) The certified EIR incorporates both the DEIR and CFEIR.

B. *The Center and Climate Resolve Challenge the County's Certification of the EIR*

In May 2019, the Center and Climate Resolve each filed a petition for a writ of mandate in the superior court, alleging the County's approval of the Centennial project violated CEQA and various planning and zoning laws, as noted below.[2] The

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[2] The Center and Climate Resolve each styled their challenge as a "petition for writ of mandate," citing the code sections for administrative and traditional mandamus. (Code Civ. Proc., §§ 1085, 1094.5.) "A party may seek to set aside an administrative decision for failure to comply with CEQA by petitioning for either administrative mandamus (Code Civ. Proc.,

petitioners both sought to set aside the County's certification of the EIR, the findings of fact, and the statement of overriding considerations supporting the County's approval of the Centennial project.

The Center's petition alleged a wide range of CEQA violations, including failure to analyze adequately and/or mitigate aesthetic, recreational, and biological impacts; greenhouse gas emissions; noise impacts; transportation and traffic impacts; population and housing impacts; growth-inducing impacts; wildfire risk impacts; land use impacts; water quality impacts; air quality impacts; seismic impacts; water supply risks and impacts; and, separately, the failure to adequately analyze alternatives. It also alleged inconsistencies with land use policies in the County's General Plan, the Antelope Valley Area Plan (AVAP), and related ordinances. Climate Resolve's petition was

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§ 1094.5) or traditional mandamus (*id.*, § 1085). A petition for administrative mandamus is appropriate when the party seeks review of a 'determination, finding, or decision of a public agency, made as a result of a proceeding in which by law a hearing is required to be given, evidence is required to be taken and discretion in the determination of facts is vested in a public agency, on the grounds of noncompliance with [CEQA],' generally referred to as an 'adjudicatory' or 'quasi-judicial' decision. [Citations.] A petition for traditional mandamus is appropriate in all other actions brought 'to attack, review, set aside, void or annul a determination, finding, or decision of a public agency on the grounds of noncompliance with [CEQA].'" (*Western States Petroleum Assn. v. Superior Court* (1995) 9 Cal.4th 559, 566-567); see Pub. Resources Code, §§ 21168, 21168.5, 21168.7.) A "writ of mandamus may be denominated a writ of mandate." (Code Civ. Proc., § 1084.)

more limited in scope and primarily alleged inadequate analysis and mitigation of greenhouse gas emissions and wildfire risk.

C. *The Superior Court Grants Climate Resolve's Petition and Rules, After Reconsideration, that the Center Prevailed on Its Petition on the Same Grounds*

In April 2021, the superior court issued a 62-page opinion addressing both petitions, with separate minute orders incorporating the opinion in each case. The court granted Climate Resolve's petition on two grounds: (1) the EIR's discussion of greenhouse gas emissions improperly relied on state cap-and-trade regulations to reduce greenhouse gas emissions impacts below the level of significance, and (2) the EIR failed to analyze off-site wildfire impacts beyond the Centennial project site. The court rejected the arguments briefed by the Center, and initially denied the Center's petition in its entirety, without addressing the substantive effect of the Center's incorporation by reference of the successful arguments briefed by Climate Resolve. The superior court acknowledged that Climate Resolve's "arguments are incorporated by reference by the [Center]," but stated "[i]t is unclear how the [Center] may incorporate by reference arguments made in a separate action by a different party."

After several rounds of briefing on the Center's motion for reconsideration and a settlement between Climate Resolve and Tejon (both described more fully in the nonpublished part of the Discussion), the superior court entered judgment in favor of the Center based on its greenhouse gas and offsite wildfire risk rulings, and entered judgment in favor of the County "on the remaining claims and causes of action." The court issued a

peremptory writ of mandate ordering the County to decertify the EIR; set aside the Centennial project approvals, CEQA findings, statement of overriding considerations and mitigation program; and suspend all project activity "that could result in an adverse change or alteration to the physical environment."

Tejon timely appealed, and the Center timely cross-appealed.

DISCUSSION

I. TEJON'S APPEAL

Tejon argues the EIR's analysis of greenhouse gas and wildfire impacts complied with CEQA. The County, the lead agency charged with complying with CEQA, does not appeal the superior court's rulings to the contrary. We conclude the superior court did not err.

A. *CEQA and the EIR Process*

"CEQA was enacted to (1) inform the government and public about a proposed activity's potential environmental impacts; (2) identify ways to reduce, or avoid, those impacts; (3) require project changes through alternatives or mitigation measures when feasible; and (4) disclose the government's rationale for approving a project." (*Protecting Our Water & Environmental Resources v. County of Stanislaus* (2020) 10 Cal.5th 479, 488 (*Protecting Our Water*); accord, *Union of Medical Marijuana Patients, Inc. v. City of San Diego* (2019) 7 Cal.5th 1171, 1184-1185 (*Union*); *Santa Clarita Organization for Planning the Environment v. County of Los Angeles* (2024) 105 Cal.App.5th 1143, 1155.) CEQA ensures "public agencies

will consider the environmental consequences of discretionary projects they propose to carry out or approve." (*Stockton Citizens for Sensible Planning v. City of Stockton* (2010) 48 Cal.4th 481, 488; see *County of Butte v. Department of Water Resources* (2022) 13 Cal.5th 612, 626-627 (*County of Butte*); see generally Guidelines, §§ 15000-15387.) "In interpreting CEQA, we accord the Guidelines great weight except where they are clearly unauthorized or erroneous." (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 428, fn. 5 (*Vineyard*).)

"CEQA review is undertaken by a lead agency, defined as 'the *public agency* which has the principal responsibility for *carrying out* or approving a project which may have a significant effect upon the environment.' (Pub. Resources Code, § 21067)." (*Friends of the Eel River v. North Coast Railroad Authority* (2017) 3 Cal.5th 677, 712 (*Eel River*); accord, *Union, supra,* 7 Cal.5th at p. 1185.) On projects subject to CEQA that may have a significant environmental impact, the lead agency must prepare and certify an EIR before approving or proceeding with the project. (See *County of Butte, supra,* 13 Cal.5th at p. 627; *Protecting Our Water, supra*, 10 Cal.5th at pp. 488-489; Pub. Resources Code, §§ 21080, subd. (d), 21100, subd. (a) [state agencies], 21151, subd. (a) [local agencies]; Guidelines, §§ 15002, subd. (k)(3), 15063, subd. (b)(1).)[3] Here, the County is the lead agency responsible for the Centennial project approval and EIR.

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[3] Alternatively, "[i]f potentially significant environmental effects are discovered, but the project applicant agrees to changes that would avoid or mitigate them, the agency prepares a mitigated negative declaration (§ 21080, subd. (c)(2); CEQA

The EIR is known as "the heart of CEQA." (Guidelines, § 15003, subd. (a); accord, *Eel River*, *supra*, 3 Cal.5th at p. 713.) "Its purpose is to inform the public and its responsible officials of the environmental consequences of their decisions *before* they are made." (*Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564 (*Goleta Valley*).) "Ideally, an EIR serves 'to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided.'" (*County of Butte, supra,* 13 Cal.5th at p. 627, quoting Pub. Resources Code, § 21002.1, subd. (a).)

An EIR "must include a description of the proposed project and its environmental setting and discussions of (1) the possible environmental effects of the project, (2) feasible measures to mitigate any significant, adverse environmental effects of the project, (3) the comparative environmental effects of a range of reasonable alternatives to the proposed project, including a 'no project' alternative, and (4) the cumulative impact of the project's various environmental effects." (*County of Butte, supra,* 13 Cal.5th at p. 627; see Guidelines, §§ 15124, 15126, 15126.4, 15126.6, 15130.)

When an EIR identifies significant effects on the environment if a project is approved, the agency must make specific findings regarding potential mitigation measures or alternatives and their feasibility. (See Pub. Resources Code, § 21081, subd. (a).) "A 'mitigation measure' is a suggestion or change that would reduce or minimize significant adverse

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Guidelines, § 15070, subd. (b)), which also ends CEQA review." (*Protecting Our Water, supra,* 10 Cal.5th at p. 489.)

impacts on the environment caused by the project as proposed." (*Lincoln Place Tenants Assn. v. City of Los Angeles* (2007) 155 Cal.App.4th 425, 455; see Pub. Resources Code, § 21002; Guidelines, § 15126.4, subd. (a)(1).) "Mitigation measures are modifications of the proposed design and implementation of a project imposed by the lead agency to reduce the project's adverse environmental effects. If an EIR identifies significant environmental effects, CEQA requires the adoption of mitigation measures when 'it is feasible to do so.' (Pub. Resources Code, § 21002.1, subd. (b).)" (*County of Butte, supra,* 13 Cal.5th at p. 627; see Pub. Resources Code, § 21002.1, subd. (c); Guidelines, § 15364.)

CEQA findings are "required under [Public Resources Code] section 21081, subdivision (a), for each significant effect noted in the draft." (*Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 508 (*Sierra Club*).) Specifically, "the agency must find that the project's significant environmental effects have been mitigated or avoided [citation], that the measures necessary for mitigation 'are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency' [citation], and/or that 'specific economic, legal, social, technological, or other considerations' render mitigation 'infeasible.'" (*City of Marina v. Board of Trustees of California State University* (2006) 39 Cal.4th 341, 350.) To move forward with the project where mitigation is infeasible, the lead agency must find that "'specific overriding economic, legal, social, technological, or other benefits of the project outweigh the significant effects on the environment.'" (*Ibid.*; accord, *County of Butte, supra,* 13 Cal.5th at p. 627*;* Pub. Resources Code, § 21081, subd. (b).) A statement of overriding

considerations "is required in CEQA approved projects to show that the Project's significant environmental effects have been identified, and avoided or mitigated, or that unmitigated effects will be outweighed by the Project's benefits." (*Sierra Club,* at p. 508; see Pub. Resources Code, §§ 21002, 21002.1, 21081; Guidelines, §§ 15091-15093.)

B. *Standard of Review*

"An appellate court's review of the administrative record for legal error and substantial evidence in a CEQA case . . . is the same as the trial court's: The appellate court reviews the agency's action, not the trial court's decision" to determine whether the agency prejudicially abused its discretion. (*Vineyard, supra,* 40 Cal.4th at p. 427; see *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 62 Cal.4th 204, 214-215 (*Newhall*); *Arcadians for Environmental Preservation v. City of Arcadia* (2023) 88 Cal.App.5th 418, 428.) The agency abuses its discretion if it has not proceeded in a manner required by law or if its factual determinations or decision are not supported by substantial evidence. (See Pub. Resources Code, § 21168.5; *Newhall,* at p. 215; *Vineyard,* at p. 427; *Western States Petroleum Association v. California Air Resources Board* (2025) 108 Cal.App.5th 938, 955.) "'Noncompliance with substantive requirements of CEQA *or noncompliance with information disclosure provisions* "*which precludes relevant information from being presented to the public agency* . . . may constitute prejudicial abuse of discretion within the meaning of Sections 21168 and 21168.5, regardless of whether a different outcome would have resulted if the public agency had complied

with those provisions." (§ 21005, subd. (a).)'" (*Sierra Club, supra,* 6 Cal.5th at p. 515.)

In reviewing an agency's decision for compliance with CEQA, we determine de novo whether the agency employed proper procedures, and we review the agency's factual findings and statement of overriding considerations for substantial evidence. (See *Sierra Club, supra,* 6 Cal.5th at p. 512; *Save Agoura Cornell Knoll v. City of Agoura Hills* (2020) 46 Cal.App.5th 665, 675; see also Guidelines, §§ 15091, subd. (b), 15093, subd. (b).) "In evaluating an EIR for CEQA compliance, . . . a reviewing court must adjust its scrutiny to the nature of the alleged defect, depending on whether the claim is predominantly one of improper procedure or a dispute over the facts." (*Vineyard, supra,* 40 Cal.4th at p. 435.) Thus, "'[w]hile we determine de novo whether the agency has employed the correct procedures, "scrupulously enforc[ing] all legislatively mandated CEQA requirements" [citation], we accord greater deference to the agency's substantive factual conclusions.'" (*Ebbetts Pass Forest Watch v. California Dept. of Forestry & Fire Protection* (2008) 43 Cal.4th 936, 944 (*Ebbetts Pass*).)

In interpreting the CEQA Guidelines, "the rules that govern interpretation of statutes also govern interpretation of administrative regulations." (*Berkeley Hillside Preservation v. City of Berkeley* (2015) 60 Cal.4th 1086, 1097-1098.) Thus, we start with the plain language of the Guidelines, "giving effect to its usual meaning and avoiding interpretations that render any language surplusage." (*Id.* at p. 1097.)

C. *Greenhouse Gas Emissions*

Tejon argues the EIR's discussion of greenhouse gas emissions complied with CEQA. In its briefing, Tejon argues the County was entitled to apply the cap-and-trade program to reduce the Centennial project's emissions under *Association of Irritated Residents v. Kern County Bd. of Supervisors* (2017) 17 Cal.App.5th 708 (*AIR*). Tejon further argues the EIR's emissions analysis was not misleading because the EIR otherwise complied with CEQA and did not claim "mitigation credit" for the emissions it asserted would be offset by the cap-and-trade program. The Center argues the Centennial project is not subject to the cap-and-trade program because it is not a "covered entity" under the applicable regulations (Cal. Code Regs., tit. 17, §§ 95801-96022), which by their terms apply to specified categories of industrial facilities and fuel and power suppliers. We conclude the County failed to proceed in a manner required by law when it applied the cap-and-trade program to the Centennial project's estimated unmitigated emissions, which minimized the project's environmental impact and rendered the EIR prejudicially misleading.

1. *Greenhouse Gas Emissions and CEQA*

The County's duty to assess the significance of impacts from a project's greenhouse gas emissions is governed by Guidelines section 15064.4. (See *Newhall, supra,* 62 Cal.4th at p. 217; see Pub. Resources Code, § 21083.05; *AIR, supra,* 17 Cal.App.5th at p. 733.) The "lead agency shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project." (Guidelines, § 15064.4,

subd. (a).) "In determining the significance of a project's greenhouse gas emissions, the lead agency should focus its analysis on the reasonably foreseeable incremental contribution of the project's emissions to the effects of climate change." (*Id.*, subd. (b).) The agency should consider "(1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting; [¶] (2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project"; and [¶] "(3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions." (*Id.*, subds. (b)(1)-(b)(3); see *AIR,* at pp. 733-734.)

"Given the reality of growth, some greenhouse gas emissions from new housing and commercial developments are inevitable. The critical CEQA question is the cumulative significance of a project's greenhouse gas emissions." (*Newhall, supra,* 62 Cal.4th at pp. 220-221.) For agencies evaluating the cumulative significance of a proposed development's greenhouse gas emissions, "potential pathways to compliance" under CEQA include: (1) determining "what level of reduction from business as usual a new land use development . . . must contribute in order to comply with statewide goals"; (2) assessing consistency with statewide goals by looking to compliance either with statewide regulatory programs designed to reduce greenhouse gas emissions or with (3) "geographically specific greenhouse gas emission reduction plans"; and (4) using "existing numerical thresholds of significance for greenhouse gas emissions," such as air quality management district definitions of significance. (*Id.* at pp. 229-230.)

"For significant greenhouse gas emissions effects, feasible mitigation measures may include: '(1) Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency's decision; [¶] (2) Reductions in emissions resulting from a project through implementation of project features, project design, or other measures . . . ; [¶] (3) Off-site measures, including offsets that are not otherwise required, to mitigate a project's emissions; [¶] (4) Measures that sequester greenhouse gases; [¶] [and] (5) In the case of the adoption of a plan, such as a general plan, long range development plan, or plans for the reduction of greenhouse gas emissions, mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions.' (Guidelines, § 15126.4, subd. (c).)" (*Cleveland National Forest Foundation v. San Diego Assn. of Governments* (2017) 17 Cal.App.5th 413, 432-433 (*Cleveland*); accord, *League to Save Lake Tahoe v. County of Placer* (2022) 75 Cal.App.5th 63, 120.)

2. *The EIR's Discussion of Greenhouse Gas Emissions*

Section 5.21 of the EIR addressed the Centennial project's impacts on greenhouse gas emissions and mitigation measures. The EIR listed various quantified and nonquantified mitigation measures in section 5.21.7, including compliance with the cap-and-trade program, which it categorized as a nonquantified mitigation measure "expected to further reduce Project-related GHG emissions" beyond the quantified mitigation measures. The EIR calculated the project's remaining unmitigated greenhouse

gas emissions (after the implementation of "quantified reductions from project design features and mitigation measures"). These estimated unmitigated greenhouse gas emissions are listed by emissions source in Updated GHG Report Table 1 and Table 3.

The EIR analyzed the impact of the project's estimated emissions under two "thresholds of significance," Thresholds 21-1 and 21-2. These were taken from the County Environmental Checklist, which incorporates Guidelines Appendix G.[4] The County explained in the EIR and Findings that its threshold analysis incorporated two of the potential "pathways" to compliance from *Newhall*. (See *Newhall, supra,* 62 Cal.4th at pp. 229-230.) These pathways were: (1) compliance with regulatory programs designed to reduce greenhouse gas emissions and that contribute to the achievement of statewide climate goals, and (2) compliance with a local climate action plan or other geographically specific greenhouse gas emission reduction plans.

Pursuant to Threshold 21-1, a project has a significant impact if it would "[g]enerate greenhouse gas emissions, either

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[4] "The concept of a 'threshold of significance' is defined in the Guidelines as 'identifiable quantitative, qualitative or performance level of a particular environmental effect, noncompliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant.'" (*King & Gardiner Farms, LLC v. County of Kern* (2020) 45 Cal.App.5th 814, 883; see Guidelines, § 15064.7, subd. (a).) "Appendix G, which is printed following Guidelines section 15387, is an environmental checklist that includes questions about various aspects of the environment." (*King & Gardiner,* at p. 883.)

directly or indirectly, that may have a significant impact on the environment." Using Threshold 21-1, the EIR represented the Centennial project was "consistent with" a wide range of regulatory programs designed to reduce greenhouse gas emissions, including the statewide cap-and-trade program. As relevant here, the EIR stated under a header titled "Cap and Trade Reductions" that "approximately 96 percent" of the project's estimated 157,642 metric tons of carbon dioxide per year in unmitigated greenhouse gas emissions "are covered by, and subject to, the purchase of emission allowances under the new, expanded state Cap and Trade Program." Citing the Court of Appeal's decision in *AIR,* the EIR asserted that cap-and-trade compliance by "upstream" fuel and energy suppliers would reduce to zero a range of estimated direct and indirect emissions from the Centennial project's "downstream" consumption of natural gas, electric power, and transportation fuels.

Specifically, Updated GHG Report Table 3 applies the cap-and-trade program to offset the project's estimated unmitigated greenhouse gas emissions in several categories. The table, as presented in the EIR's Updated GHG Report and reproduced in the Findings, shows net "Remaining Emissions After Cap-and-Trade-Offsets" at zero for each category deemed "subject to" the cap-and-trade program. These categories include electrical power, natural gas, and transportation fuels (e.g., gasoline). The table also represents that total estimated unmitigated greenhouse gas emissions for the Centennial project are reduced

from 157,642 to 6,834 metric tons of carbon dioxide per year when "cap-and-trade offsets" are applied.[5]

As stated, pursuant to Threshold 21-2, a project has a significant impact if it would conflict with an applicable plan, policy, or regulation adopted to reduce greenhouse gas emissions. Using Threshold 21-2, the EIR represented the Centennial project was consistent with two local climate action plans: the Los Angeles County Community Climate Action Plan and the South Coast Association of Governments Regional Transportation Plan/Sustainable Community Strategy (SCAG RTP/SCS).

After examining Thresholds 21-1 and 21-2, the EIR concluded that greenhouse gas emissions at the project level were "less than significant." That is, under Threshold 21-1 the Centennial project's potential to generate direct or indirect emissions that may have a significant effect on the environment was less than significant, and under Threshold 21-2 the potential to "conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of [greenhouse gases]" was also less than significant. The EIR further "conservatively determined" that the project's incremental contribution to climate change was "cumulatively considerable and this significant cumulative impact would be significant and unavoidable," even though the project satisfied multiple pathways to compliance. The EIR explained that because (a) "climate change is a global

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[5] The identical table as it appears in Annotation 2 to section 5.21 of the EIR omits the word "Offsets" and the corresponding column is labeled "Remaining Emissions After Cap-and-Trade." Although Tejon suggests the version that omits the word "Offsets" is not misleading, we conclude the table is misleading for the reasons described below.

phenomenon and the significance of greenhouse gas emissions is inherently cumulative in nature[,]" and (b) the County lacks "jurisdictional control" over many greenhouse gas reduction measures, "the Project's impact related to GHG emissions is most appropriately considered on a cumulative level, not on a project level." (See *Newhall, supra,* 62 Cal.4th at p. 219 ["'With respect to climate change, an individual project's emissions will most likely not have any appreciable impact on the global problem by themselves, but they will contribute to the significant cumulative impact caused by greenhouse gas emissions from other sources around the globe. The question therefore becomes whether the project's incremental addition of greenhouse gases is "cumulatively considerable" in light of the global problem, and thus significant.'"].)

Similarly, the EIR's Mitigation Measures section 5.21.7 represented that "[t]he project complies with each applicable pathway" (i.e., regulatory compliance that contributes to statewide climate goals, and compliance with a local plan), "and thus has a less than significant impact at a project level." The EIR also concluded that "even with implementation of all reasonable and feasible mitigation measures"—i.e., all the quantified and nonquantified mitigation measures described in section 5.21.7—the Centennial project's cumulative "climate change impacts would remain significant and unavoidable."

Based on the EIR's representations, the County found there were "no feasible mitigation measures which will reduce this cumulative impact to a less than significant level." The County's statement of overriding considerations explained that "although the Project is consistent with" applicable local plans and state regulatory programs to reduce greenhouse gases, and "[d]espite

the implementation of all feasible and reasonable mitigation," the estimated unmitigated emissions generated by the project would still contribute 157,642 metric tons of carbon dioxide equivalent per year to the global inventory of greenhouse gases. Thus, in the global context of greenhouse gas emissions, the Centennial project's "environmental impact related to greenhouse gas emissions is considered to be cumulatively significant."

3. *The County Prejudicially Abused Its Discretion by Applying the Cap-and-Trade Program to the Centennial Project Greenhouse Gas Emissions Analysis*

The superior court ruled the EIR's discussion of the impacts of the Centennial project's greenhouse gas emissions was misleading and that the County failed to proceed as required by law by improperly applying cap-and-trade "offsets" to reduce the estimated emissions from the Centennial project. The court found the EIR's discussion of greenhouse gas emissions misleading because "[t]he cap-and-trade program does not provide any reduction to the Project's GHG emissions," and "is not relevant to determining the significance of the Project's GHG emissions impacts." The court further determined the County failed to proceed as required by law by failing to consider other emissions mitigation measures and by improperly adopting a statement of overriding considerations. We independently consider whether the County prejudicially abused its discretion in analyzing the Centennial project's greenhouse gas emissions by failing to proceed in the manner required by CEQA. (See *Newhall, supra,* 62 Cal.4th at p. 218; see Pub. Resources Code, § 21168.5.)

a. *Background: California's cap-and-trade program*

The California Air Resources Board (CARB) implemented the state cap-and-trade program in 2011. (Health & Saf. Code, §§ 38562, 38570; see Cal. Code Regs., tit. 17, §§ 95801-96022; *AIR, supra,* 17 Cal.App.5th at p. 734.) The program's purpose is "'to reduce emissions of greenhouse gases' from sources covered by the program 'by applying an aggregate greenhouse gas allowance budget on covered entities and providing a trading mechanism for compliance instruments.'" (*Our Children's Earth Foundation v. State Air Resources Bd.* (2015) 234 Cal.App.4th 870, 876 (*Our Children's Earth*); Cal. Code Regs., tit. 17, § 95801.) CARB's cap-and-trade regulations "cap" the aggregate greenhouse gas emissions of specific categories of industrial facilities and suppliers that produce greenhouse gases, known as "covered entities." The regulations also permit covered entities to trade emission allowances and offset credits to meet their compliance goals. (*AIR, supra,* 17 Cal.App.5th at pp. 734-735; *Association of Irritated Residents v. State Air Resources Bd.* (2012) 206 Cal.App.4th 1487, 1498, fn. 6.) Under this market-based approach, covered entities "may comply with the cap by purchasing [greenhouse gas] reductions that others achieve, called offsets," and they may bank or sell unused emission allowances to other covered entities that need them. (*Golden Door Properties, LLC v. County of San Diego* (2020) 50 Cal.App.5th 467, 485 (*Golden Door*).) Allowances and offset credits are referred to as "compliance instruments." (Cal. Code Regs., tit. 17, § 95802, subd. (a)(69).)

i. *Covered entities, emissions, and facilities*

"Covered entities" under the cap-and-trade program are defined by regulation. They include large industrial facilities such as refineries, electricity generating facilities, iron and steel production facilities, cement and glass production facilities, oil and gas production facilities, and other specified industrial facilities that have exceeded greenhouse gas emission thresholds for their industry.[6] (Cal. Code Regs., tit. 17, §§ 95811, subds. (a)-(b), 95812; see *Our Children's Earth, supra,* 234 Cal.App.4th at p. 876 ["Entities covered by the program are from a broad spectrum of industries, including electricity, natural gas and fuel suppliers, each of whom has previously reported [greenhouse gas] emissions that exceed a threshold established by the Board for that industry."].) "Emissions" under the cap-and-trade program are defined as "the release of greenhouse gases into the atmosphere from *sources and processes in a facility*, including from the combustion of transportation fuels." (Cal. Code Regs., tit. 17, § 95802, italics added.) A "facility" is "[a]ny physical property, plant, building, structure, source, or stationary equipment . . . that emits or may emit any greenhouse gas." (*Ibid.*) The cap-and-trade regulations expressly apply to emissions produced on site at such facilities. (See Cal. Code Regs., tit. 17, §§ 95802, 95811, 95812; 95852, subds. (a)-(b); see *AIR, supra,* 17 Cal.App.5th at p. 735 [describing such covered entities as "capped facilities"].)

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[6] The cap-and-trade regulations also permit other entities to opt in to or voluntarily associate with the cap-and-trade program, under circumstances not at issue here. (See Cal. Code Regs., tit. 17, §§ 95813, 95814.)

Covered entities also include "suppliers" of fuels such as natural gas and transportation fuels. (Cal. Code Regs., tit. 17, §§ 95802 [defining "Fuel supplier" and "Natural gas supplier"]; 95811, subds. (c)-(g); see *Our Children's Earth, supra,* 234 Cal.App.4th at p. 876.) Fuel suppliers have compliance obligations based on the greenhouse gas emissions "that would result from full combustion or oxidation of the quantities of the fuels" they supply annually (rather than, e.g., based on emissions produced at a facility). (Cal. Code Regs., tit. 17, § 95812, subd. (d)(1); see §§ 95811, subds. (c)-(g), 95852, subds. (c)-(g).)

ii. *Offsets*

An "offset" is a term of art that refers to the verified removal or reduction of greenhouse gas emissions, which may then be traded among covered entities in the form of one "offset credit" per metric ton of carbon dioxide removed or reduced. Offsets are achieved via a CARB-approved "offset project" and quantified according to specific "offset protocols." (Cal. Code Regs., tit. 17, § 95802, subd. (a); *Golden Door, supra,* 50 Cal.App.5th at p. 485 [describing importance of the CARB protocols to cap-and-trade offsets].)

Greenhouse gas "offsets 'must be real, additional, quantifiable, permanent, verifiable, and enforceable.' (Cal. Code Regs., tit. 17, § 95802, subd. (a).)" (*Golden Door, supra,* 50 Cal.App.5th at p. 485.) The requirement that emissions reductions must be "additional" means that they must exceed "'any greenhouse gas emission reduction otherwise required by law or regulation, and any other greenhouse gas emission reduction that otherwise would occur.'" (Health & Saf. Code, § 38562, subd. (d)(2); see Cal. Code Regs., tit. 17, § 95802,

subd. (a); see *Yerba Buena Neighborhood Consortium, LLC v. Regents of University of California* (2023) 95 Cal.App.5th 779, 808.) Accordingly, the methodology for calculating offset credits cannot "[r]esult in the crediting of air emissions that already have been identified as emission reductions necessary to achieve state and federal ambient air quality standards" or allow "double-counting emission reductions." (Health & Saf. Code, § 39607.5, subd. (a)(3)(A), (C).) "'Additionality is an important requirement because if non-additional (i.e., "business-as-usual") projects are eligible for carbon [offset] then the net amount of greenhouse gas emissions will continue to increase and the environmental integrity of carbon reduction projects will be called into question.'" (*Golden Door*, at p. 514.)

b. *The Centennial project is not a covered entity*

The Center argues the Centennial project is not subject to the cap-and-trade program because it is not a covered entity. According to the Center, that means the EIR's representation that 96 percent of the Centennial project's emissions will be "offset" through cap-and-trade compliance is prejudicially misleading because the program does not authorize the offset of emissions by "downstream" users (i.e., retail users) of fossil fuels or electric power delivered by "upstream" covered entities (i.e., energy producers and suppliers). We agree. The project does not satisfy the definition of an energy producer or industrial facility (see Cal. Code Regs., tit. 17, §§ 95811, subds. (a)-(b), 95812), nor is it a fuel supplier (§ 95802).

The EIR relied on the Court of Appeal's decision in *AIR* to apply the cap-and-trade program to the Centennial project. It represented that in *AIR*, "[c]ompliance with the Cap and Trade

program was upheld as a lawful CEQA mitigation measure to reduce GHG emissions to a less-than-significant level." Specifically, *AIR* affirmed the lead agency's use of cap-and-trade compliance in an EIR when the project site itself was a covered entity (an oil refinery), and the project (expansion of the refinery) would result in increased emissions from stationary sources at that facility. (See *AIR, supra,* 17 Cal.App.5th at pp. 736, 741-744.) The court examined whether the emissions associated with the project could be reduced based on the refinery's use of allowances and offset credits under the cap-and-trade program. (See *id.* at p. 739.) The EIR in that case stated the refinery was a covered entity and projected the refinery's mandated cap-and-trade compliance would "counterbalance" the project's increased emissions. (See *id.* at p. 736.) *AIR* held the county properly considered the refinery's compliance with the cap-and-trade program in making its determination that the project's impact on emissions would be less than significant. (*Id.* at pp. 718, 742-743.) The court explained that "an inquiry into significance that is based on compliance with a program that sets limits and requirements for California's petroleum refining industry as a whole is a rational approach to regulating that industry's contribution to global climate change." (*Id.* at p. 743.)

Here, the EIR and the Board's CEQA Findings state in great detail that, under *AIR,* compliance with the cap-and-trade program is an appropriate consideration for determining the impact of a project's greenhouse gas emissions is less than significant. But, unlike the oil refinery in *AIR*, the Centennial project is not a covered entity under the cap-and-trade regulations and is not directly subject to compliance obligations under the cap-and-trade program. The project is mixed-use and

primarily comprised of residential and commercial development. The project is also not part of a cap-and-trade-regulated "industry as a whole," as was the refinery in *AIR*. Rather, the project is merely supplied by electric power providers, natural gas suppliers, and fuel suppliers that are subject to the cap-and-trade program. As such, although the cap-and-trade program is a statewide regulatory program designed to reduce greenhouse gas emissions (*AIR, supra,* 17 Cal.App.5th at p. 743), because the Centennial project is not a covered entity under the cap-and-trade program, the program does not apply to emissions from this project.

c. *The EIR's use of cap-and-trade "offsets" by energy and fuel suppliers*

The EIR's use of cap-and-trade "offsets" by energy and fuel suppliers in its analysis of the significance of the project's greenhouse gas emissions is contrary to law. CEQA does not contemplate applying cap-and-trade "offsets" to a project's greenhouse gas emissions based on its suppliers' cap-and-trade compliance when the project is not a covered entity. Applying cap-and-trade compliance to "offset" new project-related emissions runs counter to Guidelines section 15126.4, subdivision (c)(3), which provides that feasible "[o]ff-site measures . . . to mitigate a project's emissions" include "offsets *that are not otherwise required*." (Guidelines, § 15126.4, subd. (c)(3), italics added.) Although this language appears to contemplate that a project may reduce its greenhouse gas emissions based on off-site offsets (see *Natural Resources Defense Council, Inc. v. City of Los Angeles* (2023) 98 Cal.App.5th 1176, 1211 (*NRDC*) ["'Generally speaking, CEQA permits mitigation

measures for GHG emissions to include offsite measures, including purchasing offsets,' where such measures incorporate procedures to ensure that the GHG reductions are quantified accurately."]), it expressly limits such offsets to those that are not "otherwise required" under existing laws or regulations. This is similar to the "additionality" requirement for offsets under the cap-and-trade program.

"Our reading is consistent with certain portions of administrative guidelines issued by the [California] Natural Resources Agency [CNRA], to whom we owe a measure of deference in a case such as this one."[7] (*California Building Industry Assn. v. Bay Area Air Quality Management Dist.* (2015) 62 Cal.4th 369, 378 (*California Building Industry*).) We are guided by CNRA's 2009 Final Statement of Reasons addressing amendments to the CEQA Guidelines. (CNRA Final Statement of Reasons for Regulatory Action: Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB 97 (Dec. 2009) <https://resources.ca.gov/CNRALegacyFiles/ceqa/docs/Final_Statement_of_Reasons.pdf> [as of June 25, 2025] (CNRA FSOR).)

CNRA explained that "[t]he offsets concept is familiar in other aspects of air quality regulation," where "laws generally require that emissions offsets must be 'surplus' or 'additional.'" (CNRA FSOR, at p. 48.) CNRA additionally explained it drafted Guidelines section 15126.4, subdivision (c)(3) in response to

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[7] CNRA "is the agency with primary responsibility for statewide implementation of CEQA. It carries out this task in part by adopting administrative guidelines[,]" i.e., the CEQA Guidelines. (*California Building Industry, supra,* 62 Cal.4th at p. 378.)

"[c]omments . . . suggest[ing] that to be used for CEQA mitigation purposes, offsets should also be 'additional.'" (*Ibid.*) According to CNRA, "in the context of greenhouse gas emissions, emissions reductions that would occur without a project would not normally qualify as mitigation." (*Id.* at p. 88.) Rather, under CEQA, "greenhouse gas emission reductions that are otherwise required by law or regulation would appropriately be considered part of the existing baseline." (*Id.* at p. 89.)

CNRA further stated that "this interpretation . . . is consistent with the Legislature's directive" that emissions reductions under the cap-and-trade program "must be 'in addition to any greenhouse gas emission reduction otherwise required by law or regulation, and any other greenhouse gas emission reduction that otherwise would occur.'" (CNRA FSOR at pp. 88-89; see Health & Saf. Code, § 38562, subd. (d)(2); Cal. Code Regs., tit. 17, § 95802; *Golden Door, supra,* 50 Cal.App.5th at pp. 513-514.) Although the cap-and-trade program and CEQA are separate statutory and regulatory schemes, their additionality provisions each prohibit double counting of offsets.[8]

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[8] The EIR stated in a footnote "that CEQA Guideline § 15126.4(c)(3) does expressly authorize lead agencies to rely on 'offsets that are not otherwise required' to mitigate the GHG impacts of a project." It represented that "[n]either the CEQA statute nor the CEQA Guidelines expressly require lead agencies to ensure 'additionality' when relying on GHG offsets as mitigation[,]" and that the cap-and-trade program's additionality provision in Health and Safety Code section 38562 "is not a provision of CEQA and it imposes no obligations on the Lead Agency with respect to its compliance with CEQA." The EIR further represented that, "[i]n any case, the Project does not rely on GHG offsets to mitigate the Project's impacts related to GHG

Here, the Guidelines's additionality requirement forecloses applying an energy provider's or fuel supplier's cap-and-trade compliance to offset the estimated emissions of a land use project under CEQA, such as the Centennial project. If an energy provider or fuel supplier is subject to the cap-and-trade program, it is legally required to comply with the program. Under Guidelines section 15126.4, subdivision (c)(3), an offset cannot be credited both to the covered entities' regulatory compliance and to the Centennial project's emissions because cap-and-trade offsets are offsets already "otherwise required" for that program—they provide no additional emissions reductions for the project.

d. *CARB's letter supports that the cap-and-trade program does not apply here*

During the EIR process, CARB's executive officer submitted a comment letter stating: "[T]he Cap-and-Trade Program simply does not cover the [Centennial] Project, or require it [to] do anything to mitigate its emissions. . . . [T]he California State Legislature . . . did not intend for the Cap-and-Trade Program to mitigate emissions from land use projects." CARB's letter noted that "the Legislature specifically provided

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emissions not otherwise covered by California's cap-and trade program." The EIR's suggestion that only offsets to emissions "not otherwise covered" by the cap-and-trade program would be subject to that Guideline is misleading and incorrect. As we explain, Guidelines section 15126.4, subdivision (c)(3), only permits use of offsets "not otherwise required" by other programs, and offsets used for cap-and-trade compliance constitute offsets already "otherwise required" for that program.

that GHG reductions from the Cap-and-Trade Program would be 'in addition to any greenhouse gas emission reduction otherwise required by law or regulation, and any other greenhouse gas emission reduction that otherwise would occur.'" It also stated that the Legislature's separate statutory efforts to reduce transportation-related greenhouse gas emissions from land use developments further indicated that the cap-and-trade program was not intended to extend to such emissions.

Tejon raises several challenges to the CARB letter. First, it argues we should give CARB's letter no weight. The weight we ascribe to "an agency's *interpretation* of a statute or regulation is contextual: Its power to persuade is both circumstantial and dependent on the presence or absence of factors that support the merit of the interpretation." (*Yamaha Corp. of America v. State Bd. of Equalization* (1998) 19 Cal.4th 1, 7.) While an agency's "opinion letters are not controlling, they reflect the type of experience and considered judgment that may properly inform our judgment." (*Augustus v. ABM Security Services, Inc.* (2016) 2 Cal.5th 257, 267 [DLSE opinion letters entitled to some interpretive weight]; but see *Heckart v. A-1 Self Storage, Inc.* (2018) 4 Cal.5th 749, 769, fn. 9 [advice letters written by Department of Insurance legal staff members "entitled to little weight"].) Here, as the chief executive of the state agency charged with regulating greenhouse gas emissions and implementing the cap-and-trade program, the CARB executive officer "is in a position to accumulate both knowledge and experience relevant to the administration" of the program. (*Augustus,* at p. 267.) We give the CARB comment letter and the CARB Statements of Reasons (discussed below) "some consideration" in our independent interpretation of the

regulations, "taking into account and respecting the agency's interpretation . . . whether embodied in a formal rule or less formal representation." (*Yamaha*, at pp. 7, 15.)

Next, Tejon selectively quotes from CARB's Initial Statement of Reasons (CARB ISOR) for the cap-and-trade program and in its opening brief argues that CARB's "official regulatory intent" was "that upstream electricity, natural gas, and fuel suppliers were included by CARB as covered entities under Cap-and-Trade for the express purpose of capping GHG emissions generated by downstream consumption of those fuels."[9] But CARB's Final Statement of Reasons (CARB FSOR) subsequently stated: "[C]ap-and-trade is not well-suited to address emissions from millions of distributed point sources such as automobiles. However, our approach is not to apply cap-and-trade to the end user (vehicle drivers), but to the fuel suppliers, who will be responsible for fuel that is combusted. By taking this 'upstream' approach in the regulation, we avoid the challenges of applying it to millions of 'downstream' users." (CARB FSOR, p. 178.) Thus, "[t]he cap-and-trade program addresses both facility emissions that occur from fuel production . . . and

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[9] CARB's "'Final Statement of Reasons . . . ,' [is] a more than 2,000-page document summarizing the extensive evidence supporting the Board's decision to adopt the Cap-and-Trade program regulation." (*Our Children's Earth, supra,* 234 Cal.App.4th at p. 892.) It incorporates by reference the Initial Statement of Reasons. (See CARB, Final Statement of Reasons (Oct. 2011) (CARB FSOR); Initial Statement of Reasons (Oct. 2010) (CARB ISOR) at <https://www.arb.ca.gov/regact/2010/capandtrade10/capandtrade10.htm> [as of June 25, 2025].)

accounts for combustion emissions from the fuel that is produced and sold in California." (*Ibid.*)

Third, Tejon argues that, notwithstanding CARB's letter, using cap-and-trade compliance by the Centennial project's "upstream" fuel and energy suppliers to reduce the project's emissions was appropriate because *AIR* authorized it. This is similar to the County's stated rationale for rejecting CARB's letter. Tejon contends that under *AIR*, "[t]he only relevant question here is whether the Project's electricity and fuel suppliers are covered entities that will be required to surrender compliance instruments to counterbalance the emission increases associated with the Project's electricity and fuel usage."

Tejon misreads *AIR*. As stated, in *AIR* the project at issue involved a refinery, which is a covered entity under the cap-and-trade regulations. Further, the court observed the EIR in that case stated the refinery's electrical provider (PG&E) was also a covered entity and that the EIR projected that PG&E's cap-and-trade compliance would offset indirect emissions increases at PG&E's facilities resulting from the refinery's increased power usage. (See *AIR, supra,* 17 Cal.App.5th at pp. 735-736.) But this was not part of the rationale for the court's holding. Instead, *AIR*'s discussion of whether the EIR in that case correctly applied the cap-and-trade program to the refinery modification project's emissions focused solely on the refinery's "compliance with a program that sets limits and requirements for California's petroleum refining industry as a whole." (*Id.* at pp. 741-744.) "Based on this industry-wide perspective," the court concluded it was proper for the county to consider the refinery's compliance with the cap-and-trade program when assessing the impact of the

modification's project-specific greenhouse gas emissions. (*Id.* at p. 743.)

AIR did not address whether the EIR's application of the cap-and-trade program to offset the project's indirect emissions from increased energy use by its upstream power provider was correct. Accordingly, *AIR* does not support Tejon's argument and is not authority for the proposition that a land use development project, like the Centennial project, can include greenhouse gas emissions offsets by upstream energy providers in its analysis of a project's environmental impact under CEQA. Nor does *AIR* have any bearing on the application of cap-and-trade compliance to project-specific natural gas and transportation-related emissions. Although the EIR in *AIR* calculated a variety of transportation-related emissions from "mobile sources," such as onsite vehicles, rail, and truck transportation (*AIR, supra,* 17 Cal.App.5th at p. 736), it did not attempt to apply the cap-and-trade program to offset the project's emissions from transportation fuels. And the EIR in *AIR* did not represent that any emissions from combustion of non-transportation fuels were offset by upstream fuel suppliers' cap-and-trade compliance.

We conclude that for purposes of analyzing the Centennial project's compliance with applicable state regulatory programs and the significance of its greenhouse gas emissions impacts, the County did not proceed according to law when it applied the cap-and-trade program to the project.

e. *Tejon's additional arguments*

At oral argument, Tejon's counsel stated, "We don't ask this court to uphold the *Association of Irritated Residents* case." Tejon also conceded that Updated GHG Table 3 "is misleading, yes,"

and that "reading that table in isolation from everything else might have caused a little confusion." But Tejon argued, as it did in its opening brief, that the EIR was not misleading as a whole because Updated GHG Table 3 "never takes credit for GHG reductions under Cap-and-Trade; it only reports the amount of Project GHG emissions that are covered by Cap-and-Trade." In Tejon's view, because the EIR did not quantify the cap-and-trade program in the "mitigation measures" section, the application of the cap-and-trade program in Updated GHG Table 3 was merely a "disclosure item," not a "mitigation credit" under CEQA.[10] Tejon argued at oral argument that because the Board's CEQA Findings and statement of overriding considerations found that the project would still emit 157,642 metric tons of carbon dioxide per year, in its view, "no one was actually confused" by the representation that 96 percent of that estimated unmitigated emissions amount would be further reduced or offset by the cap-and-trade program.

As we shall explain, this contention is unpersuasive. Updated GHG Table 3 shows estimated unmitigated project emissions across several categories, with columns for "Amount Subject to Cap-and-Trade" and "Remaining Emissions After Cap-and-Trade-Offsets." For each category deemed "subject to" the

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[10] At oral argument, Tejon's counsel also argued that any error in the EIR's application of the cap-and-trade program could be severed under Public Resources Code section 21168.9 without fully decertifying the EIR or setting aside the project approvals. Tejon "did not include this argument or supporting reasoning in its briefs, and we decline to address an argument cursorily raised for the first time at oral argument." (*Sheppard, Mullin, Richter & Hampton, LLP v. J-M Manufacturing Co., Inc.* (2018) 6 Cal.5th 59, 87, fn. 10.)

cap-and-trade program, the "Amount Subject to Cap-and-Trade" column shows a 100 percent reduction in total emissions for that category, resulting in a net amount of zero for "Remaining Emissions After Cap-and-Trade-Offsets." The EIR refers to the effect of the cap-and-trade program as "cap-and-trade offsets" or "cap-and-trade reductions" that would "cover" and reduce the remaining estimated unmitigated emissions by 96 percent. This table was preceded by a detailed analysis asserting the cap-and-trade program is a "lawful CEQA mitigation measure to reduce GHG emissions" and an appropriate consideration for determining the impact of a project's greenhouse gas emissions is less than significant.

A decisionmaker or member of the public would reasonably understand the EIR to represent that the cap-and-trade program would offset the project's remaining unmitigated greenhouse gas emissions to zero in those categories.[11] The CEQA Findings reflect that the Board in fact understood it this way in approving the EIR, stating: "The Project will emit GHGs at an estimated [rate] of 157,642 metric tons per year that will contribute to the global inventory of GHGs (although 96 percent of these emissions

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[11] To the extent Tejon cites a version of the table with the final column heading "Remaining Emissions After Cap-and-Trade," omitting the word "Offsets," that presentation is still misleading. Whether expressly identified as an "offset" or not, a reasonable reading of the Updated GHG Report Table 3 is that application of the cap-and-trade-program reduces "remaining emissions" to zero in the subject categories. The version referencing "Cap-and-Trade-Offsets" was included in the EIR as part of the Updated GHG Report and was reproduced in the CEQA Findings adopted by the Board, indicating the Board relied on that version in certifying the EIR.

will be offset through the purchase of Cap and Trade emission allowances)." The Findings repeatedly represent that "96 percent (150,808 MTCO2e/yr)" of the project's estimated unmitigated emissions are "covered by, and subject to" the cap-and-trade program, and state that "[o]nly approximately 4 percent of the total emissions, or 6,834 MTCO2e/yr, . . . would not be subject to the purchase of emission allowances under the Cap-and-Trade program." But the cap-and-trade program does not apply to the Centennial project nor does it reduce its greenhouse gas emissions, and it is therefore irrelevant to determining the significance of the project's emissions.

That the effect of the cap-and-trade program was quantified in the EIR's analysis of the significance of the project's greenhouse gas emissions, rather than in the "mitigation measures" section, does not affect this conclusion. The cap-and-trade program is listed in Mitigation Measures section 5.21.7 among "[r]egulations that are not quantified inputs" into the project-specific mitigation analysis, "but should be considered for incorporation as appropriate." The EIR explained that these mitigation measures "indirectly support the implementation and management of the quantified measures or are expected to further reduce Project-related GHG emissions." The EIR's analysis of greenhouse gas emissions in section 5.21 and the Updated GHG Report likewise state that the cap-and-trade program "will further reduce Project-related GHG emissions," then proceed to quantify the program as described above, identifying the cap-and-trade program as an "offset" that would reduce the remaining unmitigated emissions by 96 percent. The EIR thus based its significance determination on the reduced emissions figure resulting from the erroneous application of the

cap-and-trade program. Whether utilized as a quantified mitigation measure in the first instance or as a mitigation measure projected to "further reduce" the remaining unmitigated emissions, applying the cap-and-trade program in this way to the Centennial project was misleading and violates CEQA.

Tejon also argues that any error in the EIR's Threshold 21-1 analysis was not prejudicial. (*See Mira Mar Mobile Community v. City of Oceanside* (2004) 119 Cal.App.4th 477, 490 [erroneous inclusion of alternative development design that did not further CEQA purposes was "not condone[d]" but not prejudicial].) Specifically, Tejon argues the Centennial project's contribution to cumulative greenhouse gas impacts complied with the Los Angeles County Community Action Plan and RTP/SCS (under the EIR's Threshold 21-2 analysis). In Tejon's view, the EIR concluded the project greenhouse gas emissions were "less than significant" under Guidelines section 15064.4 and the "local plan" pathway of *Newhall*.

Based on that argument, Tejon contends that compliance with any one "pathway" is sufficient under CEQA, and that the Centennial project has done its "fair share" to address the problem of climate change. As one "potential pathway[]" to CEQA compliance, regional "greenhouse gas emission reduction plans" "may, if sufficiently detailed and adequately supported, be used in later project-specific CEQA documents to simplify the evaluation of the project's cumulative contribution to the effects of greenhouse gas emissions." (*Newhall, supra,* 62 Cal.4th at pp. 229-230; see Guidelines, § 15183.5.) "If a project is found to be consistent with the broad plan, that finding provides sufficient evidence for the agency to conclude the project has no significant

impact due to greenhouse gas emissions." (*McCann v. City of San Diego* (2021) 70 Cal.App.5th 51, 92.)

We reject Tejon's argument under the circumstances here. Each of the "potential pathways to compliance" "depend[s] on the circumstances of a given project," and there is no "guarantee that any of these approaches will be found to satisfy CEQA's demands as to any particular project." (*Newhall, supra,* 62 Cal.4th at p. 229.) That some of the EIR's greenhouse gas emissions analysis was adequate under CEQA does not mean that the EIR overall was not misleading or that decisionmakers and the public were not substantively misinformed as to the emissions reductions ascribed to the cap-and-trade program. (See *Banning Ranch Conservancy v. City of Newport Beach (*2017) 2 Cal.5th 918, 941-942 (*Banning Ranch*) ["however technically accurate" some portions of EIR may have been, a failure to accurately "account for related regulations" constituted prejudicial abuse of discretion, """regardless of whether a different outcome would have resulted if the public agency had complied with the law"""].)

That the EIR's ultimate finding the project had cumulatively significant impacts to global climate change would remain unchanged without the EIR's flawed cap-and-trade analysis "does not excuse the EIR's failure to reasonably describe the nature and magnitude of the adverse effect." (*Cleveland National Forest Foundation v. San Diego Assn. of Governments* (2017) 3 Cal.5th 497, 514-515; see Guidelines, § 15151 ["An EIR should be prepared with a sufficient degree of analysis to provide decisionmakers with information which enables them to make a decision which intelligently takes account of environmental consequences."].) The severity of the project's greenhouse gas emissions increase is not an "insignificant detail" (*We Advocate*

Thorough Environmental Review v. County of Siskiyou (2022) 78 Cal.App.5th 683, 694-696), and "simply labeling the effect 'significant' without accompanying analysis of the project's impact . . . is inadequate to meet the environmental assessment requirements of CEQA" (*Berkeley Keep Jets Over the Bay Com. v. Board of Port Comrs.* (2001) 91 Cal.App.4th 1344, 1371 (*Berkeley Keep Jets Over the Bay Com.*)).

"[I]naccurate minimization of the cumulative impacts" of a project thwarts "meaningful assessment of the true scope" of a project's environmental impacts and "cannot be dismissed as [a] harmless or insignificant defect[]." (*Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1217, 1220-1221.) Rather, "the danger created by providing understated information" is that it "subverts an agency's ability to adopt appropriate and effective mitigation measures, skews its perspective concerning the benefits of the particular projects under consideration and precludes it from gaining a true perspective on the consequences of approving the project." (*Id.* at p. 1217; see *San Franciscans for Reasonable Growth v. City and County of San Francisco* (1984) 151 Cal.App.3d 61, 77-79 [significant omission "renders an analysis of cumulative impacts inaccurate and inadequate because the severity and significance of the impacts will, perforce, be gravely understated. . . . [¶] [¶] . . . [I]t is vitally important that an EIR avoid minimizing the cumulative impacts."].)

Berkeley Keep Jets Over the Bay Committee is instructive. There, the appellate court determined there were "substantial" defects in the EIR's discussion of air contamination from an airport project, where "[m]uch information of vital interest to the decision makers and to the public pertaining to toxic air

contamination [TAC] was simply omitted. In other instances, the information provided was either incomplete or misleading." (*Berkeley Keep Jets Over the Bay Com.*, *supra,* 91 Cal.App.4th at p. 1371.) The appellate court rejected as "unpersuasive the Port's argument that the absence of a health risk assessment can be excused because the Port Commissioners, in approving the EIR, found that the effect of TACs would be significant but that overriding considerations warranted proceeding with the project anyway. This approach has the process exactly backward and allows the lead agency to travel the legally impermissible easy road to CEQA compliance. *Before* one brings about a potentially significant and irreversible change to the environment, an EIR must be prepared that sufficiently explores the significant environmental effects created by the project." (*Ibid.*; see also *Galante Vineyards v. Monterey Peninsula Water Management Dist.* (1997) 60 Cal.App.4th 1109, 1123 [EIR's finding that dust impacts would be significant and unavoidable, even with mitigation measures, was inadequate without detailed account of the impacts; "a more detailed analysis of how adverse the impact will be is required"].)

The Centennial project is a large land use development with cumulative climate change impacts the County found are "considerable," "significant and unavoidable." Yet the EIR and the County's CEQA Findings also repeatedly represented that 96 percent of the Centennial project's estimated unmitigated emissions would be covered by the cap-and-trade program, and that "Cap-and-Trade-Offsets" would reduce "Remaining Emissions" to zero in a number of categories. A decisionmaker or member of the public relying on the EIR would reasonably be led to believe that the project's significant unmitigated greenhouse

gas emissions would be offset almost entirely by the cap-and-trade program, minimizing and obscuring the severity of the project's significant cumulative impacts.

Under the circumstances, "[t]he public was deprived of a full understanding of the environmental issues raised" by the Centennial project proposal. (*Banning Ranch, supra,* 2 Cal.5th at p. 942.) The erroneous application of cap-and-trade "offsets" to the emissions analysis was an unavoidable and prejudicial component of the final EIR. Regardless of the project's compliance with the local climate action plans, the EIR would reasonably be read as representing that there was no need to mitigate further the project's greenhouse gas emissions.

4. *The EIR's Mitigation Discussion Is Also Prejudicially Flawed by the EIR's Reliance on the Cap-and-Trade Program*

We also conclude the EIR's mitigation discussion, including its reliance on "fair share" allocation, is inherently flawed by the EIR's reliance on the cap-and-trade program, which permeates the discussion. Once a significant environmental effect has been identified, "the EIR must propose and describe mitigation measures that will minimize the significant environmental effects that the EIR has identified." (*Napa Citizens for Honest Government v. Napa County Bd. of Supervisors* (2001) 91 Cal.App.4th 342, 360 (*Napa*); see Pub. Resources Code, § 21100, subd. (b)(3); CEQA Guidelines, § 15126, subd. (e).) Mitigation measures must be feasible and enforceable. (CEQA Guidelines, § 15126.4, subds. (a)(1)-(a)(2).) Whether the EIR's discussion of mitigation measures is sufficient and the EIR's discussion supports the adoption of the statement of overriding

considerations present mixed questions of law and fact generally subject to independent review. (See *King & Gardiner Farms, LLC v. County of Kern* (2020) 45 Cal.App.5th 814, 866.)

Significantly, "[m]itigation measures must be consistent with all applicable constitutional requirements" including that "[t]he mitigation measure must be 'roughly proportional' to the impacts of the project." (Guidelines, § 15126.4, subd. (a)(4)(B); accord, *Napa, supra*, 91 Cal.App.4th at p. 360; see *Dolan v. City of Tigard* (1994) 512 U.S. 374.) This proportionality principle is known as "'fair share'" allocation. (*City of Marina v. Board of Trustees of California State University* (2006) 39 Cal.4th 341, 364 ["Under the Guidelines, 'a project's contribution to a significant cumulative impact' may properly be considered 'less than cumulatively considerable and thus . . . not significant' 'if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.' (CEQA Guidelines, § 15130, subd. (a)(3).)"]; see *Ehrlich v. City of Culver City* (1996) 12 Cal.4th 854, 912.)

The CEQA Findings embraced fair share principles, stating that "single projects cannot be required to bear a greater than proportional share of mitigating a cumulative significant impact." The County made the finding that it "determined that feasibility of the mitigation measures required for this project must be commensurate with a fair share allocation." The County also summarized the emissions impact of the project as "emit[ting] GHGs at an estimated of 157,642 metric tons per year that will contribute to the global inventory of GHGs (although 96 percent of these emissions will be offset through the purchase of Cap and Trade emission allowances)." The EIR then listed a variety of mitigation measures in section 5.21.7, including compliance with

the cap-and-trade program as described above. Tejon argues that "[s]ince the Project's GHG mitigation program would reduce Project emissions by 34,412 MTCO2e/yr, but the Project's 'uncapped' incremental contribution to the cumulative impact is just 6,834 MTCO2e/yr [after applying the cap-and-trade-program], [the] County reasonably determined that imposing yet more mitigation on the Project would exceed the Project's 'fair share' and require double mitigation of 'capped' emissions, thereby violating Guidelines sections 15041(a) and 15126.4(a)(4)(B)."

The superior court determined the EIR's mitigation discussion, including its reliance on a fair share rationale, was "flawed" because it contemplated further reduced emissions from the cap-and-trade program. And because the EIR's mitigation discussion was flawed, the court also ruled the County improperly adopted a statement of overriding considerations. We agree. Although the parties dispute whether the EIR adequately evaluated the feasibility of other mitigation measures, our "task is not to weigh conflicting evidence and determine who has the better argument when the dispute is whether adverse effects have been mitigated or could be better mitigated. We have neither the resources nor scientific expertise to engage in such analysis, even if the statutorily prescribed standard of review permitted us to do so." (*Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 393 (*Laurel Heights*); accord, *Ebbetts Pass, supra,* 43 Cal.4th at p. 944.) Rather, we conclude that by its nature, the County's improper reliance on the cap-and-trade program that permeated the EIR and its Findings "resulted in inadequate evaluation

of . . . mitigation measures." (*Banning Ranch, supra,* 2 Cal.5th at p. 942.)

The unavoidable prejudice of applying the cap-and-trade program to offset the Centennial project's projected emissions also rendered the adoption of a statement of overriding considerations improper. A statement of overriding considerations is intended to demonstrate the balance struck by the lead agency in weighing the "benefits, of a proposed project against its unavoidable environmental risks." (Guidelines, § 15093, subds. (a), (c).) An override decision must accurately demonstrate the balance struck in approving the project. (See *California Native Plant Society v. City of Santa Cruz* (2009) 177 Cal.App.4th 957, 983.) Thus, a statement of overriding considerations supported by a legally flawed analysis, or legally flawed assessment of the potential environmental harm, is not able to accurately "show that the Project's significant environmental effects have been identified, and avoided or mitigated, or that unmitigated effects will be outweighed by the Project's benefits." (*Sierra Club, supra,* 6 Cal.5th at p. 508; see *Sierra Club v. Contra Costa County* (1992) 10 Cal.App.4th 1212, 1222 [a statement of overriding considerations that relies on a legally flawed EIR is also legally flawed].) And, as discussed above, the argument that an EIR's misleading analysis or omission may be excused because the lead agency found an environmental effect significant but that overriding considerations warranted proceeding with the project anyway "has the process exactly backward . . . . *Before* one brings about a potentially significant and irreversible change to the environment, an EIR must be prepared that sufficiently explores the significant environmental effects created by the project."

(*Berkeley Keep Jets Over the Bay Com.*, *supra,* 91 Cal.App.4th at p. 1371.)

D. *Off-site Wildfire Risk*

The superior court determined "the EIR's conclusion wildfire risk impacts outside of the Project site will be reduced to less than significant is not supported by any analysis," and that the County failed to proceed as required by law when it did not analyze wildfire risk impacts beyond the project site. The court also ruled that "[a]lternatively, to the extent the County believes it did analyze such impacts, the County's failure to explain its conclusion that fuel modification zones and [Mitigation Measure] 3-9 will reduce off-site wildfire risk impacts to less than significant is a failure to proceed as required by law." Tejon argues the EIR adequately analyzed the Centennial project's wildfire risk impacts, including off-site impacts. The Center contends the EIR's analysis disregards the extreme fire threat surrounding the project site, including risks from off-site project features, such as the expansion of electrical power and natural gas infrastructure, and contains only a single inadequate paragraph discussing off-site risk impacts. We agree.

1. *Regulatory Background and Standard of Review*

The County's duty to assess the significance of a project's impact on the environment, including wildfire risk, is governed by Guidelines section 15126.2, subdivision (a). The Guideline provides, in relevant part: "[a]n EIR shall identify and focus on the significant effects of the proposed project on the environment. . . . The discussion should include relevant specifics of the area . . . . The EIR shall also analyze any

significant environmental effects the project might cause or risk exacerbating by bringing development and people into the area affected. For example, the EIR should evaluate any potentially significant direct, indirect, or cumulative environmental impacts of locating development in areas susceptible to hazardous conditions (e.g., floodplains, coastlines, wildfire risk areas), including both short-term and long-term conditions." (Guidelines, § 15126.2, subd. (a).)

"[A] sufficient discussion of significant impacts requires not merely a determination of whether an impact is significant, but some effort to explain the nature and magnitude of the impact." (*Sierra Club, supra,* 6 Cal.5th at p. 519.) "When reviewing whether a discussion is sufficient to satisfy CEQA, a court must be satisfied that the EIR . . . includes sufficient detail to enable those who did not participate in its preparation to understand and to consider meaningfully the issues the proposed project raises." (*Id.* at p. 510; see *Laurel Heights, supra,* 47 Cal.3d at p. 405.)

Assertions that an EIR's discussion is inadequate "do[] not fit neatly within the procedural/factual paradigm," but "the adequacy of an EIR's discussion of environmental impacts is an issue distinct from the extent to which the agency is correct in its determination whether the impacts are significant." (*Sierra Club*, *supra,* 6 Cal.5th at pp. 513-514.) We review claims of inadequate discussion de novo unless the agency's discussion of significant project impacts implicates a factual question. (*See id.* at p. 514 ["[W]hether a description of an environmental impact is insufficient because it lacks analysis or omits the magnitude of the impact is not a substantial evidence question. A conclusory discussion of an environmental impact that an EIR deems

significant can be determined by a court to be inadequate as an informational document without reference to substantial evidence."].) "Whether or not the alleged inadequacy is the complete omission of a required discussion or a patently inadequate one-paragraph discussion devoid of analysis, the reviewing court must decide whether the EIR serves its purpose as an informational document." (*Id.* at p. 516.)

Tejon contends the superior court incorrectly applied de novo review to its analysis of whether the EIR's discussion of fire impacts were sufficient. Tejon claims the adequacy of the EIR's discussion of fire risk impacts is a "factual dispute over 'whether adverse effects have been mitigated'" (*Vineyard, supra,* 40 Cal.4th at p. 435) subject to substantial evidence review. We conclude de novo review is appropriate because the Center's challenge to the EIR's discussion does not turn on whether there was substantial evidence for the no significant impact determination, but rather on whether the EIR's perfunctory discussion of off-site wildfire impacts contains sufficient analysis.

2. *The EIR's Analysis of Wildfire Risk Impacts*

EIR section 5.3.3 addresses "wildland fire hazards that could occur in the vicinity of the Project site." The discussion purported to analyze direct and indirect impacts on fire safety "for each threshold criterion for both the on-site and off-site Project features."

"Off-site project features" are "Project features that occur outside the limits of the Project boundary." The off-site project features of the Centennial project are described in detail in EIR section 4.7. These include roadway improvements as well as utility connections and improvements to existing off-site systems,

including extension of electrical transmission lines, electrical substation upgrades, construction of natural gas lines, construction of a natural gas regulator station, extension of telephone lines, new groundwater wells and water pipelines, and construction of an "electrical generation and distribution system" as part of a multi-purpose utility corridor.

The EIR disclosed the Centennial project site lies within a Very High Fire Hazard Severity Zone (VHFHSZ) and High Fire Hazard Severity Zone (HFHSZ) under criteria established by the California Department of Forestry and Fire Protection (CAL FIRE) and the County. These zones "are subject to high fire hazards due to the presence of high brush, woodlands, and steep slopes." CAL FIRE documented a total of 31 wildfires over 100 acres in size within five miles of the Centennial project site from 1964 to 2015, four of which occurred within project boundaries. The EIR acknowledged the area is "highly vulnerable" to fires; the Centennial project "would introduce urban development in an undeveloped area subject to wildfire hazards"; the Centennial project would "substantially increase the likelihood of [fire] incidents"; and, the "potential for wildland fire hazards would still exist at the wildland/urban interface" after development of the site.

The EIR adopted two thresholds relating to fire safety impacts, derived from the County Environmental Checklist. Threshold 3-8 assesses whether the project would "[e]xpose people or structures to a significant risk of loss, injury, or death involving fires, because the project is located: [¶] i. within a Very High Fire Hazard Severity Zone . . . . [¶] ii. within a high fire hazard area with inadequate access. [¶] iii. within an area with inadequate water and pressure to meet fire flow standards.

[¶] iv. within proximity to land uses that have the potential for dangerous fire hazard." Threshold 3-9 assesses whether the proposed use "constitute[s] a potentially dangerous fire hazard."

With regard to on-site impacts (not at issue in this appeal), the EIR conducted a detailed four-page analysis of the threshold criteria. It concluded the Centennial project would expose people or structures to a significant risk of loss, injury, or death involving fires. The EIR described how the Fuel Modification Plan required by Mitigation Measure 3-9 (MM 3-9) would apply to developed areas and the wildland/urban interface zone near undeveloped areas of the site to provide protection from wildfires, through vegetation "buffer zones."[12]

By contrast, a separately titled section for "Off-Site Impacts" stated in full: "The off-site Project features (intersections with SR-138, utility connections, water wells, and California Aqueduct crossings) would not include land uses that would, by themselves, increase the risk of fire hazards. With Project implementation, adequate access, adequate water pressures and flows, and fuel modification would be provided on

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[12] MM 3-9 provides: "The Project Applicant/Developer shall prepare a Fuel Modification Plan demonstrating compliance with the County Fire Code Title 32 and shall provide all new residents and business owners with recorded Covenants, Conditions, and Restrictions (CC&Rs) or disclosure statements that identify the responsibilities for maintaining the fuel modification zone(s) on their property, as defined in the approved Fuel Modification Plan. The CC&Rs or disclosure statements prepared by the Project Applicant/Developer shall be submitted to the County [of Los Angeles] to confirm that new property owners will be informed of their responsibilities for maintaining the fuel modification zone(s) on their property."

the site and would either include the locations of off-site features or support the adequate water pressures and flows (i.e., water wells and infrastructure in 300th Street West). These features do not represent dangerous fire hazards, nor would they be located proximate to a fire hazard. There would be no impact and no mitigation is required."

The County concluded that overall wildfire hazard impacts for on- and off-site project features would be reduced to "less than significant" with adherence to requirements for fuel modification zone management, emergency access, and construction. It identified MM 3-9 as the applicable mitigation measure and stated: "Impacts related to fire hazards would be less than significant with implementation of MM 3-9."

3. *Adequacy of the EIR's Discussion of Off-site Wildfire Risk Impacts*

We conclude the EIR's one-paragraph discussion fails to adequately analyze off-site wildfire risk impacts. The Centennial project's off-site project features are substantial, including construction of major new intersections with SR-138 and expansion and new construction of utility lines and facilities. Some of the proposed off-site project features provide alternative options, including two different options to increase electricity capacity to serve the project, by reconfiguring or upgrading nearby Southern California Edison (SCE) substations and/or overhead transmission lines "to handle the higher load."[13]

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[13] The EIR explains: "To provide adequate capacity for electrical services for the Project, SCE would select one of the following two options to implement: (1) reconfigure the Bailey

The Center argues that wildfires have been linked to electrical power lines and infrastructure, and mitigation measures such as undergrounding of power lines or shutting off power during dry and windy conditions were proposed during the EIR process. Yet the EIR concludes there are no dangerous fire hazards from off-site project features without any substantive discussion. There is no analysis in the EIR that supports its determination that the extensive off-site project features—including electrical transmission and distribution lines, electrical facilities, and natural gas infrastructure—"do not represent dangerous fire hazards," "would not include land uses that would, by themselves, increase the risk of fire hazards," and do not require mitigation. In short, the discussion lacks any connection between each threshold criterion and the County's ultimate conclusion that there is "no impact and no mitigation is required" for the off-site project features.

Nor does the EIR's conclusory assertion that "adequate access, adequate water pressures and flows, and fuel modification would be provided on the site and would either include the locations of off-site features or support the adequate water pressures and flows" provide an adequate discussion of mitigation. Instead, the discussion is "merely a determination" without explanation. (*Sierra Club, supra,* 6 Cal.5th at p. 519.) At most, the EIR's phrasing suggests that the off-site project

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Substation or (2) upgrade the Gorman Substation and retrofit the existing overhead power lines. An electrical generation and distribution system shall be constructed as part of the main utility corridors for dry utilities. The timing of construction, as well as specific facility location and sizing, shall be coordinated with SCE."

features will have adequate emergency access and water supply that meets fire flow standards, and that fuel modification measures might extend to the locations of off-site features, presumably under MM 3-9 (as Tejon argues). But the discussion does not provide specifics, or any analytical link to how the on-site fuel modification plan required by MM 3-9 would apply to the various types of off-site features or operate to reduce off-site risks. MM 3-9 itself provides only that "new residents and business owners" and "new property owners" would have responsibility for maintaining fuel modification zones on their property, with no obvious application to off-site project features or utilities. CEQA requires a "reasonable effort to discuss relevant specifics regarding the connection between two segments of information already contained in the EIR." (*Sierra Club,* at p. 521.) Such effort is absent here.[14]

To the extent Tejon argues in its appellate briefs that various fire reduction measures described elsewhere in the EIR should apply to the analysis of off-site impacts and mitigation, when "[c]ontained in a brief, such explanation is directed at the wrong audience. The relevant informational document here is the EIR, and the EIR must communicate not to the reviewing court, but 'the public and the government officials deciding on the

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[14] Tejon also asserts that the EIR's adequate analysis of offsite wildfire risks is shown by its five-page response to a comment regarding wildfire risk impacts on the Angeles National Forest. That response primarily focused on how on-site project features and services would reduce fire risk impacts and improve "access to fire protection and emergency services" on and around the project site. It does not, however, specifically address or connect that discussion to direct and indirect impacts on fire safety of the off-site project features.

project.'" (*Sierra Club, supra,* 6 Cal.5th at pp. 520-521; see *Vineyard, supra,* 40 Cal.4th at p. 443 ["That a party's briefs to the court may explain or supplement matters that are obscure or incomplete in the EIR . . . is irrelevant . . . . The question is . . . not whether the project's significant environmental effects *can* be clearly explained, but whether they *were*."].) Here, the section on off-site fire risks did not cross-reference other areas of the EIR describing fire reduction measures in any clearly explained way.

Tejon argues that a reviewing court's CEQA analysis "'do[es] not require technical perfection or scientific certainty,'" quoting *Sierra Club, supra,* 6 Cal.5th at page 515. But the EIR's "patently inadequate one-paragraph discussion" (*id.* at p. 516) does not contain "sufficient detail to enable those who did not participate in its preparation to understand and to consider meaningfully the issues the proposed project raises." (*Id.* at p. 510; see *Laurel Heights, supra,* 47 Cal.3d at p. 405.)

E. *Tejon's Procedural Challenges*

Tejon raises a number of procedural challenges relating to the superior court's ruling allowing the Center to prevail on Climate Resolve's briefing and on the effect of Tejon's settlement with Climate Resolve. We conclude the arguments lack merit.

1. *Additional Procedural Background*

As stated, the Center and the Climate Resolve each filed separate actions against the County and Tejon. The Center and Climate Resolve also filed a notice of related case with regard to the two actions. (See Cal. Rules of Court, rule 3.300(a).) They each indicated the cases "involve[] the same parties and [are] based on the same or similar claims," and were likely "to require

substantial duplication of judicial resources if heard by different judges."

Tejon filed a response to the notices of related case, joined by the County, agreeing the cases were related and assignment to the same judge would conserve resources, "as there are overlapping factual and legal issues between the cases." Tejon stated: "Specifically, the petitioners in both cases challenge the adequacy of the County's analysis of greenhouse gas and fire hazard impacts. Both cases seek substantially similar relief."

The superior court ordered the cases related and assigned them to the same judge with a single schedule of hearings. The superior court asked the parties (the Center, Climate Resolve, the County, and Tejon) to confer regarding ways to reduce repetition of facts, law, and argument.

The parties conferred and agreed on a stipulation and proposed order, which was entered by the court. The parties stipulated to a coordinated briefing schedule and agreed the Center would prepare a single administrative record and single statement of facts in its opening brief, "which will be incorporated by reference into Petitioner Climate Resolve's Opening Brief." The parties further agreed "to separate issues to be discussed in each of their briefs so as to avoid overlap of arguments," and "request[ed] that the Court issue separate decisions and enter separate judgments in the two related cases."

The stipulation acknowledged the Center's petition was broader than Climate Resolve's because the Center "challenge[d] the EIR's analysis of 13 separate resource areas, as well as other alleged CEQA issues, and allege[d] that the Project is inconsistent with numerous County goals and policies, whereas Petitioner Climate Resolve challenges only the EIR's analysis of

greenhouse gases and fire hazards and alleges inconsistency with only two County policies."

The Center filed an opening brief with a comprehensive statement of facts that included greenhouse gas emissions and wildfire impacts. The Center's brief argued the Centennial project violated CEQA and planning and zoning laws on a variety of bases, including inadequate analysis and mitigation of various biological resources and failure to analyze any alternatives designed to reduce the project's adverse impacts. The Center's brief also stated it "join[ed] and incorporate[d] by reference the greenhouse gas and fire arguments raised in the Opening Brief filed by Climate Resolve."

Climate Resolve filed an opening brief arguing the EIR had inadequate analysis and mitigation of greenhouse gas and wildfire impacts. It stated it incorporated by reference the statement of facts and land-use arguments in the Center's brief.

Tejon filed two separate opposition briefs opposing the petitions. The County filed an opposition brief to the Center's opening brief, and a summary opposition brief joining in Tejon's opposition to Climate Resolve's opening brief. The County and Tejon did not object to the petitioners' incorporation by reference of each other's arguments, and incorporated portions of each other's briefs and arguments into their own briefs.

Climate Resolve filed a reply brief stating it "incorporate[d] by reference land-use claims brought in the [Center's] case." The Center filed a reply brief stating it "join[ed] and incorporate[d] by reference the arguments about the EIR's inadequate analysis and mitigation of greenhouse gas and wildfire impacts contained in Climate Resolve's Reply Brief."

The court ruled in favor of Climate Resolve based on the greenhouse gas and wildfire issues, and against the Center based on all issues it raised (including greenhouse gas and wildfire). The Center filed a motion for reconsideration, asking that its petition for writ of mandate be granted, or in the alternative, that the court grant the Center a new trial limited to greenhouse gas and wildfire issues. The Center argued that it alleged greenhouse gas and wildfire issues in its petition and raised them in the administrative process, the parties stipulated to coordinate briefing to avoid duplication of shared issues, and Climate Resolve and the Center incorporated by reference each other's arguments and collaborated on their legal briefs.

Tejon and the County opposed, arguing the Center abandoned its greenhouse gas and wildfire challenges by not briefing them, the Center spent little focus on those issues during the administrative process and litigation, and no authority supported a party joining another's briefs in a separate case. Tejon and the County also argued the Center "failed to identify any new or different facts, circumstances, or law warranting reconsideration under Code of Civil Procedure 1008."

The Center filed a reply arguing that Tejon and the County relied on each other's briefs and did not previously object to any party doing so, and that the Center never abandoned its longstanding concerns about climate change and wildfire impacts. The Center requested the court "exercise its discretion" and "use its powers of case management and administration" to grant the Center's petition or to permit the Center to brief those issues.

While the Center's motion was pending, Tejon and Climate Resolve reached a settlement, and Climate Resolve moved for

dismissal of its petition with prejudice. The Center and the County were not parties to the settlement or involved in settlement negotiations.

On December 1, 2021, the superior court heard argument on the Center's motion for reconsideration. At the hearing, the court stated its tentative ruling was that the Center had joined in Climate Resolve's arguments "such that the judgment in the Center [] case would include prevailing on the greenhouse gas and fire issues." The court explained that despite there being two case numbers, "the practical reality is that we treated the cases as one" and "for all practical purposes, the court consolidated the matter." In light of the parties' stipulation, the single administrative record, a "trial where all of the issues were resolved," and the joint order, the court stated, "I think everybody agrees that there was one set of issues and each party was joining in those issues." The court observed that Tejon's response to the notice of related cases "indicated that specifically the petitioners in both cases challenge the adequacy of the county's analysis of greenhouse gas and fire hazard." The court noted Tejon's response also included "a sentence about both cases seeking substantially similar relief," and that assignment to a single judge "will likely conserve judicial resources as there are overlapping factual and legal issues between the cases." Also, Tejon's response brief to the Center's opening brief did not include greenhouse gas or fire issues among a list of claims Tejon argued the Center had abandoned by not adequately raising.

Tejon and the County argued that although the briefs were coordinated, the cases were not formally consolidated, the petitioners' arguments were made separately, and the court entered separate decisions for each case. The County argued the

stipulation did not address how to handle overlapping arguments. Tejon further argued its settlement with Climate Resolve and the pending dismissal rendered that case "nonexistent," and that it had not had the opportunity to raise res judicata. The Center argued that it had not seen the settlement or been included in discussions. The Center asked the court to consider that "under CEQA, the remedy isn't necessarily a private settlement agreement with one of the litigants. . . . [U]nder CEQA, . . . we should have an opportunity to have a hearing on the remedy . . . because under CEQA it's about poor decision-making and public participation in the process, not necessarily kind of a private agreement."

The court stated that "maybe on my own motion or based on this motion," the Center should be allowed to present the greenhouse gas and fire issues, and that given how the cases had been litigated, it was "appropriate that the joinder be granted." The court continued the hearing and asked the parties to meet and confer regarding whether the settlement or another remedy might satisfy the Center.

On December 3, 2021, the court granted Climate Resolve's request for dismissal with prejudice. The remaining parties subsequently met and conferred twice. Tejon filed a 31-page report and brief stating the Center was not satisfied with the Climate Resolve settlement and still sought prevailing party status on the greenhouse gas and wildfire issues. Tejon further argued reconsideration should be denied because the Center could not revive "abandoned" claims; any relief was precluded by res judicata due to the dismissal of Climate Resolve's case; and that, if the court granted the motion for reconsideration, any remedy should be less than a full rescission of the Centennial

project approvals. The County filed a report concurring with Tejon. The Center's report stated the Climate Resolve settlement did not ameliorate its concerns about the Centennial project or the County's evaluation of greenhouse gas and fire issues.

On January 14, 2022, the superior court held its second hearing on the motion for reconsideration and heard additional argument from the parties. The court clarified it did not view the Center as "joining" Climate Resolve's case, but rather that the Center "incorporate[d] all of the arguments made by Climate Resolve, the related case, in its brief." The court stated: "[U]nder *Le Francois vs. Goel* [(2005) 35 Cal.4th 1094 (*Le Francois*)], I'm going to find that I made an error, that I should reconsider, and that I should deem the arguments made by Climate Resolve on greenhouse gas and fire as incorporated into the Center for Biological Diversity brief . . . . [T]hose arguments would similarly carry the day as they did in Climate Resolve." The court explained "it would be intellectually dishonest of me to proceed otherwise," and that the court was "at fault for not making it clear" at the hearing and in its April 2021 order that the Center had prevailed on the incorporated arguments.

In response to Tejon's res judicata argument, the court stated: "I don't see it as reviving a dismissed case. I see it as at the time of the hearing having incorporated arguments that were made in [Climate Resolve's] case and considered by the court." "[I]t's really about may a party incorporate by reference and join arguments made in a companion lawsuit where the parties are aligned." The court also noted, "it's not as if the [Center] didn't raise greenhouse gas or fire in its petition such that any incorporation would exceed the scope of that." Thus, the court reiterated, "I am going to grant the motion pursuant to

Le Francois vs. Goel," which "will mean that [the Center] prevail[s] in the same way that Climate Resolve did on the greenhouse gas and fire issue." "So that would mean that [the Center] prevail[s] on their petition in terms of their greenhouse gas and fire hazards analysis." The court also stated that it "reconsidered . . . on my own motion."

On January 14, 2022, the court issued a minute order stating, "The Motion for Reconsideration filed by [the Center] on 04/19/2021 is Granted." Tejon filed a motion for reconsideration, which the superior court denied.

2. *Standard of Review*

"A trial court's ruling on a motion for reconsideration is reviewed under the abuse of discretion standard." (*New York Times Co. v. Superior Court* (2005) 135 Cal.App.4th 206, 212 (*New York Times*).) We also review for abuse of discretion a superior court's procedural orders, including orders setting the briefing schedule and scope of issues to be briefed. (See *Bull Field, LLC v. Merced Irrigation Dist.* (2022) 85 Cal.App.5th 442, 452-455.) As the superior court noted and the parties agree, no rule of court or civil procedure addresses incorporation by reference of another party's trial briefs in cases ordered related by the superior court and assigned to the same trial judge. "[A]bsent a rule precluding incorporation by reference," we review for abuse of discretion, rather than de novo, a superior court's decision whether to consider memoranda or materials incorporated by reference into a party's filings. (*Roth v. Plikaytis* (2017) 15 Cal.App.5th 283, 291-292, fn. 7 (*Roth*) [rejecting de novo review and concluding superior court abused its discretion

by failing to consider separately filed materials incorporated by reference].)[15]

3. *The Superior Court Was Authorized To Reconsider Whether the Center Was a Prevailing Party*

As stated, the superior court initially denied the Center's petition in its entirety, then subsequently reconsidered its ruling and granted it on the same grounds argued in Climate Resolve's briefing. Tejon contends the court lacked jurisdiction to rule on the Center's motion for reconsideration because it did not present any "new or different facts, circumstances or law" under Code of Civil Procedure section 1008.[16] Section 1008 generally governs "reconsideration of court orders whether initiated by a party or the court itself." (*Gilberd v. AC Transit* (1995) 32 Cal.App.4th 1494, 1499; see *Kinda v. Carpenter* (2016) 247 Cal.App.4th 1268, 1278 ["section 1008 places strict jurisdictional limits on a litigant's ability to seek reconsideration of a prior ruling"].) A party's motion for reconsideration of an order must be "based upon new or different facts, circumstances, or law." (§ 1008, subd. (a).) Or, "[i]f a court at any time determines that there has been a change of law that warrants it to reconsider a prior order it entered, it may do so on its own motion and enter a different

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[15] Tejon contends that whether the superior court properly determined the Center was a prevailing party is a legal question reviewed de novo, citing *Central Delta Water Agency v. Department of Water Resources* (2021) 69 Cal.App.5th 170, 212. *Central Delta* deals solely with whether a motion for attorney fees was untimely and is inapplicable here.

[16] All undesignated references are to the Code of Civil Procedure.

order." (§ 1008, subd. (c); see *Phillips v. Sprint PCS* (2012) 209 Cal.App.4th 758, 769 (*Phillips*); *Farmers Ins. Exchange v. Superior Court* (2013) 218 Cal.App.4th 96, 107.)

The court, however, expressly stated it reconsidered its prior order on its own motion. Section 1008 does not limit "the court's ability, on its own motion, to reconsider its prior interim orders so it may correct its own errors." (*Le Francois, supra,* 35 Cal.4th at p. 1108; accord, *New York Times, supra,* 135 Cal.App.4th at p. 211.) "Even without a change of law, a trial court has the inherent power to reconsider its prior rulings on its own motion at any time before entry of judgment." (*State of California v. Superior Court (Flynn)* (2016) 4 Cal.App.5th 94, 100 (*State of California*); see *Le Francois*, at pp. 1098, 1107; *Phillips, supra,* 209 Cal.App.4th at p. 768.)

In *Le Francois*, the Supreme Court held that, although section 1008 "prohibit[s] a *party* from making renewed motions not based on new facts or law," it "do[es] not limit a *court's* ability to reconsider its previous interim orders on its own motion, as long as it gives the parties notice that it may do so and a reasonable opportunity to litigate the question." (*Le Francois, supra,* 35 Cal.4th at pp. 1096-1097.) The Court held it does "not matter whether the 'judge has an unprovoked flash of understanding in the middle of the night' [citation] or acts in response to a party's suggestion. If a court believes one of its prior interim orders was erroneous, it should be able to correct that error no matter how it came to acquire that belief." (*Id.* at p. 1108; see *Brown, Winfield & Canzoneri, Inc. v. Superior Court* (2010) 47 Cal.4th 1233, 1249 ["it is immaterial what may have triggered a trial court's insight that its . . . order might be erroneous"].) Limiting a court's ability to correct its own rulings

"'would directly and materially impair and defeat the court's most basic functions, exercising its discretion to rule upon controversies between the parties and ensuring the orderly administration of justice.'" (*Le Francois*, at p. 1104, accord, *Even Zohar Construction & Remodeling, Inc. v. Bellaire Townhouses, LLC* (2015) 61 Cal.4th 830, 840.)

"To be fair to the parties," the court "should inform the parties of [its] concern, solicit briefing, and hold a hearing." (*Le Francois, supra,* 35 Cal.4th at p. 1108.) The superior court adhered to this procedure. Here, the parties briefed whether the Center was a prevailing party, and Tejon in its opposition to the Center's motion for reconsideration raised its argument that the Center had abandoned its claims before the hearing on the motion. At the hearing, the superior court stated its tentative ruling and further stated it was reconsidering its denial of the Center's petition "maybe on my own motion." It then continued the hearing for over a month with directions for the parties to meet and confer. The court accepted additional briefing from Tejon before the second hearing, over the Center's objection, and reports from the Center and the County that reiterated their positions. It heard further argument at the second hearing. In light of this record, we conclude the parties had "a reasonable opportunity to litigate the question" of whether the Center was a prevailing party. (*Le Francois,* at pp. 1096-1097.)

Tejon does not argue it lacked notice, a reasonable opportunity to brief the question of the Center's prevailing party status, or a hearing. Instead, it argues that "the trial court lacked jurisdiction to consider [or grant] [the Center]'s defective motion." But, as stated, "the trial court's inherent authority to correct its errors applies even when the trial court was prompted

to reconsider its prior ruling by a motion filed in violation of section 1008." (*In re Marriage of Barthold* (2008) 158 Cal.App.4th 1301, 1303-1304 (*Barthold*); see *id.* at p. 1313 ["In our view, the California Constitution requires that in any case in which a trial judge reconsiders an erroneous order, and enters a new order that is substantively correct, the resulting ruling must be affirmed regardless of any procedural error committed along the way."]; *State of California*, *supra,* 4 Cal.App.5th at p. 100 [""""""Miscarriage of justice results where a court is unable to correct its own perceived legal errors."""""]; accord, *Kerns v. CSE Ins. Group* (2003) 106 Cal.App.4th 368, 388, fn. 18.)

That the court changed its mind after a deficient section 1008 motion does not affect this conclusion. "*Le Francois* simply requires that the trial court reconsider a prior ruling based on its own realization that the ruling was erroneous, and not based upon a determination that the motion to reconsider should itself be granted on its merits." (*Barthold, supra,* 158 Cal.App.4th at p. 1308 [rejecting argument that the court's correction of erroneous ruling was "prompted" by a motion for reconsideration]; see *Reliant Life Shares, LLC v. Cooper* (2023) 90 Cal.App.5th 14, 61 (*Reliant Life Shares*) ["even if [party]'s motion 'did not comport with the procedural requirements of Code of Civil Procedure section 1008,' . . . the trial court had the authority to correct its error on its own motion"].) The superior court stated three times at the second hearing that it was reconsidering on the basis of *Le Francois*, and emphasized that it "reconsidered . . . on my own motion, actually." The court did not abuse its discretion.

4. *The Superior Court Did Not Abuse Its Discretion by Permitting the Center To Incorporate by Reference the Arguments Briefed by Climate Resolve*

Tejon also challenges the superior court's order allowing the Center to incorporate by reference the greenhouse gas and wildfire arguments briefed by Climate Resolve in its related action. We discern no error.

a. *Superior courts have broad authority over management of related cases*

Two or more cases in the same superior court may be ordered "related" and assigned to the same judge where the parties and issues are the same and would require substantial duplication of judicial resources to resolve separately. (*Bravo v. Superior Court* (2007) 149 Cal.App.4th 1489, 1492; see Cal. Rules of Court, rule 3.300(a)[17].) Upon the filing of a notice of a related case, the superior court may order the cases related and assign them to a single judge. (See rule 3.300(h).) Designating two cases as related "allows the trial court to promote efficiency, to avoid duplicative effort, to combat judge-shopping, and to minimize the prospect of conflicting results. The trial court system relies on this mechanism to detect and to cure the problem of parallel litigation within its jurisdiction." (*Harris v. Rojas* (2021) 66 Cal.App.5th 817, 820.) Relation of cases shares

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[17] Undesignated rule references are to the California Rules of Court.

the same purpose of efficiency as other procedures, such as consolidation and coordination.[18]

In cases that have been ordered related, a court has authority to order coordinated briefing, even absent a formal consolidation order. (See, e.g., *Friends of Bay Meadows v. City of San Mateo* (2007) 157 Cal.App.4th 1175, 1181 ["In light of the obvious overlap between the two actions, the trial court effected an informal consolidation by establishing a unified briefing schedule" in related cases.].) This is consistent with "the 'inherent powers of the court . . . to [e]nsure the orderly administration of justice.'" (*Walker v. Superior Court* (1991) 53 Cal.3d 257, 266 (*Walker*); see *id.* at p. 267 ["courts have inherent authority to control their own calendars and dockets"]; *Rutherford v. Owens-Illinois, Inc.* (1997) 16 Cal.4th 953, 967 (*Rutherford*) [courts have inherent power to control litigation before them].) Although some powers are set out by statute, the inherent powers of the courts are derived from the California Constitution, article VI, section 1, and are not confined by or dependent on statute. (See *Walker*, at p. 267.)

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[18] Actions pending before the same court that involve a common question of law or fact may be ordered consolidated in part or for all purposes. (See § 1048; see also *Vaquero Energy, Inc. v. County of Kern* (2019) 42 Cal.App.5th 312, 322.) Noncomplex related cases pending in different superior courts may be formally coordinated in one court under § 403 and rule 3.500. (See rule 3.300(2)(B).) Complex related cases may be coordinated subject to rule 3.501 et seq., with a "great breadth of discretion" granted to judges overseeing coordinated proceedings. (*McGhan Medical Corp. v. Superior Court* (1992) 11 Cal.App.4th 804, 812, 814; accord, *Pabla v. Superior Court* (2023) 90 Cal.App.5th 599, 603.)

b. *The superior court had authority to allow the Center to incorporate by reference Climate Resolve's arguments*

Although Tejon incorporated by reference parts of the County's briefing, Tejon argues the court erred by allowing the Center to incorporate by reference Climate Resolve's greenhouse gas and wildfire arguments.

The cases here were related and filed under different case numbers, and the court did not formally coordinate or consolidate them, but Tejon has not given a persuasive reason why the superior court lacked the inherent authority to allow petitioners to incorporate parts of each other's briefing given the complexity of the case and duplicative nature of the arguments. (See *Walker, supra,* 53 Cal.3d at p. 267; *Rutherford, supra,* 16 Cal.4th at p. 967; cf. *Bridget A. v. Superior Court* (2007) 148 Cal.App.4th 285, 300, fn. 5 ["'standard practice' permits parties to join in each other's arguments" in the same case]; *Delta Stewardship Council Cases* (2020) 48 Cal.App.5th 1014, 1028, fn. 3, 1079, fn. 30 [in coordinated CEQA cases, allowing incorporation by reference of arguments briefed by other petitioners with separate case numbers].) Indeed, as stated, in the superior court Tejon and the County incorporated by reference arguments in each other's briefs as well.[19]

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[19] Tejon and the County did the same in their appellate briefing. Of course, in the courts of appeal, a party may "join in or adopt by reference all or part of a brief in the same or a related appeal." (Rule 8.200(a)(5).) The rule's primary purpose is "'to expedite briefing in multiparty appeals.'" (*California Assn. of Retail Tobacconists v. State of California* (2003) 109 Cal.App.4th 792, 836, fn. 28; see *State of California ex rel. Rapier v. Encino*

We reject Tejon's argument the superior court erred under the circumstances presented. First, the Center expressly pleaded in its petition that the County violated CEQA because of the EIR's discussion of greenhouse gas and wildfire impacts, so Tejon was on notice the Center intended to raise these arguments. Second, Tejon acknowledged in its response to the notice of related cases that "the petitioners in both cases challenge the adequacy of the County's analysis of greenhouse gas and fire hazard impacts," and present "overlapping factual and legal issues between the cases."

Third, the parties filed a stipulation, which the court signed, stating that the Center and Climate Resolve would brief separate issues "so as to avoid overlap of arguments." Pursuant to that stipulation, the Center expressly incorporated Climate Resolve's arguments by reference in its merits briefing.[20] The Center's opening brief clearly stated it "join[ed] and incorporate[d] by reference the greenhouse gas and fire arguments raised in the Opening Brief filed by Climate Resolve," and Climate Resolve in turn clearly incorporated the Center's land-use arguments. The reply briefs reiterated this mutual incorporation of arguments, with the Center stating it "join[ed] and incorporate[d] by reference the arguments about the EIR's inadequate analysis and mitigation of greenhouse gas and

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Hospital Medical Center (2022) 87 Cal.App.5th 811, 827.) That a similar rule does not exist in the rules of court governing procedures in the superior courts does not mean these courts lack the authority to allow a party to incorporate another party's arguments by reference.

[20] Relatedly, the Center's statement of facts was adopted by Climate Resolve.

wildfire impacts contained in Climate Resolve's Reply Brief." Finally, Tejon had an opportunity to oppose the greenhouse gas and wildfire arguments on the merits (and did so), and Tejon does not explain why it would matter to its substantive opposition that one of the petitioners briefed the arguments instead of the other.

Additionally, here the related cases were briefed and heard concurrently by the same judge, and all parties embraced incorporation by reference in the briefs—at least until the superior court's merits order.[21] Nothing precluded the superior court presiding over two related cases from coordinating and streamlining briefing of the issues. In the absence of a statute or rule disallowing incorporation by reference, the Center was not required to separately brief the incorporated arguments. (See *Roth, supra,* 15 Cal.App.5th at pp. 291-292.) And the court was within its discretion to rule the Center prevailed on its petition on these bases. (Cf. *Reliant Life Shares, supra,* 90 Cal.App.5th at p. 34 [in bifurcated trial, court had discretion to decide allegations in separate pleading incorporated by reference]; *Park v. NMSI, Inc.* (2023) 96 Cal.App.5th 346, 360-361 [court did not err in considering previously-filed material incorporated by reference into application for writ of attachment where governing statute "does not preclude incorporation by reference"].)

In short, "[t]he trial court in the instant case was satisfied to read the [arguments] by reference. We, too, are likewise

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[21] Tejon and the County did not object in the trial court to the petitioners' use of incorporation by reference before the April 2021 order making Climate Resolve a prevailing party. The Center does not contend that Tejon's right to challenge incorporation by reference on appeal was forfeited by failure to object before the court's April 2021 order.

satisfied with [t]his ruling." (*Turney v. Collins* (1941) 48 Cal.App.2d 381, 388.)

5. *Claim and Issue Preclusion Do Not Apply*

Tejon argues its settlement with Climate Resolve and the dismissal of Climate Resolve's case with prejudice barred the Center from asserting the greenhouse gas and wildfire arguments under res judicata (claim preclusion) and collateral estoppel (issue preclusion) principles.[22] The doctrine of claim preclusion bars a party from relitigating a claim or entire cause of action previously decided by a court. (See *Kim v. Reins International California, Inc.* (2020) 9 Cal.5th 73, 91 (*Kim*); *Samara v. Matar* (2018) 5 Cal.5th 322, 326-327.) "Issue preclusion, by contrast, prevents 'relitigation of previously decided issues,' rather than causes of action as a whole." (*Samara,* at p. 327.) "Claim and issue preclusion have different requirements. We have described claim preclusion as applying 'only when "a second suit involves (1) the same cause of action (2) *between the same parties [or their privies]* (3) after a final judgment on the merits in the first suit."' [Citation.] Issue preclusion, by contrast, 'applies only "(1) after final adjudication (2) of an identical issue (3) actually litigated and necessarily decided in the first suit and (4) *asserted against one who was a party in the first suit or one in privity with that party*."'" (*Grande v. Eisenhower Medical Center* (2022) 13 Cal.5th 313, 323

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[22] To avoid confusion, we follow the California Supreme Court "and use the terms 'claim preclusion' to describe the primary aspect of the res judicata doctrine and 'issue preclusion' to encompass the notion of collateral estoppel." (*DKN Holdings LLC v. Faerber* (2015) 61 Cal.4th 813, 824.)

(*Grande*).) We focus our inquiry on whether Climate Resolve and the Center were in privity for purposes of claim and issue preclusion.[23]

"'[P]rivity' is not merely a term that describes a close relationship between two entities; it implies that a judgment against one could have been used against the other, even though that entity was not a party to the judgment." (*Grande, supra,* 13 Cal.5th at pp. 324-325.) Privity does not exist if the first party "did not adequately represent the [second party]'s interests in the first action." (*Id.* at p. 325.) "'[T]he determination of privity depends upon the fairness of binding [the second party] with the result obtained in earlier proceedings in which it did not participate,'" and "'"requires close examination of the circumstances of each case."'" (*Citizens for Open Access to Sand and Tide, Inc. v. Seadrift Association* (1998) 60 Cal.App.4th 1053, 1070 (*COA*); accord, *Planning & Conservation League v. Castaic Lake Water Agency* (2009) 180 Cal.App.4th 210, 229 (*PCL*).) Privity is a legal issue we review de novo. (See *COA,* at p. 1070.)

Tejon argues Climate Resolve and the Center are in privity because they are organizations representing the public interest,

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[23] Here, the causes of action for violation of CEQA are the same, and the issues are essentially identical because the Center prevailed by incorporating by reference Climate Resolve's arguments, which were decided by the court before dismissing Climate Resolve's petition. Further, "[a] dismissal with prejudice following a settlement constitutes a final judgment on the merits. . . . 'Dismissal with prejudice is determinative of the issues in the action and precludes the dismissing party from litigating those issues again.'" (*Estate of Redfield* (2011) 193 Cal.App.4th 1526, 1533; accord, *Kim, supra,* 9 Cal.5th at p. 91.) The parties largely agree with these propositions.

and the Center should be bound by the dismissal of Climate Resolve's claims. "[T]he common objective of representing the public interest in a lead agency's compliance with CEQA" may be sufficient to establish privity between two parties bringing CEQA challenges. (*Silverado Modjeska Recreation & Park Dist. v. County of Orange* (2011) 197 Cal.App.4th 282, 299, fn. 10 (*Silverado Modjeska*); accord, *Central Delta Water Agency v. Department of Water Resources* (2021) 69 Cal.App.5th 170, 209 (*Central Delta*) ["litigation of CEQA claims against a defendant on behalf of the public is generally sufficient" to establish "common interest in the enforcement of CEQA"].)

Here, Climate Resolve and the Center both "undertook [their] action[s] on behalf of the public," and "the key question regarding privity is whether [Climate Resolve] adequately acted as [the Center]'s "'virtual representative"'" in reaching the final settlement in its case. (*PCL, supra,* 180 Cal.App.4th at p. 230; see *COA, supra,* 60 Cal.App.4th at p. 1070 [a party "is adequately represented for purposes of the privity rule 'if his or her interests are so similar to a party's interest that the latter was the former's virtual representative in the earlier action'"].) "[T]he dispositive question is whether [Climate Resolve] asserted the common interest with adequate vigor." (*PCL,* at p. 230.) In examining this question, we look to "the manner in which [Climate Resolve] conducted and resolved its action." (*Ibid.* [no privity where one of three public interest groups voluntarily dismissed its CEQA action with prejudice due to lack of resources].)

We first examine "the public interests that CEQA seeks to promote." (Cf. *Tulare Lake Canal Co. v. Stratford Public Utility Dist.* (2023) 92 Cal.App.5th 380, 398 [because "CEQA is designed to further public interests," evaluation of how public interest

would be affected by an injunction requires identifying the underlying interests of CEQA enforcement].) "CEQA was enacted to (1) inform the government and public about a proposed activity's potential environmental impacts; (2) identify ways to reduce, or avoid, those impacts; (3) require project changes through alternatives or mitigation measures when feasible; and (4) disclose the government's rationale for approving a project." (*Protecting Our Water, supra,* 10 Cal.5th at p. 488; accord, *Union, supra,* 7 Cal.5th at pp. 1184-1185; see Guidelines, § 15091.)

"'If CEQA is scrupulously followed, the public will know the basis on which its responsible officials either approve or reject environmentally significant action . . . .' [Citation.] The EIR 'protects not only the environment but also informed self-government.'" (*Sierra Club, supra,* 6 Cal.5th at pp. 511-512.) "'The purpose of CEQA is . . . to compel government at all levels to make decisions with environmental consequences in mind.'" (*Laurel Heights, supra,* 47 Cal.3d at p. 393.) Accordingly, "[i]n a CEQA proceeding, a plaintiff's right to ensure the lead agency's compliance with CEQA's substantive and procedural requirements with respect to a particular environmental impact is a primary right." (*Central Delta, supra,* 69 Cal.App.5th at p. 207; see *Federation of Hillside & Canyon Assns. v. City of Los Angeles* (2004) 126 Cal.App.4th 1180, 1204 ["The primary right in both proceedings is the right to ensure the city's compliance with CEQA's substantive and procedural requirements."]

Tejon argues the Climate Resolve settlement adequately represents the public interest because it "secured millions of dollars in sustained funding for green infrastructure and regional wildfire protection programs that directly benefit the public

interest." Tejon further contends counsel for Climate Resolve told the superior court the settlement is a "great result in the real world" which will "result in no [greenhouse gas] impact, not just insignificant [greenhouse gas] impact," and that although the settlement could not change the EIR's inadequate wildfire analysis, the settlement funds would "reduce the fire risks as much as we can." The Center counters that although the settlement purports to provide for greenhouse gas mitigation, "it does not provide the analysis or mitigation for wildfire risks omitted from the EIR," "fails to provide County decisionmakers with the analysis needed to have made the fully informed decision CEQA requires," and "does not provide the County with a meaningful oversight role." "Thus, the settlement fails to rectify the errors detailed in the rulings granting the Petitions." The Center further argues the settlement does not bind the County, the public entity that violated CEQA, and that Tejon has no statutory duty to abide by CEQA.

We conclude Climate Resolve did not adequately represent the Center's interests or the petitioners' common interest in CEQA enforcement with sufficient vigor to be deemed the Center's "virtual representative." (*PCL, supra,* 180 Cal.App.4th at p. 230.) The superior court ruled the EIR's discussions of greenhouse gas and offsite wildfire impacts were deficient. These rulings go squarely to the public information and disclosure interests of CEQA, and reflect the petitioners' successful pursuit of the "common objective" of "representing the public interest in a lead agency's compliance with CEQA." (*Silverado Modjeska, supra,* 197 Cal.App.4th at p. 299, fn. 10.) But despite the petitioners' close alignment in obtaining this ruling, their interests thereafter diverged.

Climate Resolve negotiated and settled with Tejon for millions of dollars in environmental incentives and wildfire safety projects and an array of substantive development measures, but it abandoned pressing the County to comply with CEQA. The Center was not included in the settlement discussions and did not see the settlement until after Climate Resolve's case was dismissed. Further, Climate Resolve had little incentive to represent the Center's interests in negotiations. Indeed, one of the settlement's terms was that Climate Resolve would actively support Tejon and the County in the Center's suit and would "oppose with oral advocacy and in court filings" the Center's ability to attain prevailing party status.

Tejon argues this case is like *COA*, where the court held a public interest group was bound by a settlement reached by several government agencies in a beach access dispute, even though the group was not a party to the settlement, and there was no "indication in the record of a direct interest of [the group] in the current dispute that was unrepresented by the state agencies in the prior litigation." (*COA, supra,* 60 Cal.App.4th at p. 1073; see *id.* at 1070 ["[the group], along with the public as a whole, was adequately represented by the state agencies vested with authority to litigate the issue of public access" to the beach].) *COA* is distinguishable because it involved a settlement by governmental agencies charged with protecting the public interest, rather than private parties. Further, the state agencies that negotiated the settlement consistently "asserted the same interests" as the public interest group, "seem to have been equally motivated to reach a successful conclusion of the litigation on behalf of the public," and "determine[d] the same matter of public interest." (*Id.* at pp. 1072-1073.) Unlike in

COA, the circumstances here indicate that the Center's interest in ensuring the County's compliance with CEQA—by obtaining a judgment setting aside approval of the project, decertifying the EIR, and requiring preparation of a new EIR adequately discussing and mitigating the impacts—were not adequately represented by Climate Resolve.

We do not question the environmental significance of Climate Resolve's settlement. We only determine that Climate Resolve and the Center were not in privity for purposes of claim preclusion or issue preclusion. We acknowledge that, "[i]f the common objective of representing the public interest in a lead agency's compliance with CEQA were not sufficient to establish privity between two parties for purposes of res judicata, the lead agency's compliance with CEQA would be subject to continuing challenges by different parties successively asserting similar claims, in contravention of the legislative goal of avoiding delay and achieving prompt resolution of CEQA claims." (*Silverado Modjeska, supra,* 197 Cal.App.4th at p. 299, fn. 10.) Here, of course, the County was not a party to the settlement. Further, on the facts presented, we conclude that when the lead agency's compliance with CEQA ceases to be a common objective, one environmental group's settlement with the developer and dismissal of its action against the lead agency does not foreclose another group from obtaining the relief already granted by the court.

II. THE CENTER'S CROSS-APPEAL

The Center cross-appeals from the superior court's denial of its petition asserting the EIR's discussion of impacts on wildlife

and native plant life was inadequate. We conclude the superior court did not err.

A. *Governing Law and Standard of Review*

An EIR must identify and discuss "[a]ll significant effects on the environment" of a proposed project. (Pub. Resources Code, § 21100, subd. (b)(1); Guidelines, § 15126(a).) A significant environmental effect is "a substantial, or potentially substantial, adverse change in the environment." (Pub. Resources Code, § 21068.) "A project has a significant effect on the environment if, among other things, it substantially reduces the habitat of a fish or wildlife species, causes a fish or wildlife population to drop below self-sustaining levels, threatens to eliminate a plant or animal community, or reduces the number or restricts the range of an endangered, rare, or threatened species." (*Endangered Habitats League, Inc. v. County of Orange* (2005) 131 Cal.App.4th 777, 792 (*Endangered Habitats League*); see Guidelines, § 15065, subd. (a)(1).)

Our review of a lead agency's compliance with CEQA is the same after denial of a petition for writ mandate as on appeal from the grant of a petition for writ of mandate: We determine "'whether there was a prejudicial abuse of discretion'" (Pub. Resources Code, § 21168.5), which is established "'if the agency has not proceeded in a manner required by law or if the determination or decision is not supported by substantial evidence.'" (*Vineyard, supra,* 40 Cal.4th at p. 426.) Our "proper role in reviewing a challenged EIR is not to determine whether the EIR's ultimate conclusions are correct," but merely "whether the EIR is sufficient as an informational document" and whether its conclusions are supported by substantial evidence. (*Laurel*

Heights, supra, 47 Cal.3d at p. 407.) "Substantial evidence" is defined in the Guidelines as "enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached." (Guidelines, § 15384, subd. (a).) We review claims of inadequate discussion de novo, unless the agency's discussion of significant project impacts implicates a factual question. (See *Sierra Club, supra,* 6 Cal.5th at pp. 513-514.)

In examining an EIR under these standards, we "look[] not for perfection but for adequacy, completeness, and a good faith effort at full disclosure." (Guidelines, § 15151; *Laurel Heights, supra,* 47 Cal.3d at p. 406; accord, *Save Panoche Valley v. San Benito County* (2013) 217 Cal.App.4th 503, 514; *PCL, supra,* 180 Cal.App.4th at p. 242.) Our role on review "'is not to decide whether [the agency] acted wisely or unwisely, but simply to determine whether the EIR contained sufficient information about a proposed project, the site and surrounding area and the projected environmental impacts arising as a result of the proposed project or activity to allow for an informed decision . . . .'" (*PCL,* at p. 242.) "A court may not set aside an agency's approval of an EIR on the ground that an opposite conclusion would have been equally or more reasonable." (*Laurel Heights,* at p. 393; accord, *Ebbetts Pass, supra,* 43 Cal.4th at p. 944.)

B. *The EIR Adequately Analyzed Wildlife Connectivity Impacts*

The Center argues the EIR violated CEQA by failing to discuss adequately and/or to mitigate the project's impacts on

wildlife connectivity.[24] (See Guidelines, § 15126.2, subd. (a).) The Center argues the EIR's discussion was inadequate as a matter of law because it failed to: (1) disclose the Centennial project's significant impacts on regional wildlife connectivity, including the "Tehachapi Linkage" corridor that allows wildlife movement among area mountain ranges and open space; (2) properly describe the project site's importance to wildlife movement; (3) disclose the project's significant impacts on mountain lion populations; and (4) adopt or require mitigation measures. In particular, the Center argues the EIR fails to discuss adequately the impacts on wildlife movement arising from the expansion of SR-138. Tejon, joined by the County, argues the EIR fully disclosed, analyzed, and mitigated impacts on wildlife connectivity. We agree and conclude the EIR's discussion of the impacts on wildlife connectivity was sufficiently adequate to serve the EIR's purpose as an informational document.[25]

EIR section 5.7 addressed environmental impacts on biological resources, including wildlife and plants. The EIR adopted Threshold 7-4 (from the County Environmental Checklist) to analyze impacts on local and regional wildlife movement. Under Threshold 7-4, a project has a significant impact if it would "[i]nterfere substantially with the movement of any native resident or migratory fish or wildlife species or with

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[24] Wildlife connectivity, as discussed in the EIR, refers to the ease of wildlife movement between open space areas.

[25] Because the Center did not raise a substantial evidence challenge on wildlife connectivity, we analyze the adequacy of the discussion de novo. (See *Sierra Club, supra,* 6 Cal.5th at pp. 514-516.)

established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites." The EIR explained that "the statement 'interferes substantially with the movement of any native resident or migratory fish or wildlife species' . . . refers to blockages, barriers, or other substantial impediments to animal dispersal between large, regional open spaces."

The EIR discussed local and regional wildlife movement over more than a dozen pages in sections 5.7.3 and 5.7.6, with reference to numerous different wildlife studies. The EIR identified the Tehachapi Mountains northwest of the project site as an important "regional landscape linkage" between the Sierra Nevada, Coast Ranges, and San Gabriel Mountains, used by wildlife as a corridor between similar habitats (the Tehachapi Linkage). The EIR described the dangers to wildlife of "fragmentation of open spaces resulting from urbanization" and the significance of Tejon Ranch's open spaces for species movement, with "the breadth of the [Tehachapi] mountain range" lying within Tejon Ranch. It stated that "keeping the Tehachapi linkage functional is important for the long-term viability of many species and for the overall health of the plant and wildlife communities in the region." The EIR also explained the Tehachapi Linkage is located "just to the west of the Project [and] the Project lands have generally not been included as part of this regional corridor." Wildlife movement studies relied on in the EIR "have generally shown the Project area as a whole to be largely outside the critical regional corridor" of the Tehachapi Linkage.

In discussing wildlife movement on the project site specifically, the EIR acknowledged that "individual animals move

on and off the site and travel significant portions of it; this discussion also recognizes that some species may cross significant portions of or the entire site on occasion." The EIR noted that larger mammals such as mountain lions "frequent the foothills above the Project site and are expected to occasionally forage at lower elevations, including within the Project site." The EIR reported the project site overall is an unsuitable habitat for mountain lions because it contains very little cover, provides very little water, and is not ideal for mountain lion prey. It further stated the project would remove some of their foraging habitat. Mountain lion tracks were observed on the project site north of SR-138. As a "high mobility ground-dwelling" species, mountain lions "require large home ranges" and rely on landscape linkages for population dispersal. The local mountain lion population suffers from low genetic diversity and risk of extinction due to lack of connectivity with other populations, making the survival of individual migrating lions of "immediate conservation importance." The EIR stated the project could indirectly "affect dispersal events" by species such as mountain lions, "resulting in reduced genetic diversity."

The EIR, nevertheless, concluded the project site as a whole did not provide "crucial linkages for imperiled terrestrial animals and avian species." The EIR concluded that "lack of vegetation cover and the presence of significant existing barriers to wildlife dispersal [such as the California Aqueduct and I-5] combine to make the Project site an area of limited opportunity for regional wildlife movement." The EIR acknowledged that SR-138 is a "major movement deterrent[] in the Project area" and "is expected to become a more formidable barrier" for larger and "medium to high mobility species" traveling along the western portion of the

project site from the Tehachapi Mountains to the Angeles National Forest. But it explained that the expansion of SR-138 "is expected to occur regardless of the Project."[26] As such, the EIR explained that: "Project development is not expected to interfere with a majority of regional wildlife movement (1) based on the findings of independent studies that the Project site is largely outside the regional wildlife movement corridor; (2) since the site's feasibility to be utilized as part of a regional wildlife corridor between the Tehachapi Mountains (to the north) and the Angeles National Forest (to the south and west) is limited by the Aqueduct and I-5; and (3) because the majority of the site is open grassland and does not support the forest and shrub cover that many larger, wide-ranging species tend to use during movement episodes."

The EIR ultimately concluded the project's direct impacts on local and regional wildlife movement would be "less than significant." The EIR further concluded that while the project "may have substantial indirect impacts on wildlife movement adjacent to the site[,] . . . areas further north and northwest in the Tehachapi Mountains would not likely be impacted. . . . [T]he

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[26] The EIR explained in a different section that "SR-138 runs in a general east-west direction through the southern section of the site and is a currently a two-lane highway, but the California Department of Transportation (Caltrans) is proposing to widen and realign SR-138 into a four- to six-lane highway through and near the site, as part of its comprehensive Northwest 138 Corridor Improvement Project. As such, the Project anticipates and would complement the planned SR-138 improvements, as intended by the West EOA." The EIR also states that although SR-138 passes through the project site, it is itself "not part of the Project site nor within the Project boundaries."

core area of this linkage zone is several miles to the northwest of the Project site. As a result, the Project's indirect impacts are not expected to reach the primary regional linkage area, and regional connectivity is expected to be minimally impacted." The EIR stated the impacts on wildlife movement and general wildlife habitat from the project would be reduced to less than significant with mitigation measures (MM 7-14 through MM 7-18), and that the "most likely north-south passage across or in the vicinity of the Project site (on the western edge of the site and adjacent areas)" would be retained as open space.

The EIR considered commentary from the California Department of Fish and Wildlife (CDFW) and the Santa Monica Mountain Conservancy (SMMC), among others. The CDFW recommended additional wildlife surveys. The California Department of Transportation (Caltrans) commented that "[d]evelopment in this area may affect the wildlife corridor crossing of SR-138 and mitigation measures should be planned for." And SMMC stated "the proposed project . . . would sever the most optimal five-mile-wide habitat linkage across Highway 138 between 15 and State Route 14. The DEIR is massively flawed for totally failing to analyze the project's potential impacts on habitat connectivity from the Tehachapi Mountains south (across Highway 138) into the portion of the Angeles National Forest located just east of 15. . . . [T]he proposed project . . . would eliminate virtually all wildlife movement across Highway 138 within the project boundary. Not even the slightest contiguous band of habitat or open land is proposed from the northern project area to Highway 138 or the proposed project open space south of Highway 138." The County responded to SMMC that "the majority of the Project site only abuts SR-138, with solely

the southeastern portion of the site including areas both to the north and south of the roadway." The County affirmed its conclusion that development of the project "would not significantly impact movement" between the Tehachapi and San Gabriel Mountains, and it noted that MM 7-14 designates an SR-138 wildlife underpass that would provide some wildlife movement, as would an additional SR-138 underpass to be constructed further to the east consistent with the Antelope Valley Area Plan.

The superior court ruled the EIR's discussion of impacts on wildlife connectivity was adequate as a matter of law, with "sufficient detail to enable those who did not participate in its preparation to understand and to consider meaningfully the issues the proposed project raises," citing *Sierra Club, supra,* 6 Cal.5th at page 510. We agree. The EIR disclosed and described the importance of the Tehachapi Linkage, documented the project site's features and potential impacts relative to wildlife movement, including mountain lions, and noted the bases for its conclusions in independent studies. The EIR described the expansion of SR-138 and acknowledged its impacts on wildlife movement, but it explained this expansion was expected regardless of the Centennial project and would be mitigated in part by the SR-138 wildlife undercrossing described in MM 7-14 and an additional SR-138 undercrossing to the east.

That other agencies such as SMMC and CDFW opined the project would result in significant impacts on wildlife connectivity due to expansion of SR-138, as the Center argues, or recommended additional studies, does not mean the EIR's wildlife connectivity analysis or discussion was inadequate or inaccurate. (Cf. *North Coast Rivers Alliance v. Marin Municipal*

Water Dist. Bd. of Directors (2013) 216 Cal.App.4th 614, 643 (*North Coast*) ["'evidence of a disagreement with other agencies is not enough'" to show lack of support for CEQA findings].) An EIR "must lay out any competing views put forward by the lead agency and other interested agencies," but "[it] is an informational document, not a settlement agreement or a memorandum of understanding. The lead agency may disagree with the opinions of other agencies." (*Banning Ranch, supra,* 2 Cal.5th at p. 940.) In short, the EIR did not fail to provide an accurate and informed discussion of the project's impacts on the Tehachapi Linkage and the site's importance to and impacts on wildlife movement, including mountain lions. It was an adequate informational document. (*Sierra Club, supra,* 6 Cal.5th at p. 519.)

The Center further argues the EIR failed to consider meaningfully and to adopt feasible measures to mitigate impacts on wildlife movement, such as installing wildlife crossings on adjacent highways or considering alternative project designs, and failed to proceed as required by law in rejecting other agencies' mitigation recommendations. Since we conclude the EIR's discussion, which determined there were no significant impacts, was adequate as a matter of law, we need not address the Center's argument that the EIR failed to require mitigation measures to address the impacts. Further, that other agencies recommended additional mitigation measures also does not mean the EIR's mitigation discussion was inadequate as a matter of law. (Cf. *California Native Plant Society v. City of Rancho Cordova* (2009) 172 Cal.App.4th 603, 626 [disagreement with other agencies regarding mitigation measures does not show EIR is inadequate]; *North Coast*, *supra*, 216 Cal.App.4th at p. 643.)

C. *Native Perennial Grasslands and Wildflower Fields*

The Center argues the EIR violated CEQA by failing to discuss adequately or to mitigate impacts on native perennial grasslands and wildflower fields. (See Guidelines, § 15126.2, subd. (a).) The Center contends the EIR's discussion was inadequate as a matter of law because it (1) failed to quantify the loss of native perennial grassland attributable to the project; (2) failed to separately disclose significant impacts on wildflower fields; and (3) impermissibly deferred mitigation for native perennial grasslands, wildflower fields, and rare plant species. Tejon, joined by the County, argues the EIR adequately disclosed and mitigated the project's impacts.

We are not persuaded the County failed to proceed in the manner required by CEQA or that its determinations were unsupported by substantial evidence. The EIR's discussion and assessment of the project's expected impacts and mitigation measures is adequate as an informational document as a matter of law. We further conclude the EIR's finding that impacts on grasslands and wildflower fields would be less than significant with mitigation was also supported by substantial evidence.

1. *The EIR's Discussion of Native Perennial Grasslands and Wildflower Fields Impacts Was Adequate*

The EIR addressed impacts on native perennial grasslands and wildflower fields (as a seasonal "component of grasslands") in sections 5.7.3 and 5.7.6. The EIR adopted Threshold 7-2 to analyze impacts on native perennial grasslands and wildflower fields, which it took from the County Environmental Checklist. Under Threshold 7-2, a project has a significant impact if it would "[h]ave a substantial adverse effect on any sensitive

natural communities . . . identified in local or regional plans, policies, regulations or by CDFW or USFWS."

Native perennial grasslands and wildflower fields are considered "special status" vegetation types by the CDFW. The EIR reflected numerous biological surveys and vegetation mapping of the Centennial project site, including field studies to determine the distribution and composition of grasslands on site and off site conducted in 2003, 2004, 2006, and 2011. Over 9,100 existing acres of "Native Perennial Grassland/California Annual Grassland" were identified on the project site and on project-impacted off-site areas. The EIR concluded "[m]ost of these grassland areas would be directly impacted by implementation of the Project."

The EIR described in detail the composition of the grasslands characteristic of the site. It stated that "[t]here is no official operational definition of 'native perennial grassland'" and that the grasslands on site were "a mix of native perennial grassland and California annual grassland (with associated wildflower fields)," with increased native perennial grass species occurring on ridge tops as well as in a "mosaic" with annual grassland species. Using predictive modeling, the County determined the "highest quality" native perennial grassland and native flowering plant communities were found on the southern slopes area north of the project site, where several mitigation preserve areas are currently located.

As to the project's effects on wildflower fields, the EIR explained that "[w]ildflower fields occur throughout grasslands on the site," with over 71 wildflower species represented. Specifically, the EIR reported "botanical studies conducted over several years have shown that [wildflower fields] are seasonal

and intermixed with other native and non-native grassland species." The mosaic of native perennial grasslands and California annual grassland "include(s) intermixed, seasonal wildflower fields that vary in density from year to year. Wildflower fields are a component of the grasslands that are temporarily visible depending chiefly on rainfall amounts and timing."

The EIR does not differentiate between native perennial grasslands and California annual grasslands and the impacts on each type, nor does it separately quantify wildflower fields within the grasslands. The EIR explained: "Although areas of wildflower fields have been observed and are known to occur, this component of the grassland vegetation type was not mapped due to its ephemeral nature and high variability between years depending on weather patterns. Based on field observations and data collected during grassland studies, in general, varying densities of wildflower fields occur amidst the grassland vegetation throughout the site." The EIR stated that attempts at modeling spatial distribution of wildflower fields was unsuccessful due to the "drastic variability" year to year based on precipitation.

The EIR determined that "the loss of thousands of acres of grassland at least potentially containing a native perennial component (a special status vegetation type) is significant. Loss of wildflower fields, considered to be a subset vegetation type within the grasslands, is similarly considered a significant impact due to their rarity and status as a special status vegetation type."

But the EIR further concluded that implementation of MM 7-10, requiring 2:1 preservation of a similarly mixed

community of grasslands "on open space lands on the Project site and on other lands within Tejon Ranch," would reduce the impacts to less than significant levels. Based on the "infeasibility" of distinguishing between native perennial grasslands and California annual grasslands, MM 7-10 requires Tejon to mitigate all grasslands impacted by the Centennial project by preserving similar grasslands in the area in perpetuity, at a 2:1 ratio. "Mitigation lands for impacts to biological resources would consist of approximately 3,861 acres of unimpacted/[significant ecological area] lands on the site and 23,547 acres with additional off-site areas." MM 7-10 provides: "[M]itigation for loss of those areas modeled as native perennial grassland will provide similar habitat quality as that which was lost. The result shall be native perennial grassland and wildflower field values that are equal to or greater than the overall ecological functions and values of those lost as a result of Project implementation."

According to the Center, the lack of specificity regarding the extent of native perennial grasslands and wildflower fields "precludes informed decision making" on impacts and mitigation. The Center contends that "without an estimated quantification of wildflower field extent, the EIR mitigation measure MM 7-10 cannot assure the preservation of wildflower fields in the conserved grasslands." The superior court concluded the EIR presented "a good faith effort at full disclosure" regarding the environmental impacts and mitigation efforts on native perennial grasslands and wildflower fields. It further determined the EIR's finding that impacts on grasslands and wildflower fields would be less than significant through mitigation was supported by substantial evidence. We agree.

The EIR's discussion reflects the County used "'its best efforts to find out and disclose all that it reasonably can' (Guidelines, § 15144), and that the EIR display[s] 'adequacy, completeness, and a good faith effort at full disclosure' (Guidelines, § 15151)." (*PCL, supra,* 180 Cal.App.4th at p. 253.) Substantial evidence from the underlying field studies supports the conclusions that grasslands on the project site and impacted off-site areas are a "mosaic" of native perennial grasses and annual grasses, with more substantial coverage of native perennial grassland on the southern slopes north of the site. The "ephemeral" nature of wildflower fields is also supported by substantial evidence of highly variable occurrences of wildflower cover depending on seasonal precipitation. The scientific literature on wildflower fields is cited and referred to throughout the relevant EIR sections, not solely "'buried in an appendix'" as the Center contends.

Relatedly, substantial evidence supports the conclusion the mitigation measures would effectively mitigate impacts on native perennial grasslands and wildflower fields. The EIR requires Tejon to provide mitigation by protecting grasslands that are similar to those impacted by the project, as informed by "focused surveys of mitigation lands" and efforts to "further create or enhance plantings." And "[v]ast" wildflower fields have been documented in offsite preserve areas.[27] In short, the EIR's

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[27] The Center contends the EIR "double counts" land previously conserved in 2010 under conservation easements with the State. Tejon correctly notes that while two of the designated preserve areas are indeed already subject to conservation easements, those lands "may still be enhanced and restored to create biological value." The EIR states, "these lands are not

conclusions are supported by substantial evidence and the EIR is sufficient as an informational document. (See *Laurel Heights, supra,* 47 Cal.3d at p. 407.) The EIR contained "'sufficient information about a proposed project, the site and surrounding area and the projected environmental impacts arising as a result of the proposed project or activity to allow for an informed decision'" regarding native perennial grasslands and wildflower fields. (*PCL, supra,* 180 Cal.App.4th at p. 242.)

2. *The EIR Did Not Impermissibly Defer Mitigation*

The Center contends the County impermissibly deferred the mitigation measures for native perennial grasslands and wildflower fields. "An EIR may not defer the formulation of mitigation measures to a future time." (*Preserve Wild Santee v. City of Santee* (2012) 210 Cal.App.4th 260, 280.) "'Impermissible deferral of mitigation measures occurs when an EIR puts off analysis or orders a report without either setting standards or demonstrating how the impact can be mitigated in the manner described in the EIR.'" (*Clover Valley Foundation v. City of Rocklin* (2011) 197 Cal.App.4th 200, 236.)

The Center argues MM 7-1 defers "the formulation of both specific procedures *and* performance criteria, and the evaluation of their likely efficacy." MM 7-1 requires that, before disturbing an area impacting sensitive plant species, Tejon must prepare and implement a "Special Status Plant Species Restoration Plan" that meets specific criteria in order to achieve the designated

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eligible for passive mitigation credit; however, these lands are eligible mitigation lands for enhancement, restoration, and creation of biological values" and that MM 7-1 has been revised to clarify this restriction.

performance standard of a 2:1 mitigation ratio. The Center argues this plan has not yet been prepared and MM 7-1 explicitly defers the adoption of these "success criteria" until a future time. The Center further argues MM 7-1 improperly "defers surveys to confirm the presence or absence of rare plant species on proposed mitigation lands until after Project approval." Finally, the Center argues that channeling "Native Perennial Grassland and Wildflower Field Mitigation" (MM 7-10) through the Ranchwide Management Plan (RWMP) is "opaque" and "speculative."

We conclude the EIR did not impermissibly defer mitigation. "'[A]n agency goes too far when it simply requires a project applicant to obtain a biological report and then comply with any recommendations that may be made in the report." (*Endangered Habitats League, supra,* 131 Cal.App.4th at p. 793.) But "'[d]eferral of the specifics of mitigation is permissible where the local entity commits itself to mitigation and lists the alternatives to be considered, analyzed and possibly incorporated in the mitigation plan.'" (*Ibid.*; see Guidelines, § 15126.4.) Here, the County did so. At the time of project approval but before implementation had begun, "mitigation [was] feasible but impractical." (*Endangered Habitats League,* at p. 793.) The restoration plan also had to be in place before the environmentally sensitive areas could be disturbed, thus, "it [was] sufficient to articulate specific performance criteria and make further approvals contingent on finding a way to meet them." (*Ibid.*)

D. *Alternatives to the Centennial Project*

Finally, the Center argues the EIR failed to analyze any alternatives that would substantially lessen the project's adverse

impacts, setting up an "all or nothing" decision for the County that deprived the County and the public of an informed choice. First, the Center contends the EIR's failure to consider any alternative with a "meaningfully smaller" development footprint than the proposed Centennial project unreasonably deprived the public and decisionmakers of sufficient information to make an informed choice. The Center also contends the inclusion of a larger, previously proposed project as an alternative was misleading. The County argues, joined by Tejon, that the EIR's alternatives analysis complies with CEQA and considered a reasonable range of alternatives. We conclude the EIR adequately addressed alternatives to the project.

1. *Governing Law and Standard of Review*

One of an EIR's primary functions "'is to ensure that *all reasonable alternatives* to proposed projects are thoroughly assessed" by the lead agency. (*Goleta Valley, supra*, 52 Cal.3d at p. 565.) "'The lead agency is responsible for selecting a range of potential alternatives for examination and must publicly disclose its reasoning for selecting those alternatives.' (Guidelines, § 15126.6, subd. (a).)" (*Tiburon Open Space Committee v. County of Marin* (2022) 78 Cal.App.5th 700, 741 (*Tiburon*); see Pub. Resources Code, § 21001, subd. (g).) Agencies "should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects." (Pub. Resources Code, § 21002.)

"An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid

or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." (Guidelines, § 15126.6, subd. (a); see *id.*, § 15126.6, subd. (c); Pub. Resources Code, § 21002.) "An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decisionmaking and public participation. An EIR is not required to consider alternatives which are infeasible." (Guidelines, § 15126.6, subd. (a).) The key is whether the "range of alternatives discussed fosters informed decisionmaking and public participation." (*Cherry Valley Pass Acres & Neighbors v. City of Beaumont* (2010) 190 Cal.App.4th 316, 354 (*Cherry Valley*).) "A 'feasible' alternative is one that could accomplish 'most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects.'" (*Tiburon, supra,* 78 Cal.App.5th at p. 741.)

"There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason." (Guidelines, § 15126.6, subd. (a); accord, *Goleta Valley, supra,* 52 Cal.3d at p. 576 [lead agency has discretion to determine how many alternatives constitute a reasonable range].) "A court will uphold the selection of project alternatives unless the challenger demonstrates "'that the alternatives are manifestly unreasonable and that they do not contribute to a reasonable range of alternatives.'"" (*Golden Door, supra,* 50 Cal.App.5th at p. 546.)

"We review whether the EIR's alternatives analysis complies with CEQA's procedural mandates and then decide whether substantial evidence supports the decisions made. [Citation.] Plaintiffs must show that the alternatives 'are manifestly unreasonable and that they do not contribute to a

reasonable range of alternatives.'" (*Save Our Capitol! v. Department of General Services* (2023) 87 Cal.App.5th 655, 703.) Here, because "the focus of this contention is whether the analysis was reasonable and not whether it occurred, the contention presents a predominantly factual question and our review is for substantial evidence." (*Cleveland, supra,* 17 Cal.App.5th at p. 435.)

2. *The EIR Adequately Analyzed Alternatives to the Project*

The Centennial project as initially proposed in 2003 had a substantially larger development footprint than the project as currently proposed. As detailed in the EIR, "the Project now proposes 3,665 fewer dwelling units and approximately 4.12 million square feet (msf) less of commercial and business park development, on a development footprint that is approximately 640 acres less than the earlier proposed project." Development was also eliminated from dense woodland areas and sensitive canyons, among other adjustments. These reductions and design changes were implemented over several years "in response to concerns from the County, other agencies, and members of the public over potential impacts."

The current project also now conforms to the 2015 Antelope Valley Area Plan (AVAP) for future growth and development, which designates three Economic Opportunity Areas (EOAs) for higher development densities while limiting development in rural preserve areas. The AVAP projects regional growth to a total of 106,180 dwelling units; 405,410 residents; and 134,351 jobs in unincorporated Antelope Valley.

The EIR ultimately evaluated six alternatives to the Centennial project. These included: (A) no project; (B) the previously proposed version of the project with a larger development footprint; (C) a project with additional drainage avoidance, that "reduce[d] the development footprint by approximately 37 acres"; (D) a project with infrastructure relocation; (E) a project with density clustering; and (F) a central employment opportunity area development. Alternative C would preserve the additional 37 acres as open space, reduce residential units to 19,241 (from 19,333), and reduce commercial space by 200,000 square feet. Alternative E would disturb 656 fewer acres and reduce environmental impacts. The EIR stated: "Because the proposed Project was substantially reduced compared to the previously proposed project (Alternative B) in both development footprint and land use intensity to avoid and/or reduce environmental impacts, further consideration of a reduced development scenario (e.g., reduced grading footprint; reduced dwelling units; reduced nonresidential square footage) was not considered reasonable. The current Project design is consistent with the Los Angeles County General Plan 2035 and the AVAP . . . . [¶] Any reduction in the proposed unit count or in the amount of non-residential development that would be large enough to reduce a potentially significant environmental impact would also result in a development proposal that is not consistent with the goals and policies of the AVAP related to development within the West EOA, or supportive of the Project's objectives. Thus, alternative development scenarios were eliminated from further analysis in this EIR."

The County's CEQA Findings also stated: "Given the well documented need for Antelope Valley employment and housing

opportunities in order to accommodate projected population growth, and the comparatively minor environmental benefits of Alternative C as compared to the Project, the Board [] hereby rejects Alternative C as infeasible after taking into consideration County employment and housing policy and the fact that Alternative C would provide fewer employment and housing opportunities for all income levels as compared to the Project. . . . [Alternative C]'s reduction of housing and job opportunities is inconsistent with the AVAP 'Rural Preservation Strategy' to direct needed housing and job growth to designated Economic Opportunity Areas (EOAs) in order to preserve the rural character of the Antelope Valley outside of EOAS."

The Center contends the EIR was inadequate because it failed to consider a "meaningfully reduced development footprint alternative" beyond the alternatives that were included. The Center argues "the EIR cites nothing in the AVAP that mandates that a very large, 12,323-acre version of Centennial go forward, nor does it provide evidence that a smaller version of the Project would be infeasible." The Center also argues that Alternative C, which would reduce the project by 37 acres, provides only "a less than one percent reduction of the Project footprint that does not meaningfully address the Project's impacts that correlate to its enormous size." The Center argues that such minor environmental benefits do not "substantially lessen" the project's impacts pursuant to Public Resources Code section 21002, and that the EIR should have analyzed a "significantly downsized" project.

We conclude the EIR considered a "reasonable range of potentially feasible alternatives" (Guidelines, § 15126.6, subd. (a)) and reasonably declined to consider alternatives with

an even further reduced footprint. The Center is correct that the alternatives considered provide de minimis reductions in the footprint and size of the development in light of the Centennial project's overall size. But this does not mean a significantly reduced alternative must necessarily be considered, particularly given the significant reductions already made to the proposed project, which the EIR notes has been "in the public eye" since 2003. "The 'rule of reason' requires an EIR 'to set forth only those alternatives necessary to permit a reasoned choice.'" (*Tiburon, supra,* 78 Cal.App.5th at p. 741; Guidelines, § 15126.6, subd. (f).) And, "[a] 'feasible' alternative is one that could accomplish 'most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects.' (Guidelines, § 15126.6, subd. (a).)" (*Tiburon*, at p. 741.)

Here, the original proposed development (Alternative B) was already reduced to the current development footprint over many years of scrutiny and public participation. Where a project goes through the CEQA review process and is scaled back to decrease its environmental impacts, it is reasonable that, where further decreasing the size and scope of the project would no longer serve the goals of the region's housing plan, the EIR does not need to continue to make significant changes to the scope of the project as an alternative. The "'key issue' is whether the range of alternatives discussed fosters informed decisionmaking and public participation" (*Cherry Valley, supra,* 190 Cal.App.4th at p. 354), and under the circumstances here the range of alternatives did so and was reasonable.

Additionally, as the EIR and the superior court noted, the AVAP seeks to meet the need for employment and housing opportunities by promoting development in the region where the

Centennial project is located (in the West EOA) while preserving rural space elsewhere. Accordingly, the County concluded even the modestly reduced housing and job opportunities provided by Alternative C were inconsistent with these goals under the AVAP. Reliance on the goals of the AVAP is a reasoned choice that discloses the "analytic route the . . . agency traveled from evidence to action" in its analysis of alternatives and decision not to consider any smaller alternative plan. (*Laurel Heights*, *supra*, 47 Cal.3d at p. 404.) Comprehensive land-use plans like the AVAP "embody fundamental policy decisions that guide future growth and development" and "necessarily compel[] cities and counties to consider *alternative* land-use goals, policies and implementation measures." (*Goleta Valley, supra,* 52 Cal.3d at p. 571.) Indeed, the AVAP itself constitutes substantial evidence supporting this conclusion, and failure to consider an even further reduced development footprint was not """manifestly unreasonable."""" (*Cherry Valley, supra,* 190 Cal.App.4th at 355.) Project EIRs are "not ordinarily an occasion for the reconsideration or overhaul of fundamental land-use policy." (*Goleta Valley,* at p. 573.)

The Center has not demonstrated the alternatives analyzed in the EIR were insufficient to foster informed decisionmaking, and substantial evidence supports the County's decision to issue the final EIR without considering other additional alternatives. (See *Inyo Citizens for Better Planning v. Inyo County Bd. of Supervisors* (2009) 180 Cal.App.4th 1, 14.) We conclude the "range of alternatives discussed fosters informed decisionmaking and public participation." (*Cherry Valley, supra,* 190 Cal.App.4th at p. 354.)

DISPOSITION

The judgment of the superior court is affirmed. The parties are to bear their own costs on appeal.

MARTINEZ, P. J.

We concur:

FEUER, J.

STONE, J.

Appendix B

Writ

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[Exempt From Filing Fee Government Code § 6103]

SUPERIOR COURT OF THE STATE OF CALIFORNIA

COUNTY OF LOS ANGELES, CENTRAL DISTRICT

CENTER FOR BIOLOGICAL DIVERSITY and CALIFORNIA NATIVE PLANT SOCIETY,

Petitioner,

v.

COUNTY OF LOS ANGELES, LOS ANGELES COUNTY BOARD OF SUPERVISORS,

Respondents.

TEJON RANCH CO., CENTENNIAL FOUNDERS, LLC, TEJON RANCHCORP; DOES 1 through 10,

Real Parties in Interest.

Case No. 19STCP02100
Related to Case No. 19STCP01917

Judge Curtis A. Kin, Dept. 86

STIPULATED ~~[PROPOSED]~~ WRIT OF MANDATE

Action Filed: May 29, 2019

STIPULATED [PROPOSED] WRIT

WHEREAS, on March 22, 2023, judgment was entered in the above-captioned case ("Judgment"), ordering, adjudging and decreeing that a writ of mandate issue under seal of this Court directing Respondents COUNTY OF LOS ANGELES and the LOS ANGELES COUNTY BOARD OF SUPERVISORS ("Respondents") to take certain specific actions, set forth in the judgment;

WHEREAS, on June 26, 2025, the Second District Court of Appeal filed an Opinion, attached hereto as **Attachment "A"**, affirming the Judgment;

WHEREAS, Respondents, Real Parties in Interest TEJON RANCH CO., CENTENNIAL FOUNDERS, LLC, and TEJON RANCHCORP ("Real Parties"), and Petitioners CENTER FOR BIOLOGICAL DIVERSITY and CALIFORNIA NATIVE PLANT SOCIETY ("Petitioners") have conferred and agree that the writ of mandate ordered by the Judgment and faithfully represented below should issue forthwith;

NOW THEREFORE, RESPONDENTS ARE HEREBY ORDERED TO:

1. Set aside their approvals of the Centennial Project, including the Centennial Specific Plan (Project No. 02-232-(5)), General Plan Amendment No. 02-232-(5), the Vesting Tentative Parcel Map No. 060022-(5), Conditional Use Permit No. 02-232-(5), Development Agreement No. RPPL2016-003940-(5) and Zone Change No. 02-232-(5), and any other associated approvals authorized by Respondents;

2. Set aside their certification of the Final Environmental Impact Report, State Clearinghouse No. 2004031072, prepared in connection with the Centennial Project ("FEIR");

3. Set aside their Findings, the Statement of Overriding Considerations, and the Mitigation Monitoring and Reporting Program adopted in connection with the Centennial Project;

4. Suspend any and all specific project activity or activities pursuant to the project approvals that could result in an adverse change or alteration to the physical environment, unless and until Respondents comply with the requirements of the California Environmental Quality Act.

ADDITIONAL ORDERS:

1. The Court shall retain jurisdiction over the proceedings pursuant to Public Resources Code section 21168.9, subdivision (b) by way of the return to the Writ of Mandate, which Respondents shall file no later than 90 days after the date of the issuance of the Writ confirming that Respondents have taken the steps set forth above.

2. Pursuant to Public Resources Code section 21168.9, subdivision (c), the Court does not direct Respondents to exercise their discretion in any particular way.

3. This Court retains jurisdiction to hear any motions or applications for attorney's fees and determine entitlement to, and amount of, such fees, if any, pursuant to applicable law and rules of court.

4. Petitioners are to be awarded costs of suit, and the Court retains jurisdiction to determine the amount of such costs pursuant to applicable law and rules of court.

LET THE WRIT OF MANDATE ISSUE

DATED: 09/22/2025, 2025

David W. Slayton, Executive Officer/Clerk of Court

K. Encinas

Clerk of the Court

DATED: September 10 , 2025

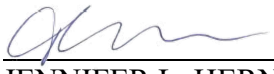
MEYERS NAVE

By:

NICOLE H. GORDON
Attorneys for Respondents COUNTY OF LOS ANGELES, et al.

DATED: September 10, 2025

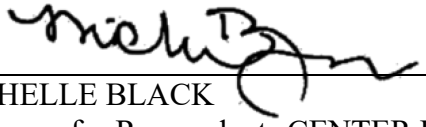
HOLLAND & KNIGHT LLP

By: 

JENNIFER L. HERNANDEZ
Attorneys for Respondents TEJON RANCH CO.; CENTENNIAL FOUNDERS, LLC; and TEJON RANCHCORP

DATED: September 16, 2025

CARSTENS, BLACK & MINTEER LLP

By: 

MICHELLE BLACK
Attorneys for Respondents CENTER FOR BIOLOGICAL DIVERSITY AND CALIFORNIA NATIVE PLANT SOCIETY

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Appendix C

Crotch's Bumble Bee Habitat Assessment

MEMORANDUM

February 19, 2026
Revised April 8, 2026

To:
Nathan Keith
Centennial Founders LLC

From:
Marc T. Blain

Subject: Crotch's Bumble Bee Habitat Assessment for the Centennial Specific Plan Project

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This memorandum presents the results of a habitat assessment for the Crotch's bumble bee (*Bombus crotchii*) for the Centennial Specific Plan Project (hereinafter referred to as the "project") in unincorporated Los Angeles County, California. The purpose of the assessment was to determine current habitat suitability for Crotch's bumble bee (CBB) on the Project site. To date, focused surveys for Crotch's bumble bee have not been conducted for the project; however, CBB was detected on the project site during sensitive insect surveys in 2003 (Bruyea Biological Consulting). At the time of the sensitive insect species surveys, CBB did not have regulatory protection.

PROJECT LOCATION AND DESCRIPTION

The Project is proposed on approximately 12,323 acres (19.3 square miles) of land in the northwestern portion of the Antelope Valley in unincorporated Los Angeles County. The Project site boundary is located on privately owned Tejon Ranch, which is actively used for grazing; farming; hunting; mineral, oil, and gas extraction. Tejon Ranch is located mainly north of the Project site, primarily in Kern County.

The Project site is located approximately 35 miles north of the City of Santa Clarita in Los Angeles County; approximately 50 miles south of the City of Bakersfield in Kern County via State Route (SR) 99 and Interstate (I) 5; and approximately 36 and 43 miles west of the Cities of Lancaster and Palmdale, respectively, in Los Angeles County via SR-138. The Project site is bisected by SR-138 and is located approximately one mile east of I-5, just south of the Kern County/Los Angeles County boundary in the vicinity of Quail Lake. The community of Gorman in Los Angeles County is adjacent to I-5 and is approximately four miles north of the I-5/SR-138 junction. The community of Neenach is located approximately 1.2 miles to the east of the Project boundary. The West Branch of the State Water Project's (SWP) California Aqueduct bisects the Project.

REGULATORY STATUS

Crotch's bumble bee was petitioned for listing in October of 2018 as an Endangered species under the California Endangered Species Act (CESA). The California Fish and Game Commission determined that listing as Endangered "may be warranted" in June 2019, and the species advanced to Candidacy. The Commission's determination was challenged in court soon after, and Candidacy (and related protections) were stayed during the ensuing litigation. A California court of appeal ultimately upheld the Commission's determination, and the state Supreme Court declined to review the case. Candidacy was reinstated on September 30, 2022.

As a California State Candidate Endangered Species,[1] the species receives the same legal protection afforded to Endangered or Threatened species (Fish & Game Code, §§ 2074.2 & 2085).

SPECIES BACKGROUND

The Crotch's bumble bee is a near endemic species in California. It occurs throughout most of southwestern California including the Mediterranean region, along the Pacific coast, western deserts (sporadically), Great Valley, and adjacent foothills (Williams 2014; Zungri 2005). It was historically common in the Central Valley of California, but currently appears to be absent from most of it, specifically in the center of its historic range (Hatfield *et al.* 2014). It has also been documented in southwest Nevada near the California boarder and in Baja California, Mexico in the Sierra de Jaurez Mountain Range (Labougle 1990; Williams 2014). While this species can be found in most native habitats, it prefers grassland and scrub habitat types. It can also be found in urban areas with landscaped flowering plants.

Bumble bees are social insects that live in colonies composed of a queen, workers, and reproductive (males and gynes/new queens). Colonies are annual and only the new, mated queens overwinter. The mated queens emerge from hibernation in the spring and begin forage for pollen and nectar and look for a new colony nest location. Bumble bees do not dig their own nest cavities, but instead utilize abandoned rodent burrows, hollow logs, leaf litter, tufted grass patches, rock piles, and above ground man-made structures. CBB is a ground nester and often makes its nest in abandoned mammal burrows. Once a nest site is located, the queen will lay the first clutch of eggs. After hatching, the larvae feed on stored pollen for approximately two weeks before pupating for another two weeks. The adults that emerge from these pupae are females/workers who then take over foraging for resources, and tending to new clutches of eggs and larvae, while the queen lays more eggs. The workers/females also help to regulate the temperature of the nest and defend the nest against predators (Williams 2014). Colonies persist though the spring and summer months with successive broods of workers/females being produced as more floral resources become available. At some point in the summer, the colony switches to produce males and queens. The timing of this switch is not well understood but is generally thought to be related to the age of the queen and the size of the colony (Williams 2014). Adult male bumble bees do not forage for the colony but instead, leave the nest to feed at flowers and search for mates. The male CBB perches on pheromone-scented vegetation and waits for queens to fly by. While male bumble bees feed and search for mates, newly emerged queens leave the colony to feed during the day. The queens eat a large amount of pollen and nectar to build up fat reserves for overwintering. Queens typically mate only once with only one male, and then begin their search for an overwintering location. Little is known about overwintering sites; however, overwintering queens have been reported to use animal burrows, holes in loose dirt, leaves, or compost piles (Williams 2014). Once the new queen has mated, the colony declines, and the remaining bees die before winter begins.

CBB is a relatively large bumble bee with the queen measuring approximately 22 to 25 millimeters (mm) and the workers measuring approximately 12 to 20 mm (Williams 2014). CBB is a short-tongued species and prefers food plants from the following genera: *Asclepias*,

1 The species status will eventually change following the decision of the Fish and Game Commission to either designate the species as threatened or endangered or determine the species is not warranted for listing.

Chaenactis, *Lupinus*, *Medicago*, *Phacelia*, and *Salvia* (Williams 2014). The hairs on Crotch's bumble bee are very short and even, giving it a clean appearance. The head of this species is considered short, with the cheek (oculo-malar area) distinctly shorter than broad (Williams 2014). CBB female workers have yellow hair only on the front of the thorax and on the second abdominal segment (terga 2), males have yellow on both the front and back of the thorax and on both abdominal segments 1 and 2 (terga 1 and 2). In certain parts of its range, CBB may also show some reddish-brown coloration on the lower abdomen segments (terga 4 and 5).

CBB has been impacted by many environmental factors including rapid urbanization and the spread of agriculture. This is most evident in the Central Valley of California where this species now appears to be absent. Climate change, specifically increasing aridity, is an additional threat, especially because CBB has a very narrow climatic specialization compared to most bumble bees (NatureServe 2014). Bumble bees in general are threatened by several additional factors including pesticide use, pathogens from managed pollinators, as well as competition with non-native bees (Goulson 2010; Williams *et al.* 2009; Williams and Osborne 2009; Cameron *et al.* 2011; Fürst *et al.* 2014; Hatfield *et al.* 2012). Reduced genetic diversity resulting from any of these threats is also a limiting factor for bumble bee populations, because their method of sex-determination can be disrupted by inbreeding.

CBB was listed as one of the most abundant bee species on the Project site along with the honeybee (*Apis mellifera*) in the 2003 Sensitive Insect Survey Report for the project (Bruyea Biological Consulting). Additionally, multiple documented CBB observations occur within five miles of the Project location (CDFW 2024, iNaturalist 2024). Presumed CBB breeding was documented approximately 15 miles northeast of the project in the foothills of the Tehachapi Mountains (CDFW 2024).

METHODOLOGY

Literature Review

Prior to the field component, a literature review was conducted to identify CBB known from the Project vicinity. This included a review of Los Angeles and Kern Counties in the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CDFW 2024) and iNaturalist research grade observations (iNaturalist 2024). In addition, previous surveys conducted on the Project site were reviewed in Appendix 5.7-B of the Draft EIR for the project (Psomas 2017).

Field Survey

Psomas Senior biologist Marc Blain and Biologist Sarah Thomas conducted a habitat assessment for CBB on the project site on August 30, 2024. The Project site was driven to confirm desktop analysis and to document current site conditions to determine potentially suitable habitat. Flowering plants were documented, and a general overview of habitat types were noted. Representative site photographs were taken, and can be viewed in Attachment A.

RESULTS

Flowering plants were documented, which included alkali goldenbush (*Isocoma acradenia* var. *bracteosa*) and wreath plant (*Stephanomeria sp.*) as most flowering plants are dormant at this time of year (late summer). Given the current site conditions and the historical observations of CBB on and near the Project site along with a review of the previously documented flowering plants on the Project site, CBB may potentially occupy the Project site.

RECOMMENDATIONS

CBB has previously been documented on the Project site, and the site currently contains potentially suitable habitat. Although impacts to CBB were not directly assessed, the *Centennial Project Draft EIR* includes Mitigation Measures (MM) for sensitive plants and wildlife species that would also reduce adverse affects to CBB, such as MM 7-3, MM 7-4, MM 7-10, MM 7-11, MM 7-12, MM 7-13, MM 7-15, MM 7-16, MM 7-17, MM 7-18, MM 7-21, and MM 7-22. These measures include various habitat preservation and restoration requirements for habitat suitable for CBB; fencing of work areas; development of a Landscaping Plan to restrict invasive species; scavenger proof waste management program and homeowner education on avoiding attracting wildlife; monitoring and control of Argentine ants; restriction of public access to the open space areas and promotion of public education and awareness of such areas; pet leash requirements; protocols for reducing the potential for introduction, and monitoring of, of pathogens and pests into the site; the requirement for an Implementation Plan to avoid impacts to the adjacent Significant Ecological Area; and the requirement for any golf courses constructed be designed in accordance with the Audubon Cooperative Sanctuary Program for Golf Courses designed to promote ecologically sound land management and to conserve natural resources.

In addition to the mitigation measures described above, it is recommended that the Project applicant implement the following Project Design Feature to avoid significant adverse impacts to CBB:

If Project ground-disturbing activities are scheduled to occur during the Crotch's bumble bee colony active period, a habitat assessment shall be conducted by a qualified biologist to identify suitable foraging and nesting habitat for CBB. The qualified biologist shall conduct pre-construction surveys for CBB in suitable habitat identified during the habitat assessment, using methodology accepted by California Department of Fish and Wildlife. If CBB is not detected, no further measures are required. A qualified biologist shall be present during ground-disturbing Project activities that occur during the CBB colony active period.

If CBB is detected:

1. No ground-disturbing activities shall occur within 100 -feet of any known nest location, or as determined by a qualified biologist through evaluation of topographic features or distribution of nectar resources. The no-disturbance buffer shall be in place for the duration of the nesting colony active period, unless a nest is determined to be inactive by a qualified biologist or is relocated or removed with CDFW authorization

2. To further minimize the potential for take of Crotch's bumble bee, the Project Applicant shall implement the following measures:
    - Grubbing shall be minimized to the extent feasible. In areas where grubbing is needed, the following measures to minimize potential impacts to Crotch's bumble bee will be followed: 1) grub outside of the blooming season; 2) grub at the highest cutting height possible to avoid disturbing nests or overwintering queens; 3) avoid grubbing in the afternoon, the time of day when pollinators are most active; and 4) grub at speeds less than 8 mph.
    - Construction vehicles onsite will not exceed a speed of 15 mph. Signage will be posted throughout the project site noting this requirement.
3. If the Crotch's bumble bee remains a candidate for listing, or has been listed, as endangered or threatened under the CESA, and avoidance of known nests is determined not to be feasible, the Project Applicant shall consult with the CDFW regarding the potential for project activities to result in take of the Crotch's bumble bee and will comply with all avoidance, minimization, and compensatory mitigation requirements set forth in any incidental take permit issued for the project by CDFW authorizing take of the species.

Attachment A – Site Photographs

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ATTACHMENT A

SITE PHOTOGRAPHS

Photo 1. View of the southeastern portion of the project site, facing southeast.

Photo 2. View of the central portion of the site, facing west.

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Site Photographs

Attachment A-1

Centennial Specific Plan Project

PSOMAS

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Photo 3. View of the eastern portion of the site, facing north.

Photo 4. View of the central portion of the site, facing northwest.

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Site Photographs

Attachment A-2

Centennial Specific Plan Project

PSOMAS

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Appendix D

GHG Calculations

Table 1. GHG Emission Reductions from EV Subsidies for Community Passenger Vehicle Fleet
Tejon Ranch Centennial
Los Angeles County, California

EMFAC2017 Data[1]			
Calendar Year		2035	
EMFAC Sub-Area		Los Angeles (SC)	
EMFAC2017 Gasoline/Diesel Passenger Vehicle VMT		222,510,045	miles/day
EMFAC2017 Gasoline/Diesel Passenger Vehicle Population		6,748,590	Passenger Vehicles
EMFAC2017 Gasoline/Diesel Passenger Vehicle Running Exhaust Emissions	CO_2	50,224	MT/day
	CH_4	0.278	MT/day
	N_2O	0.773	MT/day
	CO_2e	50,461	MT/day
EMFAC2017 Gasoline/Diesel Passenger Vehicle Emission Factor	CO_2e	227	g/mile
ZE Passenger Car Data			
Number of Vehicles to be Replaced[2]		100	Passenger Vehicles
Average Annual VMT[3]		11,441	miles/vehicle/year
Average Annual GHG Emissions per Truck[4]		3	MT CO_2e/vehicle/year
Total Annual GHG Emissions Reduced[5]		259.5	MT CO_2e/year

Notes:

[1] The values obtained from EMFAC2017.

[2] The number of passenger vehicles to be replaced value obtained from Climate Resolve Agreement.

[3] The average annual VMT was calculated from dividing the passenger vehicle (LDA, LDT1, LDT2) VMT by the passenger vehicle population and multiplying it by the EMFAC Default operational days per year.

[4] The average annual GHG emissions per vehicle was calculated from multiplying the passenger vehicle emission factor with the average annual VMT.

[5] The total annual GHG emissions reduced is the average annual GHG emissions per truck multiplied by the number of vehicles to be replaced.

Conversion Factors:

0.907185	MT/ton
347	days/year, EMFAC Default[1]
1000000	g/MT

IPCC AR4 Global Warming Potentials (GWP):

CO_2	1
CH_4	25
N_2O	298

Abbreviations:

CARB - California Air Resources Board
CH_4 - methane
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
EMFAC - CARB Emissions Factor Model
EV - electric vehicle
g - grams
GHG - greenhouse gases
GWP - global warming potential
IPCC - Intergovernmental Panel on Climate Change
LDA - light-duty automobile
LDT - light-duty truck
MT - metric ton
N_2O - nitrous oxide
SC - South Coast
VMT - vehicle miles traveled
ZE - zero emissions

Table 2. GHG Emission Reductions from EV Subsidies for Public Service Passenger Vehicle Fleet
Tejon Ranch Centennial
Los Angeles County, California

EMFAC2017 Data[1]			
Calendar Year		2035	
EMFAC Sub-Area		Los Angeles (SC)	
EMFAC2017 Gasoline/Diesel LDA VMT		222,510,045	miles/day
EMFAC2017 Gasoline/Diesel LDA Population		6,748,590	Passenger Vehicles
EMFAC2017 Gasoline/Diesel LDA Running Exhaust Emissions	CO_2	50,224	MT/day
	CH_4	0.278	MT/day
	N_2O	0.773	MT/day
	CO_2e	50,461	MT/day
EMFAC2017 Gasoline/Diesel LDA Emission Factor	CO_2e	227	g/mile
ZE Passenger Car Data			
Number of Vehicles to be Replaced[2]		300	Passenger Vehicles
Average Annual VMT[3]		11,441	miles/vehicle/year
Average Annual GHG Emissions per Truck[4]		3	MT CO_2e/vehicle/year
Total Annual GHG Emissions Reduced[5]		778.4	MT CO_2e/year

Notes:

[1] The values were obtained from EMFAC2017.

[2] The number of passenger vehicles to be replaced value obtained from Climate Resolve Agreement.

[3] The average annual VMT was calculated from dividing the passenger vehicle (LDA, LDT1, LDT2) VMT by the passenger vehicle population and multiplying it by the EMFAC Default operational days per year.

[4] The average annual GHG emissions per vehicle was calculated from multiplying the passenger vehicle emission factor with the average annual VMT.

[5] The total annual GHG emissions reduced is the average annual GHG emissions per vehicle multiplied by the number of trucks to be replaced

Conversion Factors:

0.907185	MT/ton
347	days/year, EMFAC Default[1]
1000000	g/MT

IPCC AR4 Global Warming Potentials (GWP):

CO_2	1
CH_4	25
N_2O	298

Abbreviations:

CARB - California Air Resources Board
CH_4 - methane
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
EMFAC - CARB Emissions Factor Model
EV - electric vehicle
g - grams
GHG - greenhouse gases
GWP - global warming potential
IPCC - Intergovernmental Panel on Climate Change
LDA - light-duty automobile
LDT - light-duty truck
MT - metric ton
N_2O - nitrous oxide
SC - South Coast
VMT - vehicle miles traveled
ZE - zero emissions

Table 3. GHG Emission Reductions from EV Subsidies for Transit Buses
Tejon Ranch Centennial
Los Angeles County, California

EMFAC2017 Data[1]			
Calendar Year		2035	
EMFAC Sub-Area		Los Angeles (SC)	
EMFAC2017 UBUS VMT		508,594	miles/day
EMFAC2017 UBUS Population		4,967	Buses
EMFAC2017 UBUS Running Exhaust Emissions	CO_2	1,001	MT/day
	CH_4	2.9874	MT/day
	N_2O	0.1931	MT/day
	CO_2e	1,133	MT/day
EMFAC2017 UBUS Emission Factor	CO_2e	2,228	g/mile
ZE Transit Bus Data			
Number of Buses to be Replaced[2]		50	Buses
Average Annual VMT[3]		33,485	miles/bus/year
Average Annual GHG Emissions per Truck[4]		74.6	MT CO_2e/bus/year
Total Annual GHG Emissions Reduced[5]		3730.0	MT CO_2e/year

Notes:

[1] The values were obtained from EMFAC2017.

[2] The number of trucks to be replaced value obtained from Climate Resolve Agreement.

[3] The average annual VMT was calculated from dividing the UBUS VMT by the UBUS population and multiplying it by the EMFAC Default operational days per year.

[4] The average annual GHG emissions per bus was calculated from multiplying the UBUS emission factor with the average annual VMT.

[5] The total annual GHG emissions reduced is the average annual GHG emissions per bus multiplied by the number of trucks to be replaced.

Conversion Factors:

0.907185	MT/ton
327	days/year, EMFAC Default[1]
1000000	g/MT

IPCC AR4 Global Warming Potentials (GWP):

CO_2	1
CH_4	25
N_2O	298

Abbreviations:

CARB - California Air Resources Board
CH_4 - methane
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
EMFAC - CARB Emissions Factor Model
g - grams
GHG - greenhouse gases
GWP - global warming potential
IPCC - Intergovernmental Panel on Climate Change
MT - metric ton
N_2O - nitrous oxide
SC- South Coast
UBUS - urban bus
VMT - vehicle miles traveled
ZE - zero emissions

Table 4. GHG Emission Reductions from Level 4
Electric Vehicle Chargers at Tejon Ranch Commerce Center
Tejon Ranch Centennial
Los Angeles County, California

Estimating Emissions Reduction to Replace Class 4-8 Diesel Trucks with Electric Trucks		
SCE electricity emission factor[1]	0.00	(MT CO_2e/MWh)
Fuel Efficiency of Class 4-8 Battery Electric Trucks[2]	1.25	(kWh/mile)
GHG emission factors for Class 4-8 Battery Electric Trucks[3]	0	(gms CO_2e/mile)
GHG emission factors for Diesel Class 4-8 Trucks[4]	1,001	(gms CO_2e/mile)
GHG Emissions Reduction Rates for replacement of Class 4-8 Diesel Trucks with Battery Electric Trucks[5]	1,001	(gms CO_2e/mile)
Annual Energy Delivery per Level 4 Charger[6]	165,000	(kWh/charging station/year)
Annual VMT Displacement per Level 4 Charger[7]	131,886	(miles/charging station/year)
GHG Reduction per Level 4 Charger per Year[8]	132	(MT CO_2e/charging station/year)
Trucks Chargers Installed[9]	100	(charging stations)
Total GHG Reduction from Level 4 Chargers	**13,208**	**(MT CO_2e/year)**

Notes:

[1] CO_2e intensity factors from electricity are expected to be zero to reflect participation in Southern California Edison's Clean Power Plan.

[2] Fuel efficiency for Class 4-8 battery electric trucks were estimated based on the fuel efficiencies provided in the SCAQMD Draft WAIRE Menu Technical Report (available at: http://www.aqmd.gov/docs/default-source/planning/fbmsm-docs/waire-menu-technical-report_draft_3-3-20.pdf?sfvrsn=6) and fleet mix for the South Coast sub-area of Los Angeles County in 2035.

[3] The GHG emissions factors for electric trucks is expected to be zero based on the electricity for the Project being supplied by 100% clean energy.

[4] The emission factors for diesel Class 4-8 trucks are estimated using an EMFAC2017 model run for vehicles operating in the South Coast sub-area of Los Angeles County during 2035.

[5] The GHG emissions reduction rates are calculated as the difference between GHG emission factors of diesel trucks and GHG emission factors of electric trucks.

[6] The annual Energy Delivery for a Level 4 charger is based on the SCAQMD Draft WAIRE Menu Technical Report. This is available at: http://www.aqmd.gov/docs/default-source/planning/fbmsm-docs/waire-menu-technical-report_draft_3-3-20.pdf?sfvrsn=6.

[7] The annual VMT displacement per Level 4 charger is the ratio of the annual energy delivered per charger and the fuel efficiency of a battery electric truck.

[8] The annual GHG reductions associated with the use of a Level 4 charger are estimated using the annual VMT displacement per charger and the GHG emission reduction from additional battery electric trucks per mile.

[9] The number of truck chargers installed was obtained from the Climate Resolve Agreement.

Abbreviations:

CalEEMod - California Emissions Estimator Model
CARB - California Air Resources Board
CH_4 - methane
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
EMFAC - CARB Emissions Factor Model
EV - electric vehicle
GHG - greenhouse gases
gms - grams
GWP - Global Warming Potential
kWh - kilowatt-hour
MT - metric tonnes
MWh - megawatt-hour
N_2O - nitrous oxide
SCAQMD - South Coast Air Quality Management District
SCE - Southern California Edison
VMT - vehicle miles traveled

Conversion Factors:

2204.62	lb/MT
1.00E-06	MT/gram
0.001	MWh to KWh
907185	gram/ton
453.59	gram/lb

Constants:

365	Days per Year
1	GWP for CO_2
25	GWP for CH_4
298	GWP for N_2O

Table 5. GHG Emission Reductions from On-Site Electric Vehicle Charging Stations at Commercial Sites
Tejon Ranch Centennial
Los Angeles County, California

Estimating GHG Emissions Reduction to Replace Gasoline Vehicles with Electric Vehicles		
Project Electricity Emission Factor[1]	0.00	(MT CO_2e/MWh)
Electric Vehicle Fuel Economy[2]	0.4	(kWh/mile)
Gasoline/Diesel CO_2e Emissions while Running[3]	227	(gms/mile)
Annual VMT Reduction per Charging Station[4]	91,250	(miles/charging station/year)
Number of Electric Chargers[5]	3,500	(chargers)
Annual VMT Reduction All Stations[6] (Based on Charge)	319,375,000	(miles/year)
Estimated Benefit from Installing Electric Vehicle Charging Stations in Non-Residential Development Area		
GHG Emissions of Gasoline/Diesel Vehicle	72,428	(MT CO_2e/year)
GHG Emissions of Electric Vehicle	0	(MT CO_2e/year)
GHG Emissions Reduction[7]	72,428	(MT CO_2e/year)
GHG Reduction per Parking Space with Charging per Year	21	(MT CO_2e/charger/year)
On-Site Non-Residential LDA EV Chargers[8]	3,500	(chargers)
Total GHG Reductions from On-Site Non-Residential LDA EV Chargers[9]	**72,428**	**(MT CO_2e/year)**

Notes:

[1] CO_2e intensity factors from electricity are expected to be zero to reflect participation in Southern California Edison's Clean Power Plan.

[2] Based on the upper end of the range of fuel economies provided by the United States Alternative Fuels Data Center for electric vehicles. This is available at: https://afdc.energy.gov/fuels/electricity-benefits.

[3] The emission factor was obtained from EMFAC2017.

[4] The annual VMT reduction is estimated based on an estimate of ten hours of charge time for a Level 2 charging station that charges at a rate of 25 miles of driving range per hour.

[5] The number of charging stations is based on total project commitments for installing chargers on-site at non-residential properties.

[6] The annual VMT reduction from all stations is the annual VMT reduction per charging station multiplied by the number of electric chargers.

[7] The GHG emission reduction is calculated by subtracting the GHG Emission of an electric vehicles from the GHG emissions of a gasoline/diesel vehicle.

[8] This value was obtained from the Climate Resolve Agreement.

[9] The total GHG reductions from on-site non-residential passenger vehicles EV chargers is the number of on-site non-residential passenger vehicles EV chargers multiplied by the GHG reduction per parking space with charging per year.

Abbreviations:

CalEEMod - California Emissions Estimator Model
CARB - California Air Resources Board
CH_4 - methane
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
EMFAC - CARB Emissions Factor Model
EV - electric vehicle
GHG - greenhouse gases
gms - grams
lb - pound
LDA- light duty automobiles
kWh - kilowatt-hour
N_2O - nitrous oxide
MT - metric tonnes
MWh - megawatt-hour
SCE - Southern California Edison
TDM - Transportation Demand Management
VMT - vehicle miles traveled

Conversion Factors:

2204.62	lb/MT
1.00E-06	MT/gram
0.001	MWh to KWh
0.907185	MT/ton
347	operation days/yr (based on EMFAC)

IPCC AR4 Global Warming Potentials (GWP):

CO_2	1
CH_4	25
N_2O	298

Table 6. GHG Emission Reductions from
On-Site Electric Vehicle Charging Stations at Residential Sites
Tejon Ranch Centennial
Los Angeles County, California

Estimating GHG Emissions Reduction to Replace Gasoline Vehicles with Electric Vehicles		
Project Electricity Emission Factor[1]	0.00	(MT CO_2e/MWh)
Electric Vehicle Fuel Economy[2]	0.4	(kWh/mile)
Gasoline/Diesel CO_2e Emissions while Running[3]	227	(gms/mile)
Annual VMT Reduction per Charging Station[4]	11,738	(miles/charging station/year)
Number of Electric Chargers[5]	19,333	(chargers)
Annual VMT Reduction All Stations[6] (Based on Charge)	226,922,413	(miles/year)
Estimated Benefit from Installing Electric Vehicle Charging Stations in Residential Development Area		
GHG Emissions of Gasoline/Diesel Vehicle	51,462	(MT CO_2e/year)
GHG Emissions of Electric Vehicle	0	(MT CO_2e/year)
GHG Emissions Reduction[7]	51,462	(MT CO_2e/year)
GHG Reduction per Parking Space with Charging per Year	3	(MT CO_2e/charger/year)
On-Site Residential LDA EV Chargers[8]	19,333	(chargers)
Total GHG Reductions from On-Site Residential LDA EV Chargers[9]	**51,462**	**(MT CO_2e/year)**

Notes:

[1] CO_2e intensity factors from electricity are expected to be zero to reflect participation in Southern California Edison's Clean Power Plan.

[2] Based on the upper end of the range of fuel economies provided by the United States Alternative Fuels Data Center for electric vehicles. This is available at: https://afdc.energy.gov/fuels/electricity-benefits.

[3] The emission factor was obtained from EMFAC2017.

[4] The annual VMT reduction is estimated based on the annual VMT for electric passenger vehicles in EMFAC2017.

[5] The number of charging stations is based on total project commitments for installing chargers on-site for residential properties (one EVSE per dwelling unit).

[6] The annual VMT reduction from all stations is the annual VMT reduction per charging station multiplied by the number of electric chargers.

[7] The GHG emission reduction was calculated by subtracting the GHG Emission of an electric vehicles from the GHG emissions of a gasoline/diesel vehicle.

[8] This value was obtained from the Climate Resolve Agreement.

[9] The total GHG reductions from on-site residential passenger vehicles EV chargers is the number of on-site residential passenger vehicles EV chargers multiplied by the GHG reduction per parking space with charging per year.

Conversion Factors:

2204.62	lb/MT
1.00E-06	MT/gram
0.001	MWh to KWh
0.907185	MT/ton
347	operation days/yr (based on EMFAC)

IPCC AR4 Global Warming Potentials (GWP):

CO_2	1
CH_4	25
N_2O	298

Abbreviations:

CalEEMod - California Emissions Estimator Model
CARB - California Air Resources Board
CH_4 - methane
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
EMFAC - CARB Emissions Factor Model
EV - electric vehicle
EVSE - Electric Vehicle Supply Equipment
GHG - greenhouse gases
gms - grams
lb - pound
LDA- light-duty automobiles
kWh - kilowatt-hour
MT - metric tonnes
MWh - megawatt-hour
N_2O - nitrous oxide
SCE - Southern California Edison
TDM - Transportation Demand Management
VMT - vehicle miles traveled

Table 7. GHG Emission Reductions from
Electric Vehicle Charging Stations at Disadvantaged Communities
Tejon Ranch Centennial
Los Angeles County, California

Estimating GHG Emissions Reduction to Replace Gasoline Vehicles with Electric Vehicles		
Project Electricity Emission Factor[1]	0.17	(MT CO_2e/MWh)
Electric Vehicle Fuel Economy[2]	0.4	(kWh/mile)
Gasoline/Diesel CO_2e Emissions while Running[3]	227	(gms/mile)
Annual VMT Reduction per Charging Station[4]	91,250	(miles/charging station/year)
Number of Electric Chargers[5]	5,000	(chargers)
Annual VMT Reduction All Stations[6] (Based on Charge)	456,250,000	(miles/year)
Estimated Benefit from Installing Electric Vehicle Charging Stations in DAC		
GHG Emissions of Gasoline/Diesel Vehicle	103,469	(MT CO_2e/year)
GHG Emissions of Electric Vehicle	30,589	(MT CO_2e/year)
GHG Emissions Reduction[7]	72,881	(MT CO_2e/year)
GHG Reduction per Parking Space with Charging per Year	15	(MT CO_2e/charger/year)
LDA EV Chargers in Disadvantaged Communities[8]	5,000	(chargers)
Total GHG Reductions from LDA EV Chargers in Disadvantaged Communities[9]	**72,881**	**(MT CO_2e/year)**

Notes:

[1] CO_2e intensity factors from electricity are from the DEIR, adjusted for RPS requirements in 2035.

[2] Based on the upper end of the range of fuel economies provided by the United States Alternative Fuels Data Center for electric vehicles. Source: https://afdc.energy.gov/fuels/electricity-benefits.

[3] The emission factor was obtained from EMFAC2017.

[4] The annual VMT reduction estimated based on an estimate of ten hours of charge time for a Level 2 charging station that charges at a rate of 25 miles of driving range per hour.

[5] The number of charging stations based on total project commitments for installing chargers within disadvantaged communities.

[6] The annual VMT reduction from all stations is the annual VMT reduction per charging station multiplied by the number of electric chargers.

[7] The GHG emission reduction was calculated by subtracting the GHG emissions of an electric vehicle from the GHG emissions of a gasoline/diesel vehicle.

[8] The value was obtained from the Climate Resolve Agreement.

[9] The total GHG reductions from LDA EV chargers in disadvantaged communities is the number of LDA EV chargers in disadvantaged communities multiplied by the GHG reduction per parking space with charging per year.

Conversion Factors:

2204.62	lb/MT
1.00E-06	MT/gram
0.001	MWh to KWh
0.907185	MT/ton
347	operation days/yr (based on EMFAC)

IPCC AR4 Global Warming Potentials (GWP):

CO_2	1
CH_4	25
N_2O	298

Abbreviations:

CalEEMod - California Emissions Estimator Model
CARB - California Air Resources Board
CH_4 - methane
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
DEIR - Draft Environmental Impact Report
EMFAC - CARB Emissions Factor Model
EV - electric vehicle
GHG - greenhouse gases
gms - grams
lb - pound
LDA- light-duty automobiles
kWh - kilowatt-hour
MT - metric tonnes
MWh - megawatt-hour
RPS - Renewable Portfolio Standard
SCE - Southern California Edison
TDM - Transportation Demand Management
VMT - vehicle miles traveled

Table 8. Commitment to No Natural Gas Emissions from Residential Buildings
Tejon Ranch Centennial
Los Angeles County, California

Land Use	Energy Use[1]		Total New Electricity Usage Including Usage from All Removed Natural Gas (MWh/yr)[2,3]	Remaining Natural Gas Usage[6] (MMBtu/yr)
	Electricity (MWh/yr)	Natural Gas (MMBtu/yr)		
Single-Family Housing	59,030	340,900	141,919	0
Apartments Mid Rise	11,060	71,130	28,355	0
Total	**70,090**	**412,030**	**170,274**	**0**
Associated GHG (MT CO_2e/year)[4,5]	**0**	**22,118**	**0**	**0**

Notes:

[1] The residential energy usages were obtained from the Project DEIR.

[2] The residential natural gas usages were broken down into end use distribution (space heating, water heating, space cooling, other), based on 2015 Residential Energy Consumption Survey. Data used is for the Pacific census region. This is available at: https://www.eia.gov/consumption/residential/data/2015/c&e/pdf/ce4.5.pdf.

[3] The residential natural gas usages were converted into equivalent electricity usages by multiplying by the ratio of efficiencies between natural gas and equivalent electric appliances.
The space heating efficiency values are available at: https://www.energy.gov/energysaver/home-heating-systems/furnaces-and-boilers and https://www.eia.gov/todayinenergy/detail.php?id=14051.
The water heating efficiencies are available at:
https://web.archive.org/web/20220403072909/https://www.energy.gov/eere/femp/energy-cost-calculator-electric-and-gas-water-heaters.
It was conservatively assumed that the ratio of natural gas and electric efficiencies for space cooling and cooking appliances was 1:1.

[4] The electricity usage is converted into GHG emissions based on an intensity of 0 lb CO_2e/MWh, assuming the Project is supplied by clean energy.

[5] The natural gas usage is converted into GHG emissions based on emission factors obtained from CalEEMod Appendix D. This is available at: http://www.aqmd.gov/docs/default-source/caleemod/user-guide-2021/appendix-d2020-4-0-full-merge.pdf?sfvrsn=12.

[6] The conversion of the electricity usage and natural gas into GHG emissions results in the assumption that the remaining natural gas usage is zero.

Conversion Factors:

3412.14	Btu/kWh
0	lb CO_2e/MWh, intensity factor used to reflect participation in SCE's Clean Power Plan
2204.62	lb/MT
118.35	lb CO_2e/MMBtu, CalEEMod default natural gas emission factor

Abbreviations:

CalEEMod - California Emissions Estimator Model
CO_2e - carbon dioxide equivalents
DEIR - Draft Environmental Impact Report
GHG - greenhouse gases
lb - pound
MMBtu - million British thermal units
MT - metric tonnes
MWh - megawatt-hour
SCE - Southern California Edison
yr - year

Table 9. Commitment to No Natural Gas Emissions from Commercial Buildings
Tejon Ranch Centennial
Los Angeles County, California

Land Use	Energy Use[1]		Total New Electricity Usage Including Usage from All Removed Nonessential Natural Gas (MWh/yr)[3,4]	Remaining Nonessential Natural Gas Usage[7] (MMBtu/yr)
	Electricity (MWh/yr)	Nonessential Natural Gas (MMBtu/yr)[2]		
Elementary School	1,834	4,577	3,014	0
General Light Industry	1,007	2,419	1,631	0
Government (Civic Center)	9,219	10,414	11,904	0
Health Club	689	1,654	1,116	0
High School	1,273	3,178	2,092	0
Office Park	46,430	45,634	58,196	0
Regional Shopping Center	6,465	1,217	6,779	0
Total	**66,917**	**69,092**	**84,731**	**0**
Associated GHG (MT CO_2e/year)[5,6]	**0**	**3,709**	**0**	**0**

Notes:

[1] The commercial energy usages were obtained from Project DEIR.

[2] The natural gas used for space heating, space cooling, and cooking is considered nonessential. Accordingly, 92% of natural gas is nonessential based on data from Table E-4 of the CEUS dashboard. This is available at: https://planning.lacity.org/eir/CrossroadsHwd/deir/files/references/C19.pdf. The remaining 8% of natural gas use in the DEIR (5,748 MMBtu/yr) was assumed to be essential.

[3] The commercial natural gas usages are broken down into end use distribution (space heating, water heating, space cooling, other), based on 2006 California Commercial End-Use Survey. This is available at: https://planning.lacity.org/eir/CrossroadsHwd/deir/files/references/C19.pdf.

[4] The commercial natural gas usages are converted into equivalent electricity usages by multiplying by the ratio of efficiencies between natural gas and equivalent electric appliances.
The space heating efficiency values are available at: https://www.energy.gov/energysaver/home-heating-systems/furnaces-and-boilers and https://www.eia.gov/todayinenergy/detail.php?id=14051.
The water heating efficiencies are available at: https://web.archive.org/web/20220403072909/https://www.energy.gov/eere/femp/energy-cost-calculator-electric-and-gas-water-heaters.
It was conservatively assumed that the ratio of natural gas and electric efficiencies for space cooling and cooking appliances was 1:1.

[5] The electricity usage is converted into GHG emissions based on an intensity of 0 lb CO2e/MWh, assuming the Project is supplied by clean energy.

[6] The natural gas usage is converted into GHG emissions based on emission factors obtained from CalEEMod Appendix D. This is available at: http://www.aqmd.gov/docs/default-source/caleemod/user-guide-2021/appendix-d2020-4-0-full-merge.pdf?sfvrsn=12.

[7] The conversion of the electricity usage and natural gas into GHG emissions results in the assumption that the remaining natural gas usage is zero.

Conversion Factors:

3412.14	Btu/kWh
0	lb CO_2e/MWh, intensity factor used to reflect participation in SCE's Clean Power Plan
2204.62	lb/MT
118.35	lb CO_2e/MMBtu, CalEEMod default natural gas emission factor
92%	Percentage of natural gas that is non-essential

Abbreviations:

CalEEMod - California Emissions Estimator Model
CEUS - Commercial End-Use Survey
CO_2e - carbon dioxide equivalents
DEIR - Draft Environmental Impact Report
GHG - greenhouse gases
lb - pound
MMBtu - million British thermal units
MT - metric tonnes
MWh - megawatt-hour
SCE - Southern California Edison
yr - year

Table 10. Energy Calculations
Tejon Ranch Centennial
Los Angeles County, California

Parameter	Emissions (MT CO_2e/year)
Energy Emissions Inventory in FEIR GHG Report[1]	**55,047**
Reductions from Commitment to No Natural Gas at Residential Uses (Table 9)[2]	-22,118
Reductions from Commitment to No Natural Gas at Non-Essential Non-Residential Uses (Table 10)[3]	-3,709
Subtotal: Remaining Energy Inventory, No Natural Gas	**29,220**
Reductions from Commitment to all Renewable On-Site Electricity[4]	-29,220
Final Energy Emissions Inventory	**0**

Notes:

[1] The Updated Greenhouse Gas Calculations for the Centennial Project Final Environmental Impact Report lists an energy emissions inventory of 55,047 MT CO_2e per year.

[2] The estimate of reductions from the commitment to eliminate natural gas use at residential uses is outlined in Climate Resolve Agreement commitment #5a and represented in Table 9.

[3] The estimate of reductions from the commitment to eliminate natural gas use at non-essential non-residential uses is outlined in Climate Resolve Agreement commitment #5a and represented in Table 10.

[4] The estimate of reductions reflects participation in Southern California Edison's Clean Power Plan, as encouraged in Climate Resolve Agreement commitment #5c.

Abbreviations:

CO_2e - carbon dioxide equivalents

FEIR - Final Environmental Impact Report

GHG - greenhouse gas

MT - metric ton

Table 11. Commitment to No Natural Gas Emissions from Residential Buildings at the Grapevine Project
Tejon Ranch Centennial
Los Angeles County, California

Land Use	Energy Use[1]		Total New Electricity Usage Including Usage from All Removed Natural Gas (MWh/yr)[2,3]	Remaining Natural Gas Usage[6] (MMBtu/yr)
	Electricity (MWh/yr)	Natural Gas (MMBtu/yr)		
Single-Family Housing	32,621	200,314	81,326	0
Apartments Low Rise	7,220	57,905	21,299	0
Total	**39,840**	**258,219**	**102,626**	**0**
Associated GHG (MT CO_2e/year)[4,5]	**1,673**	**13,861**	**4,309**	**0**

Notes:

[1] The residential energy usages were obtained from Project DEIR.

[2] The residential natural gas usages are broken down into end use distribution (space heating, water heating, space cooling, other), based on 2015 Residential Energy Consumption Survey. Data used is for the Pacific census region. This is available at: https://www.eia.gov/consumption/residential/data/2015/c&e/pdf/ce4.5.pdf.

[3] The residential natural gas usages are converted into equivalent electricity usages by multiplying by the ratio of efficiencies between natural gas and equivalent electric appliances.
The space heating efficiency values available at: https://www.energy.gov/energysaver/home-heating-systems/furnaces-and-boilers and https://www.eia.gov/todayinenergy/detail.php?id=14051.
The water heating efficiencies available at:
https://web.archive.org/web/20220403072909/https://www.energy.gov/eere/femp/energy-cost-calculator-electric-and-gas-water-heaters.
It was conservatively assumed that the ratio of natural gas and electric efficiencies for space cooling and cooking appliances was 1:1.

[4] The electricity usage is converted into GHG emissions based on an intensity of 92.56 lb CO2e/MWh, as used in the Project CalEEMod runs.

[5] The natural gas usage is converted into GHG emissions based on emission factors obtained from CalEEMod Appendix D. Available: http://www.aqmd.gov/docs/default-source/caleemod/user-guide-2021/appendix-d2020-4-0-full-merge.pdf?sfvrsn=12.

[6] The conversion of the electricity usage and natural gas into GHG emissions results in the assumption that the remaining natural gas usage is zero.

Conversion Factors:

3412.14 Btu/kWh
92.563 lb CO_2e/MWh, intensity factor used in CalEEMod runs
2204.62 lb/MT
118.35 lb CO_2e/MMBtu, CalEEMod default natural gas emission factor

Abbreviations:

CalEEMod - California Emissions Estimator Model
CO_2e - carbon dioxide equivalents
DEIR - Draft Environmental Impact Report
GHG - greenhouse gases
lb - pound
MMBtu - million British thermal units
MT - metric tonnes
MWh - megawatt-hour
SCE - Southern California Edison
yr - year

Table 12. GHG Emission Reductions
from EV Subsidies for Class 1-3 (LHD) Trucks
Tejon Ranch Centennial
Los Angeles County, California

EMFAC2017 Data[1]			
Calendar Year		2035	
Region		Los Angeles (SC)	
EMFAC2017 LHDT VMT		9,878,971	miles/day
EMFAC2017 LHDT Population		295,394	Trucks
EMFAC2017 LHDT Running Exhaust Emissions	CO_2	5,314	MT/day
	CH_4	0.0181	MT/day
	N_2O	0.3729	MT/day
	CO_2e	5,426	MT/day
EMFAC2017 LHDT Emission Factor	CO_2e	549	g/mile
ZE Class 1-3 Truck Data			
Number of Trucks to be Replaced[2]		500	Trucks
Average Annual VMT[3]		10,936	miles/truck/year
Average Annual GHG Emissions per Truck[4]		6.0	MT CO_2e/truck/year
Total Annual GHG Emissions Reduced[5]		**3,003**	**MT CO_2e/year**

Notes:

[1] The values were obtained from EMFAC2017.

[2] The value for the number of trucks to be replaced was obtained from the Climate Resolve Agreement.

[3] The average Annual VMT was calculated from dividing the LHDT VMT by the LHDT population and multiplying it by the EMFAC Default operational days per year.

[4] The average annual GHG emissions per truck was calculated from multiplying the LHDT emission factor with the average annual VMT.

[5] The total annual GHG emissions reduced is average annual GHG emissions per truck multiplied by the number of trucks to be replaced.

Conversion Factors:

0.907185	MT/ton
327	days/year, EMFAC Default[1]
1000000	g/MT

IPCC AR4 Global Warming Potentials (GWP):

CO_2	1
CH_4	25
N_2O	298

Abbreviations:

CARB - California Air Resources Board
CH_4 - methane
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
EMFAC - CARB Emissions Factor Model
g - grams
GHG - greenhouse gases
GWP - global warming potential
IPCC - Intergovernmental Panel on Climate Change
LHDT - light heavy duty truck
MT - metric ton
N_2O - nitrous oxide
SC- South Coast
VMT - vehicle miles traveled
ZE - zero emissions

Table 13. Climate Resolve Agreement GHG Emissions Reduction Summary (Conservative Scenario)
Tejon Ranch Centennial
Los Angeles County, California

Category	Measure Description	Location (On-Site or Off-Site)	Reductions: Conservative On-Site Mobile Scenario[1] ($MT CO_2e$/year)		
			On-Site	Off-Site	Total
From Itemized GHG Mitigation Measures[2]	EV grant program for public agency service fleets *(Table 1)*	Off-Site	--	259	259
	EV grant program for community agencies or organizations *(Table 2)*	Off-Site	--	778	778
	Incentives to purchase school and transit buses and install chargers *(Table 3)*	On-Site	1,925	--	1,925
	Truck chargers installed at Tejon Ranch Commerce Center *(Table 4)*	Off-Site	--	13,208	13,208
	Chargers installed at non-residential structures *(Table 5)*	On-Site	37,377	--	37,377
	Chargers installed at residential dwelling units *(Table 6)*	On-Site	26,557	--	26,557
	Chargers installed in disadvantaged communities *(Table 7)*	Off-Site	--	72,881	72,881
	Prohibition of fossil fuel fireplaces	On-Site	11,056	--	11,056
	Subtotal	--	**76,915**	**87,127**	**164,042**
Reduced by Centennial Energy Requirements[3]	No natural gas for residential uses *(Table 8)*	On-Site	22,118	--	22,118
	No natural gas for non-essential non-residential uses *(Table 9)*	On-Site	3,709	--	3,709
	Commitments to renewable energy *(Table 10)*	On-Site	29,220	--	29,220
	Subtotal	--	**55,047**	**0**	**55,047**
Reduced by Grapevine Residential Gas Restriction[4]	No natural gas infrastructure at the Grapevine *(Table 11)*	Off-Site	--	11,225	11,225
Reduced by Class 1-7 Truck Incentives[5]	Reimbursement incentives for heavy-duty vehicles used at Centennial *(Table 12)*	On-Site	3,003	--	3,003
	Total Reductions	--	**134,965**	**98,352**	**233,317**

Notes:

[1] Reductions shown as calculated in Tables 1-12.

[2] The estimate of reductions from the itemized GHG mitigation measures is outlined in the Climate Resolve Agreement commitments #5 through #14 and represented in Table 1 through Table 7. The DEIR calculated that 65,859 MT CO2e per year would be reduced by assuming a EV utilization rate of 50% at Project buildout. The numbers reflected here for reductions from the on-site mobile commitments presented in Tables 3, 5, and 6 have been conservatively scaled down to ensure that reductions attributed to on-site mobile measures do not exceed this value. Reductions from itemized GHG mitigation measures also includes GHG reductions associated with the prohibition of fossil fuel fireplaces at Centennial, which were expected to emit 11,056 MT of GHG each year per Table 5.21-5 of the 2019 DEIR.

[3] The estimate of reductions from the Centennial energy requirements is outlined in Climate Resolve Agreement commitment #1-#4, #15, and #16, represented in Tables 8, 9, and 10.

[4] The estimate of reductions from the Grapevine residential gas restriction is outlined in Climate Resolve Agreement commitment #15 and represented in Table 11. The off-site reduction of 11,225 reflects GHG emissions from combined electricity and natural gas energy use (1,673+13,861) minus emissions from new electric usage (4,309).

[5] The estimate of reductions from the Class 1-7 truck incentives is outlined in Climate Resolve Agreement commitment #11 and represented in Table 12.

Abbreviations

CO_2e - carbon dioxide equivalents
DEIR - Draft Environmental Impact Report
EV - electric vehicle
GHG - greenhouse gas
MT - metric ton
yr - year

Appendix E

VMT Memo

Centennial Specific Plan VMT Disclosure – For Informational Purposes Only

Date:
May 4, 2026

Prepared for:
Centennial Founders

Prepared by:
Stantec Consulting Inc.

Project/File:
2042644600

Stantec

The conclusions in the Report titled Centennial Specific Plan VMT Disclosure – For Informational Purposes Only are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

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Appendix A VMT Reduction Calculations

Executive Summary

The following provides an assessment of vehicle miles traveled (VMT) data for the Centennial Specific Plan (Project) located in Los Angeles County, California. The Project's approved 2017 Traffic Study includes estimates of project VMT, which were used in the Draft Environmental Impact Report (DEIR) evaluation of the Project's impacts on air quality and greenhouse gas (GHG), and which are re-presented here for informational purposes only.

The 2017 Traffic Study and DEIR used a delay-based level of service (LOS) analysis to evaluate Project impacts, which was the applicable metric at the time of the Notice of Preparation and DEIR analysis. The 2018 EIR concluded that the Project's traffic impacts would be significant and unavoidable. That EIR also concluded that the Project would be consistent with the Sustainable Communities Strategy/Regional Transportation Plan ("SCS/RTP") including measures designed to reduce VMT and the related impacts to greenhouse gas emissions from light-duty vehicles.

Approximately two years after the release of the 2018 EIR, the County adopted new transportation impact analysis guidelines ("VMT Guidelines") that rely VMT rather than LOS for measuring transportation impacts.[1] Under the County's current VMT Guidelines, a project in the County's North Region with VMT that is 16.8 percent below the North County average is considered to have a less than significant impact to transportation. The adoption of guidelines for analyzing and evaluating the significance of data does not constitute new information if the underlying data was otherwise known or should have been known at the time an EIR was certified. Both trip length and trip number, which are the inputs into VMT, were known when the County examined the Project's transportation impacts in the 2018 EIR and VMT was an input in the Project's 2018 EIR GHG analysis.

Because the County began the CEQA process using LOS, it can continue to rely on an LOS methodology for analyzing transportation impacts. But for informational purposes only, the County has chosen to provide a comparison to the Project's VMT with and without mitigation to the County's current VMT threshold. This information, which has been included in County CEQA documents since July 2020, will allow the readers of the RPDEIR to better understand how the Project's VMT compares to other projects in the area.

The Centennial Specific Plan area is located along State Route 138 (SR 138) in the northwest corner of Los Angeles County, adjacent to Kern County, and just east of Interstate 5 (I-5). The proposed residential uses consist of a maximum of 19,333 dwelling units and the non-residential component includes approximately 10.1 million square feet of community serving amenities, retail services, and business park development. The Specific Plan includes a wide range of land use and transportation features as an integral part of the Project designed to reduce the use of single-occupant vehicles.

[1] Los Angeles County Public Works, July 2020, Draft Transportation Impact Analysis Guidelines.

The County's Transportation Impact Analysis Guidelines ("Guidelines") state that transportation demand management (TDM) strategies that are included as project design features (PDFs) should be considered in the estimation of a project's daily vehicle trips and VMT. Quantification methodologies from the California Air Pollution Control Officers Association (CAPCOA) Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity (GHG Handbook),[2] an industry standard, are used to estimate these VMT reductions. The Project's PDFs result in a VMT reduction of approximately 28.7% in comparison to a typical development in the Project area. The application of PDFs results in a Project VMT of 34.1 VMT per "Service Population ("SP"), meaning Project residents and employees. The Project's VMT is below the North County average of 43.1 VMT per SP and below the North County significance threshold of 35.9 VMT per SP. The Project's transportation mitigation measures that reduce the Project's LOS impacts further reduces the Project's VMT. The VMT reductions from PDFs and LOS-related mitigation are shown in Table ES-1.

Table ES-1. Project VMT Impact Analysis (With VMT Reductions from TDM Measures)

Category	**VMT per Service Population**
Project VMT (with PDFs and MMs)	32.9
North County Average VMT	43.1
North County Significance Threshold (16.8% below average)	35.9
Project VMT versus Threshold Difference	-3.0

[2] California Air Pollution Control Officers Association, December 2021, Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity Designed for Local Governments, Communities, and Project Developers.

1 Introduction

The following discloses, for informational purposes only, additional miles traveled (VMT) data for the Centennial Specific Plan (Project) located in Los Angeles County, California. The Project's approved 2017 Traffic Study includes estimates of project VMT, which are used in the Draft Environmental Impact Report (DEIR) evaluation of air quality and greenhouse gas (GHG), and which are also applied in the analysis of VMT-based transportation impacts presented in this report. The 2017 Traffic Study and DEIR utilize a delay-based level of service (LOS) analysis for the evaluation of Project impacts, which was the applicable metric at the time of the DEIR analysis.

1.1 Project Description

The Centennial Specific Plan area is located along State Route 138 (SR 138) in the northwest corner of Los Angeles County, adjacent to Kern County, and just east of Interstate 5 (I-5), as shown in Figure 1-1. The Project proposes to develop a balanced mix of residential and non-residential uses on approximately 12,323 acres. The proposed residential uses consist of a maximum of 19,333 dwelling units, and the non-residential component includes approximately 10.1 million square feet of community serving amenities, retail services, and business park development. By design, the Specific Plan includes a wide range of land use and transportation features as an integral part of the Project designed to reduce the use of single-occupant vehicles.

- 80% on average (but no less than 50%) of dwelling units (DUs) are within ½ mile of a Village Core or Town Center
- Each neighborhood without a Village Core or Town Center shall have resident-serving amenities (e.g., pharmacy, grocery store, coffee shop, beauty salon, etc.) designated on Tract Map
- 100% of DUs are within ¼ mile of a 10,000 square foot (SF) park; 80% are within ¼ mile of a 1-acre park
- All neighborhoods within each village shall connect via local streets and trails
- 50% or more of all DUs and non-residential buildings will be located in a grid pattern block structure. In areas outside of Village Cores and Town Centers, block sizes will be no greater than 1,980 feet in perimeter with a maximum 800-foot intersection or trail spacing
- Inside and within a ¼ mile walking distance of the Village Cores or Town Centers, and within the Centennial Commerce District, block sizes will be no greater than an average of 1,320 to 1,600 feet (approximately ¼-mile) in perimeter, with a maximum 500-foot intersection spacing
- Multi-family residential and commercial mixed use in Village Core or Town Center shall maximize alleys or lanes in rear for parking/access; buildings shall front street with limited curb cuts ensuring direct pedestrian access to sidewalks

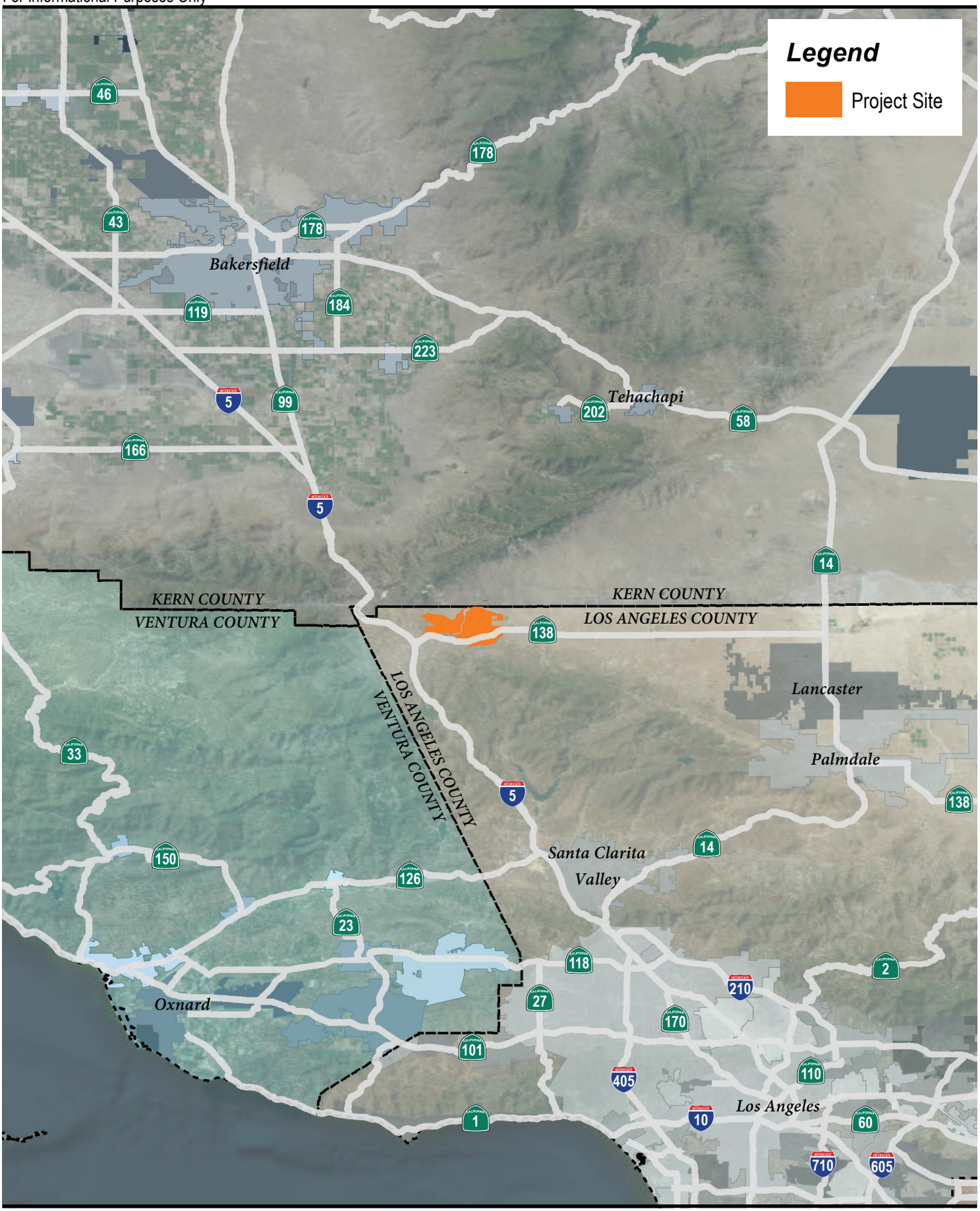

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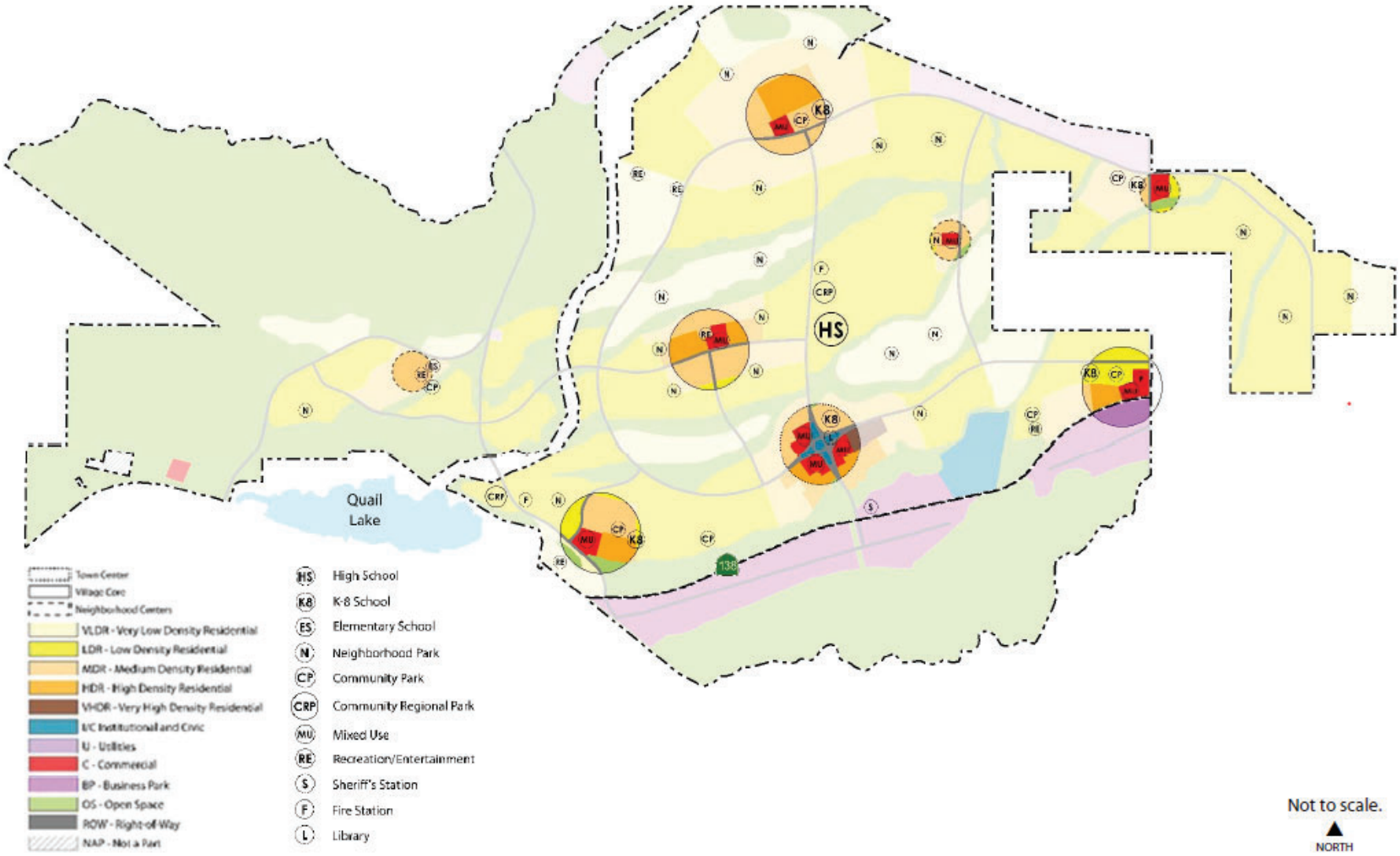
Figure 1-1
Project Location Map
1.2



Source: Centennial Specific Plan

N

Figure 1-2

Centennial Proposed Town Center, Village Cores, and Neighborhood Centers

1.2 Methodology

This document provides an analytical comparison for the Project's VMT analysis by comparing the Project's VMT to the County's current VMT threshold as stated in the Transportation Impact Analysis (TIA) guidelines of the Los Angeles County Department of Public Works[3] (County Guidelines).

The County Guidelines recognizes five distinct impact criteria categories for the evaluation of VMT: 1. Residential Projects, 2. Office Projects, 3. Regional Serving Retail Projects, 4. Land Use Plans, and 5. Other Land Use Types. For this Project, the Land Use Plans category is applicable.

VMT per Service Population is the applicable metric for a Land Use Plan. Table 1-1 summarizes the County's significance threshold for the northern portion of the county (referred to within the County Guidelines as "North County"), as specified in the County Guidelines. The North County threshold is appropriate for evaluating the Project VMT because the North County threshold contains the Antelope Valley, Santa Clarita Valley, and Santa Monica Mountains planning areas, which represent the more rural portions of the County, and the Project site is in the Antelope Valley. Per the County's SB 743 Implementation Report, "by establishing the North County baseline VMT, the County acknowledges the differences in travel behavior in these areas, given the land use context and transportation network to represent a more realistic and reasonable picture of VMT activity levels, and thus a more appropriate and feasible baseline for VMT analysis" [4].

The North County baseline VMT and threshold were derived through a collaborative effort involving a County Steering Committee that considered the VMT trends throughout the County and region. The County utilized the Southern California Association of Governments (SCAG) model, which the County concluded was the best available tool to estimate VMT in the Los Angeles County. The County's SB 743 Implementation Report explains that "to account for a portion of trips traveling outside the model area, the length of trips leaving the model boundary can be adjusted by appending the additional travel distance at model gateway zones (or external centroids). For this purpose, the California Statewide Travel Demand Model was used to calculate the weighted average trip length beyond the SCAG model boundaries, such as Kern County to the north"[5]. As such, the North County baseline VMT (43.1 VMT per Service Population) and threshold or significance (35.9 VMT per Service Population) is appropriate for evaluating the Project VMT because it represents the rural portions of the County, was developed by experts in the field, and trip lengths beyond the SCAG boundary (to Kern County) were refined during the modeling process.

[3] Los Angeles County Public Works, July 2020, Draft Transportation Impact Analysis Guidelines
[4] Fehr & Peers, June 2020, Los Angeles County Senate Bill (SB) 743 Implementation and CEQA Updates Report
[5] Ibid

Table 1-1. LA County Current Baseline VMT & Threshold of Significance for North County

Category	Total Daily VMT per Service Population
North County Average VMT	43.1
North County Significance Threshold (16.8% below average VMT)	35.9
Source: Table 3.1.3.-1 and Table 3.1.3.-2, Los Angeles County Guidelines	

The Project produces both home-based and work-based trips. The guidance ("OPR Advisory") from the former Governor's Office of Planning and Research (now the Office of Land Use and Climate Innovation [LCI]) related to work--based trips states, "[i]n cases where the region is substantially larger than the geography over which most workers would be expected to live, it might be appropriate to refer to a smaller geography, such as the county, that includes the area over which nearly all workers would be expected to live." (OPR Advisory, p. 13.) Given the size of the SCAG region overall, as well as the size of the County (over 4,700 square miles in area and a greater population than 40 states), it is appropriate to use the North County sub-area model to best reflect baseline conditions and capture the expected travel patterns of the Project.

The University of California, Berkeley's Terner Center for Housing Innovation ("Terner Center") published a paper, *Aligning Housing with Climate Goals: The Importance of Measuring VMT*, on April 4, 2025.[6] The Terner Center notes that "[t]o avoid reducing housing production in regions with higher average VMT, policymakers may continue to use the existing baseline there," especially because every city and county must meet state-specified housing production targets under Housing Element Law. According to the Terner Center, "[u]sing different baselines in different regions of the state may help balance state greenhouse gas reduction and housing production goals." Approximately 40 percent into the Sixth Cycle Housing Element (which is from October 15, 2021, to October 15, 2029), the County has entitled projects meeting less than thirty percent of the 90,052 housing units it must produce.[7] The County has determined that using the North County sub-area model for large North County projects, such as this one,[8] and using the South County sub-area model for South County residential and mixed-use projects appropriately balances the state's greenhouse gas goals with its housing production goals, while accounting for the County's size and diversity. Accordingly, the North County threshold provides the best context for understanding the Project's VMT.

[6] Available at https://ternercenter.berkeley.edu/research-and-policy/aligning-housing-with-climate-goals-the-importance-of-measuring-vmt/.
[7] California Department of Housing and Community Development, Housing Element Implementation and APR Dashboard, available at https://www.hcd.ca.gov/housing-open-data-tools/apr-dashboard; last accessed on December 23, 2025.
[8] The County also relied on the North County transportation model for the baseline VMT in the Entrada South and Valencia Commerce Center Supplemental EIR.

2 Transportation Demand Management Program

Transportation Demand Management (TDM) measures are strategies that can change travel behavior to increase the efficiency of the transportation system and achieve specific objectives such as reduced traffic congestion, road and parking cost savings, increased safety, improved mobility for non-drivers, energy conservation, and pollution emission reductions. TDM measures integral to the Project are referred to as project design features (PDF). The Project will also implement additional TDM measures (as mitigation) for the Project's LOS-based transportation impacts, which also reduce the Project's VMT. The VMT reductions from mitigation are discussed in Section 3, below.

2.1 Project Design Features

The County Guidelines state that TDM strategies that are included as PDFs should be considered in the estimation of a project's daily vehicle trips and VMT. To estimate these VMT reductions, quantification methodologies from the California Air Pollution Control Officers Association (CAPCOA) Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity (GHG Handbook),[9] an industry standard, are used.

The Project has been designed with the following land use and neighborhood design characteristics (i.e., PDFs) recognized by CAPCOA as VMT reducing measures:

- Street connectivity (higher than average density of intersections)
- Pedestrian infrastructure (increased sidewalk coverage)
- Bicycle infrastructure (community-wide bicycle network)

Table 2-1 summarizes the PDFs and the expected VMT reduction for the Project based on CAPCOA reduction factors (refer to Appendix A for calculations). As shown, the combination of PDFs would result in a VMT reduction of approximately 28.7% lower than the Project's unadjusted travel demand model forecast.

[9] California Air Pollution Control Officers Association, October 2024, Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity, *Designed for Local Governments, Communities, and Project Developers*, available at https://www.caleemod.com/documents/handbook/full_handbook.pdf.

Table 2-1. Project VMT Reductions – Project Design Features

Project Design Feature	CAPCOA Category (Plan/Community Level Reductions)	Project's VMT Reduction
50% or more of DUs and non-residential buildings will be located in a grid pattern block structure. Outside of Village Core or Town Center, block sizes will be no greater than 1,980 feet in perimeter with maximum 800-foot intersection spacing. Inside and within ¼ mile of Village Core or Town Center, block sizes will be no greater than an average of 1,320 to 1,600 feet in perimeter, with maximum 500-foot intersection spacing.	**T-17 Improve Street Connectivity** – This measure accounts for the VMT reduction achieved by a project that is designed with a higher density of vehicle intersections compared to the average intersection density in the U.S. Increased vehicle density is a proxy for street connectivity improvements, which help to facilitate a greater number of shorter trips and thus a reduction in GHG emissions.	23.2%
Provide sidewalks on all streets in accordance with Specific Plan and County design guidelines. Project a comprehensive network of multi-use trails connecting villages in accordance with Specific Plan.	**T-18 Provide Pedestrian Network Improvement** – This measure will increase the sidewalk coverage to improve pedestrian access. Providing sidewalks and an enhanced pedestrian network encourages people to walk instead of drive. This mode shift results in a reduction in VMT emissions.	6.4%
Provide bike lanes (Class I, II, or IV) on streets in accordance with Specific Plan and County design guidelines.	**T-19-A Construct or Improve Bike Facility** – This measure will construct or improve a single bicycle lane facility (only Class I, II, or IV) that connects to a larger existing bikeway network. Providing bicycle infrastructure helps to improve biking conditions within an area. This encourages a mode shift on the roadway parallel to the bicycle facility from vehicles to bicycles, displacing VMT and thus reducing GHG emissions.	0.8%
Total VMT Reduction from PDFs		28.7%[a]

[a] The calculated reductions do not sum up to the total since individual strategies are multiplicative and not additive. e.g., overall % VMT Reduction = 1-(1-A)*(1-B)*(1-C), where A, B, C equals reductions for individual strategies.

3 VMT Estimates

3.1 Project VMT

The VMT estimates used in this study were derived using the County's North County Sub-Area Travel Demand Forecasting Model (North County sub-area model), which is a derivative of the Southern California Association of Governments (SCAG) and the Kern Council of Governments (KernCOG) regional models. The North County sub-area model was used by the County for analysis of the Antelope Valley Area Plan (AVAP), and was used by LA Metro and Caltrans for analysis of the Northwest 138 Corridor Improvement Project (refer to 2017 Traffic Study for discussion of traffic modeling methodologies utilized for this analysis).

Due to the Project's location at the boundary between Los Angeles and Kern Counties, neither the SCAG regional model nor the KernCOG regional model would individually be suitable for determining Project VMT since the limits of each model ends at the county line and do not capture inter-county trips. However, the North County sub-area model includes components of both the SCAG and the KernCOG models, resulting in a primary modeling area that encompasses the Project's combined area of influence of both Counties. As such, the North County sub-area model represents the most appropriate tool for estimating Project VMT while still maintaining consistency with the countywide VMT estimates from the SCAG regional model used for determining the County threshold of significance.

Table 3-1 summarizes the Project's service population and gross VMT based on traffic modeling estimates as shown in the 2017 Traffic Study. As shown, the Project's estimated VMT is 47.8 VMT per Service Population (SP) prior to the application of any VMT reducing PDFs or TDM measures.

Table 3-1. Project VMT Estimates (Raw Model)

Category	**Amount**
Project Population	57,150
Project Employment	20,809
Total Project Service Population	77,959
Total Project Gross VMT	3,724,006[a]
Total Project VMT per Service Population (Raw Model)	**47.8[a]**

Source: Population, Employment, and VMT from Centennial Specific Plan 2017 TIA (Tables 3-4 & 3-5)
[a] Raw model VMT that does not account for trip reducing PDFs or TDM

Table 3-2 summarizes the Project's VMT per SP in comparison to the North County threshold of significance prior to VMT reductions from PDFs or TDM. As shown, the Project's VMT per SP is approximately 33% over the North County threshold of significance and requires a reduction of at least 25% to be lower than the North County threshold of significance.

Table 3-2. Project VMT Impact Analysis (Without VMT Reductions from TDM Measures)

Category	VMT per Service Population
North County Significance Threshold (16.8% below average)	35.9
Total Project VMT per Service Population	47.8[a]
Project VMT Difference from County Threshold	+11.9 (+33%)
Project VMT Reduction Target	**-11.9** **(-25%)**

[a] Raw model VMT that does not account for trip reducing PDFs or TDM

3.2 VMT Reductions from PDFs

Table 3-3 summarizes the Project's VMT data when accounting for PDFs, which are described in Section 2, above.

Table 3-3. Project VMT with PDFs

Category	VMT per Service Population
Gross Project VMT	47.8
Total VMT Reductions from PDF	28.7%
Project VMT (with PDFs)	34.1
North County Average VMT	43.1
North County Significance Threshold (16.8% below average)	35.9
Project VMT versus Threshold	-1.8

As shown in the previous section, Project PDFs reduce the Project's VMT by 28.7%, resulting in a Project VMT of 34.1 VMT per SP, which is below the North County average of 43.1 VMT per SP and below the threshold of significance of 35.9 VMT per SP.

3.3 Mitigation Measures for LOS Impacts that Reduce VMT

TDM measures to be implemented by the Project as mitigation measures for the Project's transportation impacts as measured by LOS (in addition to the PDFs described above) would further reduce Project VMT.

Mitigation measures that would result in an additional, quantifiable VMT reduction include the following:

- Creation of a Transportation Management Association (TMA) to implement and facilitate programs (community-based travel planning) (MM 10-25 & MM 10-26)
- Conventional and electric carshare programs (MM 10-25 & MM 10-26)
- Micromobility programs (conventional and electric bikeshare programs, scooter-share program) (MM 10-25 & MM 10-26)

Table 3-4 summarizes the Project's mitigation measures (the full text of which are in the Transportation Chapter) and the expected VMT reduction for the Project based on CAPCOA reduction factors (refer to Appendix A for calculations). The mitigation measures would reduce the Project's VMT by an additional 2.4%, for a total VMT reduction (combination of PDFs and mitigation measures) of approximately 31.1% lower than the Project's unadjusted travel demand model forecast.

In addition to the mitigation measures noted above, the Project also includes the following additional mitigation measure to reduce its impacts measured by LOS that is also expected to result in fewer vehicle trips and less VMT; however, the specific VMT reduction attributable to this measure cannot be quantified using the established CAPCOA methodology:

> MM 10-1: The Project shall provide internet infrastructure and a community intranet with access for homeowner's associations; interest groups; local event scheduling; schools, library, carpool, and transit services; and other on-site entertainment and amenities for residential land uses.

Table 3-4. Project VMT Reductions – Mitigation Measures

Mitigation Measure	CAPCOA Category (Plan/Community Level Reductions)	Project's VMT Reduction
Provide a Transportation Management Association to reduce single occupancy vehicle trips (MM 10-25 & MM 10-26).	**T-23 Provide Community-Based Travel Planning** – This measure will target residences in the plan/community with community-based travel planning (CBTP). CBTP is a residential-based approach to outreach that provides households with customized information, incentives, and support to encourage the use of transportation alternatives in place of single occupancy vehicles, thereby reducing household VMT and associated GHG emissions.	2.3%
Provide conventional and electric car share programs for community use (MM 10-25 & MM 10-26).	**T-21-A Implement Conventional Carshare Program** – This measure will increase carshare access in the user's community by deploying conventional carshare vehicles. Carsharing offers people convenient access to a vehicle for personal	0.05%

A minimum of 15 conventional and 15 electric car share vehicles will be provided **(NEW)**.	or commuting purposes. This helps encourage transportation alternatives and reduces vehicle ownership, thereby avoiding VMT and associated GHG emissions. **T-21-B Implement Electric Carshare Program** – This measure will increase carshare access in the user's community by deploying electric carshare vehicles. Carsharing offers people convenient access to a vehicle for personal or commuting purposes. This helps encourage transportation alternatives and reduces vehicle ownership, thereby avoiding VMT and associated GHG emissions. This also encourages a mode shift from internal combustion engine vehicles to electric vehicles, displacing the emissions-intensive fossil fuel energy with less emissions-intensive electricity. Electric carshare vehicles require more staffing support compared to conventional carshare programs for shuttling electric vehicles to and from charging points.	
Provide micromobility programs for community use. Micromobility includes conventional bikeshare, electric bikeshare, and scootershare programs (MM 10-25 & MM 10-26).	**T-22-A Implement Pedal (Non-Electric) Bikeshare Program** – This measure will establish a bikeshare program. Bikeshare programs provide users with on-demand access to bikes for short-term rentals. This encourages a mode shift from vehicles to bicycles, displacing VMT and thus reducing GHG emissions. **T-22-B Implement Electric Bikeshare Program** – This measure will establish an electric bikeshare program. Electric bikeshare programs provide users with on-demand access to electric pedal assist bikes for short-term rentals. This encourages a mode shift from vehicles to electric bicycles, displacing VMT and reducing GHG emissions. **T-22-C Implement Scootershare Program** – This measure will establish a scootershare program. Scootershare programs provide users with on-demand access to electric scooters for short-term rentals. This encourages a mode shift from vehicles to scooters, displacing VMT and thus reducing GHG emissions.	0.05%
Total VMT Reductions from PDFs (From Table 2-1 above)		28.7%[a]
Total Combined VMT Reductions from PDFs and Mitigation Measures		31.1%[a]
[a] The calculated reductions do not sum up to the total since individual strategies are multiplicative and not additive. e.g., overall % VMT Reduction = 1-(1-A)*(1-B)*(1-C) where A, B, C equals reductions for individual strategies.		

As shown in Table 3-5, with the application of mitigation measures required to reduce the Project's LOS impacts, the total combined VMT reduction from PDFs and those mitigation measures is 31.1%, resulting in a Project VMT of 32.9 VMT per SP. The Project's mitigated VMT is below the North County average of 43.1 VMT per SP and below the North County significance threshold of 35.9 VMT per SP.

Table 3-5. Project VMT Impact Analysis (With VMT Reductions from PDFs and TDM Measures)

Category	VMT per Service Population
Gross Project VMT	47.8
Total VMT Reductions from PDF	28.7%
Project VMT (with PDFs)	34.1
Total VMT Reductions from PDFs and MMs	31.1%
Project VMT (with PDFs and MMs)	32.9
North County Average VMT	43.1
North County Significance Threshold (16.8% below average)	35.9
Project VMT versus Threshold	-3.0

4 Conclusion

The above analysis, for informational purposes only, provides additional analytic information about how the Project's VMT compares to typical projects in the North County area and the County's North County VMT threshold. PDFs would reduce the Project's VMT to below the County's applicable VMT threshold. Collectively, the PDFs and mitigation measures would reduce Project VMT by approximately 31.1%, reducing the Projects VMT from 47.8 VMT per SP to 32.9 VMT per SP.

Appendix A VMT Reduction Calculations

PDF #1: T-17 Improve Street Connectivity

GHG Reduction Formula

$$A = \frac{B - C}{C} \times D$$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from vehicle travel in plan/community	0–30.0	%	calculated
User Inputs				
B	Intersection density in project site with measure	[ ]	intersections per sq mile	user input
Constants, Assumptions, and Available Defaults				
C	Average intersection density	36	intersections per sq mile	Fehr & Peers 2009
D	Elasticity of VMT with respect to intersection density	-0.14	unitless	Stevens 2016

Further explanation of key variables:

- (C) – The average intersection density is based on the standard suburban intersection density in the U.S. (Fehr & Peers 2009). This density is approximately equivalent to block faces of 750 to 800 feet, or cul-de-sac–style built environments, which are appropriate for suburban areas.
- (D) – A meta-regression analysis of 15 studies found that a 0.14 percent decrease in VMT occurs for every 1 percent increase in intersection density (Stevens 2016).

VMT Reductions

The percent reduction in VMT would be the same as the percent reduction in GHG emissions (A).

Source: CAPCOA GHG Handbook

Assumptions based on the Specific Plan:

Approximately 10% of Residential = ~216 intersections per sq mile (within & < ¼ mile from Village Cores & Town Centers),

Approximately 40% of Residential = ~140 intersections per sq mile, (grid patterns outside of Village Cores & Town Centers)

Approximately 50% of Residential = ~36 or fewer intersections per sq mile (U.S. average)

= Average of 95.6 Project intersection per sq mile.

B = 95.6 intersections per sq mile in project site
C = 36 intersections per sq mile average intersection density
D = -0.14 elasticity of VMT with respect to intersection density

A = ((95.6 – 36) / 36) x -0.14 = -23.2%*
* Although labeled “GHG,” emissions reductions achieved by transportation measures are estimated using the expected percent reduction in vehicle trips or VMT, with an associated adjustment to account for the relationship between VMT reduction and vehicle emissions. For measure T-17, the CAPCOA Handbook indicates that “the percent reduction in VMT would be the same as the percent reduction in GHG emissions (A)”, therefore no additional adjustment to the GHG reduction formula is required to estimate the VMT reduction.

PDF #2: T-18 Provide Pedestrian Network Improvement

GHG Reduction Formula

$$A = \left(\frac{C}{B} - 1\right) \times D$$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from household vehicle travel in plan/community	0–6.4	%	calculated
User Inputs				
B	Existing sidewalk length in study area	[ ]	miles	user input
C	Sidewalk length in study area with measure	[ ]	miles	user input
Constants, Assumptions, and Available Defaults				
D	Elasticity of household VMT with respect to the ratio of sidewalks-to-streets	-0.05	unitless	Frank et al. 2011

Further explanation of key variables:

- (B and C) – Sidewalk length should be measured on both sides of the street. For example, if one 0.5-mile-long street has full sidewalk coverage, the sidewalk length would be 1.0 mile. If there is only sidewalk on one side of the street, the sidewalk length would be 0.5 mile. The recommended study area is 0.6 mile around the pedestrian network improvement. This represents a 6- to 10-minute walking time.
- (D) – A study found that a 0.05 percent decrease in household vehicle travel occurs for every 1 percent increase in the sidewalk-to-street ratio (Frank et al. 2011; Handy et al. 2014).

Source: CAPCOA GHG Handbook

Per the Specific Plan, approximately:
29 miles of backbone circulation network, therefore 29 miles of sidewalk (if provided on one side), 58 miles if provided on both sides.

B = 58 miles of sidewalk in Project (baseline backbone circulation, both sides of the street)
C = 132 miles of pedestrian connections and enhancements in Project (in addition to the standard sidewalks, the Project will construct approx. 46 miles of Class I multiuse paths that will link to the sidewalks and Local streets connecting residential streets to the backbone circulation network would also be constructed with sidewalks (minimum of 28 miles). Note that Major highways would have a minimum of 5- to 8-foot sidewalk width, Secondary Highways would have a minimum of 8-foot sidewalk width, Collectors would have a minimum of 8-foot sidewalk width, Industrial Collector would have a minimum of 5-foot sidewalk width, and Local streets would have a minimum of 5-foot sidewalk width. All of which would exceed the County's minimum width of 4 feet.
D = -0.05 elasticity of household VMT with respect to the ratio of sidewalks to street

A = ((132/58)-1) x -0.05 = -6.4% VMT reduction

PDF #3: T-19-A Construct or Improve Bike Facility

GHG Reduction Formula

$$A = -B \times \frac{\frac{F}{T} \times (C + D) \times E \times G}{H}$$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from displaced vehicles on roadway parallel to bicycle facility	0–0.8	%	calculated
User Inputs				
B	Percent of plan/community VMT on parallel roadway	0–100	%	user input
C	Active transportation adjustment factor	Table T-19.1	unitless	CARB 2020
D	Credits for key destinations near project	Table T-19.2	unitless	CARB 2020
E	Growth factor adjustment for facility type	Table T-19.3	unitless	CARB 2020
Constants, Assumptions, and Available Defaults				
F	Annual days of use of new facility	Table T-19.4	days per year	NOAA 2017
G	Existing regional average one-way bicycle trip length	Table T-10.1	miles per trip	FHWA 2017
H	Existing regional average one-way vehicle trip length	Table T-10.1	miles per trip	FHWA 2017
I	Days per year	365	days per year	standard

Further explanation of key variables:

- (B) – The percent of total plan/community VMT within the roadway parallel to the bike facility should represent the expected total VMT generated by all land use in that area, including office, residences, retail, schools, and other uses. The most appropriate source for this data is from a local travel demand forecasting model. An alternate method uses VMT per worker or VMT per resident as calculated for SB 743 compliance and screening purposes multiplied by the population in the area.
- (C, D, and E) – The active transportation adjustment factor, key destination credit, and growth factor adjustment should be looked up by the user in Tables T-19.1 through T-19.3 in Appendix C. The active transport adjustment factor is based on the existing annual average daily traffic (AADT) of the facility, length of the proposed bike facility, and the city population. The key destination credit is based on the number of key destinations within 0.5-mile of the facility. The growth factor is based on the type of proposed bicycle facility.
- (F) – The annual days of use for the new facility should be looked up by users in Table T-19.4 based on the county in which the project is located. The days of use is based on the number of days per year where there is no rainfall (i.e., <=0.1 inches) (NOAA 2017).
- (G and H) – Ideally, the user will calculate bicycle and vehicle trip lengths for the corridor at a scale no larger than the surrounding census tract. Potential data sources include the U.S. Census, California Household Travel Survey (preferred), or local survey efforts. If the user is not able to provide a project-specific value using one of these data sources, they have the option to input regional average one-way bicycle and vehicle trip lengths for one of the six most populated CBSAs in California provided in Table T-10.1 in Appendix C (FHWA 2017).

Source: CAPCOA GHG Handbook

Per the Specific Plan, approximately:

See next page for calculations.

Table T-19.1. Active Transportation Adjustment Factors

Average Daily Traffic (vehicle trips per day)	One-way Facility Length[1]	Adjustment Factor for a Population > 250,000 or a Non-university Town with Population < 250,000	Adjustment Factor for a University Town with Population <250,000
1 to 12,000	≤1	0.0019	0.0104
	1.02 to 2	0.0029	0.0155
	>2	0.0038	0.0207
12,001 to 24,000	≤1	0.0014	0.0073
	1.02 to 2	0.0020	0.0109
	>2	0.0027	0.0145
24,001 to 30,000	≤1	0.0010	0.0052
	1.02 to 2	0.0014	0.0078
	>2	0.0019	0.0104

Source: California Air Resources Board. 2020. Quantification Methodology for the Strategic Growth Council's Affordable Housing and Sustainable Communities Program. September. Available: https://ww2.arb.ca.gov/sites/default/files/classic/cc/capandtrade/auctionproceeds/draft_sgc_ahsc_qm_091620.pdf. Accessed: January 2021.

< = less than; > = greater than; < = less than or equal to

[1]Measurements of bike facilities should not include the length of crosswalks.

Table T-19.2. Key Destination Credits[1,2]

Number of Key Destinations[3]	Credit within ½ Mile of Facility	Credit Within ¼ Mile of Facility
0 to 2	0.0000	0.000
3	0.0005	0.001
4 to 6	0.0010	0.002
≥ 7	0.0015	0.003

Source: California Air Resources Board. 2020. Quantification Methodology for the California Natural Resource Agency's Urban Greening Grant Program. March. Available: https://ww2.arb.ca.gov/sites/default/files/classic/cc/capandtrade/auctionproceeds/cnra_ug_finalqm.pdf. Accessed: January 2021.

> = greater than or equal to

[1] The largest value from either credit column that matches the project activities should be used. For example, if there are 3 activity centers within ½ mile of the facility and 7 activity centers within ¼ mile of the facility, the correct value to use is 0.0015.

[2] These metrics should be evaluated for the project location site and surrounding area which can extend a distance not to exceed a ½ mile. If a shopping center has multiple activity centers, each of those activity centers would count.

Table T-19.4. Bike Facility Default Days of Use per Year by County

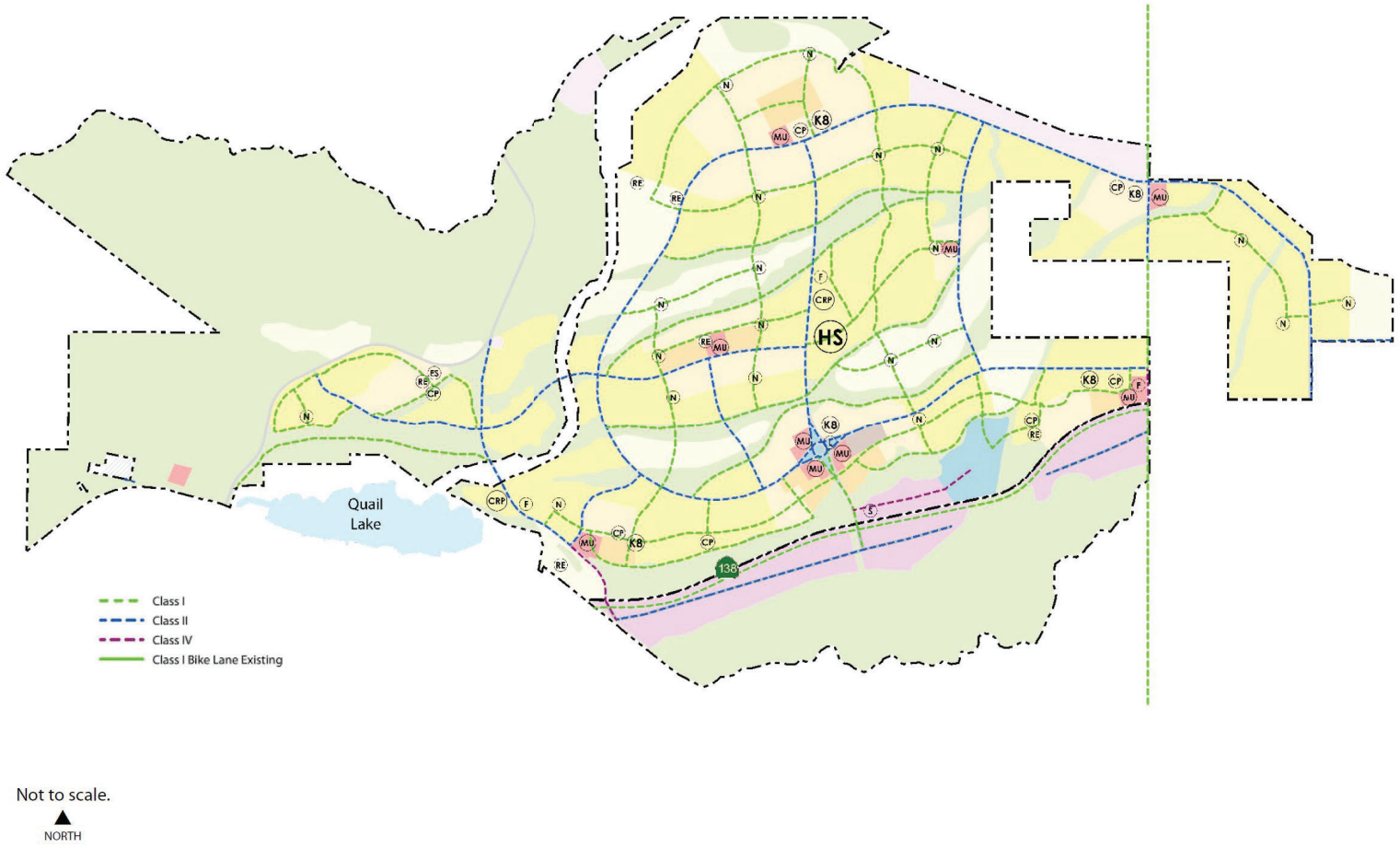
County	Days	County	Days	County	Days	County	Days
Alameda	302	Kern	333	Placer	291	San Joaquin	314
Alpine	291	Kings	328	Plumas	292	San Luis Obispo	321
Amador	302	Lake	298	Riverside	337	San Mateo	295
Butte	294	Los Angeles	332	Sacramento	307	Solano	309
Calaveras	304	Lassen	309	San Benito	315	Stanislaus	319
Contra Costa	307	Madera	314	San Bernardino	333	Sutter	304
Colusa	309	Marin	296	Santa Barbara	328	Tehama	297
Del Norte	252	Mariposa	307	Santa Clara	307	Trinity	277
El Dorado	295	Mendocino	279	Santa Cruz	304	Tulare	314
Fresno	320	Merced	316	San Diego	323	Tuolumne	299
Glenn	304	Modoc	287	San Francisco	301	Ventura	334

Table T-10.1[1] Average One-Way Bicycle and Vehicle Trip Length of All Trips by California Core-Based Statistical Area

Core-Based Statistical Area	Trip Length (miles)	
	Bicycle	Vehicle
Los Angeles-Long Beach-Anaheim	1.7	9.7
Riverside-San Bernardino-Ontario	2.2	11.7
Sacramento-Roseville-Arden-Arcade	2.9	10.9
San Diego-Carlsbad	2.0	19.1
San Francisco-Oakland-Hayward	2.1	12.4
San Jose-Sunnyvale-Santa Clara	2.8	11.5

Source: Federal Highway Administration. 2017. National Household Travel Survey. 2017 Table Designer, Travel Day PT by TRPTRANS by HH_CBSA. Available: https://nhts.ornl.gov/. Accessed: January 2021.

Figure 3-3 Bicycle Network



Centennial Specific Plan VMT Disclosure – For Informational Purposes Only
Appendix A VMT Reduction Calculations

Segment	Inputs for Active Transportation Adjustment Factor (C, D, and E)						B=	C=	D=	E=	F=	G=	H=	I=	A=
	ADT of Facility	Facility Length (miles)	City Pop.	No. of Key Destina-tions Between 1/4 to 1/2 mile of Facility	No. of Key Destina-tions within 1/4 Mile of Facility	Facility Type	% of Plan/ Comm. VMT on Parallel Roadway	Active Transp. Adjust-ment Factor	Credits for Key Destina-tions Near Project	Growth Factor Adjust-ment for Facility Type	Annual Days of Use of New Facility	Existing Regional Average One-way Bicycle Trip Length	Existing Regional Average One-way Vehicle Trip Length	Days per Year	VMT Reduction
1	24,000-30,000	>2	57,000	4 to 6	>=7	Class II	30%	0.0019	0.003	1	332	1.7	9.7	365	-0.023%
2	12,001-24,000	>2	57,000	4 to 6	>=7	Class II	50%	0.0027	0.003	1	332	1.7	9.7	365	-0.045%
3	12,001-24,000	>2	57,000	3	>=7	Class II	25%	0.0027	0.0035	1	332	1.7	9.7	365	-0.025%
4	24000-30,000	1-2	57,000	3	3	Class II	15%	0.0014	0.0015	1	332	1.7	9.7	365	-0.007%
5	12,001-24,000	>2	57,000	3	3	Class II	20%	0.0027	0.0015	1	332	1.7	9.7	365	-0.013%
6	12,001-24,000	>2	57,000	3	3	Class II	20%	0.0027	0.0015	1	332	1.7	9.7	365	-0.013%
7	1-12,000	>2	57,000	3	3	Class II	15%	0.0038	0.0015	1	332	1.7	9.7	365	-0.013%
8	1-12,000	<1	57,000	3	>=7	Class II	20%	0.0019	0.0035	1	332	1.7	9.7	365	-0.017%
9	1-12,000	1-2	57,000	3	3	Class II	15%	0.0029	0.0015	1	332	1.7	9.7	365	-0.011%
10	1-12,000	1-2	57,000	3	4 to 6	Class II	25%	0.0029	0.0025	1	332	1.7	9.7	365	-0.022%
11	1-12,000	>2	57,000	3	>=7	Class II	25%	0.0038	0.0035	1	332	1.7	9.7	365	-0.029%
12	12,001-24,000	<1	57,000	4 to 6	>=7	Class II	20%	0.0019	0.003	1	332	1.7	9.7	365	-0.016%
13	12,001-24,000	>2	57,000	>=7	>=7	Class II	20%	0.0027	0.0172	1	332	1.7	9.7	365	-0.063%
14	>30,000	>2	57,000	>=7	>=7	Class I	50%	0.0019	0.0172	1.54	332	1.7	9.7	365	-0.234%
15	>30,000	<1	57,000	>=7	>=7	Class I	25%	0.001	0.0172	1.54	332	1.7	9.7	365	-0.112%
16	>30,000	<1	57,000	>=7	>=7	Class IV	15%	0.001	0.0172	1.54	332	1.7	9.7	365	-0.067%
17	>30,000	<1	57,000	>=7	>=7	Class IV	25%	0.001	0.0172	1.54	332	1.7	9.7	365	-0.112%
Total															-0.822% (Max. VMT Reduction of -0.8%)

T-23 Provide Community-Based Travel Planning

GHG Reduction Formula

$$A = \frac{C}{B} \times D \times -E \times F$$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from household vehicle travel in plan/community	0–2.3	%	calculated
User Inputs				
B	Residences in plan/community	[ ]	residences	user input
C	Residences in plan/community targeted with CBTP	[ ]	residences	user input
Constants, Assumptions, and Available Defaults				
D	Percent of targeted residences that participate	19	%	MTC 2021
E	Percent vehicle trip reduction by participating residences	12	%	MTC 2021
F	Adjustment factor from vehicle trips to VMT	1	unitless	assumed

Further explanation of key variables:

- (D) – Results from program evaluations of CBTP in several counties in Washington and Oregon across multiple years indicate that an average of 19 percent of residences targeted will participate (MTC 2021).
- (E) – Results from program evaluations of CBTP in several counties in Washington and Oregon across multiple years indicate that a 12 percent vehicle trip reduction will occur among participating residences (MTC 2021).
- (F) – The adjustment factor from vehicle trips to VMT is 1. This assumes that all vehicle trips will average out to typical trip length ("assumes all trip lengths are equal"). Thus, it can be assumed that a percentage reduction in vehicle trips will equal the same percentage reduction in VMT.

Source: CAPCOA GHG Handbook

B= 19,500 residences in community
C= 19,500 residences targeted with CBTP
D= 19% targeted residences that participate
E= 12% vehicle trip reduction by participating residences
F= 1 adjustment factor from vehicle trips to VMT
A= (19,500/19,500)x19%x-12%x1 = -2.3%

T-21-A Implement Conventional Carshare Program

GHG Reduction Formula

$$A = \frac{B \times (E - D)}{C}$$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from vehicle travel in plan/community	0–0.15	%	calculated
User Inputs				
B	Number of vehicles deployed in plan/community	[ ]	integer	user input
C	VMT in plan/community without measure	[ ]	VMT per day	user input
Constants, Assumptions, and Available Defaults				
D	Conventional VMT avoided with measure	68.2	VMT per day per vehicle	Martin and Shaheen 2016
E	Conventional VMT added with measure	24.4	VMT per day per vehicle	Martin and Shaheen 2016

Further explanation of key variables:

- (B) – The number of cars in the carshare program is selected by the carshare provider, but its magnitude is relative to the size of the service area. A study of several carsharing programs (Martin and Shaheen 2016) documented a range of carshare fleet sizes for different North American cities: Calgary (590), San Diego (406), Seattle (640), Vancouver (920), Washington, D.C. (626).
- (C) – The total plan/community VMT should represent the expected total VMT generated by all land use in that area. The most appropriate source for this data is from a local travel demand model.
- (D) – Conventional VMT avoided per deployed carshare vehicle was derived based on a study of conventional-engine based car share programs in Calgary, Seattle, Vancouver, and Washington, D.C. It accounts for VMT avoided from carshare users who sold their personal vehicles and carshare users who decided not to purchase a personal vehicle, both directly because of the availability of carshare (Martin and Shaheen 2016).
- (E) – Conventional VMT added per deployed carshare vehicle was derived based on a study of conventional-engine based car share programs in Calgary, Seattle, Vancouver, and Washington, D.C. It accounts for the VMT of the carshare vehicles (Martin and Shaheen 2016).

Source: CAPCOA GHG Handbook

B= 15 vehicles
C= 2,569,564 VMT (where adjusted VMT = 3,724,006 gross VMT – (3,724,006 x 31% VMT reduction from PDFs and MMs)
D= 68.2 VMT per day per vehicle (Conventional VMT avoided with measure)
E= 24.4 VMT per day per vehicle (Conventional VMT added with measure)
A= (15 x (24.4 – 68.2)) / 2,569,564 = -0.03% VMT reduction

T-21-B Implement Electric Carshare Program

GHG Reduction Formula

$$A = -1 \times \frac{B \times ((E \times G \times H \times I \times J) - (D \times F))}{C \times F}$$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from vehicle travel in plan/community	0–0.18	%	calculated
User Inputs				
B	Number of electric vehicles deployed in plan/community	[ ]	integer	user input
C	VMT in plan/community without measure	[ ]	VMT per day	user input
Constants, Assumptions, and Available Defaults				
D	Conventional VMT avoided with measure	54.8	VMT per day per EV	Martin and Shaheen 2016
E	Electric VMT added with measure	13.7	VMT per day per EV	Martin and Shaheen 2016
F	Emission factor of non-electric light duty fleet mix	307.5	g CO_2e per mile	CARB 2020a
G	Energy efficiency of carshare electric vehicle	0.327	kWh per mile	CARB 2020b; U.S. DOE 2021
H	Carbon intensity of local electricity provider	Tables E-4.3 and E-4.4	lb CO_2e per MWh	CA Utilities 2021
I	Conversion from lb to g	454	g per lb	conversion
J	Conversion from kWh to MWh	0.001	MWh per kWh	conversion

Further explanation of key variables:

- (B) – The number of cars in the carshare program is selected by the carshare provider, but its magnitude is relative to the size of the service area. A study of several carsharing programs (Martin and Shaheen 2016) documented a range of carshare fleet sizes for different North American cities: Calgary (590), San Diego (406), Seattle (640), Vancouver (920), Washington, D.C. (626).
- (C) – The total plan/community VMT should represent the expected total VMT generated by all land use in that area. The most appropriate source for this data is from a local travel demand forecasting model.
- (D) – Conventional VMT avoided per deployed carshare vehicle was derived based on a study of an electric vehicle carshare program in San Diego. It accounts for VMT avoided from carshare users who sold their personal vehicles and carshare users who decided not to purchase a personal vehicle, both directly because of the availability of carshare (Martin and Shaheen 2016).

- (E) – Electric VMT added per deployed carshare vehicle was derived based on a study of an electric vehicle carshare program in San Diego. It accounts for the VMT of the carshare vehicles and includes staff-driven VMT needed to bring the vehicles to charging points (Martin and Shaheen 2016).
- (F) – The average GHG emission factor for non-electric vehicles was calculated in terms of CO_2e per mile using EMFAC2017 (v1.0.3). The model was run for a 2020 statewide average of LDA, LDT1, and LDT2 vehicles using diesel and gasoline fuel. The running emission factors for CO_2, CH_4, and N_2O (CARB 2020a) were multiplied by the corresponding 100-year GWP values from the IPCC's Fourth Assessment Report (IPCC 2007). If the user can provide a project-specific value (i.e., for a future year and project location), the user should run EMFAC to replace the default in the GHG reduction formula.
- (G) – Scaled from light-duty automobile gasoline equivalent fuel economy (G from Measure T-14) based on energy efficiency ratio (EER) of 2.5 (CARB 2020b) and an assumption of 33.7 kWh electricity per gallon of gasoline (U.S. DOE 2021).
- (H) – GHG intensity factors for major California electricity providers are provided in Tables E-4.3 and E-4.4 in Appendix C. If the project study area is not serviced by a listed electricity provider, or the user is able to provide a project-specific value (i.e., for the future year not referenced in Appendix C), the user should replace the default in the GHG calculation formula. If the electricity provider is not known, the user may elect to use the statewide grid average carbon intensity.

Further explanation of key variables:

- (M) – The user should take care to properly quantify building electricity using accepted methodologies (such as CalEEMod).
- Please refer to the GHG Calculation Variables table above for definitions of variables that have been previously defined.

VMT Reductions

The percent reduction in VMT (O) is calculated using a simplified version of the GHG reduction formula that excludes the variables related to emission factors, as follows.

$$O = -1 \times \frac{B \times (E - D)}{C}$$

Source: CAPCOA GHG Handbook

B= 15 vehicles
C= 2,569,564 VMT (where adjusted VMT = 3,724,006 gross VMT – (3,724,006 x 31.0% VMT reduction from PDFs and MMs)
D= 54.8 VMT per day per vehicle (Conventional VMT avoided with measure)
E= 13.7 VMT per day per vehicle (Conventional VMT added with measure)
A= (15 x (13.7 – 54.8)) / 2,569,564 = -0.02% VMT reduction

T-22-A Implement Pedal (Non-Electric) Bikeshare Program

GHG Reduction Formula

This measure methodology does not account for the direct GHG emissions from vehicle travel of program employees picking up and dropping off bikes.

$$A = -1 \times \frac{(C - B) \times D \times E \times F}{G \times H}$$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from vehicle travel in plan/community	0–0.02	%	calculated
User Inputs				
B	Percent of residences in plan/community with access to bikeshare system without measure	0–100	%	user input
C	Percent of residences in plan/community with access to bikeshare system with measure	0–100	%	user input
Constants, Assumptions, and Available Defaults				
D	Daily bikeshare trips per person	0.021	trips per day per person	MTC 2017
E	Vehicle to bikeshare substitution rate	19.6	%	McQueen et al. 2020
F	Bikeshare average one-way trip length	1.4	miles per trip	Lazarus et al. 2019
G	Daily vehicle trips per person	2.7	trips per day per person	FHWA 2018
H	Regional average one-way vehicle trip length	Table T-10.1	miles per trip	FHWA 2017

Further explanation of key variables:

- (B and C) – Access to bikesharing is measured as the percent of residences in the plan/community within 0.25 mile of a bikeshare station. For dockless bikes, assume that all residences within 0.25 mile of the designated dockless service area would have access.
- (D) – An analysis of bike share service areas in the San Francisco Bay Area estimated that in locations with access to bikesharing, there were between 21 and 25 bikeshare trips per day per 1,000 residents (MTC 2017). To be conservative, the low end of this range is cited.
- (E) – A literature review of several academic and government reports found that the average car trip substitution rate by bikeshare trips was 19.6 percent. This included bikeshare programs in Washington D.C., Minneapolis, and Montreal (McQueen et al. 2020).

- (F) – A case study on average trip lengths for pedal and electric bikeshare programs in San Francisco reported a one-way pedal bikeshare trip of 1.4 miles (Lazarus et al. 2019).
- (G) – A summary report of the 2017 National Household Travel Survey data found that the average person in the U.S. takes 2.7 vehicle trips per day (FHWA 2018).
- (H) – Ideally, the user will calculate auto trip length for a plan/community at a scale no larger than a census tract. Potential data sources include the U.S. Census, California Household Travel Survey (preferred), or local survey efforts. If the user is not able to provide a plan-specific value using one of these data sources, they have the option to input the existing regional average one-way auto trip length for one of the six most populated CBSAs in California, as presented in Table T-10.1 in Appendix C (FHWA 2017). Trip lengths are likely to be longer for areas not covered by the listed CBSAs, which represent the denser areas of the state.

Table T-10.1 Average One-Way Bicycle and Vehicle Trip Length of All Trips by California Core-Based Statistical Area

Core-Based Statistical Area	Trip Length (miles)	
	Bicycle	Vehicle
Los Angeles-Long Beach-Anaheim	1.7	9.7
Riverside-San Bernardino-Ontario	2.2	11.7
Sacramento-Roseville-Arden-Arcade	2.9	10.9
San Diego-Carlsbad	2.0	19.1
San Francisco-Oakland-Hayward	2.1	12.4
San Jose-Sunnyvale-Santa Clara	2.8	11.5

Source: Federal HighwayAdministration. 2017. National Household Travel Survey – 2017 Table Designer. Travel Day PT by TRPTRANS by HH CBSA. Available: https://nhts.ornl.gov/. Accessed: January 2021.

Source: CAPCOA GHG Handbook

B= 0% of residences in plan/community with access to bikeshare system
C= 25% of residences in plan/community within ¼ mile distance to bikeshare station with measure
D= 0.021 trips per day per person daily bikeshare trips person
E= 19.6% vehicle to bikeshare substitution rate
F= 1.4 miles per trip bikeshare average one-way trip length
G= 2.7 trips per day per person daily vehicle trips per person
H = 9.7 miles per trip regional average one-way vehicle trip length
A= -1 x (((25%-0) x 0.021 x 19.6% x 1.4) / (2.7x9.7)) = -0.01% VMT reduction

T-22-B Implement Electric Bikeshare Program

GHG Reduction Formula

The quantification methodology does not account for indirect GHG emissions from electricity used to charge the bicycles or direct GHG emissions from vehicle travel of program employees picking up and dropping off bikes.

$$A = -1 \times \frac{(C - B) \times D \times E \times F}{G \times H}$$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from vehicle travel in plan/community	0–0.06	%	calculated
User Inputs				
B	Percent of residences in plan/community with access to electric bikeshare system without measure	0–100	%	user input
C	Percent of residences in plan/community with access to electric bikeshare system with measure	0–100	%	user input
Constants, Assumptions, and Available Defaults				
D	Daily electric bikeshare trips per person	0.021	trips per day per person	MTC 2017
E	Vehicle to electric bikeshare substitution rate	35	percent	Fitch et al. 2021
F	Electric bikeshare average one-way trip length	2.1	miles per trip	Fitch et al. 2021
G	Daily vehicle trips per person	2.7	trips per day per person	FHWA 2018
H	Regional average one-way vehicle trip length	Table T-10.1	miles per trip	FHWA 2017

Further explanation of key variables:

- (B and C) – Access to electric bikesharing is measured as the percent of residences in the plan/community within 0.25-mile of an electric bikeshare station. For dockless bikes, assume that all residences within 0.25 mile of the designated dockless service area would have access.
- (D) – An analysis of bike share service areas in the San Francisco Bay Area estimated that in locations with access to bikesharing, there were between 21 and 25 bikeshare trips per day per 1,000 residents (MTC 2017). To be conservative, the low end of this range is cited. Conventional bikeshare trip rate data was used due to lack of specific data for electric bikeshare.
- (E) – A study of dockless electric bike share in Sacramento found that the substitution rate of vehicles trips by electric bikeshare trips was 35 percent (Fitch et al. 2021).

- (F) – A study of dockless electric bike share in Sacramento found that the average one-way bikeshare trip was 2.1 miles (Fitch et al. 2021).
- (G) – A summary report of the 2017 National Household Travel Survey data found that the average person in the U.S. takes 2.7 vehicle trips per day (FHWA 2018).
- (H) – Ideally, the user will calculate auto trip length for a plan/community at a scale no larger than a census tract. Potential data sources include the U.S. Census, California Household Travel Survey (preferred), or local survey efforts. If the user is not able to provide a plan-specific value using one of these data sources, they have the option to input the existing regional average one-way auto trip length for one of the six most populated CBSAs in California, as presented in Table T-10.1 in Appendix C (FHWA 2017). Trip lengths are likely to be longer for areas not covered by the listed CBSAs, which represent the denser areas of the state.

Table T-10.1 Average One-Way Bicycle and Vehicle Trip Length of All Trips by California Core-Based Statistical Area

Core-Based Statistical Area	Trip Length (miles)	
	Bicycle	Vehicle
Los Angeles-Long Beach-Anaheim	1.7	9.7
Riverside-San Bernardino-Ontario	2.2	11.7
Sacramento-Roseville-Arden-Arcade	2.9	10.9
San Diego-Carlsbad	2.0	19.1
San Francisco-Oakland-Hayward	2.1	12.4
San Jose-Sunnyvale-Santa Clara	2.8	11.5

Source: Federal Highway Administration. 2017. National Household Travel Survey – 2017 Table Designer. Travel Day PT by "RPTRANS by HH CBSA. Available: https://nhts.ornl.gov/. Accessed: January 2021.

Source: CAPCOA GHG Handbook

B= 0% of residences in plan/community with access to bikeshare system
C= 25% of residences in plan/community within ¼ mile distance to bikeshare station with measure
D= 0.021 trips per day per person daily bikeshare trips person
E= 35% vehicle to bikeshare substitution rate
F= 2.1 miles per trip bikeshare average one-way trip length
G= 2.7 trips per day per person daily vehicle trips per person
H = 9.7 miles per trip regional average one-way vehicle trip length
A= -1 x (((25%-0) x 0.021 x 35% x 2.1) / (2.7x9.7)) = -0.02% VMT reduction

T-22-C Implement Scootershare Program

GHG Reduction Formula

This measure methodology does not account for the indirect GHG emissions from electricity used to charge the scooters or direct GHG emissions from vehicle travel of program employees picking up and dropping off scooters.

$$A = -1 \times \frac{(C - B) \times D \times E \times F}{G \times H}$$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from vehicle travel in plan/community	0–0.07	%	calculated
User Inputs				
B	Percent of residences in plan/community with access to scootershare system without measure	0–100	%	user input
C	Percent of residences in plan/community with access to scootershare system with measure	0–100	%	user input
Constants, Assumptions, and Available Defaults				
D	Daily scootershare trips per person	0.021	trips per day per person	MTC 2017
E	Vehicle to scootershare substitution rate	38.5	%	McQueen et al. 2020
F	Scootershare average one-way trip length	2.14	miles per trip	PBOT 2021
G	Daily vehicle trips per person	2.7	trips per day per person	FHWA 2018
H	Regional average one-way vehicle trip length	Table T-10.1	miles per trip	FHWA 2017

Further explanation of key variables:

- (B and C) – Access to scootersharing is measured as the percent of residences in the plan/community within 0.25-mile of a scootershare station. For dockless scooters, assume that all residences within 0.25-mile of the designated dockless service area would have access.
- (D) – An analysis of bike share service areas in the San Francisco Bay Area estimated that in locations with access to bikesharing, there were between 21 and 25 bikeshare trips per day per 1,000 residents (MTC 2017). To be conservative, the low end of this range is cited. Conventional bikeshare trip rate data was used due to lack of specific data for scootershare.
- (E) – A literature review of several academic and government reports found that the average car trip substitution rate by scootershare trips was 38.5 percent. This included scootershare programs in Santa Monica, Minneapolis, San Francisco, and Portland (McQueen et al. 2020).

- (F) – In Oregon, Portland's scootershare pilot data dashboard reports that the average trip length of scootershare trips is 2.14 miles (PBOT 2021).
- (G) – A summary report of the 2017 National Household Travel Survey data found that the average person in the U.S. takes 2.7 vehicle trips per day (FHWA 2018).
- (H) – Ideally, the user will calculate auto trip length for a plan/community at a scale no larger than a census tract. Potential data sources include the U.S. Census, California Household Travel Survey (preferred), or local survey efforts. If the user is not able to provide a plan-specific value using one of these data sources, they have the option to input the existing regional average one-way auto trip length for one of the six most populated CBSAs in California, as presented in Table T-10.1 in Appendix C (FHWA 2017). Trip lengths are likely to be longer for areas not covered by the listed CBSAs, which represent the denser areas of the state.

Table T-10.1 Average One-Way Bicycle and Vehicle Trip Length of All Trips by California Core-Based Statistical Area

Core-Based Statistical Area	Trip Length (miles)	
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Sacramento-Roseville-Arden-Arcade	2.9	10.9
San Diego-Carlsbad	2.0	19.1
San Francisco-Oakland-Hayward	2.1	12.4
San Jose-Sunnyvale-Santa Clara	2.8	11.5

Source: Federal Highway Administration. 2017. National Household Travel Survey – 2017 Table Designer. Travel Day PT by TRPTRANS by HH_CBSA. Available: https://nhts.ornl.gov/. Accessed: January 2021.

Source: CAPCOA GHG Handbook

B= 0% of residences in plan/community with access to scootershare system
C= 25% of residences in plan/community within a ¼ mile distance from scootershare station with measure
D= 0.021 trips per day per person daily scootershare trips person
E= 38.5% vehicle to scootershare substitution rate
F= 2.14 miles per trip scootershare average one-way trip length
G= 2.7 trips per day per person daily vehicle trips per person
H = 9.7 miles per trip regional average one-way vehicle trip length
A= -1 x (((25%-0) x 0.021 x 38.5% x 2.14) / (2.7x9.7)) = -0.02% VMT reduction

Stantec

Stantec is a global leader in sustainable engineering, architecture, and environmental consulting. The diverse perspectives of our partners and interested parties drive us to think beyond what's previously been done on critical issues like climate change, digital transformation, and future-proofing our cities and infrastructure. We innovate at the intersection of community, creativity, and client relationships to advance communities everywhere, so that together we can redefine what's possible.

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Appendix F

Climate Resolve Settlement Agreement

SETTLEMENT AGREEMENT

This Settlement Agreement ("Agreement") is entered into as of the Effective Date by and between Climate Resolve, a California nonprofit public benefit corporation, on the one hand, and Centennial Founders LLC, a Delaware Limited Liability Company ("Centennial"), and Tejon Ranchcorp, a California corporation ("Tejon Ranchcorp") on the other hand.

DEFINITIONS

As used in this Agreement, the following terms have the meanings specified below.

Board and **CMG Board:** the Board of Directors of the Centennial Monitoring Group.

Business As Usual Emissions ("BAU Emissions"): for purposes of this Agreement, BAU is 15 million metric tons of greenhouse gas emissions (MMTCO2e).

California Air Resources Board ("CARB"): The California regulatory agency named "California Air Resources Board."

California Environmental Quality Act ("CEQA") is California Public Resources Code sections 21000-21189.7.

Centennial Monitoring Group ("CMG"): A non-profit entity to be established by Climate Resolve as set forth in this Agreement to monitor Centennial's and Tejon Ranchcorp's compliance with this Agreement.

Climate Action Reserve ("CAR"): The California corporation named "Climate Action Reserve."

County: Los Angeles County.

Disadvantaged Communities ("DACs"): Communities identified as such by the California Environmental Protection Agency under Health and Safety Code § 39711.

Disadvantaged Vulnerable Communities ("DVCs"): The 25% highest-scoring areas according to the California Communities Environmental Health Screening Tool (CalEnviroScreen), all tribal lands, areas with median household incomes below 60% of the state median, and areas that score in the highest 5% of Pollution Burden with CalEnviroScreen but don't receive an overall score due to poor data.

Dwelling Unit: a structure or the part of a structure that is used as a home or residence by one or more persons maintaining a household, including but not limited to attached or detached homes, apartments and condominiums.

Effective Date: the Effective Date of this Agreement is November 30, 2021.

Electric Vehicle Supply Equipment ("EVSE"): A station for charging electric vehicles. One EVSE may have one or more connectors that each allow an EV to be charged.

Environmental Impact Report ("EIR"): The Environmental Impact Report certified by Los Angeles County on April 30, 2019 (State Clearinghouse Number 2004031072).

Fire Protection Plan ("FPP"): A plan for reducing fire risk on and around the Project Site, as drafted by Centennial, as updated from time to time. A copy of the current version of the FPP is attached to this Agreement as Exhibit 1.

Greenhouse Gases ("GHGs"): Gases which contribute to the greenhouse effect, including carbon dioxide and methane.

Inflation-Adjusted: Adjusted based on the Consumer Price Index for Los Angeles/Riverside/Orange Counties, using the Effective Date as a baseline.

Itemized GHG Mitigation Measures: Those measures set forth in Section 1.a below, to mitigate the Project's GHG emissions.

Litigation: The case captioned Climate Reserve v. County of Los Angeles, Los Angeles Superior Court Case No. 19STCP01917, filed May 15, 2019.

Mitigation: For purposes of this Agreement, the term "mitigation" or "Mitigation" shall be understood in its most generic sense and shall not be limited in any technical sense as a Los Angeles County CEQA term.

Mitigation Credit: A certification or other documented award by CARB or a CARB-approved registry that is equivalent to one metric ton of carbon-dioxide-equivalent greenhouse gas emissions that is or will be reduced, sequestered, or avoided.

MTCO2e means metric tons of CO_2 equivalent.

Non-Itemized GHG Mitigation Measures: Those measures set forth in Section 1.b, below, to mitigate the Project's GHG emissions.

Non-Residential: Square footage constructed to include commercial, employment, institutional, or other non-residential uses authorized at the Project Site which does not include Dwelling Units. Mixed use structures may include Non-Residential square footage, and Dwelling Units.

Parties: the parties to this Agreement, Climate Resolve, Centennial Founders LLC, and Tejon Ranchcorp.

Project: the entire Centennial Project and offsite improvements, as described in the EIR.

Project Site: That certain real property commonly known as Centennial comprising approximately a 12,323-acre portion of the Tejon Ranch, in the geographical area covered by the

Centennial Specific Plan No. 02-0232-(5) and offsite improvements associated therewith as described in the EIR.

SCAQMD: South Coast Air Quality Management District.

Tejon Ranch: That certain real property commonly known as Tejon Ranch comprising approximately 270,000 acres, as further described and depicted on Exhibit 2 attached hereto.

Vehicles:

- Vehicles are classed according to their **Gross Vehicle Weight Rating (**"GVWR"**).**
- **Light-Duty:** Cars and trucks of classes 1 through 3, weighing less than 14,000 pounds GVWR.
- **Medium-Duty:** Trucks of classes 4 through 6, weighing between 14,000 and 26,000 pounds GVWR
- **Heavy-Duty:** Trucks of classes 7 through 9, weighing 26,000 pounds or more GVWR.

RECITALS

A. Centennial is the applicant for a master-planned development project encompassing the development of up to 19,333 dwelling units, 8,529,048 square feet of business park commercial and recreational/entertainment uses, 1,568,160 square feet of institutional/civic uses, 5,624 acres of open space, 163 acres of parks, and other uses sited on an approximately 12,323-acre portion of the approximately 270,000-acre Tejon Ranch. The Project Site is largely unimproved land located approximately one mile east of Interstate 5 in the northwestern portion of the Antelope Valley in unincorporated Los Angeles County. The Property and the Project are approximately 35 miles north of Santa Clarita, 5 miles east of Gorman, 36 miles west of Lancaster, and 50 miles south of Bakersfield. State Route 138 runs through the southern portion of the Property.

B. On April 30, 2019, Los Angeles County, through its Board of Supervisors certified the EIR pursuant to CEQA for the development of the mixed-use, mixed-income master planned Centennial community on land owned by Tejon Ranchcorp, including offsite infrastructure improvements identified in the EIR.

C. On April 30, 2019, the County also issued initial entitlement approvals for the Project, consisting of (a) the Centennial Specific Plan to govern the Project's development, (b) a General Plan Amendment to amend the highway maps of the Los Angeles County General Plan and the County's Antelope Valley Area Plan, (c) a Zoning Ordinance Amendment to change the Property's zoning from Open Space, Light Agricultural-Two Acre Minimum Required Lot Area, Residential Planned Development, Commercial

Planned Development, and Manufacturing Industrial Planned Development to SP (Specific Plan), (d) a Vesting Tentative Parcel Map to create 20 large-lot parcels on 8,408 acres of the Property for lease, conveyance, and financing purposes only, (e) a Conditional Use Permit to authorize the Specific Plan development process, and (f) a development agreement to vest the approved land use entitlements and provide specified community benefits including but not limited to affordable housing.

D. On May 15, 2019, Climate Resolve filed a petition commencing litigation in the Los Angeles County Superior Court captioned Climate Resolve v. County of Los Angeles, et al. (Case No. 19STCP01917), challenging the County's approval of the Project and its certification of the EIR.

E. On April 5, 2021, after briefing and oral argument, the court issued an order granting in part Climate Resolve's petition.

F. Subsequent to the court's decision, Climate Resolve and Centennial have mutually agreed to make certain additional commitments to assure that the Project will be a Net Zero GHG Project, including mandates that are more stringent than those agreed to in previously-approved projects in Los Angeles County.

G. Climate Resolve and Centennial have mutually agreed to make certain additional commitments to fund wildfire prevention, protection and response activities within the Project, and to fund grants to improve wildfire prevention, protection and response activities in nearby communities.

H. Climate Resolve and Centennial have mutually agreed to fund ongoing compliance monitoring to assure that Centennial complies with the net-zero and fire-protection obligations in this agreement.

I. For purposes of this Agreement, implementation of the measures included in Section 1 will make the Project a net zero GHG project ("Net Zero GHG Project"), and the measures included in Section 1.e will mitigate wildfire risks.

J. The purpose of this Agreement is to resolve and settle all disputes between the Parties involving the Litigation, the Project, and Los Angeles County, and for Climate Resolve to agree to not pursue or support litigation or other challenges to future agency approvals of the Project that are consistent with the approved scope of the Project as set forth in the EIR or other projects on Tejon Ranch as further described herein, provided that Centennial and Tejon Ranchcorp fully comply with their obligations in this Agreement.

AGREEMENT

The Parties agree as follows:

1 Centennial's Obligations

The Project will be a Net Zero GHG Project. To accomplish this goal, Centennial will mitigate the Project's GHG emissions with two types of GHG mitigation measures: (1) Itemized GHG Measures, and (2) Non-Itemized GHG Measures, both as set forth herein.

Centennial will also implement measures to reduce the risk of wildfires in the vicinity of the Project.

Tejon Ranchcorp owns all Tejon Ranch land relevant to this Agreement. Tejon Ranchcorp formed Centennial LLC to develop the Project. Centennial is the obligor under this Agreement, but (a) Tejon Ranchcorp is obligated to enforce a ban on natural gas service to residences in the Grapevine project located in Kern County and located on Tejon Ranch ("Grapevine Project"); and (b) as described in Section 6.a, Tejon Ranchcorp shall assume Centennial's obligations under this Agreement if Centennial (including without limitation Centennial's successors or assigns) fails to perform Centennial's obligations in compliance with the outcome of the meet and confer process set forth in Section 5 of this Agreement or 90 days following the issuance of an arbitration award against Centennial as set forth in Section 5.

a. Itemized GHG Mitigation Measures

Centennial, to the extent it is a direct consumer of electricity on the Project Site, shall use the 100% renewable CCA option in Los Angeles County for construction activity.

1. Residential. Centennial will:

   a) Provide an Inflation-Adjusted $5,000 in reimbursement incentives to the renters or purchasers of each of the Project's Dwelling Units starting at the time of purchase or rental to support the purchase of an EV, until such time as the incentive has been provided to 50% the Project's Dwelling Units. Informational material on the incentives shall be provided at the time of home purchase or rental and regularly advertised through HOA communications;

   b) Install one operable Level-2 or higher-capacity EVSE at each single-family Dwelling Unit;

   c) Install operable Level 2 or higher-capacity EVSEs in the parking area of each multi-unit Residential building in such capacity so that one electrical charger is provided for one assigned parking space of each Dwelling Unit.

2. Non-Residential. Centennial will:

a) Install in nearby parking spaces for all Non-Residential structures operable Level 2 or higher-capacity EVSEs at a rate of at least one EVSE for each 3,500 square feet of space and no fewer than 3,500 charging connectors;

b) Install 100 operable EVSEs to serve Medium-Duty and Heavy-Duty vehicles at Tejon Ranch Commerce Center;

c) Include in enforceable Covenants, Conditions and Restrictions or other enforceable obligations (collectively, "CC&Rs") that future Non-Residential owners maintain and keep operable the EVSEs on their respective properties, and include in CC&Rs a non-enforceable encouragement to opt into any available 100% renewable energy source as a power supply.

d) Provide $7,500 in reimbursement incentives per vehicle for 500 vehicles to businesses that conduct activities on Tejon Ranch to purchase Medium-Duty and Heavy-Duty vehicles expected to be used in part on Tejon Ranch, for a total of $3,750,000. The EV incentive shall be offered in for Class 1-7 trucks or vans.

3. Other Fleets. Centennial will:

a) Provide an EV grant program of $5,000 per vehicle for 300 vehicles, for public agency service fleets that serve the Project's community, but are controlled by public agencies not specific to the Project, such as for public safety, maintenance, and operations for a total of $1,500,000;

b) Provide an EV grant program of $5,000 per vehicle to provide for up to 100 vehicles for Project-specific community agencies or organizations, including the Homeowners Association, Commercial and Hospitality Associations, and Transportation Management Association.

c) The total amount of the incentives described in subparagraphs (a) and (b) immediately above shall be $2,000,000.

d) Provide incentives totaling $8,000,000 to support the purchase of school and transit buses and vans for the Project's schools and community transit fleets, and for the installation of EVSEs to serve them.

4. SCAQMD Offsite Chargers. Centennial will:

a) Install 5,000 operable Level 2 or higher-capacity EVSEs within the SCAQMD territory. The EVSEs will be sited and operated in

Disadvantaged Communities or Disadvantaged Vulnerable Communities. These EVSEs will be non-networked ("dumb") to the extent such EVSEs are available and commercially feasible.

5. Onsite Reductions. Centennial will further mitigate GHG within the Project Site as described in the following four paragraphs.

   a) Centennial will include in CC&Rs that no natural gas infrastructure may be installed within the Project Site for residential buildings, recreation centers, and/or public facilities, and will through CC&Rs ensure that natural gas use is prohibited in such structures. Centennial will likewise include in such CC&Rs the prohibition of natural gas by Non-Residential tenants for non-essential uses, which include space heating, non-industrial water heating, space cooling, and non-commercial cooking. Fireplaces that use fossil fuels will be prohibited in Centennial. If the Project's Non-Residential customers procure biogas, then Centennial shall ask the Southern California Gas Company ("SoCalGas") to report on the origins of that biogas as a term of their contracting and shall include that report in the annual reports described below.

   b) All building developers, including without limitation residential, commercial, industrial, or public buildings, shall install battery storage systems as required by code, or, if battery storage systems are not required by code, shall be required to offer them as an option available for purchase or lease.

   c) Centennial will include in CC&Rs that Community Choice Aggregation or an equivalent Southern California Edison ("SCE") plan with 100% Clean Power ("Clean Power Plan") is required to the extent allowed by law, and is the default choice when not required by law, for all residents, businesses, recreation centers, and public facilities at the Project.

   d) Tejon Ranchcorp will include in CC&Rs that no natural gas infrastructure may be installed for residential buildings on the Grapevine project, and will through CC&Rs ensure that natural gas use is prohibited in such structures. Tejon Ranchcorp will include in CC&Rs that fireplaces that use fossil fuels shall be prohibited at Grapevine.

6. Itemized GHG Mitigation Measures Timing. The Itemized GHG Mitigation Measures shall be implemented as set forth below:

   a) Residential EV incentives shall be provided as described in Section 1.a.1.a above.

   b) Residential EVSEs shall be installed and made operable prior to the

Dwelling Unit's receipt of its certificate of occupancy.

c) Non-Residential EVSEs shall be installed and made operable prior to each respective Non-Residential buildings' receipt of certificate of occupancy.

d) Non-Residential EVSEs shall be installed and made operable to serve Medium-Duty and Heavy-Duty vehicles at Tejon Ranch Commerce Center, with 1 EVSE required to be installed prior to receipt of a certificate of occupancy for the 100,972nd square feet of non-residential uses at Centennial, and 1 additional EVSE required prior to issuance of a certificate of occupancy for each subsequent 100,972 square feet of non-residential uses thereafter.

e) A total of $2,000,000 in EV incentives shall be offered to public service and community service fleet vehicles used at Centennial, to be awarded in $5,000 grants with one $5,000 grant awarded prior to the certificate of occupancy for the 48th Dwelling Unit, and additional $5,000 grants for every subsequent 48th Dwelling Unit until the incentives are fully depleted. Incentives shall be offered continuously with active marketing efforts.

f) A total of $3,750,000 in EV incentives shall be offered to businesses or other entities for Class 1-7 Vehicles that conduct activities on Tejon Ranch, to be awarded in $7,500 grants with one $7,500 grant award prior to the certificate of occupancy for the 38th Dwelling Unit, and additional $7,500 grants for every subsequent 38th Dwelling Unit until such incentives are fully depleted. Incentives shall be offered continuously with active marketing efforts.

g) A total of $8,000,000 shall be awarded in EV and EVSE incentives for the Project's schools and community transit fleets, with one $20,000 grant awarded prior to the certificate of occupancy for the 48th Dwelling Unit and an additional $20,000 grant for each subsequent 48th Dwelling Unit thereafter.

h) A total of 5,000 EVSEs shall be installed within SCAQMD, with the first EVSE installed prior to issuance of a certificate of occupancy for the 4th Dwelling Unit, with one additional EVSE installed for every 4th Dwelling Unit thereafter.

b. Non-Itemized GHG Mitigation Measures

Centennial will become a Net Zero GHG Project by also implementing the Non-Itemized GHG Mitigation Measures, as described in this Section 1.b of the Agreement and in Exhibit 3 to further mitigate the Project's GHG emissions by 6,964,111 MTCO2e. The mitigation measures

implemented under this Section 1.b will be in addition to the Itemized GHG Mitigation Measures described in Section 1.a above, and the emissions mitigations achieved by the Itemized GHG Mitigation Measures will not count toward the 6,964,111 MTCO2e in Non-Itemized GHG Mitigation Measures required by this section.

1. Centennial may implement additional onsite GHG reduction measures beyond those required as Itemized GHG Mitigation Measures for submittal to the CMG as described below in Section 3.e.5; however, if all of the Project's GHG emissions cannot first be fully mitigated by direct GHG emissions reductions within the Project, then Centennial shall achieve Net Zero GHG as required by this Agreement by funding direct investments in offsite GHG emissions reduction projects that generate direct GHG emissions reductions.

    a) Centennial shall fund only Direct Mitigation Projects that generate qualified GHG credits under the CAR's Climate Forward program from CAR's approved list of methodologies, under a CARB protocol, or under a protocol listed under one of CARB's approved list of Offset Project Registries, which are currently American Carbon Registry ("ACR"), CAR, and Verra (collectively, "Registries"); provided, however, that evidence of actual GHG reductions from these Registries shall be confirmed by these Registries prior to issuance of certificates of occupancy for Residential or Non-Residential structures as required above.

    b) Centennial shall obtain from such registries a certificate, report, or other written documentation of the quantity of Mitigation Credits that the registry has awarded to Centennial for Direct Mitigation Projects that Centennial has undertaken or funded. Centennial shall report such quantities of awarded Mitigation Credits in Annual Reports submitted to the CMG Board and the public as set forth herein.

    c) Centennial may elect to fund the development of new GHG mitigation methodologies under CARB or CARB-approved registries. After CARB or the CARB-approved registry approves a new methodology, Centennial may then fund Direct Mitigation Projects that generate qualified GHG credits based on that methodology.

    d) As part of the offsite GHG mitigations, Centennial may directly undertake or fund projects on Tejon Ranch. However, any projects that reduce, avoid, or sequester GHG emissions on Tejon Ranch must result in quantified Mitigation Credits awarded by CARB or a CARB-approved registry, or approved by the CMG.

1) Renewable energy projects that provide power solely to the Project would be an exception. Given the Project's commitment to Zero Net Energy and 100% renewable power, Centennial may elect to develop renewable energy projects elsewhere on the Tejon Ranch to provide power solely to the Project, for example in connection with a microgrid system, without necessitating the involvement of a third-party registry. This type of renewable energy project would not qualify as a Non-Itemized GHG Mitigation Measure, but could provide a reliable source of renewable power for the Project at a lower cost per Watt than rooftop solar. (A renewable energy project on Tejon Ranch that provides power to an off taker other than the Project would require CARB or a CARB-approved registry to award Mitigation Credits for the renewable energy project to be considered a Non-Itemized GHG Mitigation Measure.)

e) Centennial shall not purchase emissions offsets to fulfill its mitigation obligations under this Agreement, including but not limited to those offsets offered by CARB, CAR, American Carbon Registry and Verra, unless approved as a last resort compliance option for one phase of the Project by a majority vote of the CMG Board, and only to the extent that the Board determines that it will be otherwise infeasible for Centennial to reduce or avoid the GHG emissions of that phase of the project to become a Net Zero GHG Project under the terms of the Agreement. Such a Board vote would be on a temporary, phase-by-phase case and would not be applicable to the entire Project.

c. Locational Requirements. The locational requirement percentage distribution set forth below applies to the BAU Emissions of 15,000,000 MTCO2e from the Project that the Parties have agreed to for purposes of this Agreement. Centennial shall become a Net Zero GHG Project by funding emissions reductions or avoidances within the following geographic limitations, in order of priority:

1. At least 51% of BAU Emissions mitigations within Tejon Ranch, which shall include all of the emission mitigations associated with the Itemized GHG Mitigation Measures, and such other reductions as may be approved either through approved Registries or by CMG as described below.

2. At least 69.5% of BAU Emissions mitigations within California, including 0.83% of BAU Emissions mitigations within Disadvantaged Communities or Disadvantaged Vulnerable Communities. Of the 0.83% of such BAU Emissions mitigations in such Communities, 25% of such reductions shall be in Los Angeles County and the remainder shall be in San Bernardino, Kern, Riverside and Inyo Counties. Installation of EVSE's in such Communities is recognized for locational distribution purposes at 22 MTCO2e per charger but does not count as a Non-

Itemized GHG Mitigation.

3. At least 82.25% of BAU Emission mitigations within the United States of America;

4. No more than 17.75% of BAU Emission mitigations from International projects.

d. Fifteen-Year True-Up

1. Prior to the expiration of fourteen years from the Effective Date, Centennial may elect in writing to undertake a comprehensive process (the "True-Up") for assessing the extent to which Centennial has progressed towards becoming a Net Zero GHG Project to revisit the calculations and technology assumptions used by the Parties in this Agreement in 2021 to calculate BAU emissions, and to calculate GHG reductions from Itemized and Non-Itemized GHG Mitigations, as shown in Exhibit 3 based on then-existing technology, law, market conditions, or other circumstances that result in quantifiable GHG emissions that may be different from what was used in Exhibit 3 ("Modified GHG Calculations"). The True-Up shall not authorize modifications to the locational requirements of Non-Itemized Mitigations. Further, changes to the Itemized Mitigations shall be limited to those required by changes in law, or that take advantage of improvements in technology. Non-Itemized Mitigation reduction quantities may be modified if GHG emissions as a result of the True-Up are lower (or higher) than those set forth in Exhibit 3.

2. Centennial shall provide to CMG a scope of work for the True-Up, which will include use of a qualified GHG consultant. Centennial shall work with the CMG Board to develop a schedule and consultation process for review of a draft and final True-Up Report for review and approval by the Board. Unless otherwise agreed by the Board, the True-Up Report will be received and considered during the first Board meeting of the sixteenth year following the Effective Date, along with any proposed revisions by Centennial to modify the Itemized and Non-Itemized GHG Mitigation Measures. The Board shall by majority vote agree to accept, modify or reject the True-Up Report and/or the modified GHG Calculations, or Itemized or Non-Itemized GHG Mitigation Measures. Disputes regarding the True-Up are subject to the Dispute Resolution procedures set forth in Section 5 herein. Upon Board Approval, or upon a favorable arbitration award from the Section 5 Dispute Resolution process, Centennial shall proceed to implement such Modified GHG Mitigation Measures for the remaining term of this Agreement.

e. Enhanced Wildfire Prevention and Protection

1. Centennial shall implement the Fire Protection Plan ("FPP") attached to this Agreement as Exhibit 1. The FPP shall be updated and submitted to the CMG for compliance monitoring purposes any time Centennial files a tract map to include

any new or modified state or county fire prevention, protection, and response requirements and will through CC&Rs ensure that each phase of the Project's development is at all times in compliance with then-prevailing standards and fire codes.

a) Prior to the filing of the first application for a building permit for Dwelling Units at the Project, Centennial shall cause the creation of a master Homeowners Association ("HOA") for all Dwelling Units at Centennial to fund the ongoing implementation, including education, inspections, enforcement, and corrective action, of the FPP. Such HOA shall be authorized to assess on each Dwelling Unit at the Project an ongoing, permanent fee, tax, or assessment in the total cumulative amount for the Project of no more than $500,000 per year, inflation adjusted, with a presumptive pro-rata allocation of $26.00 per Dwelling Unit ("Onsite FPP Assessment"). The HOA shall disperse funds consistent with, and to further the implementation of, the FPP.

b) Centennial shall ensure, pursuant to the FPP, that the master Homeowners Association for Centennial will hire a qualified third-party compliance inspector approved by the Los Angeles County Fire Department to conduct a fuel management zone inspection and submit a Fuel Management Report to the CMG before June 1 of each year certifying that vegetation management activities throughout the Project site have been timely and properly performed. The CMG Board will review the Fuel Management Report and will vote whether to verify ongoing compliance of the defensible space, vegetation management, and fuel modification requirements of, and any continuing obligations imposed under, the FPP.

c) Every 2 years after the first Dwelling Units are occupied, Centennial and CMG will meet with the purpose of reviewing evacuation policies and Centennial will demonstrate that they are clearly understood and communicated with residents. Centennial will also work with the HOA to promote creation of Firewise USA communities within the Project.

2. Centennial shall establish a Good Neighbor Firewise Fund, which will provide grants to needs-based applicants to be awarded by the CMG to aid communities with a population of less than 100,000 within 15 miles of the boundaries of Tejon Ranch to reduce offsite fire risks, increase fire prevention, protection and response measures, and avoid adverse impacts of fire, for the Project's residents and neighboring communities. The 100,000-population limit will be adjusted commensurately with population changes in Los Angeles, Kern and Ventura Counties as documented by each Census. Centennial shall fund the Good Neighbor Firewise Fund in the inflation-adjusted amount of $500,000 annually. CMG will review applications and award the grants to applicants based on a

majority vote of the CMG Board. The grants shall be in support of the following actions:

a) Updating planning documents and zoning ordinances, including general plans, community plans, specific plans, local hazard mitigation plans, community wildfire protection plans, climate adaptation plans, and local coastal programs to protect against the impacts of wildfires;

b) Developing and adopting a comprehensive retrofit strategy;

c) Funding fire-hardening retrofits of residential units and other buildings;

d) Reviewing and updating the local designation of lands within the jurisdiction as very high fire hazard severity zones;

e) Implementing wildfire risk reduction standards, including development and adoption of any appropriate local ordinances, rules, or regulations;

f) Establishing and initial funding of an enforcement program for fuel and vegetation management;

g) Performing infrastructure planning, including for access roads, water supplies providing fire protection, or other public facilities necessary to support the wildfire risk reduction standards;

h) Partnering with other local entities to implement wildfire risk reduction;

i) Updating local planning processes to otherwise support wildfire risk reduction;

j) Completing any environmental review associated with the listed activities;

k) Covering the costs of temporary staffing or consulting needs associated with the listed activities;

l) Implementing community-scale risk reduction programs to become Firewise USA sites;

m) Implementing resiliency plans such as resiliency centers with stable electricity supplies (e.g., microgrid, solar, and battery equipment) available to residents during times of power shutdowns or other emergencies; and

n) Other fire-related risk-reduction activities that may be approved by the CMG Board.

f. Reporting to Centennial Management Group

Phasing. For reporting purposes, Centennial will divide the Project among Vesting Tentative Tract Maps (referred to herein as "VTTM" or "phase"). Centennial will allocate to each phase, during the planning process, the phase's compliance obligations for: (a) Itemized GHG reduction obligations on a pro rata basis for Itemized GHG reduction obligations; and (b) Non-Itemized GHG mitigation on a pro rata basis as determined by multiplying the total amount of GHG emissions to be mitigated (6,964,111 MTCO2e) by the percentage value of that phase. For the purpose of calculating the pro rata amount of the GHG emissions to be mitigated in the VTTM, the calculation is based on that VTTM's share of the total of the 19,333 Dwelling Units and Non-Residential square footage of 10,097,208 square feet that are included in the Project. Centennial will through CC&Rs ensure that all Project activities with the potential for generating GHG emissions are included in a phase of the Project. Concurrent with submittal to the County of any new or modified VTTM, Centennial shall submit to the CMG a GHG Mitigation Plan. Each GHG Mitigation Plan shall demonstrate how Centennial plans to reduce the phase's pro-rata share of the Project's GHG emissions as set forth herein in this Section by detailing the number of metric tons of GHG emissions that are associated with that phase and the type and amount of Itemized and Non-Itemized GHG Mitigation Measures consistent with this Agreement that Centennial will implement to achieve a Net Zero GHG Project. Upon request by Centennial, the CMG may approve Centennial's purchase and use of GHG emissions offsets to replace Direct Mitigation Credits that are delayed or otherwise not timely issued, provided that Centennial establishes, to the satisfaction of the CMG, that Centennial was not the cause of the unavailability of the Direct Mitigation Credits.

1. Annual Report. Each year after the first annual report submitted after the submission of the first VTTM, on March 1, Centennial shall deliver to the CMG an annual report for the period covering the prior calendar year, ("Annual Report").

    a) The Annual Report shall document all of Centennial's actions implemented in the previous calendar year to comply with Centennial's obligations and requirements under the Agreement, including, without limitation, the information on all Itemized and Non-Itemized GHG Mitigation Measures in Exhibit 3, organized by VTTM. The Annual Report shall also include information regarding the implementation of the FPP, and updates on all other compliance issues described in previous Annual Reports.

b) The Annual Report shall list actions Centennial plans to undertake in the calendar year following its issuance to comply with its obligations and requirements under the Agreement. By way of illustration, without limitation, the Annual Report shall include data for the relevant reporting periods that detail Centennial's applications for tract maps and building permits; the type and amount of EV incentives listed in the Agreement that have been reserved and actually disbursed by Centennial; the number, model type, and locations of operative EVSEs installed by Centennial; and the description number and type of onsite and Registry-certified offsite GHG emissions mitigation measures planned and actually implemented by Centennial. For purposes of the Annual Report, Centennial's obligations and requirements under the Agreement shall include, without limitation, all GHG mitigation measures and all wildfire prevention measures set forth in this Agreement and the FPP.

c) Each Annual Report shall also contain a section providing a cumulative total of Mitigation Credits awarded by Registries to Centennial for Non-Itemized GHG Mitigation Measures since the Effective Date and an accounting how such Mitigation Credits have been allocated to phases of the Project to enable the CMG to track Centennial's progress towards reducing the Project's GHG emissions.

d) To facilitate the development of the Project, Centennial may supplement or amend the most recent Annual Report prior to the due date of the next Annual Report to provide the CMG with updates on activities and other matters affecting the Project and to request approvals and certifications from the CMG.

e) Upon the request of the CMG Board, Centennial shall provide additional information with respect to the implementation of Centennial's obligations under this Agreement to be included in the Annual Report.

f) The CMG Board shall review the Annual Report, inform Centennial of any perceived non-compliance with this Agreement. If there is any perceived non-compliance, then the dispute resolution process may be commenced by the CMG.

g. Public Reporting

1. Within one month after submittal to the CMG of the first Annual Report under this Agreement, and annually for each Annual Report thereafter, Centennial will publish the Annual Report.

a) Each Annual Report will be published and will be made publicly available for download from Centennial's web site free of charge.

b) Concurrently with the annual publication of the Annual Report, Centennial will issue a press release announcing the Annual Report.

c) Make any further public disclosures required for public companies, including as applicable requirements relating to Environmental, Sustainability and Governance ("ESG") disclosure.

h. Reimbursement for Attorneys and Consultants

Centennial will pay, via check or money transfer to "Advocates for the Environment, Inc." Climate Resolve's law firm, within thirty days after the Effective Date and following the Court's dismissal of the Lawsuit, the sum of $481,552 as reimbursement of Climate Resolve's litigation and settlement expenses.

1. $323,141 will be for attorney's fees owed to Advocates for the Environment, Inc., Climate Resolve's law firm, for the services during litigation and settlement expenses of attorneys Dean Wallraff and Kathleen Unger and paralegal Benita Wallraff.

2. $45,000 will be for the services of the Law Offices of Richard Moss during the settlement process.

3. $250 will be for the services of attorney William Choi.

4. $113,161 will reimburse Climate Resolve for the consultants it hired to participate in the settlement process and for staff.

2 Climate Resolve's Obligations

a. On the Effective Date of the Agreement, Climate Resolve, with the cooperation of Tejon Ranchcorp and the County, will draft and file a Request for Dismissal asking the Court to dismiss the Litigation with prejudice. Upon filing the Request, Climate Resolve will affirmatively support actions undertaken by Centennial or the County regarding or involving the lawsuit challenging the Project filed by the Center for Biological Diversity et al., and oppose with oral advocacy and in court filings efforts by the Center for Biological Diversity et al. to be named as prevailing parties or have any standing or other right to sue, appeal or otherwise participate in the Litigation.

b. Climate Resolve will establish the Centennial Monitoring Group, as described in Section 3 below.

c. Non-Opposition. As long as Centennial is in compliance with this Agreement, Climate Resolve shall not Oppose the Project or any other Projects on Tejon Ranch as proposed now or in the future, as detailed below.

1. Previous Project Approvals. Climate Resolve shall not Oppose nor encourage, assist or fund any Opponent to Oppose any Approvals issued on or before the Effective Date by any Governmental Authority that are or may be necessary, useful, or convenient for the completion of any portion or aspect of the Project ("Previously Issued Approvals"). "Approval" or "Approvals" shall mean in this Agreement any permits, approvals, entitlements, voter initiatives specific to the Project or Tejon Ranch, development agreements, parcel and subdivision maps, legislative actions specific to the Project or Tejon Ranch, and/or authorizations of any sort whatsoever, including any and all environmental clearances, together with any and all mitigation measures and the implementation thereof, including the Los Angeles County Project Approvals, Previous Approvals and/or Future Project Approvals. "Governmental Authority" shall mean in this Agreement any federal, state, regional, local, or other governmental entity, body, branch, bureau, official, special district, department, court, or other tribunal, or any other governmental or quasi-governmental authority, including the electorate, exercising or entitled to exercise any administrative, executive, judicial, legislative, police, regulatory, or land use, water, infrastructure, or any other authority or power over the Project.

2. Future Project Approvals. Climate Resolve shall not Oppose nor encourage, assist or fund any opponent to Oppose any Approvals applied for, sought, or issued after the Effective Date by any Governmental Authority that is or may be necessary, useful, or convenient for the completion of any portion or aspect of the Project ("Future Implementation Approvals") as long as such Future Implementation Approvals do not materially amend the Specific Plan or eliminate, reduce, or otherwise amend a mitigation measure in the EIR. A material amendment is an amendment that increases the severity of any significant environmental impact identified in the EIR ("Material Amendment"). Notwithstanding the foregoing, Climate Resolve may engage in the Dispute Resolution process as set forth in Section 3 of this Agreement.

3. Center for Biological Diversity/Third Party Opposition. Climate Resolve understands and acknowledges that the Project is being challenged in litigation brought by the Center for Biological Diversity and affiliated entities ("CBD"), and may in the future be challenged by CBD and/or other third parties (collectively, "Opponents"). Should the Project be required to be reconsidered by Los Angeles County or any other agency due to a partial or full rescission of any Approvals, or any finding of insufficient compliance with CEQA, Climate Resolve shall not Oppose or encourage, assist or fund any Opponent to Oppose re-approval of the Project as long as there are no Material Amendments thereto; including without limitation any future CEQA documentation or Approvals, as long as Centennial continues to comply with the commitments set forth in this Agreement to assure that the Project is a Net Zero GHG Project, and complies with the provisions of this Agreement.

4. Meaning of Opposition. "Opposition," "Oppose," or "Opposing" means (a) opposing, threatening or taking action to oppose, challenging, or seeking to hinder, whether by litigation, public opposition at any proceeding before a government agency, public testimony, comments, or petition to government authorities, a Previously Issued Approval or Future Implementation Approval; (b) providing funding for others to file or maintain litigation opposing, challenging, or seeking to hinder a Previously Issued Approval or Future Implementation Approval; (c) participating in or funding any regional or local plan, policy, regulation, or ordinance, or agency rulemaking that disproportionately causes a negative economic effect or obstacle to development of the Project or other projects or activities on Tejon Ranch projects; or (d) taking any other action to impede the approval, financing, construction or completion of the Project. Climate Resolve shall be deemed to be Opposing a Previously Issued Approval or a Future Implementation Approval if its officers, staff or any individual expressly representing or directed to represent Climate Resolve's interests Opposes such Previously Issued Approval or Future Implementation Approval. Climate Resolve shall advise its staff that Climate Resolve has resolved its dispute with Centennial and of Climate Resolve's obligations under this Agreement, particularly non-Opposition set forth above. "Opposition," "Oppose," or "Opposing" does not include any action permitted under Section 5 of this Agreement. An effect is "disproportionate" if, by way of example only, it applies only to new development (in contrast to a parcel tax or other mechanism that applies to both existing and new development), or if it imposes new economic or environmental obligations through land use planning or zoning advocacy such as Greenprint datasets (currently under consideration by the Southern California Association of Governments) to the extent that such land use planning or zoning advocacy applies to projects and activities on Tejon Ranch (including the Project), in Northern Los Angeles County or Kern County. The Parties shall meet telephonically monthly (or such alternate frequency as the Parties may hereafter agree) to identify planned advocacy by Climate Resolve that could potentially result in unpermitted Non-Opposition, and shall thereafter meet and confer to avoid such unpermitted Non-Opposition.

5. Climate Resolve shall advise members of Climate Resolve's Board of Directors and Advisory Board, and Climate Resolve's attorneys, consultants, and employees, that they may not on behalf of, or as a representative of, Climate Resolve Oppose the Project or other projects and activities on Tejon Ranch.

3 Centennial Monitoring Group

a. Purpose. CMG shall be formed, funded and assigned the duties and authority, as more particularly set forth below, for the purpose of: (1) monitoring and enforcing Centennial's compliance with its obligations under this Agreement, including without limitation, any of those obligations that are to be contractually undertaken by any party other than

Centennial; (2) reviewing Centennial's FPPs for VTTMs concurrently with a VTTM's submission to the County; (3) disbursing funds from the Onsite FPP Assessment pursuant to the FPP then in effect; (4) reviewing annual Fuel Management Reports; and (5) administering and granting the fire protection grants from the Good Neighbor Firewise Fund established under this Agreement.

b. Formation of CMG and Board.

1. Sixth months prior to Centennial's submittal of an application for its first VTTM to the County, Centennial shall provide written notice to the CMG of its intended VTTM application submittal ("VTTM Notice"). Upon receiving the VTTM Notice, Climate Resolve shall cause William C. Choi of the law firm of Rodriguez, Horii, Choi & Cafferata ("RHCC"), under Climate Resolve's supervision and in collaboration with Centennial, and in accordance with the provisions of the Agreement, to form the CMG as a California non-profit public benefit corporation to perform the scope of services described herein, and seek IRS determination of the IRC Section 501(c) (3) status of this corporation. The Parties may also by mutual agreement designate an alternate law firm, with qualifications comparable to William C. Choi, if Mr. Choi is not available or declines to undertake this representation at that time.

2. Within thirty days of the VTTM Notice, Centennial shall tender to Climate Resolve the sum of $300,000 to be used exclusively to pay for the costs of forming and initiating operations of the CMG.

3. Within ninety days after the date on which the County approves the first VTTM (inclusive of resolution of any administrative appeals) ("County Approval of First VTTM"), annual funding as provided below to the CMG commences.

4. The Board shall initially consist of four members, until the Neutral (as defined below) is appointed as provided in this Agreement. Within ninety days after the date on which the CMG is formed: (a) Climate Resolve shall deliver a written notice to Mr. Choi to identify two members to serve on the Board of Directors of the CMG ("Board") on behalf of Climate Resolve ("Climate Resolve Appointees"); and (b) Centennial shall deliver a written notice to Mr. Choi to identify two members to serve on the Board on behalf of Centennial ("Centennial Appointees"). The Parties acknowledge and agree that the Climate Resolve Appointees and Centennial Appointees do not have a conflict of interest in participating (including voting) on the CMG Board. Any potential Neutral Member shall be required to fully disclose and avoid any conflict of interest with Climate Resolve and/or Centennial/Tejon Ranchcorp.

5. Promptly after the identification of the Climate Resolve Appointees and the Centennial Appointees, the Board shall meet and confer to select a fifth member

of the Board ("Neutral Member"), who shall be an Approved Person (as defined below). If the Parties cannot reach agreement, the Neutral shall be selected in the following manner:

a) Climate Resolve shall nominate an Approved Person to serve as the Neutral (the "First Nominee"), and the First Nominee shall serve as the Neutral unless one or both of the Centennial Appointees object to the First Nominee.

b) If one of the Centennial Appointees objects to the First Nominee, the Centennial Appointees shall nominate another Approved Person to serve as the Neutral (the "Second Nominee"), and the Second Nominee shall serve as the Neutral unless one or both of the Climate Resolve Appointees object to the Second Nominee.

c) If one of the Climate Resolve Appointees objects to the Second Nominee, the Climate Resolve Appointees shall nominate another Approved Person to serve as the Neutral (the "Third Nominee"), and the Third Nominee shall serve as the Neutral unless one or both of the Centennial Appointees object to the Third Nominee.

d) If one of the Centennial Appointees objects to the Third Nominee, the Board shall refer the selection of the Neutral to a neutral arbitrator for selection in accordance with the conflict resolution provisions set forth herein, which selection shall be final, absolute and unappealable.

e) For purposes of selecting the Neutral, Approved Person is hereby defined as a person of integrity who possesses professional and/or academic expertise relevant to greenhouse gas emissions, reductions, and accreditation issues or fire protection measures in California master planned communities, who has no financial interest, employment, contract, investor, or other pecuniary relationship to Centennial, Tejon Ranchcorp, or Climate Resolve. Any potential Neutral Member shall be required to fully disclose and avoid any conflict of interest with Climate Resolve and/or Centennial/Tejon Ranchcorp.

f) If the Approved Person selected at the initial meeting of the Board or by the arbitrator declines to act as the Neutral, the Appointees shall, within two weeks of such declination, hold a special meeting of the Board to meet and confer and select another Approved Person to serve as the Neutral, using the procedure described in this Section 4.b.5. The procedure in this Section 4.b.5 will be repeated until the Board has selected an Approved person and that person has agreed to serve as the Neutral on the Board.

6. If, at any time, any of the Climate Resolve Appointees should resign or be unable to fulfill their role as one of the Climate Resolve Appointees due to death or incapacity, or if in its sole discretion Climate Resolve decides to replace its Appointee(s), Climate Resolve shall name and appoint another person to serve as a replacement appointee to the Board. If, at any time, any of the Centennial Appointees should resign or be unable to fulfill that person's role as one of the Centennial Appointees due to death or incapacity, or if in its sole discretion Centennial decides to replace its Appointee(s), Centennial shall name and appoint another person to serve as a replacement appointee to the Board. If, at any time, the Neutral should resign or be unable to fulfill that person's role as the Neutral due to death or incapacity, Climate Resolve and Centennial shall select a replacement Neutral using the selection process set forth in this Section 4.b.5. No failure or delay by Climate Resolve or Centennial to name and appoint a replacement appointee or to engage in the selection process for a replacement Neutral shall prevent the Board from undertaking or deciding any action, provided that such undertaking or decision occurs at a meeting of the Board where the Climate Resolve and Centennial Appointees are all present (telephonically or in person).

c. Administrative Operations. The Board shall determine how to accomplish the administrative and other functions of the CMG in accordance with the CMG's annual budget. In doing so, the Board may hire staff and delegate to such staff any decisions necessary to administer the day-to-day operations of the CMG. Such staff may include, without limitation, an executive director for the CMG, whose duties and responsibilities shall be set by the Board. All decisions by the Board with respect to the administrative operations of the CMG shall be made by the majority of the Board. CMG may conduct such documentary and physical inspections of the Project to audit Centennial's compliance with the Agreement and to verify the accuracy of the Annual Reports, and Centennial shall comply with such inspection and audit requests in a timely fashion.

d. Funding and Annual Budget.

1. The Board shall adopt an initial annual operating budget following the County Approval of First VTTM, and thereafter shall annually adopt a budget setting forth operating and reserve funds for each calendar year. Commencing on the first anniversary of the County Approval of First VTTM ("Anniversary Date"), and continuing on each successive Anniversary Date for three years, Centennial shall contribute $300,000 annually to the CMG to fund CMG operations, and thereafter shall annually contribute $150,000 for such CMG operations. CMG shall maintain an operating account, and a reserve account. It is anticipated that tract-map applications and the 15-Year GHG True-Up as described below will require more staff work, but that neither of these reviews will occur during most years. It is further anticipated that Building Permit and Annual Report monitoring (as described below) will be substantially less complex over time.

2. For each year of funded CMG operations following the County Approval of First VTTM , the Board shall contribute to a reserve account to hold funds in CMG's possession that exceed the projected budget for the next year, plus a 20% contingency factor. CMG shall accumulate such reserve amounts to reduce annual funding amounts. Once the reserve amount reaches $500,000, annual funding from Centennial shall be suspended until the balance of the reserve account is reduced to $200,000, at which time annual funding of $150,000 per year shall resume by Centennial. If the reserve amount is reduced to less than $200,000 at any time during a year, then Centennial will pay $150,000 in annual funding until the reserve amount reaches $500,000. If the CMG Board approves a request by Centennial to initiate the True-Up process, Centennial will pay $300,000 for the True-Up Year to CMG.

3. Commencing six months following the County Approval of First VTTM, and continuing each year thereafter, Centennial shall deliver to the CMG the sum of Good Neighbor Firewise Fund grant. The CMG will administer and distribute such funds consistently with this Agreement. The fire-related funds will not count as CMG operating funds and will not be subject to the reserve limitations in paragraph 2 above.

e. Board Meetings. Procedures for conducting Board meetings shall be set forth in the By-Laws of the CMG, which shall be consistent with the provisions of this Agreement and include, without limitation, the following provisions:

1. The Board shall meet at least twice annually (on the last Thursday of April and October, or such other dates in those months as the Board shall determine), or more frequently as requested by the Centennial Appointees or the Climate Resolve Appointees. Any Board member may propose an item to be placed on the Agenda, and all such items shall be included in the Agenda.

2. The Board will schedule the first meeting of each year on the last Thursday of April after the Board's receipt of the Annual Report on March 1, as specified in Section 1.f above. At this meeting, the Board will evaluate the Annual Report to determine whether Centennial is in compliance with the terms of this Agreement. In particular, the Board's evaluation shall specifically consider whether Centennial has funded GHG emissions mitigation projects and actually received Mitigation Credits with respect to particular phases of the Project to verify that Centennial has satisfied its GHG emissions mitigation plans contained in prior Annual Reports and in GHG Mitigation Plans previously reviewed by the Board. The Board may request further information from Centennial if needed for the evaluation. The CMG Board shall review the Annual Report, and inform Centennial of any perceived non-compliance with this Agreement. If there is any perceived non-compliance, then the dispute resolution process may be commenced by the CMG.

3. The agenda for the second meeting of the Board each year will include (i) awarding grants to Good Neighbor Firewise Fund grant applicants, and (ii) updated information to the extent relevant, including for example changed forecasts, corrective actions, or other relevant activities. The Board or the staff of the CMG upon delegation by the Board, shall promulgate procedures for soliciting, accepting and reviewing Good Neighbor Firewise Fund grant applications and for distributing and monitoring such grants that are awarded.

4. The Board will hold a special meeting within thirty days after the CMG receives a GHG Mitigation Plan, as described in Section 1.f above. At that meeting it will accept or dispute that plan, based on its compliance with the terms of this Agreement. If the Board disputes the plan, the CMG will undertake the CMG Dispute Resolution process described in Section 3.f to bring Centennial into compliance, if necessary.

5. The Board may hold special meetings as necessary to approve or evaluate agendized reports received from Centennial, including but not limited to reports including requests by Centennial that CMG review and accept Non-Itemized GHG Mitigation Measures proposed by Centennial that are not included in an approved Registry but which result in a quantified GHG Mitigation Credit for purposes of this Agreement, or other information relating to Centennial's compliance with this Agreement and to provide Centennial sufficient opportunity, prior to filing an application for any building permit for, or undertaking any construction activities at a particular phase of the Project, to establish that Centennial has funded GHG emissions mitigation projects and actually received Mitigation Credits for each phase in sufficient amounts to be consistent with GHG emissions mitigation plans contained in prior Annual Reports and in GHG Mitigation Plans previously submitted to the Board.

6. The presence (in person or telephonically) of all then-current members of the Board at any meeting of the Board shall establish a quorum for that meeting, and all actions undertaken or decided by the Board at meetings establishing a quorum shall be effective; provided, however, that the presence (in person or telephonically) the Centennial and Climate Resolve Appointees shall be a quorum for purposes of identifying the Neutral, and in the event of the unavailability of a Neutral the Centennial and Climate Resolve Appointees may by unanimous consent make decisions.

f. CMG Dispute Resolution

1. If the CMG finds, by a majority vote of the Board, that Centennial has violated this Agreement, or if the CMG fails to approve an Annual Report or GHG Mitigation Plan, or if the CMG finds that Centennial is not implementing the FPP, the CMG will meet and confer with Centennial to resolve the issue.

2. If the meet and confer fails to resolve the issue, the CMG will take the issue to arbitration in Los Angeles County before one arbitrator. The arbitration shall be administered by JAMS pursuant to its Streamlined Arbitration Rules & Procedures, with the following modifications:

    a) The CMG shall file and serve on Centennial a Notice of Commencement of Arbitration and an opening brief with a maximum length of 20 pages, and include all relevant documentation as exhibits to that brief.

    b) Centennial shall file a response brief of the same maximum length, which shall also include all relevant documentation as exhibits to that brief.

    c) The arbitrator shall meet and confer with each Party to identify the need for any further briefing or documentation.

    d) Each Party shall respond to the arbitrator within 30 days with supplemental briefs of up to 20 additional pages and submit additional documentation as exhibits.

    e) The arbitrator will determine whether a hearing is necessary and if so, shall specify the date and time of a hearing.

    f) The arbitrator will thereafter make a final decision which is binding on CMG and Centennial. The Arbitrator may make any awards necessary to bring Centennial into compliance with this Agreement, including injunctive relief and specific performance. If the issue involves CMG's approval of a report or plan, the Arbitrator may approve the report or plan, or may order Centennial to take any actions necessary to ensure Centennial's compliance with this Agreement.

3. Nothing in this Agreement precludes a Party from disclosing the commencement or completion of an arbitration proceeding, and any final arbitrator determination. Commencement of the arbitration process, and disclosure of the arbitration award, shall not constitute Opposition for purposes of this Agreement.

4. CMG will pay the costs of arbitration unless the arbitrator rules otherwise. The arbitration will take place as noticed by JAMS regardless of whether one of the parties fails or refuses to participate. The Parties' intent is that the arbitration process shall be completed within 90 days following service of the Notice of Commencement of Arbitration.

Should the arbitrator in a CMG-initiated arbitration find that Centennial is not in compliance with one or more of its obligations under the Agreement or otherwise make a ruling to resolve a controversy between CMG and Centennial, the arbitrator's award may require Centennial to comply with Centennial's obligations under this Agreement. The Parties' intent and

agreement is that the arbitration award shall require specific performance of GHG and wildfire obligations of Centennial under this Agreement. In the award, the arbitrator shall determine a reasonable period of time in which Centennial must complete its specific performance obligations. The arbitrator shall retain jurisdiction over the matter arbitrated to ensure that Centennial complies with the award and, upon any failure by Centennial to comply with such an award in a timely fashion, the arbitrator may issue such further awards, which may include requiring Centennial to pay the costs and expenses of the arbitration and CMG's costs expended in the arbitration for consultants and attorneys.

4 Mutual Releases of Claims

a. Except as otherwise provided in this Agreement, Climate Resolve forever waives, releases, and discharges Centennial and Tejon Ranchcorp, the Tejon Ranch Co. (a Delaware corporation), and their affiliates, assigns, subsidiaries, parent entities, and each of their respective employees, officers, directors, members, staff, agents, attorneys, and/or representatives, and each of them (collectively, the "Centennial Released Parties"), from any and all claims, lawsuits, administrative and judicial proceedings, appeals, demands, challenges, liabilities, damages, fees, costs, and causes of action, at law or in equity, known or unknown, in any jurisdiction and before any court, agency, or tribunal (collectively and severally, "Claims") that Climate Resolve has ever had, have, or may have against the Centennial Released Parties, or any of them, arising in any way from or related in any way to the Project, including without limitation, the claims brought by, or that could have been brought by Climate Resolve in the Litigation. Climate Resolve agrees that upon full execution of this Agreement, all Claims shall be extinguished and this Agreement shall be a full, complete and final disposition and settlement of all Claims against Centennial and Tejon Ranchcorp to all matters and issues alleged or raised, or could have been alleged or raised in the CR Litigation. Accordingly, Climate Resolve stipulates and agrees that res judicata and collateral estoppel apply to each of the Claims and actions relating to the Litigation, so that Centennial is forever barred from re-litigating any Claims, matters, and issues which were alleged or raised or could have been alleged or raised, in any other manner in the Litigation.

b. Except as otherwise provided in this Agreement, Tejon Ranchcorp and Centennial release Climate Resolve, its affiliates, subsidiaries, parent entities, and each of their respective employees, officers, members, staff, agents, attorneys, and/or representatives, and each of them (collectively, the "CR Released Parties") from any and all Claims that Centennial has ever had, have, or may have against the CR Released Parties, or any of them, arising in any way from or related in any way to the Project, including without limitation, the Litigation.

c. Civil Code Section 1542 Waiver. To the extent applicable to the foregoing Mutual Releases of Claims, the Parties certify that they have been advised of and hereby waive the application of Section 1542 of the California Civil Code, which states as follows:

A general release does not extend to claims that the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release and that, if known by him or her, would have materially affected his or her settlement with the debtor or released party.

Climate Resolve: _____ Centennial: _____

Tejon Ranchcorp: _____

d. Nothing in this Section shall be interpreted as releasing any Party's right to enforce this Agreement in full as provided in Section 5 herein.

e. Nothing in this Agreement shall prevent Centennial and/or Project tenants, landlords, lessors, lessees, homeowners, or landowners from using the obligations under this Agreement also to satisfy any obligation imposed by laws or regulations, or contractual obligations, including but not limited to third party settlement agreements, whether such law or regulation or contractual obligation arise before or after the Effective Date. Notwithstanding the foregoing, any GHG mitigation credits used to comply with the requirements of this Agreement shall not be used to satisfy GHG obligations imposed by contractual obligations for projects other than the Project, including but not limited to third party settlement agreements that arise before or after the Effective Date; provided, however, that GHG mitigations not used for the Project may be used to satisfy GHG obligations as mandated by law or regulation for the Project or a project on Tejon Ranch.

5 Dispute Resolution

a. Meet and Confer. In the event of any dispute between the Parties related to this Agreement or the Project, the Party initiating the dispute shall, before taking any other action concerning that dispute, provide written notice of the dispute to the other Party and meet and confer in person in a good-faith effort to resolve the dispute within sixty days of the notice, unless otherwise agreed. Any Party that is alleged to be in breach of this Agreement shall have ninety days from that in-person meeting to cure, unless otherwise agreed.

b. Arbitration. Any dispute, claim or controversy arising out of or relating to this Agreement or the breach, termination, enforcement, interpretation or validity thereof, including the determination of the scope or applicability of this agreement to arbitrate, shall be determined by arbitration in Los Angeles County before one arbitrator. The arbitration shall be administered by JAMS pursuant to its Streamlined Arbitration Rules & Procedures, with the following modifications:

1. The Party initiating arbitration shall file and provide notice to the other Party of a Notice of Commencement of Arbitration and an opening brief with a maximum length of 20 pages, and include all relevant documentation as exhibits to that brief.

2. The opposing Party shall file a response brief of the same maximum length, which shall also include all relevant documentation as exhibits to that brief.

3. The arbitrator shall meet and confer with each Party to identify the need for any further briefing or documentation.

4. Each Party shall respond to the arbitrator within 30 days with supplemental briefs of up to 20 additional pages and submit additional documentation as exhibits.

5. The arbitrator will determine whether a hearing is necessary and if so, shall specify the date and time of a hearing.

c. The arbitrator will thereafter make a final decision which is binding on the Parties. The Arbitrator may make any awards necessary to bring Centennial into compliance with this Agreement, including injunctive relief and specific performance.

d. Each Party shall bear its own arbitration costs unless the arbitrator rules otherwise. The arbitration will take place as noticed by JAMS regardless of whether one of the parties fails or refuses to participate.

e. The Parties' intent is that the arbitration process shall be completed within 90 days following service of the Notice of Commencement of Arbitration.

6 Miscellaneous Provisions

a. Successors and Assigns. This Agreement is personal to Climate Resolve, Centennial and Tejon Ranchcorp and the Parties may not assign or transfer their interests under this Agreement except as set forth in this Section 6.a. It is contemplated the Project will be developed over time on a lot-by-lot basis by third party developers and home builders. The Parties understand and agree that Centennial and/or Tejon Ranchcorp may freely assign, in their sole and absolute discretion, from time to time, and at any time, the performance of obligations under this Agreement on portions of the Project to future builders or other parties, but Centennial and/or Tejon Ranchcorp will remain obligated to Climate Resolve if such successors or assigns fail to perform any such assigned obligations (e.g., the installation of EV chargers for Residential and Non-Residential buildings as described in Section 1.a of this Agreement). In the event the entirety of the Project is sold, transferred or conveyed to a non-affiliated third party, including but not limited due to an asset sale, land sale or the sale of either underlying company ("Transfer"), Centennial and Tejon Ranchcorp shall have the right in their sole and absolute discretion to freely assign their interests under this Agreement to a third party receiving such a Transfer, so long as the following two conditions are met: (1) the Transfer must be to an entity with the financial and physical capability of assuming the assigned obligations; and (2) the third-party assignee must agree to assume Centennial's and Ranchcorp's obligations to Climate Resolve (as an intended third party beneficiary to the Assumption Agreement) under this Agreement ("Assumption Agreement")." After such an assignment Centennial

and Ranchcorp shall be fully released at the time of such Transfer from any and all duties or obligations arising from or related to this Agreement. As of the Effective Date, the Parties hereby warrant and represent to one another that neither Party has heretofore assigned or transferred or purported to assign or transfer to any person or entity any of the claims released under Section 4 above.

b. Choice of Law. This Agreement shall be interpreted under the laws of the State of California.

c. No Construction against Drafter. For purposes of any action arising out of the application, interpretation, or alleged breach of this Agreement brought by either Party, each Party waives California Civil Code Section 1654, any other statutory or common law principle of similar effect, and any judicial interpretation of this Agreement that would create a presumption against the other Party as a result of its having drafted any provision of this Agreement. The respective Parties have reviewed and revised this Agreement, and there shall not be applied any rule construing ambiguities against the drafting Party or Parties.

d. Severability. In the event that any provision of the Agreement shall be held invalid or unenforceable, such holding shall not invalidate or render unenforceable any other provisions hereof unless any of the state purposes of the Agreement would be defeated.

e. Entire Agreement. This Agreement contains the entire understanding and complete agreement of the Parties with respect to the subject matter of this Agreement, and all understandings and agreements, if any, previously reached between the Parties are merged into this Agreement. No amendment or modification of this Agreement shall be valid or binding upon the Parties unless made in writing and executed by both Parties.

f. Exhibits. All Exhibits to this Agreement are incorporated herein by reference, and are listed herein for ease of reference:

Exhibit 1: Fire Protection Plan

Exhibit 2: Boundaries of Tejon Ranch

Exhibit 3: GHG Calculations in Agreement of BAU, and Itemized and Non-Itemized GHG Mitigation Measures, with Reporting Template for Tracking Planning and Compliance with Net Zero GHG Project Obligations for Purposes of this Agreement

Exhibit 4: Public Statement

g. Counterparts. This Agreement may be executed in any number of counterparts, each of which shall constitute an original and all of which together shall constitute one and the same instrument. Execution of a copy shall have the same force and effect as execution of an original.

h. Amendment. This Agreement may not be amended except in a writing signed by each of the Parties hereto.

i. Cooperation. The Parties agree to cooperate to draft and execute any documents, or to enter into any further agreements or plans, necessary or convenient to effectuate the intent of this Agreement.

j. Mitigation. Based on standard GHG accounting principles of both additionality and double-counting, no GHG mitigation used for the Project may be used for any other project. Further, any GHG mitigation required under this Agreement shall not be used to satisfy GHG obligations imposed by contractual obligations for projects other than the Project, including but not limited to third party settlement agreements that arise before or after the Effective Date; provided, however, that GHG mitigations not used for the Project may be used to satisfy GHG obligations as mandated by law or regulation for the Project or a project on Tejon Ranch.

k. No Admission of Liability. This Agreement is a compromise of disputed claims and the fact that the Parties hereto have determined to compromise such disputed claims by entering into this Agreement is not to be construed as an admission of liability or otherwise on the part of the Parties.

l. Public Communications Regarding Agreement. On December 1, 2021, Centennial and Climate Resolve shall jointly issue a public statement substantially in accordance with the attached Exhibit 4 to this Agreement. The Parties agree that the Parties' future public statements concerning the Litigation, the Project, the Los Angeles County Initial Project Approvals, the Future Implementation Approvals, or other issues shall not be inconsistent with the joint public statement.

m. Confidentiality. This Agreement shall not be confidential, but the Parties shall keep documents exchanged during the process of negotiating this Agreement confidential as required by the Mutual Non-Disclosure Agreement dated June 18, 2021. The Parties agree not to comment publicly about the process of negotiating this Agreement, but are free to publicly comment on the Agreement and its public-policy implications, subject to the restrictions in Section 6.l above.

n. Tolling. The Parties understand and agree that performance of Centennial and/or Tejon Ranchcorp obligations under this Agreement are dependent upon the ongoing development of the Project. To the extent any third-party challenge or action results in the cessation of development (by way of example only, through litigation challenges to subsequent approvals, denials or delays in subsequent approvals, or the absence of market financing for development), the obligations of Centennial and/or Tejon Ranchcorp under this Agreement that have not yet been triggered are thereafter tolled until development of the Project recommences. Centennial shall provide notice of the commencement of a Tolling Period to the CMG Board. This tolling does not relieve

Centennial from the obligation to provide GHG Reductions for new structures prior to occupancy under building permits as described above. To the extent the tolling period lasts longer than six months, the amount of annual funding due for FPP implementation, Good Neighbor Firewise Fund grant funding, and CMG funding, shall be reduced pro rata by the number of Dwelling Units, and amount of square feet of Non-residential, for which certificates of occupancy have been approved in relation to the number of Dwelling Units and square feet of Non-residential which the County approved as of the Effective Date.

o. Force Majeure. No Party shall be responsible or liable for any failure or delay in the performance of its obligations pursuant to this Agreement arising out of or caused by, directly or indirectly, forces beyond the Party's reasonable control, including, without limitation, fire, explosion, floods, acts of war or terrorism, national emergencies, pandemics, strikes, or riots. Any party claiming a Force Majeure event shall use reasonable diligence to remove the condition that prevents performance and shall not be entitled to suspend performance of its obligations in any greater scope or for any longer duration than is required by the Force Majeure event. Each Party shall use its best efforts to mitigate the effects of such Force Majeure event, remedy its inability to perform, and resume full performance of its obligations hereunder. A Party suffering a Force Majeure event ("Affected Party") shall notify the other Party ("Non-Affected Party") in writing ("Notice of Force Majeure Event") as soon as reasonably practicable specifying the cause of the event, the scope of commitments under the Agreement affected by the event, and a good faith estimate of the time required to restore full performance. Except for those commitments identified in the Notice of Force Majeure Event, the Affected Party shall not be relieved of its responsibility to fully perform as to all other commitments in the Agreement.

p. Termination and Term. The Parties may by mutual agreement terminate this Agreement. The Agreement shall remain in effect until the earlier of thirty years from the Effective Date, or the date upon which building permits have been issued for full build-out of the contemplated square footage of improvements to be built within the Project

q. No Third-Party Beneficiaries. There are no third-party beneficiaries of this Agreement, and nothing in this Agreement creates or may be interpreted as creating a property interest in the Project Site or on Tejon Ranch held by Climate Resolve.

r. Authority. Each signatory to this Agreement represents and warrants that he or she is authorized to sign this Agreement on behalf of the Party for which he or she is signing, and thereby to bind that Party fully to the terms of this Agreement.

s. Notices. All notices shall be in writing and shall be addressed to the affected Parties at the addresses set forth below. Notices shall be: (a) hand delivered to the addresses set forth below, in which case they shall be deemed delivered on the date of delivery, as evidenced by the written report of the courier service; (b) sent by certified mail, return

receipt requested, in which case they shall be deemed delivered five business days after deposit in the United States mail; or (c) transmitted by email in which case they shall be deemed delivered on the date of transmission if sent before 5:00 p.m. or on the first business day after transmission if sent at 5:00 p.m. or later or if sent on a Saturday, Sunday, or California court holiday, provided the Party transmitting notice by email does not receive a delivery status notification indicating that delivery of the email communication failed. Any Party may change its address, its email, or the name and address of its attorneys by giving notice in compliance with this Agreement. Notice of such a change shall be effective only upon receipt. Notice given on behalf of a Party by any attorney purporting to represent a Party shall constitute notice by such Party if the attorney is, in fact, authorized to represent such Party. The addresses and email addresses of the Parties are:

For Climate Resolve:	Jonathan Parfrey Email: jparfrey@climateresolve.org Address: 525 S. Hewitt Street, Los Angeles, CA 90013
With Copy to Counsel:	Dean Wallraff Email: dw@aenv.org Address: Advocates for the Environment, 10211 Sunland Blvd., Shadow Hills, CA 91040
For Centennial:	Greg Bielli, President & CEO Tejon Ranchcorp Email: gbielli@tejonranch.com Address: P.O. Box 1000, Tejon Ranch CA 93243
With Copy to Counsel:	Marc Hardy, General Counsel Email: mhardy@tejonranch.com Address: P.O. Box 1000, Tejon Ranch CA 93243 Jennifer Hernandez, Holland & Knight Email: Jennifer.hernandez@hklaw.com Address: 400 S. Hope St., 8th Floor , Los Angeles CA
For Tejon Ranchcorp.	Greg Bielli, President & CEO Email: gbielli@tejonranch.com Address: P.O. Box 1000, Tejon Ranch CA 93243
With Copy to Counsel:	Marc Hardy, General Counsel Email: mhardy@tejonranch.com Address: P.O. Box 1000, Tejon Ranch CA 93243

Jennifer Hernandez, Holland & Knight
Email: Jennifer.hernandez@hklaw.com
Address: 400 S. Hope St., 8th Floor , Los Angeles CA

[SIGNATURES FOLLOW ON NEXT PAGE]

In Witness Whereof, the Parties have executed this Agreement effective As of the Effective Date.

Tejon Ranchcorp, a California corporation

Date: November 30, 2021

By: Gregory S. Bielli
Its: President & CEO

Centennial Founders, LLC, a Delaware limited liability company
By Tejon Ranchcorp, a California corporation, its Development Manager

Date: November 30 2021

By: Gregory S. Bielli
Its: President & CEO

Climate Resolve, a California nonprofit public benefit corporation

Date: November ___, 2021

By: Jonathan Parfrey
Its: President

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Exhibit 1 - Fire Protection Plan

Fire Protection Plan for Centennial Specific Plan

Prepared for:

Centennial Founders, LLC
28480 Avenue Stanford, 2nd Floor
Santa Clarita, California 91355

Prepared by:

DUDEK
605 Third Street
Encinitas, California 92024
Phone: 760.479.4836
Fax: 760.479.4176

November 2021

1. INTRODUCTION

This Fire Protection Plan (FPP) has been prepared by Dudek and is specifically applicable to the Centennial Specific Plan community (Project) in Los Angeles County (County). This FPP is intended to guide the design, construction, and maintenance of Project improvements in compliance with the Centennial Specific Plan (Specific Plan), applicable fire codes, and the various fire safety mitigation measures described in the Mitigation Monitoring and Reporting Program (MMRP) approved for the Project by the County (collectively, the Fire Safety Requirements, all of which are described in detail on the attached Exhibit A). This FPP address fuel modification, fire protection related infrastructure (water supply, hydrants, primary and second ingress/egress roads, and emergency response) and structural fire protection concepts for the Project. This FPP also addresses how the Project's Fire Safety Requirements will be monitored and enforced over time, as well as the how the Project's master developer will ensure that Project residents are fully educated about their obligations to maintain a fire-safe home. The goal of this FPP is to provide standards to facilitate development of the Project as a "fire hardened" community that will protect Project residents and visitors, as well as the environment, by minimizing and mitigating fire threats on the Project site and reducing Project demands on local fire protection services.

2. OVERVIEW OF THE PROJECT'S FIRE PROTECTION FRAMEWORK

As explained in the Centennial Project Final Environmental Impact Report, State Clearinghouse No. 2004031072 (EIR), the Project would introduce urban development in an undeveloped area subject to wildfire hazards.[1] Fire protection for new developments that, like the Project, are located in a Wildland Urban Interface (WUI) area must utilize a "systems approach" consisting of the components of fuel modification and maintenance, ignition-resistant structures that accounts for expected (potential) exposures (e.g., embers only, radiant heat from adjacent structures or vegetation), water supply, fire protection systems, access (ingress/egress) and emergency response. To that end, this Project will include:

- Substantial on-site firefighting capability (three new fire stations, upgrades to existing fire station), thus ensuring fast response to fire and medical emergencies;

- Customized and peer-reviewed fuel modification zones providing defensible space based on fire behavior modeling results and experienced fire protection planning professionals;

- Ignition-resistant construction meeting Chapter 7A of the California Building Code (CBC), the Title 26 the County of Los Angeles Building Code (LABC), and the Los Angeles County Fire Department (LACoFD) requirements and providing temporary on-site relocation capability for some structures;

[1] Please refer to EIR Chapter 3, *Environmental Setting*, for a detail description of the Project site and its surroundings, and to EIR Chapter 4, *Project Description*, for a detailed description of the Project and its proposed improvements.

- Fire protection systems, including internal fire sprinkler systems, in all structures per applicable code requirements;

- Dedicated fire apparatus and emergency vehicle access via code compliant roads;

- Water capacity, delivery and availability meeting local code requirements;

- Ongoing, funded maintenance, inspections, and enforcement of fuel modification zones and other fire protection features.

- Ongoing resident fire safety education.

The following sections address implementation of the Project's Fire Safety Requirements.

3. IMPLEMENTATION OF THE PROJECT'S FIRE PROTECTION FRAMEWORK

Future development of the Project in accordance with the Specific Plan will require various subsequent discretionary and ministerial approvals from the County, including but not limited to, tentative subdivision maps, final subdivision maps, site plans, conditional use permits, grading permits, and building permits. Initial implementation of the Project's fire protection measures will occur at various stages of the subsequent approval process, as discussed in the Specific Plan, the EIR, and the MMRP. This section describes how each of the Project's fire safety measures will be implemented at various stages of the development process, and describes how the Fire Safety Requirements will be satisfied during Project operation.

a. Fire Safety Requirements Implemented at the Tentative Map Stage of Development.

Pursuant to the Specific Plan and MMRP, the following Fire Safety Requirements will be implemented concurrent with the County's review and approval of any Project tentative subdivision map:

i. Emergency Response Plan

The MMRP requires the Project to prepare an Emergency Response Plan (ERP), which shall be updated as needed for each Tentative Map, and shall be submitted to the County (California Department of Forestry and Fire; and County Fire Department and/or County Sheriff's Department) for review and approval. The ERP will utilize existing information from Los Angeles County Office of Emergency Management, coordinate with County emergency planners, and provide site specific procedures for various emergency situations including wildfire. As required by the DA, the Property Owners shall require future residential and commercial property owners associations to develop and implement an emergency preparation and response plan, including shelter-in-place and evacuation plans as well as first aid and emergency electric power supplies.

With regard to wildfire emergencies, the following components shall be incorporated into the ERP:

- Building and Facility Protection (as defined in this FPP)
- Grounds Protection (fuel modification zone adjacent to common areas and some residential lots purpose)
- Fire Prevention during High Fire Danger and Extreme High Fire Danger periods
- Emergency Supplies
- Telephones/Communications
- FireSafe Council and NFPA Firewise Community Information
- Incident Command List
- Emergency Response Notebook
- Annual Review and Update
- Emergency Notification Procedures
- Advisement of Potential Fire Danger
- Emergency Relocation/Evacuation Plan
- Animal Relocation/Evacuation Plan.

The ERP will provide detailed response procedures for varying types of emergencies, including wildfire emergencies.

Possible wildfire response procedures included in the ERP would vary depending on the type of wildfire threat. Slow moving, distant wildfires that have the *potential* to threaten the Project would require one response whereas a fast moving, wind driven fire nearby or within the Project site would trigger a very different response. Accordingly, the ERP will include response for various types of wildfire emergencies. The following summaries provide potential responses to be considered for various wildfire emergency response scenarios.

Wildfire Emergency Response Scenario

- Fire authority notification of wildfire in jurisdiction, determination of activation of reverse 9-1-1 or mass notification system (if available or provided by Project).
- Reverse 9-1-1 activated – all telephone numbers within district notified via a computer of the fire situation (capable of 264 calls per minute or 15,000 calls within an hour, or more, dependent on system).
- In the absence of Reverse 9-1-1 (for example, should communications be interrupted), fire department sirens and law enforcement intercoms will be used to

inform residents of emergencies. The fire department sirens and police intercoms will be audible by affected parts of the Centennial Specific Plan Project area. The fire department sirens and police intercoms will also be used to supplement the Reverse 911 system.

- On-site LACoFD personnel and law enforcement personnel begin emergency response procedures.

- Centennial employers and residents receive reverse notification call or hear warning sirens and prepare for potential evacuation or on-site relocation.

- If relocation required/recommended, internal relocation plan initiated and residents relocated to designated on-site or off-site areas. LACoFD would direct residents, staff and visitors as well as coordinate with the California Highway Patrol for on-site traffic management.

On-Site Relocation/Off-Site Evacuation Response Scenarios

On-site relocation of Project residents, employees and visitors would typically occur during large, distant wildfire events that, due to weather patterns and difficulty in gaining control, have the potential to threaten parts of the Centennial community but likely do not threaten the entire community. Off-site evacuation would typically occur during large wildfire events that may be closer to the Project and threaten the entire community due to weather patterns and fire containment levels. The required ERP shall plan for both on-site relocation and off-site evacuation scenarios.

If on-site relocation or off-site evacuation of Project residents, visitors and employees of businesses is required in response to a fire threat, the following procedures would be followed and included in the ERP (NOTE: Relocation/evacuation of the Project residents, visitors, and employees, at maximum usage, may require several hours).

- If adequate time is not available for community relocation, partial community relocation may occur. Fire and law enforcement personnel will monitor the situation and relocations will cease when it is determined that it would potentially expose persons to unsafe roadway conditions.

- It is expected that law enforcement will manage the relocation/evacuation of residents. Road closures and traffic control will be among the tasks performed by law enforcement. In addition, each resident will be provided a road circulation map along with at least two designated evacuation routes.

- Law enforcement and LACoFD would evaluate the wildfire event and determine whether and at which point partial on-site relocation would occur, or whether the emergency requires community-wide off-site evacuation. Allowance for adequate relocation/evacuation time will be a key factor in determining the relocation timeframe so that the roads do not become congested. Firefighter access will be a key

priority and the array of improved roads will provide suitable access throughout the site in the event of a wildfire.

- Relocation/evacuation would occur in scenarios that include ample time to relocate the potentially affected number of people from higher exposure areas to designated safer sites. Wolshon and Marchive (2007) simulated traffic flow conditions in a computer derived 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.

- The Project and its structures will be designed and constructed to withstand the type of wildfires anticipated from the surrounding fire environment. Nevertheless, early notification of the Project's fire personnel and subsequently of Project residents, visitors and employees is critical to the timely and safe relocation/evacuation to the designated relocation/evacuation areas.

- Whether to implement on-site relocation scenario would depend on the wildfire location, movement and weather and how it may affect traffic on local roads. There may also be circumstances that require partial on-site relocation of the Project's higher exposed periphery areas. In these cases, potentially affected residents would be instructed to relocate to on-site areas, such as schools or commercial areas, where they will be temporarily accommodated until the wildfire threat has passed.

- On an annual basis, it is recommended that the Project conduct a fire relocation/evacuation fire drill to train staff, and fire personnel, with the results distributed to residents through various media and summarizing what to do during a wildfire. This drill will be supervised by the LACoFD with the authority to revise the procedure as necessary to provide the most efficient and safest relocation process. Residents will not be required to relocate or evacuate during the drills, but the process and procedures will be enforced through pre-drill public relations and post-drill information dissemination.

- Homeowners will receive ongoing outreach from the HOA along with coordination with LACoFD for important fire safety awareness from the Firewise Committee/Board.

- If on-site relocation or off-site evacuation is required, residents will be notified and directed as to their movement to designated areas or notified that they should remain in their homes according to procedures with LACoFD direction and oversight.

The ERP will provide that the Project will implement the "Ready, Set, Go!" program during the relocation/evacuation scenario. The focus of the "Ready, Set, Go!" program is on public awareness and preparedness, especially for those living in the wildland-urban interface (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 planting and maintaining ignition-resistant vegetation near your home. 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 for Reverse 911(if available), Alert LA County, and community alert system. 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 Centennial community, pack your vehicle with your emergency items. Stay aware of the latest news from local media and your local fire department for updated information on the fire. 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.

Shelter-in-Place Scenario

Sheltering-in-place is the practice of going or remaining indoors during or following an emergency event. This procedure is recommended if there is little time for the public to react to an incident and it is safer for the public to stay indoors for a short time rather than travel outdoors. Sheltering-in-place also has many advantages because it can be implemented immediately, allowing people to remain in their familiar surroundings, and providing individuals with everyday necessities such as telephone, radio, television, food, and clothing. However, the amount of time people can stay sheltered-in-place is dependent upon availability of food, water, medical care, utilities, and access to accurate and reliable information.

Sheltering-in-place is the preferred method of protection for people that are not directly impacted or in the direct path of a hazard. This will reduce congestion and transportation demand on the major transportation routes for those that have been directed to evacuate by police or fire personnel. All structures in Centennial community would conform to the ignition-resistant building codes codified in Chapter 7A of the California Building Code, therefore, structures would be ignition-resistant, defensible and designed to require minimal

firefighting resources for protection, which enables this contingency option when it is considered safer than evacuation.

As of this document's preparation, no community in California has been directed to shelter-in- place during a wildland fire. Even the communities in Rancho Santa Fe, California, which are designed and touted as shelter-in-place communities, were evacuated during the 2007 Witch Creek Fire. This is not to say that people have not successfully sheltered-in-place during wildfire, where 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 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 site include:

- Inadequate time to safely evacuate
- Fire evacuations during rush hour traffic 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 local law enforcement and fire agencies 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.

This FPP does not provide guarantee that all Project residents, employees and visitors will be safe at all times because of the advanced fire protection features it requires. There are many variables that may influence overall safety. This FPP provides requirements and recommendations for implementation of the latest fire protection features that have proven to result in reduced wildfire related risk and hazard.

ii. Implementation Plan

Per the MMRP Mitigation Measure MM 7-21, vegetation management for fire abatement purposes is not permitted in the portion of Significant Ecological Area (SEA) 17 or mitigation preserve areas within or bordering the Project site and, therefore, brush clearance zones shall be contained within the current Project impact boundary and no overlap with the adjacent SEA 17 and/or mitigation preserve areas shall occur. The MMRP further requires that an Implementation Plan, including fire risk abatement measures (including but not limited to vegetation management) required to comply with State and County fire prevention and response legal requirements shall be submitted as part of any application for a tentative subdivision map for those portions of the Project site that border an SEA or mitigation preserve area. The Implementation Plan must include: (a) a summary of applicable State and County fire risk abatement requirements; (b) a prohibition on the use of vegetation clearance within SEA 17 or mitigation preserve areas. The Implementation Plan shall be submitted to

the County for approval with the first tentative map, and shall be updated to include new or modified State or County fire risk abatement requirements as part of each subsequent tentative tract map submittal.

iii. Landscape Plan

As required by the MMRP, the Project Applicant/Developer shall develop a Landscaping Plan for review and approval by the County Biologist for each tentative map application submittal. The Landscaping Plan must be prepared by a qualified biologist and include a plant palette composed of fire-resistant, non-invasive species that are adopted to the conditions found on the Project site and do not require high irrigation rates. The MMRP further requires that the Landscaping Plan shall also include a list of invasive plant species prohibited from being planted or sold on the Project site and encourage planting of local natives typical of native vegetation within ten miles of the Project site. The Specific Plan's Green Development Program and Hillside Design Guidelines further require the Project to implement fire-safe landscaping techniques consistent with the Specific Plan's plant palette to reduce fire risks to biological resources and human safety in the fuel modification zones, and landscaping in a manner that, among other things, increases fire protection, respectively. Additionally, the Project's Specific Plan requires landscaping in the plan's Open Space Zone to be dominated by native and/or drought tolerant trees, shrubs and ground cover, taking into consideration fuel modification requirements, such as using plants that are fire resistant and avoid plants with characteristics that make them more readily combustible such as plants with oils, wax or resin content, plants that accumulate dead material or shed bark, and/or plants that grow rapidly. Plants selected will be consistent with LACoFD Planting Guideline regarding prohibited species and appropriate plant spacing with respect to zone location. Finally, the MMRP requires that the map applicant ensure that the approved Landscape Plan be provided to Project builders and all future Project occupants.

iv. Construction Traffic Control Plan

As required by the MMRP, the applicant must include in its application for any tentative map involving construction within the State Route 139 right-of-way a Traffic Control Plan prepared in accordance with the California Manual on Uniform Traffic Control Devices and approved by the California Department of Transportation (Caltrans). The MMRP further requires that all construction activities in the public right-of-way comply with the Traffic Control Plan to the satisfaction of Caltrans. The Traffic Control Plan shall ensure code-compliance access for fire apparatus and first responder vehicles.

v. Fire Access Infrastructure Conditions

Per the Subdivision Ordinance, each tentative map application and approved tentative map must demonstrate that that Project internal circulation system, site access, road dimensions, road connectivity, and other standards related to fire apparatus access are consistent with all applicable County's roadway and fire code standards. Thus, each approved Project tentative map shall require as a condition of final map approval that:

- all interior Project roads comply with all fire apparatus access road standards;

- all interior fire access roadways where a fire hydrant is located will be constructed to a minimum unobstructed road width of 26 feet, exclusive of shoulders and shall be improved with aggregate cement or asphalt paving materials;

- all fire access roadways that are designed to allow parking provide a minimum clear width of not less than 34 feet for parking on one side and a clear width of not less than 42 feet for parking on both sides;

- that the interior residential access roads are be designed to accommodate a minimum of a 75,000-pound (lb.) fire apparatus load;

- that any dead-end streets serving new residential structures that are longer than 150 feet have approved provisions for fire apparatus turnaround;

- that all private and public streets for each Project phase meet all applicable requirements of Title 32 of the Los Angeles County Code, as amended, and adopting by reference the 2019 edition of the California Fire Code (CFC), or current edition at time of Project approval (Fire Code);

- that all fire apparatus roads have an unobstructed width of not less than 20 feet, exclusive of shoulders, except for approved security gates in accordance with CFC Section 503.6, and an unobstructed vertical clearance clear to the sky to allow aerial ladder truck operation (provided that a minimum vertical clearance of 13 feet 6 inches may be allowed for protected tree species adjacent to access roads);

- that all roads with a median or center divider will have a minimum 20 feet unobstructed width on both sides of the center median or divider;

- that all roadways and/or driveways will provide fire department access to within 150 feet of all portions of the exterior walls of the first floor of each structure.

- that access roads will be completed and paved prior to issuance of building permits and prior to the occurrence of combustible construction.

- that the applicant will provide information illustrating the new roads, in a format acceptable to the LACoFD for use in updating LACoFD fire response maps; and

- that the curb-to-curb width of each private driveway and fire lane will be approved by the Los Angeles County Fire Department and Department of Public Works.

vi. Underground Utilities

As required by the County's subdivision ordinance, all tentative map applications must depict the location of proposed utility easements. As required by applicable standards, all of the Project's horizontal utilities, including but not limited electric transmission lines, will be installed underground to significantly reduce the potential for equipment-related fire starts.

vii. Identify Fire Station Locations

As required by the MMRP and DA, the Project shall provide at least three and up to four fully equipped fire stations on site. Per the DA, Fire Station # 1 must be a station of 10,000 square feet, Fire Station # 2 must be a station of 13,000 square feet, and Fire Station #3 must be a station of 10,000 square feet. Per the DA, two fire station sites shall have a building pad consisting of a net buildable area of 1.25 acres, and one shall have a net buildable area of 4 acres. All on-site fire stations must be fully equipped in accordance with applicable LACoFD standards. The general locations of the three required fire stations will be situated as identified on EIR Exhibit 4-1, but LACoFD shall have final approval over all fire station site locations. Per the DA, the final location of Fire Station #1 will be determined when a tentative map is approved for the Project's 1,000th residential unit, and the final locations of Fire Stations #2 and #3 will be determined at the time of any tentative map is approved for a Project residential unit that is located outside of a fire station's five-minute response time radius. Per the DA and MMRP, it remains to be determined whether the Project will be required to construct a fourth fire station, but such determination shall be made by LACoFD and shall be based on need established pursuant to MMRP Mitigation Measure MM 16-1. Finally, until such time as the Developer has conveyed to LACoFD and approved, operational and equipped fire station on the Project site, the applicant shall pay developer fees in accordance with the LACoFD Developer Fee Program, as provided in MMRP Mitigation Measure 16-2. Existing LACoFD Fire Station #77 shall serve the Project site until such time as Fire Station #1 is operational.

b. Fire Safety Requirements Implemented at the Final Map Stage of Development.

Pursuant to the Specific Plan and MMRP, the following Fire Safety Requirements will be implemented concurrent with the County's review and approval of any Project final subdivision map:

i. Fuel Modification Plan

Per the MMRP, the Project must prepare a Fuel Management Plan (FMP) demonstrating compliance with the Fire Code, which must be peer-reviewed by the California Department of Forestry and Fire Protection (CAL FIRE) and approved by LACoFD prior to recordation of the Project's first final subdivision map. An important component of a fire protection system for the Project is the provision for fire resistant landscapes and modified vegetation buffers. The FMP will establish Fuel Management Zones (FMZs) designed to provide vegetation buffers that gradually reduce fire intensity and flame lengths from fire advancing off-site or on-site by strategically placing thinning zones, restricted vegetation zones, and irrigated zones adjacent to each other on the perimeter of the WUI exposed structures. FMZs were originally developed by CAL FIRE to protect natural resources from urban area fires and over the years, have become essential to setting urban areas back from wildland areas with a dual role of protection structures and people while buffering natural areas from urban ignitions, reducing potential for urban fires to spread into wildland areas.

The Project will be exposed to naturally-vegetated open space to the north, south and west of the Project site, as well as agricultural lands to the east. For the Centennial Specific Plan

Project site, the FMZ widths between the naturally vegetated open space areas and all combustible structures are proposed to be 100, 150, or 200 feet. The FMZs will be constructed from structures outwards towards undeveloped areas. A 20-foot wide roadside FMZ along each side of the roads adjacent to the open space shall be required as well.

Although FMZs are very important for setting back structures from adjacent unmaintained fuels, the greatest concern is from firebrands or embers as a principal ignition factor. To that end, the Project site, based on its location and ember potential, is required to include the latest ignition and ember resistant construction materials and methods for roof assemblies, walls, vents, windows, and appendages, as mandated by the LACoFD and the County's Fire and Building Codes.

Per applicable County fuel modification requirements, each fuel modification areas will incorporate three zones, these are 1) a setback zone, 2) an irrigated zone, and 3) a thinning zone. The widths of the zones will vary, depending on the anticipated fire behavior. The widths will either total 100, 150, or 200 feet. Landscaping on private lots directly adjacent the WUI will include standard County fuel modification requirements. Flammable plant species will be restricted, spacing standards implemented, and basic low fuel requirements will be applicable per :LACoFD plant selection guidelines. The following descriptions provide details for the different fuel modification zones on site:

Zone A (Setback Zone)

- Irrigation by automatic or manual systems shall be provided to landscaping to maintain healthy vegetation with high live fuel moisture and greater fir resistance.

- Landscaping and vegetation in this zone shall consist primarily of green lawns, ground covers and adequately spaced shrubs and trees. The overall characteristics of the landscape shall provide adequate defensible space in a fire environment.

- Plants in Zone A shall be inherently highly fire resistant and spaced appropriately. Species selection should be made referencing Appendix E Fuel Modification Plant Reference. Other species may be utilized subject to approval by the Homeowners' Association (HOA).

- Except dwarf varieties or mature trees small in stature, trees are generally not recommended within Zone A, but are not prohibited.

- Vines and climbing plants shall not be allowed on any combustible structure.

- Target tree species (including but not limited to Eucalyptus, Pine, Juniper, Cypress, Cedar, Canary Island Date Palm, Mexican Fan Palm and Bougainvillea) shall not be allowed within 10 feet of combustible structure, defined as any accessory structure not required to be built to Chapter 7A building code standards (ex. Structures under 120 square feet).

- Within Zone A will be the Home Ignition Zone from 0 to 5 feet of the exterior wall surface of the building extending five feet on a horizontal plane.
    - This zone shall be continuous hardscape or limited to fire-resistive plantings acceptable to LACoFD.
    - Vegetation in this zone shall not exceed 6 to 18 inches in height and irrigation is required,
    - This zone shall be free of all combustible materials and the use of mulch is prohibited.

Zone B (Irrigated Zone)

- Irrigation by automatic or manual systems shall be provided to landscaping to maintain healthy vegetation with high live fuel moisture and greater fire resistance.
- Landscaping and vegetation in this zone shall consist primarily of green lawns, ground covers, and/or adequately spaced shrubs and trees. The overall characteristics of the landscape shall provide adequate defensible space in a fire environment.
- Plants in Zone B shall be fire resistant and spaced appropriately. Species selection should be made referencing Centennial Specific Plan, Table 3-7, "Plant List," in Section 3.3, "Landscape Plan." Other species may be utilized subject to approval by the HOA.

Zone C (Native brush thinning zone)

- Irrigation systems are not required for this zone.
- Landscaping and vegetation in this zone may consist of modified existing native plants, adequately spaced ornamental shrubs and trees, or both. There may also be replacement landscape planting with ornamental or less flammable native species to meet minimum slope coverage requirements of County Public Works or Parks and Recreation Landscape or Hillside ordinances. In all cases the overall characteristics of the landscape shall provide adequate defensible space in a fire environment.
- Existing native vegetation shall be controlled by thinning and removal of species constituting a high fire risk; including but not limited to laurel sumac, chamise, ceanothus, sage, sage brush, buckwheat, and California juniper. Please reference the County Fuel Modification Plant Reference.
- Fuel loads shall be reduced by pruning up the lower one-third of remaining trees or shrubs and removing dead wood. Native plants may be thinned by reduced amounts as the distance from development increases.
- Plants in Zone C shall be spaced appropriately. Species selection should be made referencing the County Fuel Modification Plant Reference.

- General spacing for existing native shrubs is 15 feet between canopies. General spacing for existing native trees is 20 feet between canopies.

The distance requirements for each zone are described below:

- 200-foot Setback
    - Zone A extends 20 feet from the edge of any combustible structure, accessory structure, appendage or projection.
    - Zone B extends from the outermost edge of Zone A to 100 feet from structure (or 80 feet from the outermost edge of Zone A).
    - Zone C extends from the outermost edge to Zone B to 200 feet from structure (or 100 feet from the outermost edge of Zone B).
- 150-foot Setback
    - Zone A extends 20 feet from the edge of any combustible structure, accessory structure appendage, or projection.
    - Zone B extends from the outermost edge of Zone A to 50 feet from the structure (or 30 feet from the outermost edge of Zone A).
    - Zone C extends from the outermost edge of Zone B to 150 feet from the structure (or 100 feet from the outermost edge of Zone B).
- 100-foot Setback
    - Zone A extends 20 feet from the edge of any combustible structure, accessory structure, appendage, or projection.
    - Zone B extends from the outermost edge of Zone A to 50 feet from the structure (or 30 feet from the outermost edge of Zone A).
    - Zone C extends from the outermost edge of Zone B to 100 feet from the structure (or 50 feet from the outermost edge of Zone B).

Vegetation Management is recommended within parks and open space areas in compliance with the guidelines in this FPP.

- Undesirable/target flammable vegetation must be removed per LACoFD plant selection guide, Title 32 Section 304.1.2 and Section 325.2.1., or as determined by LACoFD.
- Grasses must be maintained/mowed to 4 inches.

- Types and spacing of trees, plants and shrubs, must comply with the criteria in this plan.
- Areas shall be maintained free of down and dead vegetation.
- Flammable vegetation and flammable trees shall be removed and shall be prohibited.
- Trees shall be properly limbed and spaced and shall not be of a prohibited type (identified in this plan).
- No species from the County Prohibited Plant List.

Vacant Lots will not be required to implement Vegetation management strategies until construction begins. However, perimeter Vegetation Management Zones must be implemented prior to commencement of construction utilizing combustible materials. Moreover, prior to issuance of a permit for any construction, grading, digging, installation of fences, the outermost 30 feet of the lot is to be maintained as a Vegetation Management Zone. Existing flammable vegetation shall be reduced by 60% on vacant lots upon commencement of construction. Dead fuel, ladder fuel (fuel which can spread fire from ground to trees), and downed fuels shall be removed and trees/shrubs shall be properly limbed, pruned and spaced per this plan. The remainder of the Vegetation Management Zones required for the particular lot shall be installed and maintained prior to combustible materials being brought onto any lot under construction.

As required by the MMRP, the FMP shall ensure relocation of grading boundaries and fuel modification zones to completely avoid disturbance to the site(s) of eligible archaeological resources. If it is determined that the relocation of grading boundaries and fuel modification zones in accordance with this subsection is not feasible, then a qualified archaeologist shall be present in the vicinity of eligible archaeological resources sites during grading and fuel modification brush clearance. (NOTE: confidential archaeological mapping is on file at the Natural History Museum of Los Angeles County and the South Central Coastal Information Center [SCCIC] at California State University, Fullerton. Review of this material is restricted to qualified individuals and project proponents on a need to know basis.) Fencing shall be erected outside the eligible archaeological resources sites to visually depict the areas to be avoided during construction. All eligible archaeological resources sites avoided in accordance with this subsection (a) shall be subject to the preservation requirements of MMRP Mitigation Measure MM 6-4.

As further required by the MMRP, if it is determined that the relocation of grading boundaries and fuel modification zones is not feasible with respect to eligible archaeological resources sites CA-LAN-3201, CA-LAN-3240 and/or CA-LAN-3242, as identified in the EIR, then a qualified Archaeologist and a Native American monitor representing the Tejon Indian Tribe shall be present in the vicinity of any such eligible archaeological resources site during grading and fuel modification brush clearance to monitor all activities and ensure that archaeological resources are not impacted. (NOTE: confidential archaeological mapping is on file at the Natural History Museum of Los Angeles County and the SCCIC. Review of this material is restricted to qualified individuals and project proponents on a need to know

basis.) Temporary construction fencing shall be erected outside any such eligible archaeological resources site to visually depict the areas to be avoided during construction, in accordance with MMRP Mitigation Measure MM 6-2. Any temporary fencing materials (i.e., plastic web, chain link, etc.) placed during construction should not become permanent. Any permanent fencing erected in accordance with MMRP Mitigation Measure MM 6-4 to protect the sites should be visually pleasing and consistent with the overall aesthetic experience of the community of Centennial. All eligible archaeological resources sites avoided in accordance within this subsection (a) shall be subject to the preservation requirements of MMRP Mitigation Measure MM 6-4.

ii. Construct and Equip Fire Stations

As required by the MMRP, for each tentative subdivision map that includes a fire station site (as discussed in Section 3(a)(vii) of this FPP), the applicant must construct, equip, and convey title to such fire station prior to final subdivision map approval. Per the DA, each fire station must be equipped to be compatible with LACoFD's Development Impact Mitigation Agreement standards.

c. Fire Safety Requirements Implemented at the Building Permit or Site Plan Review Stage of Development.

Pursuant to the Specific Plan and MMRP, the following Fire Safety Requirements will be implemented concurrent with the County's review and approval of any Project building permit and, as applicable, site plan:

i. Confirmation of Code Compliance

At the building permit and site plan review stage of Project development, the County will confirm that all building plans comply with all applicable codes. The Project shall comply with applicable portions of the Fire Code. The Project will also comply with Chapter 7A of the 2019 California Building Code (CBC) with July 2021 Supplement; the 2019 California Residential Code (CRC), Section 237; and 2018 Edition of the International Fire Code as adopted by the County. Code compliance shall also be confirmed by County building inspectors prior to issuance of certificates of occupancy.

Chapter 7A of the CBC addresses reducing ember penetration into homes, a leading cause of structure loss from wildfires (California Building Standards Commission 2019). Thus, code compliance is an important component of the requirements of this FPP, given the Project's WUI location and VHFHSZ and HFHSZ designations. The Project would meet applicable code requirements for building in these higher fire hazard areas. These codes have been developed through decades of wildfire structure save and loss evaluations to determine the causes of building losses and saves during wildfires. The resulting fire codes now focus on mitigating former structural vulnerabilities through construction techniques and materials so that the buildings are resistant to ignitions from direct flames, heat, and embers, as indicated in the CBC.

The following provides an overview of ignition resistant construction required under the Fire Code, the CBC, and the CRC:

- *Roofs and roof edges* (CBC 705A/CRC R337.5): Roof coverings shall be Class A fire rated as specified in Section 1505.2. Where the roof profile allows a space between the roof covering and roof decking, the spaces shall be constructed to prevent the intrusion of flames and embers, be firestopped with approved materials or have one layer of minimum 72 pound (32.4 kg) mineral-surfaced non-perforated cap sheet complying with ASTM D3909 installed over the combustible decking. Wood shingles and wood shakes are prohibited in any Fire Hazard Severity Zones regardless of classification (LABC Section 705A.2).

- *Exterior Walls/siding* (CBC 707A.3 /CRC R337.7.3): Noncombustible, listed ignition-resistant materials, heavy timber, 5/8" Type X gypsum sheathing behind exterior covering, exterior portion of 1-hr assembly or log wall construction is allowed. The Office of the State Fire Marshall website (https://osfm.fire.ca.gov/) lists many types of exterior wall coverings that are approved.

- *Eaves and porch ceilings* (CBC 707A.4, A.6 / CRC 337.7.4. R337.7.6): The exposed roof deck under unenclosed eaves and underside of porch ceilings shall be noncombustible, listed ignition resistant materials, or 5/8" Type X gypsum sheathing behind exterior covering. Solid wood rafter tails on the exposed underside of roof eaves having a minimum 2" nominal dimension may be unprotected.

- *Vents* (CBC 706A / CRC R337.6): Attic vents and underfloor vent openings must be Wildland Flame and Ember Resistant approved and listen by the Sate Fire Marshal or listed in ASTM E2886. Vents shall be baffled and may include a minimum of 1/16" and maximum 1/8" corrosion-resistant, noncombustible wire mesh or equivalent. Ventilation openings on the underside of eaves are not permitted, unless a State Fire Marshal (SFM) approved vent is installed, or the attic is fire sprinklered. Vents of 1/16" min. and 1/8" max corrosion-resistant and noncombustible wire mesh or equivalent that are greater than 12 feet from a walking surface or grade below are allowed.

- *Windows and exterior doors* (CBC 708A / CRC R337.8): Windows must be insulated glass with a minimum of 1 tempered pane or 20 min rated or glass block. Exterior doors must be noncombustible or ignition resistant material or 1 3/8" solid core, or have a 20 min fire-resistance rating.

- *Exterior decking and stairs* (CBC 709A / CRC R337.9): Walking surfaces of decks, porches. balconies and stairs within 10 feet of the building must be constructed of noncombustible, fire-retardant treated or heavy-timber construction. Alternate materials can be used if they are ignition-resistant and pass performance requirements specified by the State Fire Marshal.

- *Underfloor and appendages* (CBC 707A.8 / CRC R337.7.8): Exposed under-floor, underside of cantilevered and overhanging decks, balconies and similar appendages shall be non-combustible, ignition resistant, 5/8" Type X gypsum sheathing behind exterior covering, exterior portion of 1-hr assembly, meet performance criteria SFM Standard 12-7A-3 or be enclosed to grade.

ii. Ban on Wood Burning Fireplaces

As required by the MMRP, the Project's plans and specifications shall prohibit wood-burning fireplaces in single-family residences throughout the Project site. This requirement will be enforced at the time of building permit issuance and site plan review. Compliance with this Fire Safety Requirement shall also be confirmed by County building inspectors prior to issuance of certificates of occupancy for each single-family home.

iii. Fire-safe Sign Requirements

As required by the Specific Plan, no sign shall be installed, relocated, or maintained so as to prevent free ingress to or egress from any door, window, or fire escape. In addition, no sign of any kind shall be attached to a standpipe or fire escape, except those signs required by other applicable codes or ordinances. This requirement will be enforced at the time of building permit issuance and site plan review. Compliance with this Fire Safety Requirement shall also be confirmed by County building inspectors prior to issuance of certificates of occupancy for each single-family home. During project operation, this Fire Safety Requirement shall be enforced by the Master HOA.

d. Project Operations - Ongoing Enforcement of Fire Safety Requirements, Fire Safety Education, and FMZ Clearance Inspections.

Several entities will play important roles to ensure the ongoing implementation of the Fire Safety Requirements once the Project becomes operational. The LACoFD will have primary enforcement jurisdiction over the Project with respect to matters of Fire Code compliance, while the County's Department of Regional Planning is responsible for the overall enforcement of the Specific Plan. But the Project's master homeowner's association (Master HOA) and its Fire Protection Education Committee will have key roles in ensuring Project compliance with the Fire Safety Requirements, as will the Community Forester and qualified third-party compliance inspectors funded by the Master HOA. This section describes the various responsibilities of each of these parties with respect to the comprehensive implementation of the Fire Safety Requirements during the life of the Project.

i. Master HOA Formation and CC&R Recordation

Per the Specific Plan, a non-profit Master HOA shall be formed, and the Master HOA's declaration of conditions, covenants, and restrictions (CC&Rs) will be recorded after the recordation of the Project's first final subdivision map consisting of one or more residential lots and prior to the date of the first transfer of any residential lot to a person other than the subdivider. As additional final maps are approved and recorded, the Project area covered by those maps will be annexed by the Master HOA to ensure that control of development and implementation of the CC&Rs can be maintained. Per the Specific Plan and the MMRP, the applicant for a final map shall submit to the Department of Regional Planning the form of CC&Rs so that it may confirm that new homeowners will be informed about their responsibilities under the Fire Safety Requirements. Per Title 32 of the County Code, a copy of the recorded CC&Rs describing the fuel modification requirements must be provided to the LACoFD's Forestry Division.

To the extent permitted by the California Department of Real Estate, the CC&Rs for each final map shall include provisions obligating each homeowner to comply with all of the Fire Safety Requirements applicable to that homeowner's lot and residential unit, including but not limited to all Fire Safety Requirements that (i) mandate the use of fire-safe landscaping techniques, (ii) require the maintenance of fuel modification zones on their property, (iii) prohibit the use of wood fireplaces, (iv) prohibit the installation, relocation, or maintenance of any sign so as to prevent free ingress to or egress from any door, window, or fire scape; (v) mandate the use of code compliant spark arrestors in chimneys of any fireplace, barbeque, or any heating appliance in which solid or liquid fuel is used; (vi) mandate that only Class A fire rated roof coverings be used when maintaining or repairing roof coverings; (vii) mandate that exterior windows, window walls, glazed doors, and glazed openings in exterior doors only be repaired or replaced code compliant materials (e.g., multi-pane glazing units with a minimum of one tempered pane); and (viii) require that access be provided for biannual fuel modification zone inspections.

ii. Master HOA Enforcement of CC&Rs Through Monetary Penalties

To promote enforcement of the CC&Rs, the governing documents of the Master HOA shall vest the governing board of the Master HOA with authority to impose fines on any homeowner who violates any provision of the CC&R related to Fire Safety Requirements, and shall establish a schedule of reasonable monetary penalties to be assessed by the Master HOA against any homeowner that violates any provision of the CC&Rs related to Fire Safety Requirements. The required schedule of monetary penalties shall also be included as part of a general CC&R enforcement policy to be adopted and administered by the governing board of the Master HOA, which policy shall describe in detail the steps to be followed in enforcing the Master HOA governing documents and CC&Rs. As provided in California Civil Code Section 5855, no fine shall be assessed against a homeowner for violating a provision of the CC&Rs related to Fire Safety Requirements unless and until the Master HOA first conducts a hearing on the alleged violation. At least ten days advance notice must be provided to the relevant homeowner of the date and time of the hearing, the general nature of the allegation of rules violation against such homeowner, and informing such homeowner that they have the right to attend such hearing and to address the governing board.

iii. Master HOA Ongoing Maintenance

The governing documents of the Master HOA shall provide that the Master HOA is responsible for the long-term funding and ongoing maintenance of private roads and fire protection systems, including fire sprinklers and private fire hydrants. The Master HOA governing documents shall also provide that the Master HOA is responsible for the long-term funding and implementation of all fuel modification vegetation management in Project common areas, including but not limited to roadsides (including a minimum of 20 feet clearance on each side of roads within the Project development footprint adjacent to open space areas), open space and landscape areas, and fuel modification zones. In addition, the Master HOA shall establish a reverse 9-1-1 system capable of contacting every listed telephone number in the community by computer at a rate of at least 250 calls per minute.

iv. Fire Protection Education Committee

The governing documents of the Master HOA shall establish a Fire Protection Education Committee (FEPC) The purpose of the FEPC shall be to (i) promote education programs and tools that provide information to Project homeowners about the Project's overall Fire Safety Requirements and about each homeowner's individual obligations thereunder; (ii) promote education programs and tools that provide information about wildland fire ecology, management, protection, and prevention; and (iii) coordinate with the LACoFD and other stakeholders to identify opportunities for improvement in all areas of wildland fire communication, education, protection, and prevention.

The governing documents of the Master HOA shall require the FEPC to prepare and implement of a community-wide fire education program based on the Firewise Communities structure and designed to establish the community as a Firewise USA site and to fully educate Project homeowners of their various responsibilities under the Fire Safety Requirements, including but not limited to maintaining fuel management zones areas on their respective properties. The Project master developer shall ensure that development and ongoing implementation such fire education program is funded by assessment district or by permanent and irrevocable property owner fees.

The FEPC shall annually conduct on-site community fire safety education and training programs, which programs shall be undertaken in coordination with the LACoFD's Community Risk Reduction Unit to the extent feasible or other qualified subject-matter experts, and which shall include community education regarding implementation of the Project's required FMP and ERP, and shall ensure that copies of such plans are provided to all Project homebuyers at the initial point of sale.

The FEPC shall also post on the community intranet information regarding the importance of maintaining fuel management areas in accordance with the FMP, complying with the Project's fire-resistant landscape plan, implementing all applicable Fire Safety Requirements, and regularly reviewing and becoming familiar with the Project's ERP. Complete copies of the FMP and ERP shall also be made accessible for download from the community intranet. LACoFD shall review and approve all wildfire educational material/programs before printing and distribution by the FEPC. In addition, the FEPC shall ensure that annual reminder notices are provided to each homeowner reminding them review the ERP and stay familiar with community evacuation protocols.

The FEPC shall also provide Project homebuyers, at the initial point of sale, educational materials about the health and safety benefits of emergency preparation and the need to maintain adequate emergency response supplies, such as a seven-day supply of potable water and food and solar-powered batteries for communication and refrigeration, to respond to earthquakes and other potential disasters, at the initial point of property sale, and annually thereafter in Property Owner Association Website Notices.

The FEPC shall coordinate with commercial vendors of emergency response supplies and solar batteries in order to secure discounts or other preferential terms to Project site occupants, and shall include a list of such vendors on the community intranet and in educational materials published by the FEPC.

v. Community Forester

In accordance with the Specific Plan, the Master HOA shall hire a Community Forester who is trained in urban forestry, arboriculture, horticulture, or landscape architecture to undertake tree management responsibilities. The Community Forester will also coordinate FMZs 3rd party inspections on the Project site The Community Forester is required to developing a policy for managing public trees on the Project site and educating Project residents about the importance of trees in the community, and is responsible for implementing the Project's fire-resistant landscape plan. The Specific Plan further requires the Community Forester to develop programs that involve community organizations and residents in tree preservation, planting and tree care so as to ensure that community trees are, among other things, maintained in accordance with all Fire Code access requirements. Per the Specific Plan, the Community Forester must also prepare an annual tree management plan and implement programs to improve the communities tree canopy in a manner that complies with all Fire Code and LAFCD requirements. In addition, the Specific Plan requires the Community Forester to maintain the Project's fire-resistant plant palette and to consult with the County's staff biologist regarding proposed revisions to the community plant palette described in the Specific Plan. However, the LAFCD shall have final approval over the final plant palette for fuel modification zones and modifications thereto.

vi. Third-Party Compliance Inspectors

To confirm that the Project’s fuel management zones and landscape areas are being maintained according to the Fire Safety Requirements and the LACoFD’s fuel modification guidelines, the Master HOA shall obtain a fuel management zone inspection and report from a qualified LACoFD-approved third-party inspector in May/June of each year certifying that vegetation management activities throughout the Project site have been timely and properly performed. If the third-party inspector determines that a fuel management zone or landscape area is not compliant with all applicable fire-safety standards, the Master HOA shall have a specified period, not to exceed sixty days, to correct any noted issues so that a re-inspection can occur and certification can be achieved. Annual inspection fees may be subject to the current Fire Department Fee Schedule.

Exhibit A

Centennial Specific Plan Fire Safety Requirements:

1. Fuel Modification Plan (FMP)

- Required by Mitigation Measure MM 3-9, which provides:

  The Project Applicant/Developer shall prepare a Fuel Modification Plan demonstrating compliance with the County Fire Code Title 32 and shall provide all new residents and business owners with recorded Covenants, Conditions, and Restrictions (CC&Rs) or disclosure statements that identify the responsibilities for maintaining the fuel modification zone(s) on their property, as defined in the approved Fuel Modification Plan. The CC&Rs or disclosure statements prepared by the Project Applicant/Developer shall be submitted to the County to confirm that new property owners will be informed of their responsibilities for maintaining the fuel modification zone(s) on their property.

- Review and approval:

  - Per MMRP, the FMP must be provided to the California Department of Forestry and Fire Protection for peer review and to the LACoFD for review and approval.

- Timing:

  - Per MMRP, the FMP must be approved prior to the recordation of final maps.

- Other Requirements:

  - The Specific Plan, pages 3-99 through 3-100, provides significant detail on the required content and implementation of the FMPs, all of which should be reflected in the Fire Protection Plan.

  - Per the MMRP, a copy of the relevant FMP must be provided to all new residents and businesses with CC&Rs or disclosure statements prior to the sale of any-on-site properties.

  - See also Mitigation Measures MM 6-1, 6-3, MM 7-1, 7-16, and 7-21, which include additional requirements and restrictions regarding fuel modification in order to limit impacts to cultural and biological resources, all of which should be reflected in the Fire Protection Plan.

2. Vegetation Management Fire Abatement Implementation Plan

- Required by Mitigation Measure MM 7-21, which provides:

  In order to ensure that no direct impacts to Significant Ecological Area (SEA) 17 occur,

brush clearance zones shall be contained within the current Project impact boundary and no overlap with the adjacent SEA 17 shall occur. Vegetation management for fire abatement purposes is not authorized in SEA areas. An Implementation Plan, including fire risk abatement measures (including but not limited to vegetation management) required to comply with State and County fire prevention and response legal requirements, shall be submitted as part of the tentative tract map for portions of the Project site that border an SEA or mitigation preserve area. The Plan shall include: (a) a summary of applicable State and County fire risk abatement requirements; (b) a prohibition on the use of vegetation clearance within SEA 17 or mitigation preserve areas. The Plan shall be submitted to the County for approval with the first tentative map, and shall be updated to include new or modified State or County fire risk abatement requirements as part of each subsequent tentative tract map submittal.

- Review and approval:
    - Per the MMRP, the Implementation Plan must be submitted to the California Department of Forestry and Fire Protection for peer review and to the County Department of Regional Planning for review and approval.
- Timing:
    - Per the MMRP, the Implementation Plan must be approved prior to approval of tentative maps for portions of the Project that border a SEA or mitigation preserve area.

3. Fire Stations

- Required by Mitigation Measure 16-1, which provides:

  At buildout, the Los Angeles County Fire Department (LACoFD) fire stations shall be located such that response times to the Project site shall be 5 minutes or less for fire service responses and 8 minutes or less for the advanced life support (paramedic) unit responses within the Project site.

- Required by Mitigation Measure 16-3, which provides:

  The Project Applicant/Developer shall provide land, convey title, and shall construct and equip, to the specifications and requirements of the LACoFD, for up to four new Fire Stations to the LACoFD. The approved final plans and specifications for the Project shall identify locations of the fire stations. The LACoFD shall have final approval over the fire station site locations. The timing for the construction of the on-site fire stations shall be established by the LACoFD dependent upon the phasing of development, with the first on-site fire station operational no later than the time the 1,000th dwelling unit is built on site.

- Review and approval:
    - Per MM 16-3, the LACoFD shall have final approval over the fire station site locations.
- Timing:
    - Per the MMRP, MM 16-1 must be satisfied prior to approval of tentative maps.
    - Per the MMRP, MM 16-3 must be satisfied prior to approval of plans and specifications for final maps.
    - Per the Development Agreement, all fire stations must be equipped to be compatible with the LACoFD's Development Impact Mitigation Agreement standards. See Dev. Agmt., Exhibit G, Section 3.2.
    - Per the Development Agreement, Fire Station # 1 must be a station of 10,000 square feet, Fire Station # 2 must be a station of 13,000 square feet, and Fire Station #3 must be a station of 10,000 square feet and equipped as provided in the Development Agreement, and it must be completed prior to the issuance of a certificate of occupancy. See Dev. Agmt., Exhibit G, Section 3.2.
    - Per the Development Agreement, and per MM 16-3, it remains to be determined whether the Project will be required to construct a fourth fire station, but such determination shall be based on need established pursuant to MM 16-1. See Dev. Agmt., Exhibit G, Section 3.2.
    - Per the Development Agreement, the general locations of the three required fire stations will be situated as identified on Exhibit 4-1 of the FEIR, subject to relocation based on mutual agreement of the Developer and the County. If it is determined that fourth station is required, it will be located based on mutual agreement of the Developer and County. Nevertheless, LACoFD will have final approval of any fire station location. See Dev. Agmt., Exhibit G, Section 3.1.
    - Per the Development Agreement, Fire Station #1 must be completed prior to the issuance of a certificate of occupancy for the Project's 1,000th residential unit, and Fire Stations #2 and #3 must be completed prior to the issuance of a certificate of occupancy for any residential unit located outside of a station's five-minute response time. See Dev. Agmt., Exhibit E-1.
    - Per the Development Agreement, existing Fire Station #77 will serve the first 1,000 Project dwelling units (before Fire Station #1 is operational).
    - Per the Specific Plan, at page 3-37, two fire station sites shall have a building pad consisting of a net buildable area of 1.25 acres. The third site shall have a net buildable area of 4 acres. All sites will be rectangular in shape, with utilities stubbed to the property.

- Other Requirements:

    - Per Mitigation Measure MM 16-2, the Developer must pay developer fees in accordance with the LACoFD Developer Fee Program until such time as the Developer has conveyed an approved, operational fire station to LACoFD, unless otherwise agreed to by the Developer and LACoFD in accordance with the LACoFD Developer Fee Program's land-in-lieu of fees provisions.

4. Emergency Response Plan

- Required by Mitigation Measure MM 3-7, which provides:

  The Project Applicant/Developer shall prepare an Emergency Response Plan for the Project, which shall be updated as needed for each Tentative Map, and shall be submitted to the County (California Department of Forestry and Fire; and County Fire Department and/or County Sheriff's Department) for review and approval. The Project Applicant/Developer shall be responsible for distributing the current Emergency Response Plan to each purchaser or tenant of each property within Centennial, and shall distribute the Plan to all landowners through the Transportation Management Agency (TMA).

- Required by Development Agreement, Exhibit G, Section 12.3, which provides:

  The Property Owners shall require future residential and commercial property owners associations to develop and implement an emergency preparation and response plan, including shelter-in-place and evacuation plans as well as first aid and emergency electric power supplies. The Property Owners shall provide educational information about the health and safety benefits of emergency preparation and response supplies such as a seven-day supply of potable water and food, and solar-powered batters for communication and refrigeration, to respond to earthquakes and other potential disasters, at the initial point of property sale, and annually thereafter in Property Owner Association Website Notices. The Property Owners and Property Owner Association Website Notices may also identify emergency response supply and battery vendors providing discounts or other preferential terms to Project site occupants.

- Review and approval:

    - Per the MMRP, the Emergency Response Plan must be submitted to the California Department of Forestry and Fire Prevention for peer review and to the LACoFD and/or Sheriff's Department for review and approval.

- Timing:

    - Per the MMRP, MM 3-7 must be satisfied prior to approval of tentative maps.

5. Landscape Plan

- Required by Mitigation Measure 7-13, which provides in relevant part:

  The Project Applicant/Developer shall develop a Landscaping Plan for review and approval by the County Biologist. The Landscaping Plan shall be (1) prepared by a qualified biologist, (2) submitted to the County for approval with each tentative map, (3) provided to builders, (4) provided to future project occupants as described in the Specific Plan, and (5) include a plant palette composed of non-invasive species that are adapted to the conditions found on the Project site and do not require high irrigation rates. The Landscaping Plan shall also include a list of invasive plant species prohibited from being planted on the Project site. In addition, retail sales of these invasive plan species will be prohibited at any businesses (nurseries) located within the Project site. Landscape plans shall encourage planting of local natives typical of native vegetation within ten miles of the Project site.

- Review and approval:

  - Per the MMRP, the Landscape Plan must be reviewed and approved by the County Department of Regional Planning.

- Timing:

  - Per Mitigation Measure 7-13, a Landscape Plan must be submitted for approval with each tentative map application.

- Other requirements:

  - The Specific Plan, at page 2-78, provides that "a Community Forester (licensed arborist or licensed with the Department of Forestry and/or fire warden) shall oversee … implementation of the long-term landscape plan within developed areas."

  - The Specific Plan, at page 3-42, explains that the Specific Plan plant pallet was prepared in accordance with the LACoFD's Fuel Modification Plan Guidelines, and, at page 3-99, requires the use of fire-retardant plants in fuel modification zones.

  - The Specific Plan, at page 3-29, requires landscaping in the plan's Open Space Zone to be dominated by native and/or drought tolerant trees, shrubs and ground cover, taking into consideration fuel modification requirements, such as using plants that are fire resistant.

  - The Centennial Green Development Program set forth in Specific Plan Appendix A-1 requires the project to implement fire-safe landscaping techniques to reduce fire risks to biological resources and human safety in the fuel modification zones.

- The Hillside Design Guidelines set forth in Specific Plan Appendix 1-B requires landscaping in a manner that, among other things, increases fire protection.

6. Ban on Wood-Burning Fireplaces

- Required by Mitigation Measure MM 11-3, which provides:

  The Project's plans and specifications shall prohibit wood-burning fireplaces as required by SCAQMD Rule 445 in single-family residences throughout the entire Project site, including at residences that are 3,000 or more feet above mean sea level at which the SCAQMD prohibition would otherwise not apply. Natural gas fireplaces shall be limited to a total of 13,954. These requirements shall be posted on the community intranet and shall be clearly described and distributed to home buyers through their home purchase contracts and CC&Rs.

- Also required by the Specific Plan's General Development Standards. See Specific Plan page 2-78.

- Review and approval:

  - Per the MMRP, compliance with this requirement will be monitored by County Regional Planning and/or the Department of Public Building and Safety.

- Timing:

  - Compliance will be monitored at the building permit stage.

6. Miscellaneous Requirements

- Planned utility undergrounding and Project improvements to Highway 138 will help further reduce fire risk and provide better emergency egress, as discussed on Specific Plan page M-11.

- As discussed on Specific Plan page 3-9, classifications and street cross-sections were developed in partnership with the Department of Regional Planning, as well the County of LA's Public Works and Fire Departments: modifications to theses cross-sections require approval from Public Works and LACoFD.

- As discussed on Specific Plan page 2-83, no sign shall be installed, relocated, or maintained so as to prevent free ingress to or egress from any door, window, or fire escape. No sign of any kind shall be attached to a standpipe or fire escape, except those signs as required by other codes or ordinances.

- As discussed in footnote 21 of the Specific Plan's Appendix 2-C, the curb-to-curb width of each private driveway and fire lane will be approved by the Los Angeles County Fire Department and Department of Public Works

- The Project will be required to comply with all then-current fire code and building safety requirements, which should be detailed in the Fire Protection Plan.

- To ensure safe ingress and egress to, from and within the project site during construction, Mitigation Measure MM 3-8 provides as follows:

  The Project Applicant/Developer shall prepare a Traffic Control Plan in accordance with the California Manual on Uniform Traffic Control Devices (MUTCD). The Traffic Control Plan shall be reviewed and approved by the California Department of Transportation (Caltrans), and all construction activities in the public right-of-way shall comply with the approved Traffic Control Plan to the satisfaction of Caltrans. Documentation of Caltrans approval shall be provided to the County for any Tentative Map involving construction within State Route 138 right-of-way.

Exhibit 2 - Tejon Ranch Boundaries

Tejon Ranch Boundary

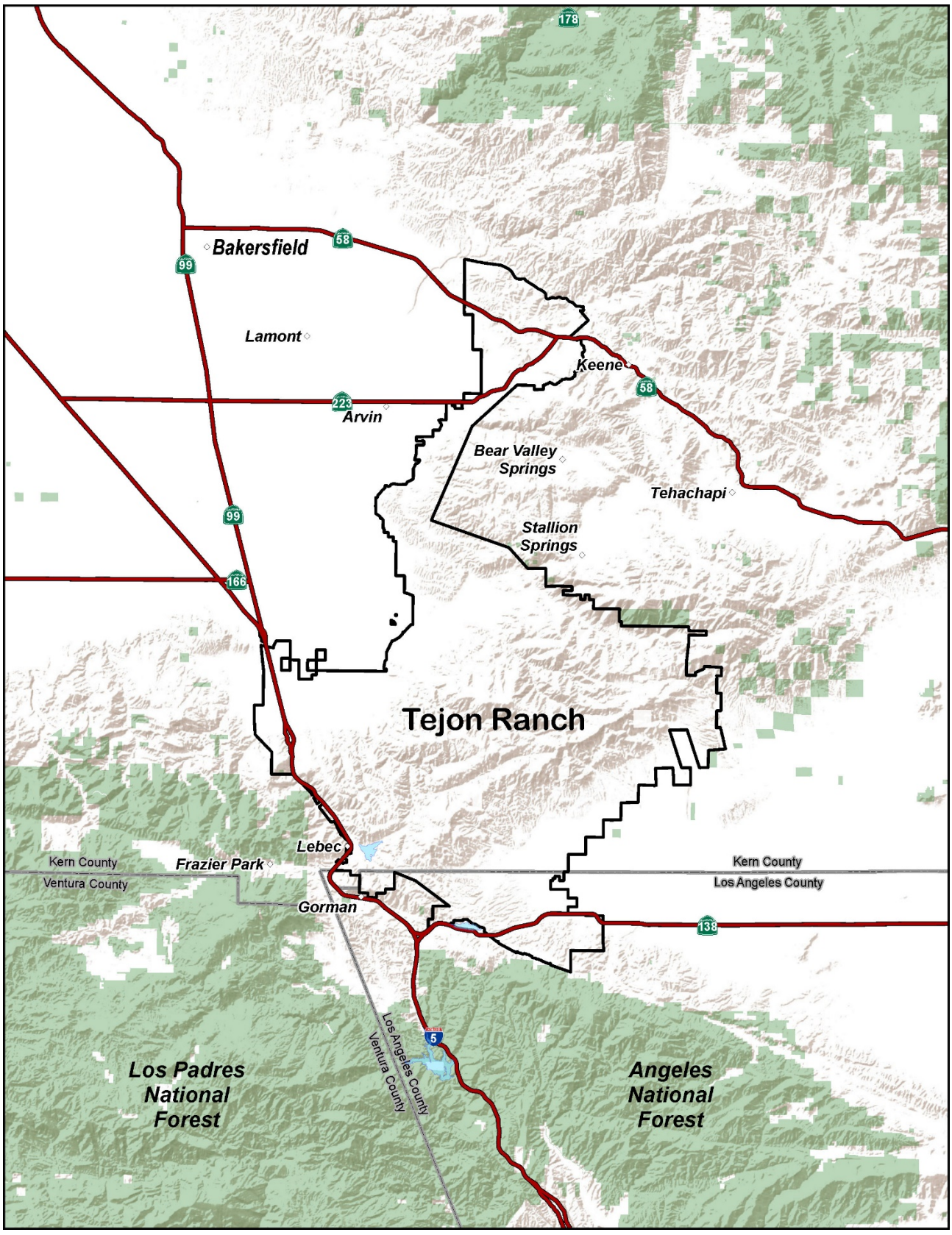

Exhibit 3 - Greenhouse Gas Calculations and Net Zero GHG Project Tracking Tool

The following greenhouse gas calculation have been agreed upon by the Parties for the Project to be a Net Zero GHG Project, and to serve as a tracking tool for Centennial to report on its compliance with the GHG Mitigation Plan, Annual Report, and certificate of occupancy GHG compliance requirements included in the Agreement. All capitalized terms used in this Exhibit have the same meaning as the capitalized terms in the Agreement.

Part 1: GHG Calculations

GHG BAU Emissions/Year (30 Year Basis): 500,000 MT/Year

Reduced by Itemized GHG Mitigation Measures: 185,000 MT/year or 37% of 500,000 MT/Yr

Reduced by Centennial energy requirements: 64,000 MT/Year or 12.8% of 500,000 MT/Yr

Reduced by Grapevine residential gas restriction: 17,313.46 MT/Year or 3.46% of 500,000 MT/Yr

Reduced by class 1-7 truck incentives: 1,549.50 MT/year or .31% of 500,000 MT/Yr (Tejon Ranch reduction)

Total Tejon Ranch reductions: 267,862.96 MT/Year or 53.57% of 500,000 MT/Yr

Total remaining GHG reductions required from Non-Itemized GHG Mitigation Measures: 232,137.04 MT/Year or 46.43%.

GHG applied in ratios to residential/commercial buildings to 232,137.04 MT/Year as follows:

53% of GHG from Residential (Per DU): 190.92 MT/DU

47% of GHG from Commercial (Per 1,000 SF): 324.13 MT/KSF)

Part 2: Net Zero Project GHG Agreement Compliance Tracking Tool:

Part A Reporting: GHG Mitigation Plan for Vesting Tentative Tract Map

1. Onsite Residential: ___ Dwelling Units Included in VTTM Application

Itemized GHG Mitigation Measure Compliance

- One Level 2 or Higher EVSE for single family DUs

Agreement § 1.a.1.b

- One Level 2 or Higher EVSE such that one electrical charger is provided each non-single family DU

Agreement § 1.a.1.c

- ____ $5,000 EV incentives available (of 9,667 incentive DUs)

Agreement § 1.a.1.a

- No natural gas service or fossil fuel fireplaces

Agreement § 1.a.5.a

- Backup Batteries: Included if Code req'd; Option if not required

Agreement § 1.a.5.b

- CCA Renewable Power Compliance

Agreement § 1.a.5.c

Cumulative DU Total in All Approved/Submitted VTTMs: ____ of 19,333 DUs

2. Onsite Non-Residential: ___ square feet (SF) in VTTM Application

Itemized GHG Mitigation Measures

- One Level 2 or Higher EVSE per 3,500 of SF

3,500 EVSE Total per *Agreement § 1.a.2.a*

- Natural gas restricted to essential uses only

Agreement § 1.a.5.a

- Backup Batteries: Included if Code req'd; Option if not required

Agreement § 1.a.5.b

- CCA Renewable Power Compliance

Agreement § 1.a.5.c

3. Other Itemized GHG Mitigation Measures

- One Level 2 or Higher EVSE charger in SCAQMD DACs per 4 DUs

Agreement §§ 1.a.4 (___ cumulative of 5,000 chargers total)

- $____ of $5,000 grants for EV service fleet vehicles per 48 DUs

Agreement §§ 1.a.3.a, 1.a.3. b (___ of 400 $5,000 grants totaling $2 million)

- ____ of $20,000 grants for EV transit/school bus/vans per 48 DUs

Agreement §§ 1.a.3.d (___ of $8M total)

- ___ Medium/Heavy Duty Truck EVSEs at TRCC per 100,972 SF

Agreement § 1.a.2.b (___ of 100 total TRCC Truck EVSEs)

- ____ of $7,500 grants for EVSE Class 1-7 trucks/vans per 38 DUs (__ of $3,750,000 total)

Agreement §§ 1.a.2.d (____ of 500 vehicles total)

EXHIBIT 4 – PUBLIC STATEMENT

Date: December 01, 2021

CENTENNIAL AT TEJON RANCH IS SETTING NEW STANDARDS FOR FIRE SAFE, SUSTAINABLE, AFFORDABLE MASTER PLANNED COMMUNITIES IN CALIFORNIA

In a major new agreement, the master planned community of Centennial, which has already committed to include 18% affordable housing units, will now achieve a net zero carbon project status that exceeds California's climate goals; and include new wildfire resilience measures to significantly enhance safety both in and outside the community.

(Tejon Ranch, CA) Tejon Ranch Co. (NYSE: TRC) and Climate Resolve, a Los Angeles-based nonprofit organization, today announced an unprecedented agreement regarding the Centennial at Tejon Ranch master planned community. The planned development of more than 19,300 homes and 10.1 million square feet of commercial and industrial space, which has received approvals from Los Angeles County, may now proceed to the next steps in the California development process.

Centennial, which has committed to include 3,480 affordable housing units as a part of its Los Angeles County approvals, will now also become a greater net zero project, meeting and exceeding all the state's goals and requirements to combat climate change.

The enhanced climate and wildfire resilience measures contained in the agreement set a new standard for development in California and represent the largest climate investment by a housing development in the state, a milestone achieved through the cooperation of both Tejon Ranch and Climate Resolve.

As part of the agreement, Climate Resolve has agreed to dismiss with prejudice its claim that the County of Los Angeles violated the California Environmental Quality Act (CEQA) when it approved Centennial in May of 2019.

With the dismissal of the lawsuit, Tejon Ranch Co. retains the legislative approval needed to continue the process that will lead *to* the development of a well-planned and critically needed community that will bring thousands of homes and jobs to Los Angeles County.

The agreement includes the following measures and features.

- Net Zero GHG Emissions: The community commits to net zero GHG emissions by reducing to zero all emissions through significant on-site and off-site commitments. A large component prioritizes disadvantaged communities, followed by other projects within Los Angeles County, and other parts of southern and central California.
- Electric Vehicle Advancement: Advance the EV future through commitments to install almost 30,000 chargers within and outside the community. Provide incentives to support the purchase of 10,500 electric vehicles.
- Wildfire Prevention: Funding for on-site and off-site fire protection and prevention measures, including fire-resilient design, planning, and vegetation management with benefits to neighboring communities.

- Unrivaled Transparency: Provide annual public reports and create an organization empowered to monitor progress to ensure the agreement results in the benefits identified.

"We are pleased to reach this agreement with Climate Resolve that will enable us to address California's housing crisis in the most sustainable manner possible," said Gregory S. Bielli, President and CEO of Tejon Ranch Company. "Tejon Ranch has a legacy of environmental stewardship, as well as using its land to meet major needs in California. More than ever, the state desperately needs the 19,333 housing units Centennial will provide, including the nearly 3,500 affordable units. At the same time, California needs to achieve its climate goals. This agreement outlines a way to create this unique climate-friendly, fire-safe, affordable mixed use master planned community that helps California address its housing needs consistent with the state's policy goals."

"Working with Tejon Ranch, we've been able to secure the largest climate commitment by a housing development in the state's history," said Jonathan Parfrey, Executive Director of Climate Resolve. "We're setting a new climate standard that surpasses anything previously done in the state. Our agreement builds upon the 2008 Tejon Ranch Conservation and Land Use Agreement and takes the added steps of further protecting the land from the threat of wildfire and zeroing-out greenhouse gas emissions at the Centennial project."

Both Tejon Ranch Company and Climate Resolve look forward to working together to implement an agreement that sets a new precedent for the development of fire safe, sustainable communities that will meet the needs of California today, and in the future.

####

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###

Forward-Looking Statements

This press release contains forward-looking statements, including without limitation statements regarding our commitments under the Settlement Agreement and certain aspects of our real estate operations. In some cases, these statements are identifiable through use of words such as "commit" and "will." These forward-looking statements are not a guarantee of future performance, are subject to assumptions and involve known and unknown risks, uncertainties and other important factors that could cause the actual results, performance or achievements of the Company to differ materially from any future results, performance, or achievement implied by such forward-looking statements. These risks, uncertainties and important factors include, but are not limited to, the impacts of COVID-19 and the actions taken by governments, businesses, and individuals in response to it, success in obtaining various governmental approvals and entitlements for land development activities, and the risks described in the section entitled "Risk Factors" in our annual and quarterly reports filed with the SEC.

Appendix G

Centennial Wildfire Safety Plan

Wildfire Safety Plan

Centennial

MAY 2026

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
ASTM	American Society of Testing and Materials
CAL FIRE	California Department of Forestry and Fire Protection
CBC	California Building Code
CDFW	California Department of Fish and Wildlife
CFC	California Fire Code
CWSP	Construction Wildfire Safety Plan
County	County of Los Angeles
LA County Fire	Los Angeles County Fire Department
EIR	Certified Environmental Impact Report
FMP	Fire Management Plan
FMZ	Fuel Modification Zone
WSP	Wildfire Safety Plan
FRAP	Fire and Resource Assessment Program
GHG	Greenhouse Gas
HOA	Homeowner's Association
LACBC	Los Angeles County Building Code
LASD	Los Angeles Sheriff Department
NFPA	National Fire Protection Association
OAERP	Operational Area Emergency Response Plan
RMDP	Resource Management and Development Plan
SCE	Southern California Edison
SFM	State Fire Marshall
SRA	State Responsibility Area
VHFHSZ	Very High Fire Hazard Severity Zone
WFEP	Wildland Fire Evacuation Plan
WUI	Wildland/urban interface

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Executive Summary

This Wildfire Safety Plan (WSP) has been prepared for the Centennial Project, which implements the development facilitated by the proposed Centennial Specific Plan within the Antelope Valley Area Plan in the County of Los Angeles (County). This Wildfire Safety Plan fulfills the requirements of LA County Fire Code Section 4903.1, which is intended to determine the acceptability of fire protection and life safety measures designed to mitigate wildfire hazards presented for the Centennial Project.

This WSP outlines the regulatory framework and supports Section 4.0, *Wildfire,* of the Recirculated Partial Draft Centennial EIR, which analyzes wildfire impacts associated with the Project. The Recirculated Partial Draft EIR finds that the Project would have a less than significant impact on adopted emergency response and evacuation plans, based on the proximity of fire stations, the provision of an improved roadway network, and the availability of adequate fire flow. The Recirculated Partial Draft EIR also evaluates the potential for wildfire-related impacts and determines that, although the Project incorporates adequate access, water supply, fuel management, wildfire buffers, and fire-smart design, a potential wildland fire hazard would still exist and would require mitigation. However, with compliance with applicable regulations and implementation of mitigation measures, the Recirculated Partial Draft EIR finds that wildfire impacts would be less than significant.

Climate Resolve Settlement Agreement

On May 15, 2019, Climate Resolve filed a petition commencing litigation in the Los Angeles County Superior Court, challenging the County's approval of the Project and certification of the 2019 EIR.

On April 5, 2021, the Los Angeles County Superior Court issued a Court Order upholding the 2019 EIR's assessment of Project impacts in most respects and granting in part Climate Resolve's petition. Following issuance of the Court Order, but prior to final judgment in the Climate Resolve action, the Approved Project proponent and Climate Resolve entered into a Settlement Agreement, which became effective and fully enforceable on November 30, 2021. As a result of the Settlement Agreement, the Climate Resolve lawsuit was dismissed by the Court with prejudice.

The Settlement Agreement requires the Project to implement enhanced wildfire prevention and protection measures and on-site and off-site fire resiliency commitments above and beyond regulatory requirements and mitigation measures required to reduce wildfire impacts to less-than-significant levels. These include a Project-specific Fire Protection Plan (FPP) that identifies community fire hazard reduction measures including building design and fuel management requirements and establishment of a Good Neighbor Firewise Fund of $500,000 annually to aid communities with a population of less than 10,000 located within 15 miles of the Tejon Ranch in order to reduce off-site fire risks, increase fire prevention, protection, and response measures and reduce or avoid impacts to Project residents and neighboring communities.

Summary of Wildfire Safety Plan

The Project Site is located in an unincorporated portion of northwestern Antelope Valley within northern Los Angeles County (Figure 2). The development proposed by the Project within the 12,323-acre Centennial Planning Area includes development of up to 19,333 residential dwelling units, roughly 1,000,000 square feet of commercial

uses, roughly 8,800,000 square feet of business parks, schools, institutional areas, recreational areas and parks, roughly 5,624 acres of open space, and an internal circulation road network.

The Centennial Project site is located within State Responsibility Areas with portions of the Project designated as Very High Fire Hazard Severity Zone (VHFHSZ) by the California Department of Forestry and Fire Protection (CAL FIRE) (OSFM, 2024) (Figure 3 Fire Hazard Severity Zones). At the time of the Centennial EIR in 2019, the extent of the VHHSZ was mapped at 3,906 acres. Since the assessment conducted during the 2019 EIR, updated Fire Hazard Severity Zone maps were released in April 2024 and the VHFHSZ has been expanded to 7,089 acres. The VHFHSZ within the Centennial Project site was reduced significantly from the original draft release of the updated Fire Hazard Severity Zone maps during the public comment period due to data inaccuracies that resulted in an overestimation of wildfire hazard at the Project site.

A comparison of Fire Hazard Severity Zones from the Certified EIR and the current maps is provided below in Table 1. As provided in Figure 3, the expansion of the VHFHSZ has largely occurred in the western half of the Project site. Within proposed development areas specifically, 2,283 acres are designated as VHFHSZs, with 3,870 acres designated as High, and 431 acres designated as Moderate.

Table 1. Comparison of Fire Hazard Severity Zones from 2019 and 2024

Fire Hazard Severity Zones	2019 Mapping	2024 Mapping
Moderate	437 ac.	603 ac.
High	7,980 ac.	4,631 ac.
Very High	3,906 ac.	7,089 ac.

Source: OSFM, 2007, OSFM, 2024

This WSP provides a comprehensive evaluation of the wildfire risks associated with the Project and measures employed by the Project to reduce such risks. The WSP assesses reducing fire risk for the Project, preventing off-site ignitions, and minimizing the demand for fire protection services associated with the Project. To that end, the fire protection detailed in this WSP employs a systematic, project-wide approach that includes redundant layering of measures, including pre-planning, fire prevention, fire protection, passive and active suppression, and related measures proven to reduce fire risk and prevent Project-related ignitions. The fire protection system planned for the Project has proven, through real-life wildfire encroachment examples throughout Southern California, to reduce the fire risk associated with this type of hardened, ignition-resistant, and fire-aware residential community and commercial development.

The WSP addresses the following overall topics:

- **Environmental Setting: Existing Conditions and Fire History** – The WSP summarizes the existing environmental setting, climatic and topographic conditions, and the history of fire patterns at the site.
- **Regulatory Compliance, Mitigation Measures, and Additional Resiliency Measures Applicable to the Project –** The WSP details the extensive regulatory requirements that are mandatory upon the Project based on compliance with the 2026 LA County Fire Code (Title 32), as well as the fire protection-related adopted codes in effect at the time of building construction. Accordingly, the WSP evaluates regulatory requirements and additional wildfire risk prevention, resiliency, and mitigation measures, to reduce such risk to less than significant levels by employing risk-reduction measures related to fuel modification, building design and

construction, site layout, water supply, evacuation, and other pertinent criteria for fire protection Applicable Project-specific requirements include but are not limited to:

- State-of-the-art, ignition-resistant construction standards for all new residential, non-residential, and public facility buildings meeting Chapter 7A of the California Building Code (CBC), Title 26 of the County of Los Angeles Building Code (LACBC), and the LA County Fire Department (LA County Fire) requirements. These standards require, among many other measures, fire-resistant roofing to resist ignition from embers or building-to-building fires, vent covering and opening limitations to avoid ember intrusion, noncombustible or ignition-resistant exterior walls, ignition-resistant eaves, and porch ceilings, insulated windows and exterior doors, fire-resistant exterior decks and walkways, and ignition-resistant under-flooring and appendages. These standards have proven to substantially reduce the risk of buildings catching fire or spreading fires during a wildfire event.
- Fuel modification zones around the perimeter of the Project ranging from 100-200 feet to provide defensible space to protect against encroaching fires and minimize the risk of fires from the project moving offsite. The fuel modification zones are based on LA County Fire requirements and confirmed with site-specific modeling. The zones will be implemented by knowledgeable professionals, inspected by third-party inspectors, and maintained in perpetuity by the HOA.
- Ongoing, funded maintenance, inspections, and enforcement of fuel modification zones and other fire protection features by the HOA or similar organization funded by an assessment or tax on parcels within the Project.
- Existing and planned firefighting capabilities to ensure a response to fire and medical emergencies.
- In all structures, additional fire protection systems, including internal fire sprinkler systems.
- Fire-resistant landscaping requirements.
- Multiple access routes for fire apparatus and emergency vehicles.
- Multiple evacuation routes during a wildfire event. See the Centennial Wildfire Evacuation Technical Report for a detailed description of evacuation routes.
- Water capacity, delivery, and availability.
- Ongoing resident fire safety education and evacuation planning.

- **"Worst Case" Wildfire Risk Modeling to Predict Flame Lengths During Extreme Events and Benefits of Regulatory Compliance and Mitigation Measures** – The WSP completes detailed modeling of "worst-case" fire conditions to determine flame lengths that may impact the site from worst-case scenarios, under both pre-development and post-development conditions (with regulatory compliance and mitigation implemented).
- **LA County Fire Emergency Response Times** – The WSP assesses the impacts of the Project on LA County Fire's response times based on existing and planned fire stations.

The potential exists for wildfires to encroach on the site, as demonstrated by the history of wildfires in the area. Based on an analysis of fire history data, specifically, the average interval between wildfires within 1 mile of the Project Site's boundaries was calculated to be four years.

Site-specific modeling was completed for this WSP by using Flammap and BehavePlus software in accordance with standard industry practice for evaluating fire behavior variables and objectively predicting flame lengths, fire intensity, and fire spread rates under a "worst-case" wildfire event (e.g., a wildfire during a strong wind Santa Ana event). The modeling evaluates both existing conditions and post-development conditions with fuel modification

zones in place (assuming a 100-200-foot fuel modification zone in accordance with applicable standards). The modeling demonstrates the fuel modification zone's reduced flame length and intensity.

- ***Centennial Post-development Fire Behavior:*** The 20-foot (grass-shrub) and tall flames predicted during pre-development extreme weather conditions are reduced to less than 11 feet tall at the outer edges and less than 4.0 feet within the planned development (i.e., within irrigated "Zone A" of the fuel modification zone). Fuel model assignments for all other areas remained the same as those classified for the existing condition.

Based on the predicted flame lengths and intensities following implementation of the fuel modification zones, encroaching wildfires would not present a significant risk of directly intruding into the Project even during extreme events (e.g., strong Santa Ana winds). Even if windblown embers were to fly over the fuel modification zones, the ignition-resistant buildings and fire-resistant landscaping would minimize the likelihood of any fires starting onsite, and even if isolated fires occurred, they would be unlikely to spread quickly or be of high intensity given the limited fuel sources. As described above, new communities with buildings built to the latest fire code standards have proven extremely resistant to burning even during extreme fire events.

The Project is unlikely to exacerbate fire risks to surrounding areas. The ignition-resistant buildings and fire-resistant landscaping are unlikely to initiate a fire that would spread to surrounding areas, particularly because the fuel modification zones would limit the ability of any fire to move offsite. Because onsite fires are unlikely to occur and, even if so, would likely be low-intensity fires due to lack of fuel sources, the Project is unlikely to produce embers that would fly across the fuel modification zones to surrounding areas.

To assess the Project's potential to influence wildfire risk to surrounding areas, a focused Off-site Ignition Assessment was conducted. Following the comprehensive research, development, and application of the off-site risk assessment method, it was concluded that the Centennial Specific Plan Project presented a Moderate Off-site Ignition Risk to the adjacent land uses and communities in the region (See Centennial Focused Off-site Ignition Risk Analysis).

Adequate emergency response for the Project is achieved when considering planned onsite fire stations and existing LA County Fire stations and apparatus in the near vicinity of the Project site. Based on calculated increases in calls for an emergency response associated with the Project, the estimated LA County Fire response times would be consistent with LA County Fire's goals for suburban uses.

The Project is consistent with regional evacuation guidelines. As an additional wildfire risk reduction measure, the Project also includes a project-specific evacuation study (WES) under a separate cover and described in Section 6 of the WSP (Dudek 2023).

As detailed below, the WSP evaluates the Project's potential to result in significant impacts based on the CEQA Appendix G questions. The WSP evaluates the Project's potential to increase human-caused or related ignitions and considers the historical causes of wildfires in the area and Southern California as well as potential ignition sources presented by the type of proposed land uses, both on-site and off-site. The WSP also considers whether these risks are addressed through the Project's compliance with regulatory requirements and mitigation measures, including fuel modification zones, hardened homes, robust resident education, public outreach, and fire safety monitoring, amongst others described in detail herein. The Project includes enhanced fire protection measures as compared to what was considered in the 2019 EIR wildfire analysis.

The WSP supports the Recirculated Partial Draft Centennial EIR, which concludes that the Project would not result in significant wildfire impacts with compliance with applicable regulatory requirements and implementation of mitigation measures. The WSP also concludes that the Project does not result in a significant impact related to increasing or exacerbating wildfire impacts on surrounding areas.

Although the Project impacts are mitigated to less-than-significant levels by the identified regulatory requirements and mitigation measures, Tejon Ranch's historic and ongoing agricultural and grazing operations and other fire resiliency measures proposed by the Project have the additional benefit of further reducing wildfire risks to the Project and surrounding areas, thereby providing additional environmental benefits with respect to wildfire prevention.

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1 Introduction

This Wildfire Safety Plan (WSP) has been prepared by Dudek and is specifically applicable to the Centennial Specific Plan (Project) in Los Angeles County (County). This WSP is intended to guide the design, construction, and maintenance of Project improvements in compliance with the Centennial Specific Plan (Specific Plan), applicable fire codes, and the various fire safety mitigation measures described in the Mitigation Monitoring and Reporting Program (MMRP) approved for the Project by the County (collectively, the Fire Safety Requirements, all of which are described in detail in the attached Exhibit A). This WSP addresses fuel modification, fire protection related infrastructure (water supply, hydrants, primary and second ingress/egress roads, and emergency response) and structural fire protection concepts for the Project, including both on-site and off-site Project features. This WSP also addresses how the Project's Fire Safety Requirements will be monitored and enforced over time, as well as how the Project's master developer will educate Project residents about their obligations to maintain a fire-safe home. The goal of this WSP is to provide standards to facilitate development of the Project as a "fire hardened" community that will protect Project residents and visitors, as well as the environment, by minimizing and mitigating fire threats on the Project site and reducing Project demands on local fire protection services.

The goals of this WSP are to provide standards that will protect Project residents and visitors by minimizing and mitigating fire issues potentially created by the Project and to reduce the demands the Project may have on the local fire protection delivery system. This WSP addresses fire behavior modeling, fuel modification, fire protection related infrastructure (water supply, hydrants, primary and secondary ingress/egress roads, on-site firefighter access to attached residential and commercial buildings and resorts, and emergency response), and structural fire protection concepts for the development. It is based upon the Project's varying topography; proposed types of land uses and potential wildfire risks. It also addresses how fuel modification for protection of structures will be implemented on site and how they will be maintained on an ongoing basis. The dual benefit of building a fire hardened community is that the same features that protect the community from wildfire also play a significant role in protecting wildlands from Project-related fires and minimize the potential for fire escaping the site into the wildlands.

As part of the assessment, this WSP includes an evaluation of, among other site factors, the property location, topography, combustible vegetation (fuel types), climatic conditions, and the area's fire history. This WSP addresses water supply, access, structural ignitability, ignition-resistive building features, fire protection systems and equipment, potential impacts on existing emergency services, defensible space, and vegetation management. It also identifies and prioritizes areas for potentially hazardous fuel reduction treatments and recommends the types and methods of treatment to protect the community and essential infrastructure while minimizing the potential for off-site ignitions. This WSP also recommends measures that property owners and the Homeowner's Association (HOA) will take to reduce the probability of structure and vegetation ignitions throughout the area.

The Centennial Project is located within the boundaries of the LA County Fire Department in the unincorporated portion of the County. This WSP addresses LA County Fire's response capabilities and response travel time within the Project Area.

The following tasks were performed to complete this WSP:

- Gather site-specific climate, terrain, and fuel data.
- Process and analyze the data using the latest geographical information system (GIS) technology.

- Predict fire behavior using scientifically based fire behavior models, comparisons with actual wildfires in similar terrain and fuels, and experienced judgment.
- Analyze and guide the design of the proposed infrastructure.
- Analyze the existing emergency response capabilities.
- Assess the risk associated with the Project.
- Collect site photographs and map fuel conditions using aerial images. Field observations were used to augment existing digital site data in generating the fire behavior models and formulating the recommendations presented in this WSP. Refer to Appendix B for site photographs of existing site conditions.
- Research and evaluate vegetation fire ignition sources.
- Evaluate nearby firefighting and emergency medical resources.

Prepare this WSP detailing how fire risk would be minimized through a system of fuel modification, structural ignition resistance enhancements, and fire protection delivery system upgrades.

1.1 Intent

The intent of this WSP is to provide Wildfire Safety Planning guidance and requirements for reducing fire risk for the Project, preventing off-site ignitions, and minimizing the demand for fire protection services associated with the Project. To that end, the fire protection "system" detailed in this WSP includes redundant layering of measures, including pre-planning, fire prevention, fire protection, passive and active suppression, and related measures proven to reduce fire risk and prevent Project-related ignitions. The fire protection system planned for the Project has been proven, through real-life wildfire encroachment examples throughout Southern California, to reduce the fire risk associated with this type of hardened, ignition-resistant, and fire aware residential community and commercial development.

The following points highlight key Project characteristics identified and addressed in this WSP:

- Includes large acreages of natural vegetation in a wildland-urban interface setting
- Includes historical occurrence and potential risk of future wildfire
- Project residences, commercial, and other buildings will be constructed according to latest ignition-resistant codes and with temporary on-site relocation as an optional alternative to off-site relocation for some areas/buildings.

When wildfire threatens the Project, relocation of residents, guests, visitors, and staff to appropriate on-site or off-site areas will be the primary and preferred option and will be implemented when situations enable adequate time and low risk for the relocation process to be completed. As an alternative and duplicative safety layer, and based on the modeled lower intensity wildfire behavior and spotting characteristics on the Project site and surrounding areas, the community will include a temporary on-site relocation option for designated structures for the possibility that off-site relocation from the site is not possible or not considered the safest approach for some or all of its residents.

Fire protection for new developments in the Wildland Urban Interface (WUI) especially those including temporary on-site relocation designation, must utilize a "systems approach" consisting of the components of fuel modification

and maintenance, ignition-resistant structures, water supply, fire protection systems, access (ingress/egress) and emergency response. To that end, this Project will include:

- Substantial on-site firefighting capability (three new fire stations, upgrades to existing fire station) – specifications to be determined as part of separate negotiation, ensuring fast response to fire and medical emergencies. A potential fourth station will be built if the LACoFD deems it necessary given the response times of the three previously constructed stations.
- Fuel modification zones (inclusive of Zone 0, if required) providing defensible space based on fire behavior modeling results and experienced Wildfire Safety Planning professionals.
- Ignition-resistant construction meeting Fire Authority Having Jurisdiction (FAHJ) requirements and providing temporary on-site relocation capability for some structures.
- Fire protection systems – internal fire sprinkler systems in all structures including residential, commercial, retail, resort and other public facilities per the applicable code
- Dedicated fire apparatus and emergency vehicle access via code compliant roads
- Water capacity, delivery and availability meeting local code requirements
- Ongoing, funded maintenance and inspections of fuel modification zones and other fire protection features.

The following sections address on- and off-site risk assessment, fire behavior modeling, and required fire protection features for the Centennial Specific Plan Project.

1.2 Project Summary

1.2.1 Location

The Project site consists of approximately 12,323 acres (or approximately 19.3 square miles) and is located in the northwestern portion of the Antelope Valley in an unincorporated portion of the County (Figure 1). It is located in the vicinity of Quail Lake and is contiguous to the southern boundary of Kern County (Figure 2). The western boundary of the Project site is approximately 1 mile east of Interstate 5 (I-5). State Route 138 (SR-138) traverses the southern portion of Project site in an east-west direction and forms its southern boundary west of Quail Lake. The site is immediately south of the divergence in the California Aqueduct into its East and West Branches. The West Branch of the Aqueduct runs in a north–south direction and generally bisects the Project site. The east branch runs along the northern boundary of the Project site. The Project site's eastern boundary is 300th Street West. The Project extends for approximately 6 miles between its western boundary (west of Quail Lake) and its eastern boundary at 300th Street West. Elevations range from approximately 3,000 feet above mean sea level (amsl) on the floor of Antelope Valley in the northeastern portion of the Project site to approximately 4,250 feet amsl in the southwestern portion of the Project site.

The immediate vicinity of the Project site is generally bound by the Tehachapi Mountains to the north; the Antelope Valley is to the east; the northern edges of the Liebre and San Gabriel Mountains (Angeles National Forest) are approximately 1 mile to the south; privately owned vacant land is immediately adjacent to the Project site to the west; and the Los Padres National Forest is approximately seven miles to the west. The Project site is approximately 35 miles north of the City of Santa Clarita in the County; approximately 50 miles south of the City of Bakersfield in Kern County via State Route 99 (SR-99) and I-5; and approximately 36 and 43 miles west of the cities of Lancaster

and Palmdale, respectively, in the County via SR-138. The community of Gorman in the County is adjacent to the I-5 approximately four miles north of the I-5/SR-138 junction.

Fire Hazard Severity Zone classification on the Centennial Specific Plan Project site is mapped as Very High, High, and Moderate. A graphical portrayal of the zone classifications for the Project site is presented in Figure 3.

1.2.2 Current Land Use

Existing land uses surrounding the Centennial Specific Plan Project site vary from open water (Quail Lake) and the California aqueduct to open range land. The vast majority of the Project site is an active cattle ranch dominated by open space supporting livestock grazing. Lands are disturbed by the grazing operation but remain in a largely managed condition. Other current land uses include roadways and limited associated infrastructure throughout the area. Land uses in the vicinity of the property include primarily agriculture and open space.

1.2.3 Project Description

The Project will be a large-scale community, resulting in roughly 54% of the site converted to urbanized uses while approximately 46% of the site is either left undisturbed or will be active recreation open areas. The Project incorporates a clustered interface design and therefore does not include unmanaged vegetation interspersed among and between developed areas.

The Project would develop many on-site infrastructure and utility improvements to support the various housing, business, and school structures. In summary, the proposed 12,323-acre Project area would include the following land uses at build out:

- Up to 19,333 residential units
- 1,034,550 square feet of commercial
- 7,363,818 square feet business park
- 1,568,160 square feet institutional/Civic uses on 110 acres
- 146 acres for schools
- 75 acres of commercial recreation
- 163 acres of parks
- 5,624 acres of open space
- 327 acres for streets
- 191 acres for utilities

With regard to wildfire risk on the Project site, an important component is the planned wildland urban interface nature of this community. Planned development resembles a clustered design with continuous edges between development areas and undeveloped vegetation. Large expanses of open space in the extreme northwest and southeast as well as in the far western portions of the project include wildland fuels. These open space areas represent potential exposed interfaces to the wildland with the remainder of the interior project areas represented by built and maintained landscape. In addition to these perimeter open space areas, minor and major greenways are planned for integration within the Centennial communities. In most cases, these interior greenways will be fully disturbed and graded during construction and then reseeded and will include managed landscapes presenting

minimal wildfire hazard. Nonetheless, the structures planned adjacent to these areas provide fuel modification, interior sprinklers, and ignition-resistant construction that is appropriate for the types of wildfires that may occur in these areas.

The proposed land use improvements previously described will be completed according to the 2022 California Fire Code and Building Codes (as adopted by the County, per Title 32) as well as the 2021 International Fire Code, or current fire code at the time of construction, and will therefore include ignition-resistive construction, interior sprinklers, structure set-backs, and required fire flow, along with a designated fuel modification area which varies throughout the Project based on modeled fire intensity and site features such as vegetation and topography, amongst others as described further in this WSP. The following descriptions provide additional details regarding the proposed land uses.

Residential

Residential units will be provided within land use categories ranging from very low to very high residential. As such, densities will range from as low as 2 dwelling units per acre to as high as 50 dwelling units per acre. There will be detached as well as attached units. Regardless of the density type, all development will resemble a master-planned clustered form.

Public Uses

The Project's public uses include recreation areas, parks, golf courses, library, and hospital, amongst others.

Schools

Seven public school sites will be constructed within the project. Five of the school sites will be designated K–8, one will be a K–5 school, and one will be a high school.

Public Safety Sites

The Project also includes proposed public facilities locations including three fire stations, with an option for a fourth if determined necessary by LACoFD, and a temporary sheriff sub-station open day one of the project that will be upgraded to a full sheriff station as the community builds out. Details related to final location, funding, phasing, specific fire station facility components, equipment, and staffing will be determined with LACoFD direction.

Project Open Space

The largest component of open space in the overall Centennial Specific Plan Project area is comprised of the areas outside the individual residential lots. The development concept is described in detail in the Centennial Specific Plan.

Off-Site Improvements

The Project would also include the following off-site improvements. An assessment of these off-site features and their potential impact on wildfire risks is further detailed in the Recirculated Partial Draft EIR.

Utilities

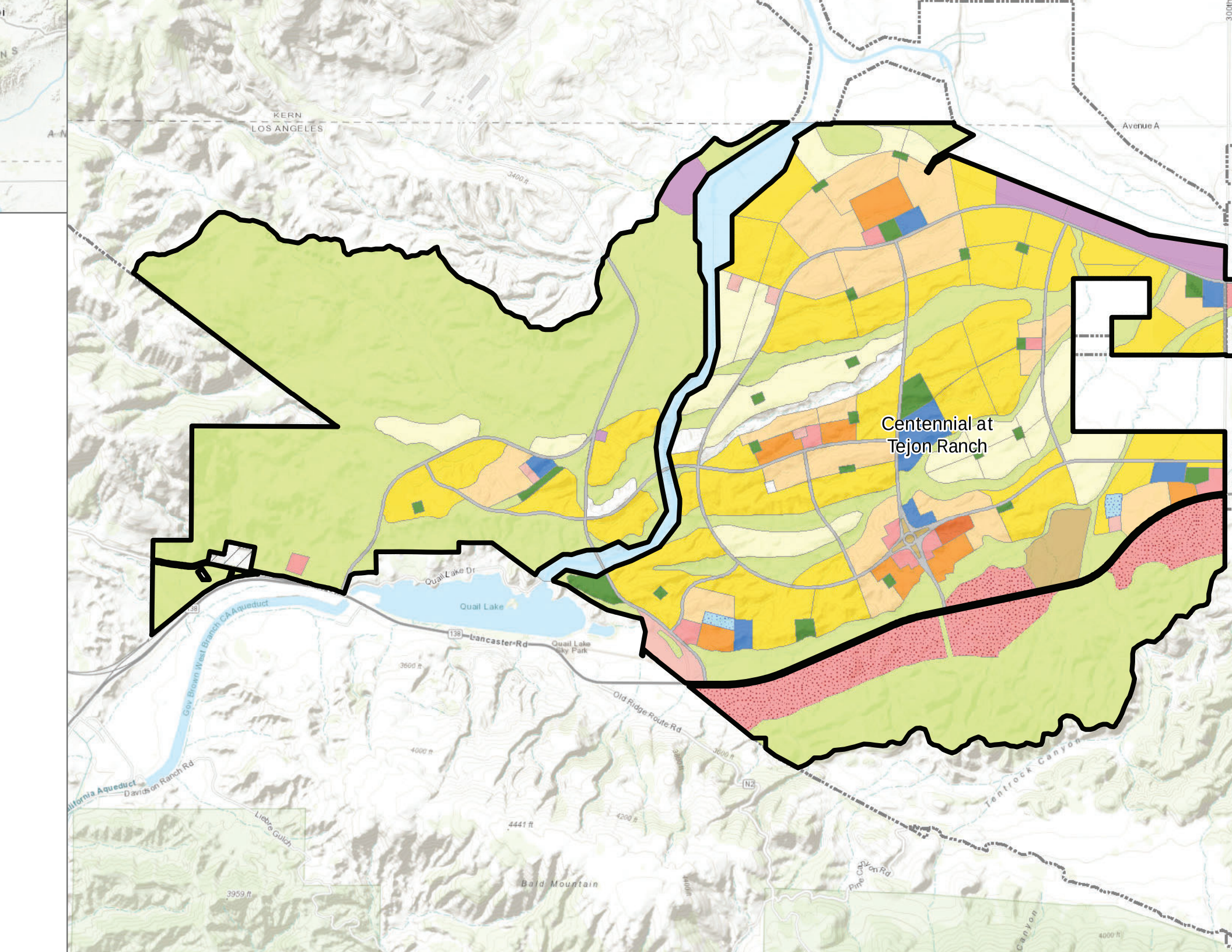
- Installation of new underground dry utility corridors (electric, natural gas, telephone, and cable) within roadway rights-of-way.
- Relocation and/or removal of existing Southern California Edison (SCE) electrical facilities along portions of SR-138, Gorman Post Road, and within the Project site.
- Potential relocation or undergrounding of existing 66-kV lines extending from the Bailey Substation; any new overhead poles would be installed within SCE easements.
- Upgrades to existing substations to provide additional electrical capacity, including:
  - **Gorman Substation:** Addition of transformers and reconstruction of existing overhead transmission lines along Gorman Post Road.
  - **Bailey Substation:** Installation of a distribution transformer and extension of distribution lines to the Project (overhead and/or underground depending on phase).
- Potential natural gas infrastructure improvements, which could include tapping into the existing high-pressure gas main along Gorman Post Road, construction of a gas regulator station, and potential extension of high-pressure gas lines to serve the Project.

Roadway Improvements

- Improvements at the intersection of 290th Street West and SR-138, including acceleration/deceleration lanes, turn pockets, and traffic signals.
- Previously approved environmental documentation has evaluated these roadway improvements under CEQA.

Water Infrastructure

- Development of off-site groundwater wells within the existing Tejon Ranch Company Water Bank in Kern County.
- Construction of new water conveyance pipelines from Kern County to the Project site.
- Trenching and pipeline installation to connect wellheads to untreated water pipelines along 300th Street West.
- Four crossings of the California Aqueduct (including the East Branch) to deliver water to the Project


Centennial at
Tejon Ranch
KERN
LOS ANGELES
Avenue A
Quail Lake Dr
Quail Lake
Lancaster Rd
Quail Lake
Old Ridge Route Rd
Gov Brown West Branch CA Aqueduct
Davidson Ranch Rd
Liebre Gulch
Bald Mountain
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3400 ft
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3959 ft

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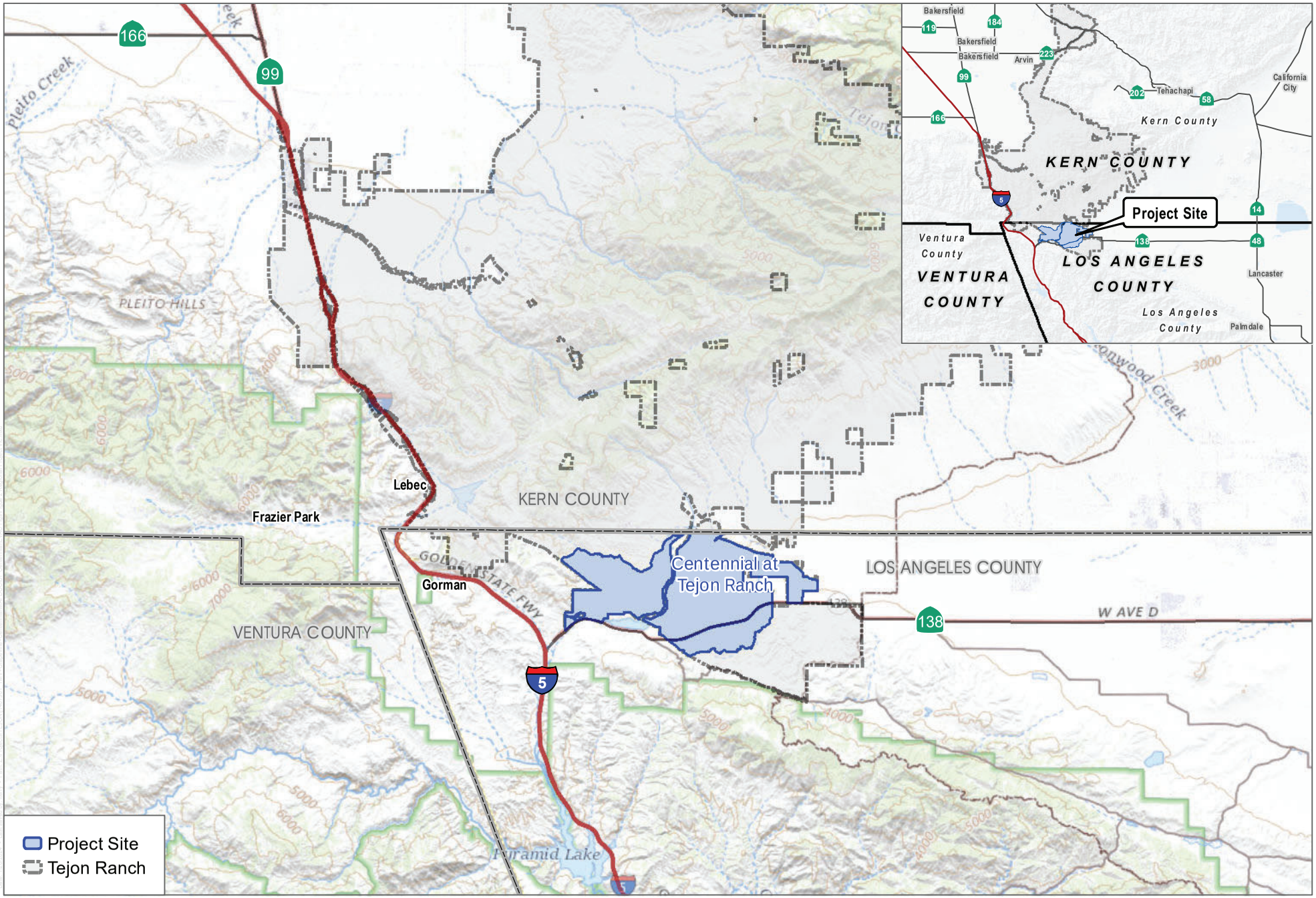

SOURCE: AERIAL-NAIP 2020

FIGURE 2

Regional Project Vicinity

DUDEK

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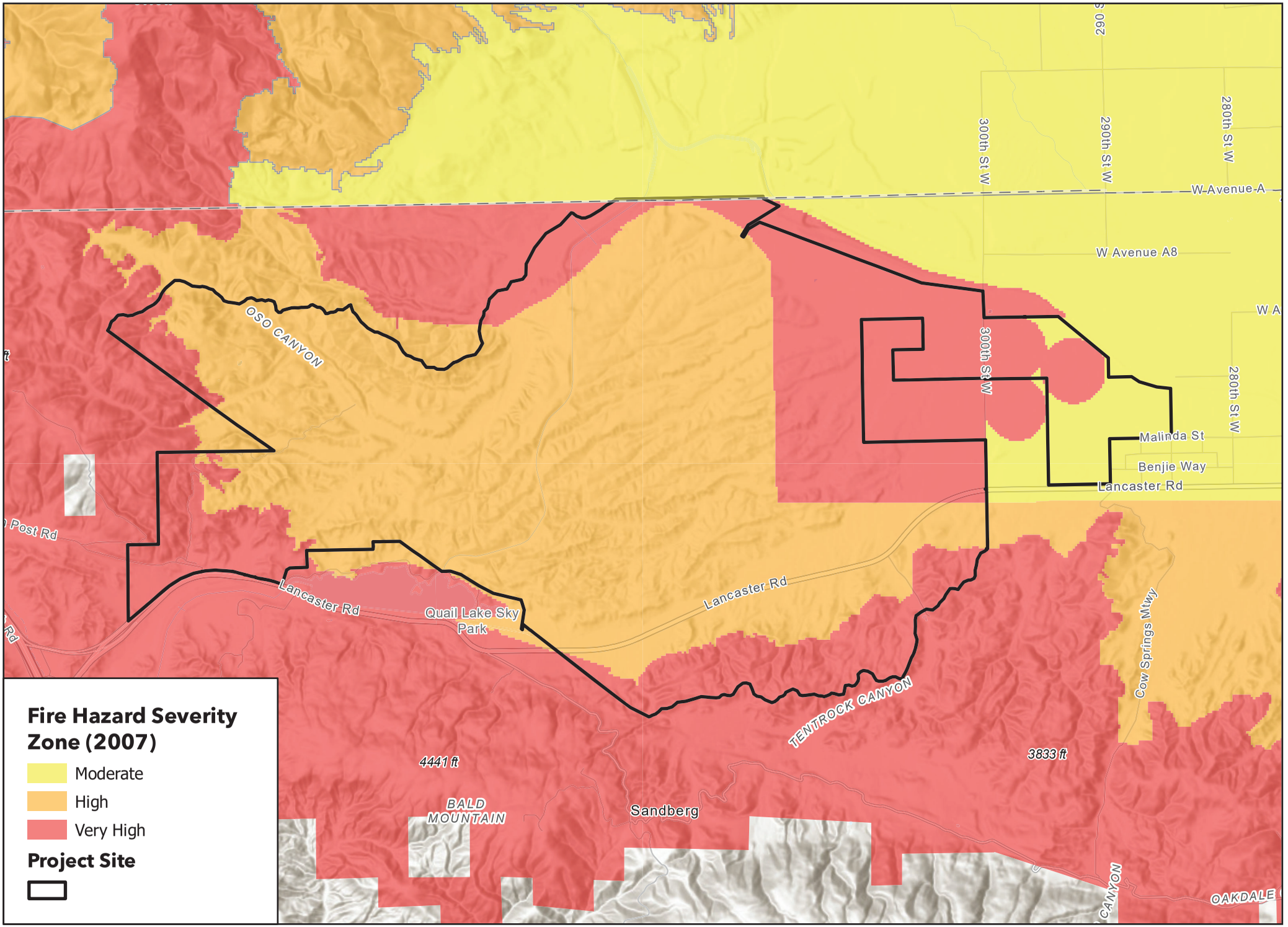

DUDEK

0 0.5 1 2 Miles

Source: OSFM, 2007

FIGURE 3A

Fire Hazard Severity Zones (2007)

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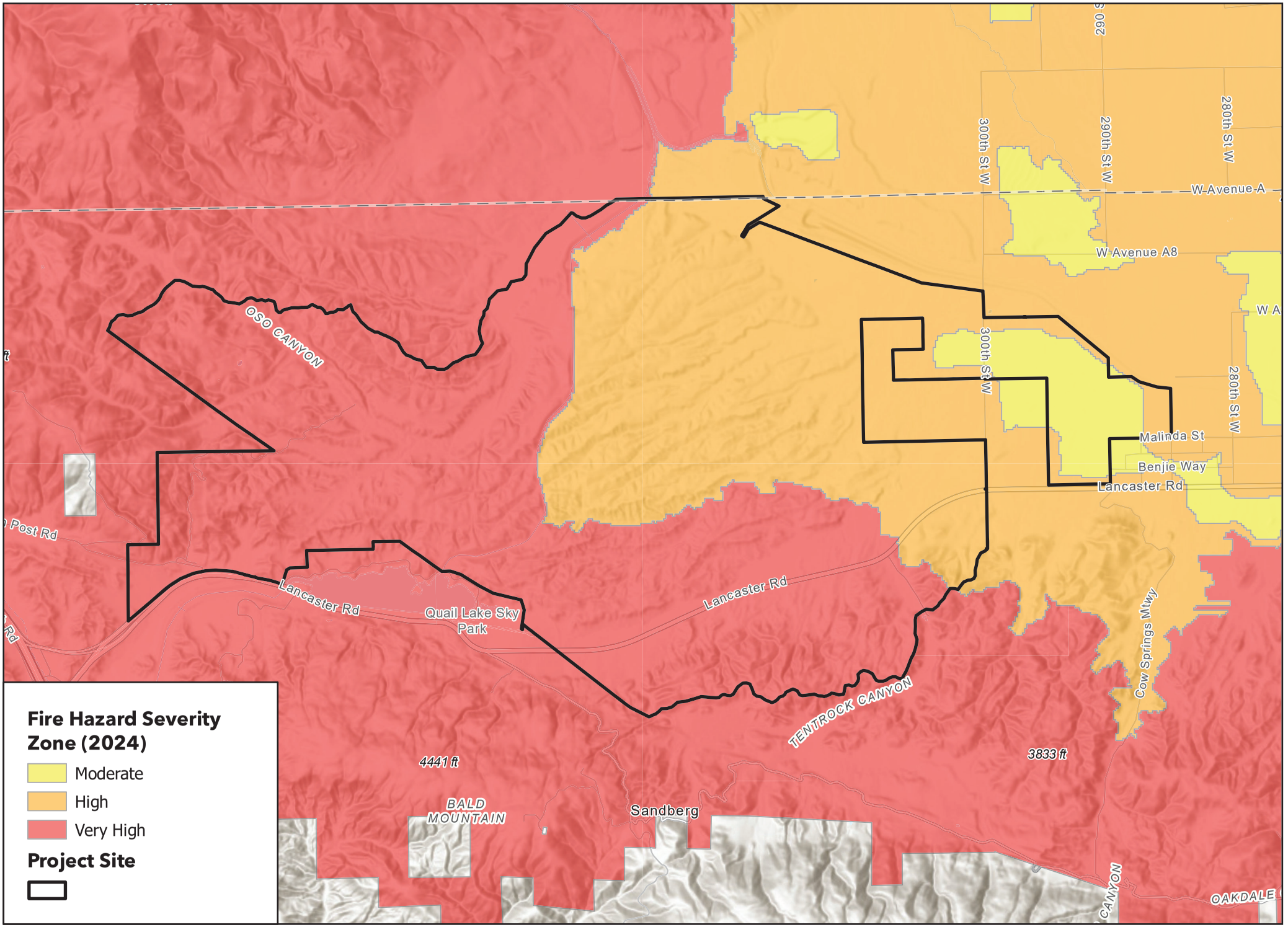

DUDEK

0 0.5 1 2 Miles

Source: OSFM, 2024

FIGURE 3B

Fire Hazard Severity Zones (2024)

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2 Existing Setting: Project Study Area Conditions, Risk Factors, and Fire History

Fire environments are dynamic systems and include many types of environmental factors. Fires can occur in any environment where conditions are conducive to ignition and fire movement. Areas of naturally vegetated open space like that found on the Project site are typically comprised of conditions that can be favorable to wildfire spread. The three major components of fire environment are topography, climate and vegetation/fuels. The state of each of these components and their interactions with each other determines the potential characteristics and behavior of a fire at any given moment. Understanding these existing conditions is necessary to understand the potential for fire within and around the Project.

2.1 Field Assessment

Field assessments of the Project site and areas proposed for off-site improvements were conducted by the Dudek team between 2009 and 2023 in order to document existing site conditions and determine potential actions for addressing the protection of the structures proposed for the site. Assessments of the area's topography, natural vegetation and fuel loading, available setback areas, and general susceptibility to wildfire formed the basis of the site risk assessment. Completed field tasks include:

- Vegetation measurements and mapping refinements
- Fuel load analysis
- Topographic features documentation
- Regional land uses, existing communities, potential vulnerabilities
- Photograph documentation
- Confirmation/verification of hazard assumptions
- Access/egress documentation.

Project site photographs were collected, and fuel conditions were mapped using 200-scale aerial images and Bonterra vegetation data (Bonterra 2009). Field observations were used to augment existing site data in generating the fire behavior models and formulating the recommendations detailed in this WSP. Refer to Appendix B for site photographs of existing site conditions.

2.2 Study Area Characteristics and Fire Environment

Fire environments are dynamic systems and include many types of environmental factors and site characteristics. Fires can occur in any environment where conditions are conducive to ignition and fire movement. Areas of naturally vegetated open space are typically comprised of conditions that may be favorable to wildfire spread. The three major components of a fire environment are topography, vegetation (fuels), and climate. The state of each of these components and their interactions with each other determines the potential characteristics and behavior of a fire at any given moment. It is important to note that wildland fire may transition to urban fire if structures are receptive to

ignition. Inversely, it is possible for structural fires to transition into wildland fires in extreme cases. This is more likely to occur when multiple structures are burning simultaneously, particularly in areas with close proximity to receptive wildland fuels. Structure ignition depends on a variety of factors and can be prevented/minimized through a layered system of protective features including fire resistive landscapes directly adjacent the structure(s), application of known ignition resistive materials and methods, and suitable infrastructure for firefighting purposes. Understanding the existing wildland vegetation and urban fuel conditions on and adjacent to the site is necessary to understand the potential for fire within and around the Project site. The following sections discuss the characteristics of the Project area on a regional scale. Evaluating conditions at this macro-scale provides a better understanding of the regional fire environment, which represents the fuel bed for wildfires that may ignite in the vicinity of, and burn toward, the Project's planned and maintained fire buffers, landscapes, and ignition-resistant structures.

2.2.1 Climate

The Project site is situated at moderate elevations between the Tehachapi Mountains to the north and the Liebre Mountains/Angeles National Forest to the south. The climate of this region is influenced by both the arid continental climate to the east and the moister Mediterranean climate to the west; therefore, the region is described as having a hot-to-cold and semi-arid to sub-humid climate. The average annual precipitation in the Project area is 8.51 inches, based on an analysis of Western Regional Climate Center (WRCC) data for the area. Temperatures in the Project area average low of 55.4°F in January to an average high of 98.9°F in July. Precipitation typically occurs between December and March with average rainfall of 8.51 inches (Western Regional Climate Center, 2021).

From a regional perspective, the fire risk in Southern California can be divided into three distinct "seasons" (Nichols et al. 2011, Baltar et al 2014). The first season, the most active season and covering the summer months, extends from late May to late September. This is followed by an intense fall season characterized by fewer but larger fires. This season begins in late September and continues until early November. The remaining months, November to late May, cover the mostly dormant, winter season. Mensing et al. (1999) and Keeley and Zedler (2009) found that large fires in the region consistently occur at the end of wet periods and the beginning of droughts. Typically, the highest fire danger in southern California coincides with Santa Ana winds. The Santa Ana wind conditions are a reversal of the prevailing southwesterly winds that usually occur on a region-wide basis near the end of fire season during late summer and early fall. They are dry, warm winds that flow from the higher desert elevations in the east through the mountain passes and canyons. As they converge through the canyons, their velocities increase. Consequently, peak velocities are highest at the mouths of canyons and dissipate as they spread across valley floors. Localized wind patterns on the Project site are strongly affected by both regional and local topography. As observed throughout Los Angeles County, the Project Site is occasionally subject to strong Santa Ana wind events.

2.2.1.1 Climate Change

A rapidly warming climate is expected to impact California and the Western U.S. through both direct and indirect effects. Since 2006, the State has monitored and created climate change assessments to assess the impacts and risks of climate change. Based on California's Fourth Climate Change Assessment, published in 2019, the current average annual maximum daily temperature is projected to increase between 5.6 and 8.8 degrees by 2100 (State of California, 2019a). The rising temperature is expected to result in increased heat waves in cities by 2050. The increased temperature and increased probability of heat waves are expected to impact electricity demand, especially in inland and Southern California. Climate change is also predicted to, directly and indirectly, increase public health risks, resulting in earlier deaths and increased illnesses. Currently, there is not a strong consensus on how California as a whole will be impacted by changes in precipitation. The general trend indicates that the

northern part of California will become wetter while the southern portion of California will become drier (State of California, 2019a). However, water supply from snowpack is projected to decline by at least two-thirds by 2100 due to less precipitation falling as snow, with water shortages occurring by 2050. Further, over 3,000 miles of highways are projected to be exposed to temporary flooding because of increased 100-year storm events (State of California, 2021).

A major factor in climate change is greenhouse gas (GHG) emissions, and wildfires can contribute to emissions as well. The California Air Resources Board in 2020 completed a public draft assessment of the GHG and carbon impacts of wildfire and forest management activities (CARB, 2020a). The report is a result of SB 901, which required CARB to assess and report the GHG emissions associated with wildfire and forest management activities. Wildfire CO_2 emissions vary annually, with annual emissions ranging from 1 million metric tons (MMT) of CO_2 in 2010 to 39 MMT of CO_2 in 2018, with an overall average CO_2 emission of 14 MMT from 2000 to 2019. Fires in forests and woodlands were the largest contributors to wildfire-caused emissions due to higher fuel loads than in areas dominated by shrubs and grasses. While in 2017, forest and shrublands had roughly equal areas of burned acres, the fires in the forest created more than double the emissions. The 2020 fire season resulted in multiple large fires in forest areas and created record-high emissions with over 106 MMT of CO_2 (CARB, 2020b).

Because wildfires can contribute to climate change via GHG emissions and be affected by climate change, the Fourth Climate Assessment also examined how climate change is expected to impact wildfires across the State. Fire frequency and intensity are expected to be impacted by the rapidly changing climate; however, as wildfires are affected by multiple complex drivers the projections range from modest to large increases in wildfire regimes. The area burned by wildfire has been found to increase parallel to the increasing air temperatures. The average area burned may increase by 77% by 2100, if emissions continue to rise. The statewide maximum burn area is projected to rise by 178% and extreme wildfires are predicted to occur 50% more often by the end of the century. However, model projections regarding wildfire intensity, spread, and duration are limited. The changes to temperature, loss of snowpack, and earlier snowmelt are expected to result in dryer “dry” seasons and result in more susceptible forests. Wildfires are occurring at higher elevations and this trend is expected to be exacerbated by climate change. Late Santa Ana winds will continue to be most frequent in December and January. However, there is a lack of consensus on how Santa Ana wind-driven wildfires will change. Additional research is needed to better understand the effect of climate change on extreme wind events and wildfires (State of California, 2019a).

Wildfire simulations found that forested areas, especially the Sierra Nevada, are projected to have the greatest increases in burned areas under extreme weather (State of California, 2018). The burned area is likely to increase in conjunction with warming temperatures and has a stronger effect on montane forests in the northern two-thirds of the State. The increased burned areas were also found to be consistent with current experiences and trends already exhibited in the State and the western U.S. Impacts to tree mortality as a result of fine fuels encroaching on forest canopy areas were only expected to have a small increase from 1-7% in the near future and within the systems natural variability. It was also found that depending on vegetation type and fuel amount the impact from climate viability changed demonstrating great spatial diversity in wildfire response to climate change (State of California, 2018).

The Fourth Climate Assessment also prepared assessments based on regions to capture region-specific effects of climate change (State of California, 2019b). The Los Angeles Region includes all of Ventura, Los Angeles, and Orange Counties as well as the urbanized areas of San Bernardino and Riverside Counties. This region has a highly variable topography ranging from coastal plains to mountain ranges to desert areas. In the Los Angeles region, average maximum temperatures are projected to increase around 4-5 degrees by 2050 and 5-8 degrees by 2100.

As a result, the number of extremely hot days is also expected to increase across the region. By the late century, the hottest day of the year is predicted to be up to 10° F hotter for most locations across the region. Precipitation is projected to only exhibit small changes in average precipitation amounts. However, extreme precipitation events, both wet and dry, are expected to increase. Areas are projected to experience a 25-30% rise in the wettest day of the year by the end of the century. As a result, the atmospheric river events are expected to see an increase in frequency and severity (State of California, 2019b).

Within southern California, Santa Ana winds are a unique climatic feature. These winds result in strong northeasterly downslope offshore winds that can be a catalyst for wildfire within the region. Currently, Santa Ana winds are most frequent in December and the strongest in January. These events have significant interannual variability and there have been no significant trends yet regarding a decline in their intensity, duration, and frequency. How climate change may impact future Santa Ana wind events is uncertain and inconclusive. Some studies have exhibited the wind events increasing while others have shown them to decrease with climate change.

Wildfires in the Project area are influenced by the Mediterranean climate, Santa Ana winds, drought, type and spatial distribution of vegetation, topography, large WUI interfaces, fire suppression, and human activities within the Los Angeles region. Nearly 80% of all wildfires currently occur in the summer and fall, with a quarter of those fires happening under Santa Ana wind conditions. However, there remains significant uncertainty over how climate change will affect fire frequency and intensity in the region. Some future projections indicate that wildfires in the Los Angeles area will increase in burned area by the mid-21st century, with the burned area increasing 60% for Santa Ana-based fires and 75% for non-Santa Ana-based fires. However, other climate projections using different statistical models found the average area burned to be much lower and that the annual area burned by the mid-century would increase by over 2,000 hectares. Further, similar yet slightly lower increases in wildfire areas burned were also projected to occur by the late 21st century, as continued warming could cause an overall fuel decline in the region. These discrepancies highlight that while wildfires are projected to increase in the Los Angeles Region, there is still significant uncertainty about how exactly climate change will affect fires in this region and to what degree wildfire frequency will change (State of California, 2019b).

The effect climate change will have on future fire regimes is not unilateral, especially in Southern California (Keeley & Syphard, 2016). Future fire regimes are not only changing in response to climate change but also in response to ignitions, with human ignitions complicating the role of climate change in driving wildfires. In Southern California humans account for 95% of fires and have altered the timing of wildfires by increasing the probability of ignitions during Santa Ana wind events. However, there are no studies to date that link fire-hardened, master-planned communities with new ignitions. Instead, modern master-planned communities have been shown to be resistant to wildfire, even providing refuge during wildfires. While research has indicated that climate change will affect montane forests lower elevation landscapes, like the Los Angeles Region are not strongly climate limited as in these regions the primary driver of wildfire is human-caused ignitions. The regional analysis demonstrates that in Southern California climate drivers are eclipsed by human ignition drivers and increased population on the landscape-altering future climate regimes (Keeley & Syphard, 2016).

2.2.2 Topography

The Project site is located in the transition zone between the southern edge of the Tehachapi Mountains and the northern edge of the Liebre Mountains. Elevations on the site range from approximately 3,000 to 4,300 feet amsl (Lebec and La Liebre Ranch USGS 7.5-minute quadrangles). Of note is Oso Canyon that bisects the central portion of the property along a north-south axis ultimately draining in a northerly direction toward the Alamo Power Plant

and the East Branch of the California Aqueduct. Oso Canyon is the primary drainage feature on site and affects the site's overall drainage pattern, which trends from the higher elevations in the northwest and southeast toward the northeast. Immediately south of the property is Quail Lake which is associated with the California Aqueduct that also bisects the property and is aligned roughly parallel with Oso Canyon but situated to the east.

Slopes on the Project site range from relatively flat (0% slope) up to nearly 95% slope (approximately 45 degrees). Steeper slopes are associated with the portions of the property that are situated on the flanks of the Tehachapi and Liebre Mountains in the west and southeast portions of the property. Site wide topography is illustrated in Figure 4. As presented below in Table 2, planned development areas are not proposed within the site's steeper areas. Roughly 80% of proposed development will occur in areas with existing slopes of less than 15%.

Table 2. Slopes Within the Centennial Project Site

Slope Percent	Acreage Within Project Site	Acreage Within Proposed Development Areas
0-5%	3488	2292
>5-15%	4471	2772
>15-30	2700	1193
>30-50%	1409	242
>50%	237	<1

Source: LANDFIRE, 2024

Finally, the geological formations and associated soils on site, discussed in detail in the Project's Environmental Impact Report (EIR), have influenced the occurrence and distribution of vegetation in the project area. Vegetation plays an important role in the site's overall wildfire risk and intensity and is defined in large part by climate.

Topography influences fire risk by affecting fire spread rates. Typically, steep terrain results in faster fire spread up-slope and slower spread down-slope. Terrain that forms a funneling effect, such as chimneys, chutes, or saddles on the landscape can result in especially intense fire behavior, including faster spread and higher intensity. Conversely, flat terrain tends to have little effect on fire spread, resulting in fires that are driven by vegetation and wind. Topographic features that may present a fire spread facilitator are the slope and canyon alignments, which may serve to funnel or channel winds, thus increasing their velocity and potential for influencing wildfire behavior.

2.2.3 Vegetation (Fuels)

In addition to weather and topography, vegetation (or fuel) plays a major role in affecting fire behavior and shaping the fire hazard potential on the Centennial Project site. Vegetation on the Centennial property is dominated primarily by both native and non-native grassland which represent nearly 76% of the site's vegetative cover. Mixed oak woodland inhabits nearly 12% of the site and is situated both on the north-facing slope of the Liebre Mountains in the southeast portion of the property as well as in the higher elevations in the western portion of the property. Scrub vegetation types, scattered throughout the site, represent nearly 8% of the site's vegetative cover. While this fuel type can burn intensely under strong, dry wind patterns, it does not produce the high fire intensity and fast-spreading wildland fires found with chaparral fuel types, which cover less than 1% of the site. The remaining cover on site (less than 4%) consists of disturbed or un-vegetated areas (roads, aqueduct, etc.), riparian scrub, and riparian woodland habitats.

Table 3 provides details of the Centennial vegetation types and their overall representation on site (Bonterra 2009) and also indicates the fuel model used for fire behavior modeling and analysis corresponding to each vegetation type. In all, there are 45 individual vegetation types on site. For the purpose of evaluating fuel type coverage on site, these vegetation types have been grouped into similar fuel characteristic groupings based on fuel model type, resulting in a total of 11 different fuel models, of which two are classified as non-burnable. On-site vegetation is important relative to wildfire as some vegetation, such as scrub, chaparral, and grassland habitats are highly flammable while other vegetation, such as riparian communities or forest understory, are less flammable due to their higher plant moisture content, compact structure, and available shading from overstory tree canopies. The influence vegetation has on fire behavior is immense and understanding vegetation dynamics is important for developing an effective fuel modification plan. The map in Figure 5 presents the vegetation/fuel distribution for the Centennial Project site.

Vegetation surrounding the Project site is also primarily native and non-native grasslands, mixed oak woodland, and scrub vegetation types. After development of the Project site, the fuel load for the Project area will be significantly reduced and the construction of buffers between Project structures and open space will further reduce the overall fire risk for the Centennial community. Further, fire risk associated with the surrounding forest lands is minimal due to the proximity of these vegetation communities to the Project site.

Post-development vegetation composition proximate to the Centennial footprint is expected to be significantly different than current conditions. Following build-out, irrigated landscape vegetation associated with fuel modification zones (FMZ) A and B specifically are expected to cover the immediate area surrounding the Project Site, extending 100 horizontal feet from each of the structures. Consistent with LACoFD requirements, native and naturalized vegetation occurring within FMZ Zone C is not expected to be irrigated, although overall fuel volumes will be reduced by removing dead and dying plants, non-natives, highly flammable species, and thinning the remaining plants so they would not readily facilitate the spread of fire on an ongoing basis. The provided FMZ areas will be maintained in order to comply with LA County Fire Fuel Modification Plan guidelines.

Table 3. Centennial Project Site Vegetation Types

Vegetation Type*	Acreage on the Project site**	Corresponding Fuel Model (FlamMap)
Agricultural	417.3	98
Alkali Meadow	3.66	98
Alluvial Scrub	5.56	SCAL18
Baltic Rush	21.48	98
Bladderpod Scrub	0.67	SCAL18
Bush Lupine Scrub Dominated	1.80	SCAL18
California Buckwheat Scrub Dominated	21.92	SCAL18
California Juniper/California Buckwheat Scrub	4.70	6
Chamise/Bigberry Manzanita Chaparral	40.10	SH7
Coastal and Valley Freshwater Marsh	2.46	98
Coffeeberry Scrub	11.95	SH7
Cottonwood Woodland	0.88	TL2
Developed/Disturbed	184.68	NB1
Goldenbush Scrub Dominated	16.06	SCAL18
Grassland (Undifferentiated)	6,099.9	GR2

Table 3. Centennial Project Site Vegetation Types

Vegetation Type*	Acreage on the Project site**	Corresponding Fuel Model (FlamMap)
Great Basin Scrubs	360.85	GS2
Mixed Oak Woodland	1,371.63	TL6
Native Perennial/California Annual Grassland	3,076.54	GR2
Open Water/Developed	6.88	98
Ornamental	0.12	SH2
Rabbitbrush Scrub Dominated	443.10	GS2
Riparian Herb	54.38	GR3
Rush Riparian Grassland	48.98	GR3
Seeps and Ephemeral Ponds	8.05	98
Southern Arroyo Willow Riparian	8.57	TL2
Southern Cottonwood Willow Woodland	3.96	TL2
Southern Willow Scrub	14.14	TL2
Unvegetated Wash	25.87	98
Valley Oak Riparian Woodland	12.08	GR2
Wand Buckwheat Scrub Dominated	6.07	SCAL18
Willow Riparian Forest	15.05	TL2
Willow Riparian Woodland	10.18	TL2
Wright's Buckwheat Scrub Dominated	16.51	SCAL18
Yucca Scrub Dominated	33.20	SH2
Total:	**12,376**	

2.2.3.1 Vegetation Dynamics

Variations in vegetative cover type and species composition have a direct effect on fire behavior. Some plant communities and their associated plant species have increased flammability based on plant physiology (resin content), biological function (flowering, retention of dead plant material), physical structure (leaf size, branching patterns), and overall fuel loading. For example, the native shrublands that compose the coastal scrub community on the Project sites are a high potential hazard based on such criteria.

Existing vegetation distribution throughout the Project Site varies by location and topography. Areas, where the proposed development is located, are primarily disturbed, or covered with non-native grasses, while the adjacent slopes support coastal scrub cover. The importance of vegetative cover in fire suppression efforts is its role in affecting fire behavior. For example, fire burning in grasslands may have shorter flame lengths than those burning in coastal scrub; however, fire in grasslands, due to its flashy (easily ignited when dry) nature, often spreads more rapidly than fire in other vegetation types.

As described, vegetation plays a significant role in fire behavior. 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. A succession of plant communities, most notably the gradual conversion of shrublands to grasslands with high-frequency fires and grasslands to shrublands with fire exclusion, is highly dependent on the fire regime.

Biomass and associated fuel loading will increase over time, assuming that disturbance or fuel reduction efforts are not diligently implemented.

Wildfire disturbances can also have dramatic impacts on plants and plant composition. Heat shock, accumulation of post-fire charred wood, and change in photo periods due to removal of shrub canopies may all stimulate seed germination. The post-fire response for most species is vegetative reproduction and stimulation of flowering and fruiting. The combustion of aboveground biomass alters seedbeds and temporarily eliminates competition for moisture, nutrients, heat, and light. Species that can rapidly take advantage of the available resources will flourish. It is possible to alter successional pathways for varying plant communities through manual alteration. This concept is a key component in the overall establishment and maintenance of the proposed FMZs on the Project Site. FMZs are landscape areas that minimize fire spread progressively through various restrictions, treatments, and maintenance. FMZs provide a buffer between off-site fuels and the urbanized landscapes that have the dual benefit of protecting communities while also protecting habitats by minimizing the potential for project-related ignitions.

2.2.3.2 Historic and Ongoing Grazing Program

Tejon Ranch remains unfragmented and has been carefully managed with livestock and cattle grazing for nearly one hundred sixty years, from pre-statehood vaqueros to today's modern-day cowboys, and has committed to doing so in the future. Actively grazed landscapes, including those of portions of the ranch within the Antelope Valley of Los Angeles County, support sustainability and limit the severity of wildfire because grassland fuel loads are reduced. Tejon Ranch has maintained a database since 2013 providing annual Residual Dry Matter (RDM) records from locations across the ranch. RDM refers to the unused forage at the end of the grazing season (fall) and provides an approximation of the residual fuel load (Ratcliff et al., 2022). At the end of the grazing period, when the occurrence of extreme fire weather (Santa Ana wind conditions) is most likely, the average RDM at the Centennial Project site equates to roughly 467 pounds per acre. Flame lengths have been found to be reduced to under 8 feet when RDM is managed to under 1,225 pounds per acre (Ratcliff et al., 2022). The sustainable grazing operation employed at Tejon Ranch effectively reduces the grass fuels on an ongoing basis which reduces the potential for ignitions and for rapid fire spread. Following buildout of Centennial, Tejon Ranch has committed to maintaining grazing management within the Project's open spaces. Tejon Ranch's commitment to ongoing grazing management at Centennial facilitates the historic land use and stewardship of the area while also maintaining and reducing the vegetative fuels. Because of the variability of the historic grazing practices, this WSP considers the grazing program as an additional environmental benefit but, conservatively, this WSP does not rely upon those benefits when determining the Project's potential impacts under CEQA.

2.2.4 Historic Wildland Fires

Fire history data provides valuable information regarding fire spread, fire frequency, ignition sources, and vegetation/fuel mosaics across a given landscape. Fire history data can be used to show whether large fires have occurred in the area of the Project site, which indicates whether they may be possible in the future. Fire history for the Project site and surrounding areas was analyzed through records from CAL FIRE in their Fire and Resource Assessment Program database and the Integrated Reporting of Wildland-Fire Information (IRWIN) database. The Project site and the surrounding vicinity have been subject to wildfires, primarily within the direct vicinity of, but also some fires occurring within, the Project boundaries.

According to the Fire and Resource Assessment Program (FRAP) most recent database, 23 wildland fires have occurred on or within 1 mile of the Project site since 1800, with 11 wildland fires burning on site at an average fire

return interval of roughly 11 years (Figure 5). The most recent recorded fire burning in the vicinity (within 1 mile) of the Project site (i.e., excluding an unrecorded 2024 fire) was the Gorman Fire, which occurred in May of 2007 and burned west of the property and west of Interstate (I) 5. Limited wildfire history at the Project site is believed to be largely due to the site's terrain, managed fuels, barriers to wildland fire spread, quick wildfire detection and response, the removal of fine fuels by cattle grazing and a lower risk for human-caused ignitions as compared to off-site developed areas. Off-site wildland fire occurrence is more common, particularly south of the Project site in the Liebre Mountains. However, wildfires encroaching onto the Project site from the south rarely enter the interior of the site due to the position of SR-138 and its use as a fire break. Wildfires that have previously burned within the Project site have been limited in size with an average area of 284 acres.

According to the IRWIN database, there have been 196 reported wildfire ignitions within 5 miles of the Project since 2014. As presented in Figure 6, regional wildfire ignition locations documented in the IRWIN database are strongly associated with major roadways including I-5, State Route (SR) 138, and Pine Canyon Road, with most ignitions occurring along I-5 to the southwest of the Project site.

Other than the southern portion of the property, relatively few documented fires have burned within the interior portion of the Project site. Table 4 summarizes the fire history on and near the Project site.

Table 4. Fire History within Five Miles of the Project by Decade

Year	Number of Fires	Average Size of Fire (acres)
1912–1920	12	516
1921–1930	15	1,578
1931–1940	1	117
1941–1950	2	5,049
1951–1960	2	507
1961–1970	4	12,418
1971–1980	1	3,969
1981–1990	6	2,330
1991–2000	7	498
2001–2010	17	1,709
2011–2020	18	1,777
2021–Present	6	175
Total	**91**	**Average Fire Size: 1,915**

Source: FRAP, 2024

While not yet recorded in the public fire history database, other notable wildfires within the region have occurred in 2024. Most notably, the Post Fire ignited on June 15, 2024, near Gorman Post Road in Gorman, California located roughly 6 miles northwest of the Project site. Fueled by strong winds from the northeast and long-range spotting, the fire spread rapidly to the south, eventually growing to 15,563 acres. Firefighters suggested that fire spread was exacerbated by two back-to-back wet winters which resulted in dense vegetation growth. Two structures were destroyed in the Post Fire, resulting in one civilian injury. The fire was declared fully contained on June 26, 2024. While the Post Fire spread quickly south, it did not cross Interstate-5 or threaten the Project site.

The White Fire ignited on July 13, 2024, roughly 11 miles south of Tehachapi near Twin Lakes. The fire was caused by lightning and eventually spread to 5,646 acres roughly 16 miles northeast of the Project site. The fire was limited to the steeper terrain of the Tehachapi Mountains and did not spread to the Antelope Valley or the Project site.

To date, fire has played a limited role, second to livestock grazing, in shaping and maintaining the plant communities found on the Project site. As indicated in Figure 6, the majority of burns taking place on Centennial occur in the southern and eastern portion of the property, south of Highway 138 adjacent to larger expanses of open space in the Liebre Mountains and the Angeles National Forest. On site, this area is characterized primarily by mixed oak woodland and grassland. Based on an analysis of fire perimeter data, Highway 138 appears to have been used several times as a fuel break to prevent fires burning onto much of the Project site from the south. Other than the southern portion of the property, relatively few documented fires have burned within the interior portion of the Project site. The lack of significant historical fire activity on the majority of the Project site is likely attributed in part to the removal of fine fuels by cattle grazing and a lower risk for human-caused ignitions than for more urbanized areas off-site. Table 4 summarizes the fire history on and near the Project site.

It is important to note that the fire spread patterns on the property would be significantly interrupted once the Centennial Project site is built out given the separation of continuous fuels through development patterns across the Project site.

2.3 Existing Fire Hazard

Based on the existing conditions, the likelihood of wildfire in the Project area is significant, but the type of wildfire that would be experienced is a grass-fueled wildfire that presents lower risk to an ignition resistant master planned community. The current conditions as they relate to topography, climate, land use, and vegetation have the potential to facilitate wildfire ignitions and spread. Additionally, as described above in Section 2.2.5 Historic Wildland Fires, the area has been subject to wildfires with an average return interval of four years. Further, it is expected that wildfires will continue to burn within the Project's vicinity once it is completed.

The Project site's potential wildfire hazard is mapped by CAL FIRE as primarily moderate and high with the western portion of the site mapped as very high fire hazard severity zone. Since the 2019 Centennial EIR, CAL FIRE has updated the Fire Hazard Severity Zone maps for the State Responsibility Area (SRA). Fire Hazard Severity Zones depict wildfire hazard based on wildfire intensity and likelihood, in addition to firebrand hazard for non-wildland areas. During the public comment period, questions were raised concerning the justification of CAL FIRE's proposed Very High Fire Hazard Severity Zone designations within the Centennial Project site. Following public comment and a site tour of the Centennial site, CAL FIRE reduced the extent of the Very High Fire Hazard Severity Zone within the Project site. Within proposed development areas specifically, 2,283 acres are designated as VHFHSZs, with 3,870 acres designated as High, and 431 acres designated as Moderate. Following Project build-out, it is likely that the extent of the VHFHSZ will be reduced to account for reduced wildfire hazard as a result of permanent landscape conversions from urban development, and an increase in areas classified as non-wildlands.

Table 5. Fire Hazard Severity Zone Classifications at the Centennial Project Site

Fire Hazard Severity Zone	Project Site Acres	Development Area Acres
Moderate	601	431
High	4,629	3.870
Very High	7,089	2,283

Source: OSFM, 2024

While the Project site exists partially within a Very High Fire Hazard Severity Zone, it is important to emphasize that this designation is in no way intended to prevent development in hazardous fire areas. Uses of Fire Hazard Severity Zone maps, as determined by the Office of the State Fire Marshall, are summarized below.

- Designate areas where California's wildland urban interface building codes apply to new buildings.
- Included into real estate disclosures.
- Guide planning, prevention, and mitigation activities/requirements that reduce risk.
- Considered by local governments in General Plans
- Fire Hazard Severity Zone maps evaluate "hazard," not "risk". They are like flood zone maps. "Hazard" is based on the physical conditions that create a likelihood that an area will burn over a 30 to 50-year period without considering modifications such as fuel reduction efforts. "Risk" is the potential damage a fire can do to the area under existing conditions, including any modifications such as defensible space, irrigation and sprinklers, and ignition resistant building construction.

While CAL FIRE's Fire Hazard Severity Zone map is utilized as a tool for quantifying the likelihood of severe wildfire behavior, it does not allow for an accurate portrayal of community risks as it does not consider vital attributes of community wildfire resiliency including but not limited to:

- Home Construction Materials and Methods (roofing material, siding material, vent style, etc.)
- Defensible Space and Fuel Modification
- Urban Fuels/Vegetation
- Community Structure (Intermix or Interface)
- Emergency Response Capacity
- Early Wildfire Detection Potential
- Evacuation Capacity

In California's 2019-2020 regular legislative session, Senate Bill 474 titled *Very high fire hazard severity zone: state responsibility area: development prohibition,* was proposed. The bill intended to prohibit the creation or approval of new development within SRA defined Very High Fire Hazard Severity Zones. The Bill was not approved as it did not align with the intended use of Fire Hazard Severity Zones in addition to the fact that many existing communities are in their entirety within a Very High Fire Hazard Severity Zone. Evidence suggests that new-development can be built safely within Very High Fire Hazard Severity Zones if communities are built in compliance with the latest codes and regulations that been proven effective in mitigating wildfire risks.

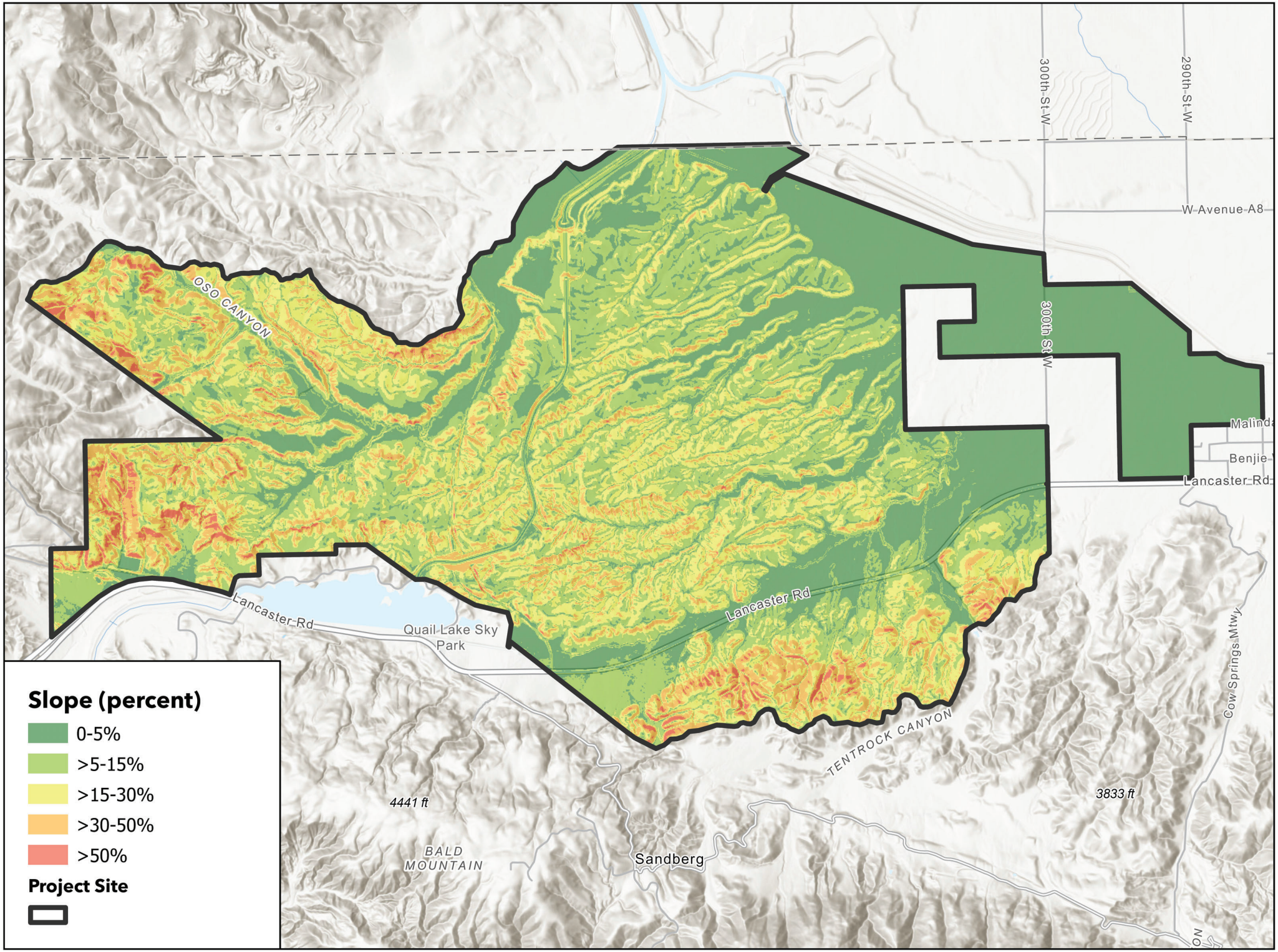
Master-planned communities built to modern ignition resistant standards provide passive fire protection that is highly successful at minimizing damage and loss of structures (CBIA, 2022). The State Fire Marshal's statistics demonstrate that homes built to California Building Code Chapter 7A standards effectively reduce fire risks to homes built in the wildland urban interface (WUI) and fire hazard severity zones (CBIA, 2022). Remarkably, when those homes are built as part of a properly planned and mitigated master-planned community, like Centennial, the risk of significant structural loss is extremely low (FEMA, 2023). No master-planned community built after the adoption of California Building Code Chapter 7A has suffered extensive structural losses as evidenced in the OSFM Property Loss Data.

The evidence demonstrates that California's wildland fire structure losses come from the existing home stock built before modern Chapter 7A standards or poorly planned developments. Extensive analysis of State Fire Marshal data regarding recent impacts from California's mega-fires has been conducted and the data shows overwhelmingly that over 98.5% of structural damage or loss occurs with homes built before modern Chapter 7A standards, and even of those new homes that were damaged, most involved isolated new construction surrounded by existing, high-risk homes (e.g., new homes lost in the Camp fire) located in high-risk areas. These are homes commonly built in the WUI that are overgrown by many drought-ridden fuel types (brush, shrubs, trees, etc.) that are ready to burn rapidly. Many have narrow roads, inadequate fire access and evacuation routes, and inadequate water supplies. In stark contrast, new master-planned communities must go through a strenuous environmental review under the California Environmental Quality Act and are typically planned, approved and implemented with numerous fire-safety features and measures, such as:

- Fire-hardened homes built to the latest Chapter 7A standards
- Community-wide fuel breaks, fire-resistant landscaping, and green belting
- Active cattle grazing on undeveloped lands to reduce and manage flashy fuels
- Perpetual funding, maintenance and enforcement through an HOA
- Appropriate and reliable fire access and evacuation routes
- Adequate water supplies (studied pursuant to SB 610)
- Residential fire sprinklers
- Undergrounded project utilities
- Community design and siting to minimize fire risks (e.g., slope setbacks)
- Code compliant emergency response times.

On average, for the nine worst property-loss fires dating back to 2017, only approximately 1% of the homes and apartments destroyed, damaged, or affected were new dwellings (built after 1/1/10) even though new dwellings make up roughly 7% of the state's total housing stock (CBIA, 2022).

New homes fared extremely well compared with older neighborhoods during these major fires. Of the 31,000 data points analyzed from the State Fire Marshal, it was extremely rare to see more than two new homes on the same street destroyed or affected by the fires, while it was commonplace for entire neighborhoods of older dwellings to be destroyed. As opposed to custom home production where a single home is constructed separate of others, production-style home development is completed in phases, usually 8-15 homes at a time. This typical production-style construction creates blocks or areas of fire-resistant homes, which are much more effective at withstanding wildfire intrusion and decreasing home-to-home spread. Notably, we are not aware of any master-planned community in California constructed after January 1, 2010 (i.e., a planned community with all new homes and typically including measures such as fuel breaks) suffering significant structural loss even during extreme fire events.



DUDEK

Source: USGS, 2023

FIGURE 4

Terrain

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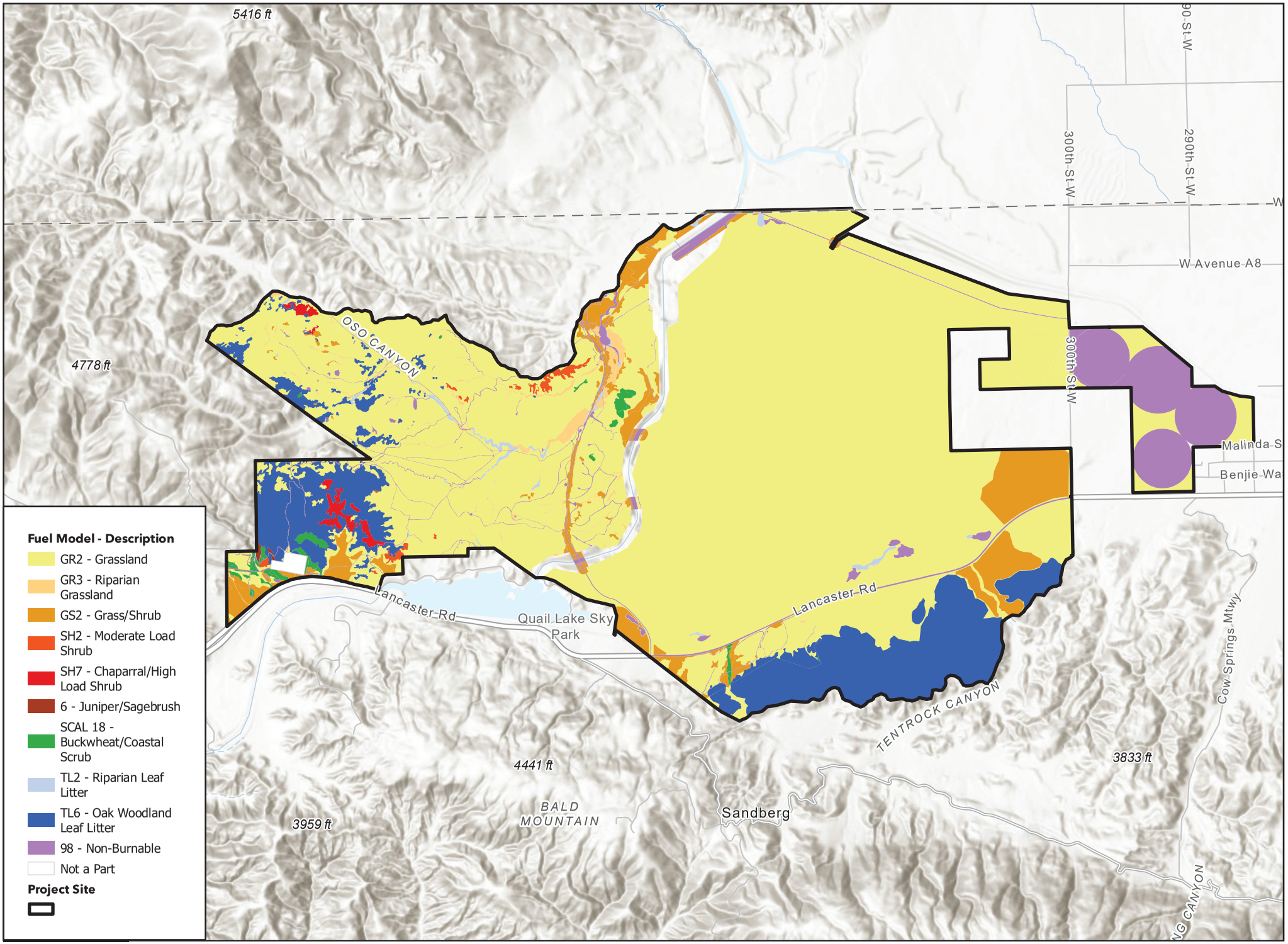

DUDEK

Source: BonTerra, 2009

N

0 0.5 1 2 Miles

FIGURE 5

Vegetation - Fuel Models

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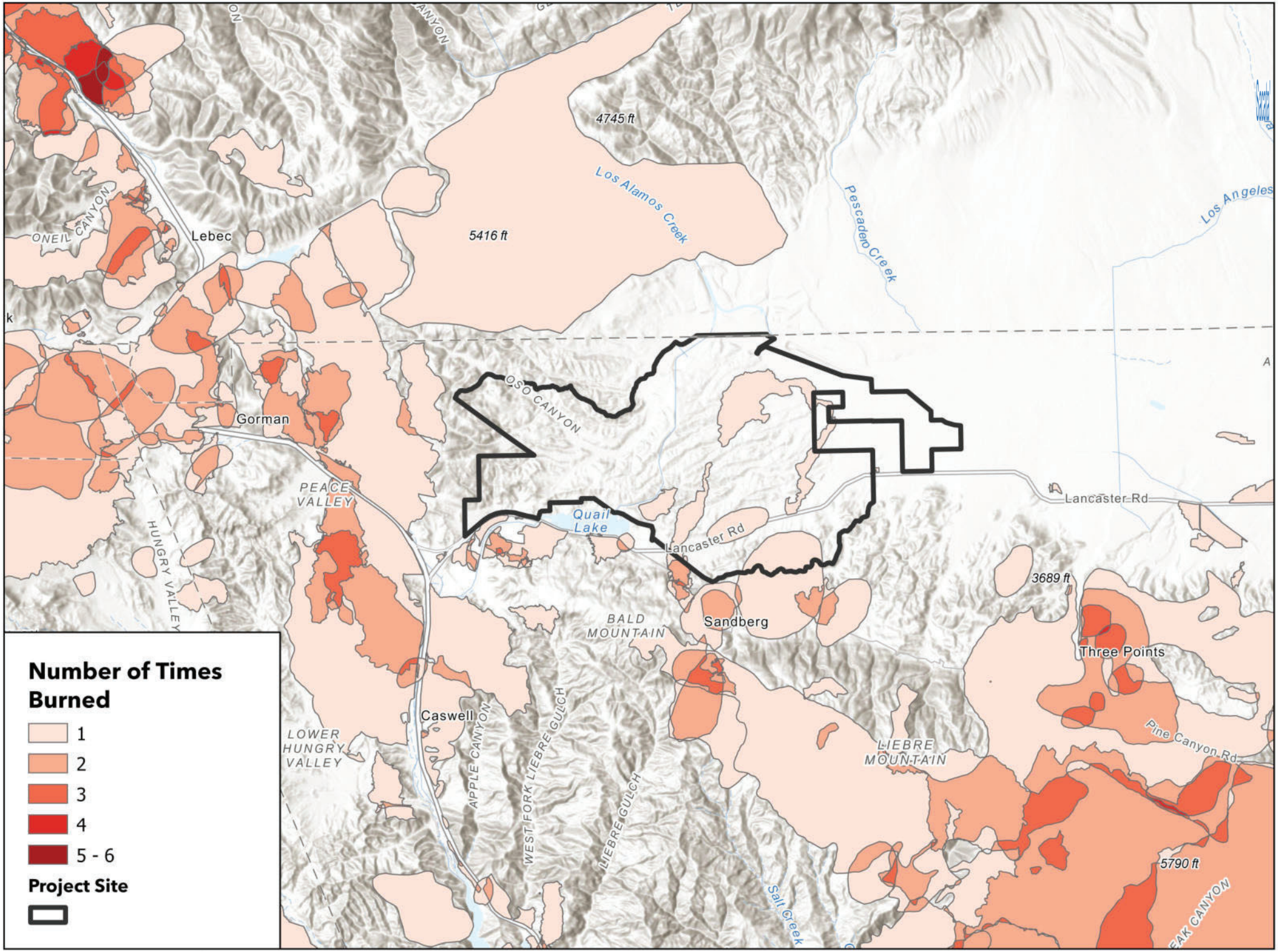

DUDEK

Source: FRAP, 2024

FIGURE 6
Wildfire History

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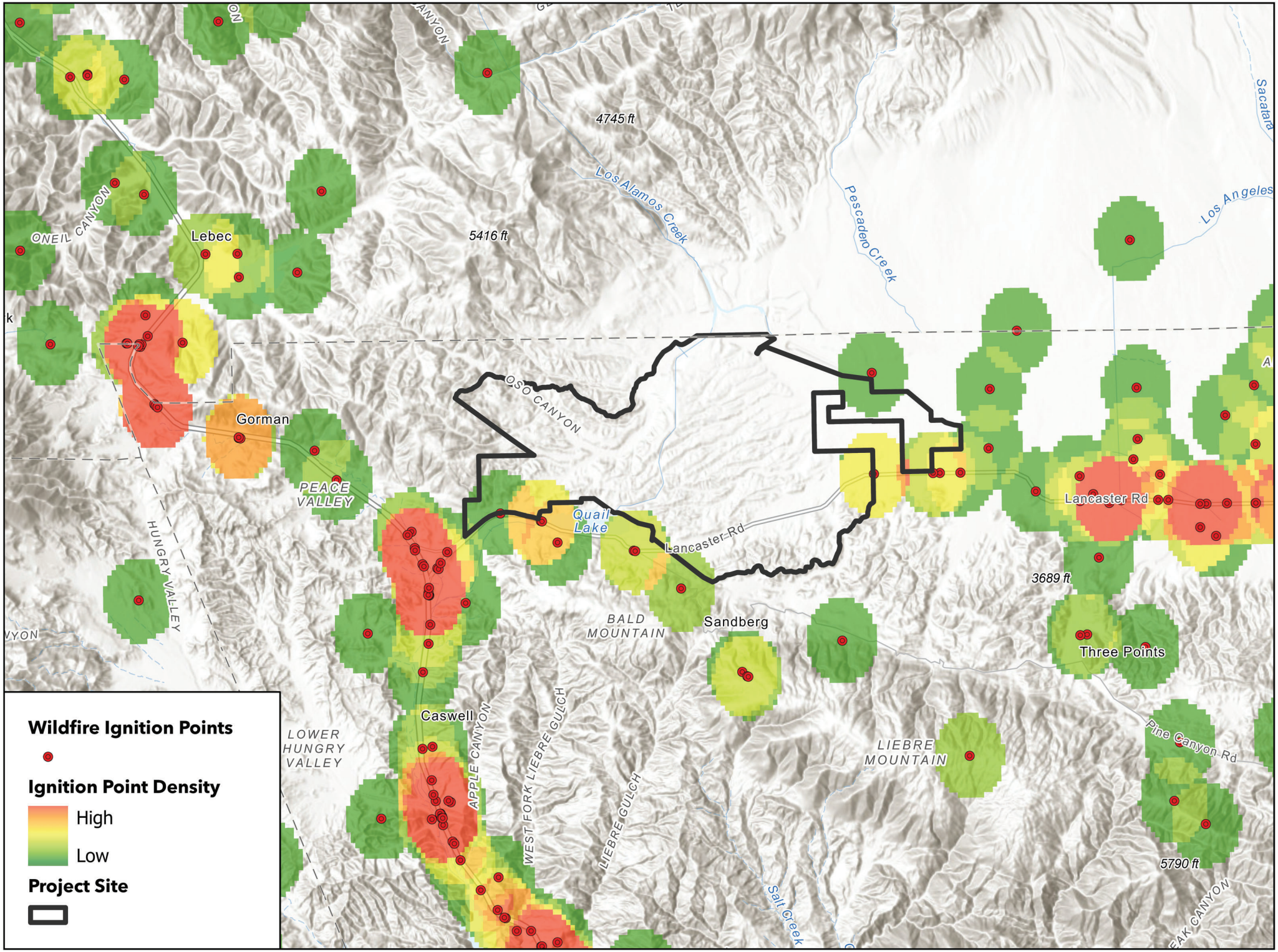

DUDEK

Source: IRWIN, 2023

FIGURE 7

Vegetation Fire Ignitions (2014-2022)

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3 Fire Safety Requirements – Regulatory Requirements and Attorney General Guidance

3.1 Applicable Codes/Existing Regulations

Increased regulations apply to developments within fire hazard severity zones to mitigate the heightened hazard. The California Building Standards Code has been shaped by decades of after-fire structure save and loss evaluations conducted to determine the factors that lead to building loss during wildfires. The resulting building and fire codes mitigate and reduce former structural vulnerabilities through construction features and materials designed to resist ignition from direct flames, radiant heat, and embers, as indicated in Chapter 5 of the 2025 California Wildland-Urban Interface Code. Development designed in compliance with these codes is considered fire-resilient and provides a reduced risk of ignition during wildfire events. The regulatory codes and standards that apply to the Project include:

- Los Angeles County Code of Ordinances Titles 30, 32, and 26
- California Code of Regulations, Title 24:
  - 2025 California Wildland-Urban Interface Code (CWUIC)
  - 2025 California Building Code (CBC)
  - 2025 California Residential Code (CRC)
  - 2025 California Fire Code (CFC)
- California Government Code Sections 51175 through 51189
- California Public Resources Code Sections 4290 and 4291
- Referenced and adopted standards of the National Fire Protection Association (NFPA)

With the adoption of the 2025 codes on January 1, 2026, all wildfire protection and safety related requirements formerly located in the CBC, CFC, and CRC have been consolidated into the CWUIC, specifically:

- **Chapter 3:** Wildland-Urban Interface Areas, which includes provisions from the Public Resources Code and Government Code.
- **Chapter 4:** Wildland-Urban Interface Area Requirements, which includes provisions from Title 14, State Minimum Fire Safe Regulations.
- **Chapter 5:** Special Building Construction Regulations, which includes the Materials and Construction Methods for Exterior Wildfire Exposure from CBC Chapter 7A.
- **Chapter 6:** Fire Protection Requirements, which includes the Requirements for Wildland-Urban Interface Areas from CFC Chapter 49.

These requirements apply as adopted and amended by Los Angeles County at the time of construction. Additionally, LACoFD references the National Fire Protection Association (NFPA) and California Public Resources Code (PRC) for clarification and interpretation of applicable fire protection requirements.

Chapter 5 of the CWUIC, formerly, Chapter 7A of the CBC, addresses exterior structural ignition resistance and ember penetration into homes, a leading cause of structure loss from wildfires (California Building Standards Commission 2019). Thus, code compliance is an important component of the requirements of this WSP, given the Project's wildland-urban interface (WUI) location that is partially within an area statutorily designated as a State Responsibility Area (SRA) Very High Fire Hazard Severity Zone (VHFHSZ) by the California Department of Forestry and Fire Protection (CAL FIRE) (FRAP 2007). Fire hazard designations are based on topography, vegetation, and weather, among other factors with more hazardous sites, including steep terrain, unmaintained fuels/vegetation, and WUI locations. Projects situated in VHFHSZ require fire hazard analysis and the application of fire protection measures to create defensible communities within these WUI locations.

As described in this WSP, the Project would meet applicable code requirements for building in these higher fire hazard areas through the application of site-specific fire protection measures. These codes have been developed through decades of wildfire structure save and loss evaluations to determine why buildings were lost to fire or why they survived. The resulting fire codes now focus on mitigating former structural vulnerabilities through construction techniques and materials so that the buildings are resistant to ignitions from direct flames, heat, and embers, as indicated in the Chapter 5 of the CWUIC.

3.2 California Attorney General's Office Best Practices for Analyzing and Mitigating Wildfire Impacts of Development Projects Under the California Environmental Quality Act

The California Office of the Attorney General issued (October 2022) guidance (Guidance) outlining best practices for analyzing and mitigating wildfire impacts of development projects under the California Environmental Quality Act (CEQA). The Guidance does not impose additional legal requirements on local governments, nor does it alter any applicable laws or regulations. Instead, the Guidance is intended to help local governments' evaluation and approval considerations for development projects in fire-prone areas, and to help project design in a way that minimizes wildfire ignition and incorporates emergency access and evacuation measures. The following provides an overview of the Guidance and relevant elements of the Project. A discussion of the Guidance regarding evacuations measures is addressed in the Centennial Wildfire Evacuation Technical Report (Dudek 2024).

Attorney General Guidance for Analyzing Project's Impacts on Wildfire Risks

Baseline Conditions

The Guidance states that an EIR's discussion of existing environmental (baseline) conditions should include information about open space areas and habitats within the project area that may be fire prone, a discussion of fire history and fuels on the project site and a description of existing available water supplies for firefighting. This WSP provides details regarding each of these baseline conditions, including a description of on-site open space habitat areas, analysis of the off-site open spaces, a detailed assessment of fire history within 5 miles of the Project, and confirmation that the Project will be provided water necessary for firefighting.

Modeling

The Guidance encourages modeling fire scenarios to "quantify" increased wildfire risks resulting from a project adding more people to wildfire prone areas and assessing risks. This WSP models fire scenarios under extreme weather conditions utilizing various modeling approaches fire behavior model to estimate fire intensity, flame lengths, spread rates, wildfire progression, and burn probability. The models confirm that the Project's provided defensible space buffers and walls are sufficient to slow wildfire spread and keep it from impacting the site. These same results, coupled with the fire protection features detailed in this WSP are shown to perform a dual role of 1) minimizing the potential for fire starts on site, 2) providing suppression capabilities both within structures and by nearby firefighting resources to quickly control ignitions that do occur, 3) creating and maintaining wide fuel modification buffers that reduce fire intensity and slow fire spread – all of which minimize the likelihood of a Project fire spreading off-site into open space areas. Likewise, neighboring developed areas and their provided protections required by LACoFD perform a similar function during wildfires in the Project area.

Qualitative Assessment

The Guidance indicates that an EIR qualitatively assesses relevant variables on the risk of wildfire, including:

Project Density – Project density influences how likely a fire is to start or spread and how likely it is that occupants will be in danger. The Guidance states that "Fire spread and structure loss is more likely to occur in low- to intermediate-density developments." The Project master-planned community clusters development on areas long planned for residential and commercial uses, converting the developed area to ignition resistant landscapes with no inclusion of unmaintained vegetation within the converted footprint. The nearest open space vegetation is separated from the site's ignition resistive structures by code compliant fuel modification zones. The buildings and development footprint are clustered and present one, defensible interface, unlike lower density intermix development which incorporates fuels within and around buildings and multiple building interfaces, a condition that is significantly harder to defend and creates multiple exposures when compared with the Centennial Project's clustered, master planned community condition.

Location in the Landscape – Where a project's structures are placed in the landscape relative to fire environment features (vegetation, topographical features, and wind alignments) also influences wildfire risk. The Project is on relatively flat terrain downslope of higher elevation hillslopes. The nearest open space vegetation is separated from the site's ignition resistive structures by code compliant fuel modification zones. Fuels in the Project area are not conducive to extreme fire intensity and terrain. Overall site topography varies but generally does not include extreme steep slopes, with development areas located away from the site's steeper slopes. Topography has been comprehensively evaluated and confirmed that even under the extreme weather conditions that have been recorded in the area, the provided defensible space and ignition resistant structures are appropriately designed to minimize the potential for structure ignitions.

Water Supply and Infrastructure – Water supply and infrastructure to address firefighting within the project site are relevant to evaluating wildfire risk. A detailed Water Supply Assessment under SB 610 was prepared that confirms there is capacity to supply domestic and firefighting needs. As indicated in the WSP, the Project will provide internal waterlines supplying sufficient fire flows and pressure to meet the demands for required on-site fire hydrants and interior fire sprinkler systems for all structures to meet LACoFD requirements.

Reducing Wildfire Risk – Potential Measures

The Guidance identifies potential project design features that may reduce a project's wildfire risk impacts, such as:

- ***Avoiding and minimizing low-density development patterns or "leapfrog-type" developments with undeveloped wildland between developed areas.*** The features a clustered master plan design with code compliant design features that minimize the potential for onsite structure fires and off-site ignitions. The Project's development footprint does not include unmaintained vegetation near structures. Development edges feature one, continuous interface between development and offsite grassland fuels buffered by annually maintained Fuel Modification Zones.
- ***Decreasing a project's "edge" or wildland interface area and creating buffer zones and defensible space measures within and adjacent to the project.*** The Project involves a clustered design and complies with the requirements found to protect communities within fire hazard severity zones. The Project would provide FMZ to reduce the potential for wildfire encroachment. The FMZ will be maintained over the life of the project through the Project's HOA.
- ***Undergrounding power lines.*** The Project's power lines will be undergrounded, eliminating the potential for electrical transmission line-caused fires on the site.
- ***Upgrading building materials and installation techniques to increase a structure's resistance to heat, flames and embers (i.e. "fire hardening") and requiring fire-hardened communication facilities to the project site.*** The Project buildings will be designed in conformance with the latest ignition-resistant building design measures as required in Title 32-County of Los Angeles Fire Code, Chapter 5. As discussed in this WSP, structures constructed to current Fire Code standards and located within a master-planned community have proven to be highly resistant to ignition during wildfire. Communication infrastructure including telephone and internet will be provided via underground or protected above ground conduits.
- ***Requiring adequate water supplies during wildfire.*** The Project water supplier prepared a detailed Water Supply Assessment under SB 610 that confirms that it has capacity needed for domestic and firefighting needs. The Project provides connections from internal waterlines to significant water main lines that will supply sufficient fire flows and pressure to meet the demands for required onsite fire hydrants and interior fire sprinkler systems for all structures. Water supply must meet a 2-hour fire flow requirement of 2,500 gpm, which must be over and above the daily maximum water requirements for this development. Water utilities will be connected prior to any construction. In addition, the Project includes multiple onsite water source locations for aerial firefighting resources including Quail Lake and the California Aqueduct.
- ***Parking limitations to ensure access roads are not clogged with parked vehicles***. The Project provides for parking restrictions in compliance with the LA County Fire Code. Fire apparatus access roads are not obstructed by designated parking areas and where parking is prohibited, signage and/or curb marking will be provided.
- ***Placement of development close to adequate emergency services, existing or planned ingress/egress, and designated evacuation routes.*** The Project is located adjacent to regional transportation networks (ex. Interstate-5 and State Route 138) with multiple points of access. The Project is within an acceptable distance when considering the three onsite fire stations (with an optional fourth if determined necessary by LACoFD) with fast response to all planned structures. In addition, Centennial will provide an on-site Sherriff's substation. The Project provides new surface streets and connects to existing streets and is near major highway/freeway corridors, facilitating emergency vehicle ingress.

As described above and consistent with the Guidance, this WSP, the Evacuation Plan, and the EIR provide an in-depth analysis of the Project's potential wildfire impacts. For a more detailed assessment of the Project's potential wildfire impacts and conformation with the AG guidance, see the Recirculated Partial Draft EIR.

3.3 Defensible Space and Vegetation Management Regulatory Requirements

The following sections outline defensible space and vegetation management regulatory requirements applicable to the Centennial Project. Where appropriate, project-specific mitigation measures designed to enhance regulatory compliance are identified, along with additional measures that will be implemented to further support defensible space and vegetation management.

3.3.1 Fuel Modification Zones

An important component of a fire protection system for the Project Site is the provision of fire-resistant landscapes and vegetation buffers. Fuel modification zones (FMZ) are designed to provide vegetation buffers that gradually reduce fire intensity and flame lengths from advancing fire by strategically placing thinning zones and irrigated zones adjacent to each other on the perimeter of the WUI exposed structures. FMZs not only help protect new communities and structures from external wildfire risks, but FMZs also reduce the risk of fire originating from such new communities or structures and spreading to surrounding natural resources/habitat areas. (Braziunas et al., 2021; Cochrane et al., 2012; Price et al., 2021).[1] FMZs thereby provide a dual benefit of buffering communities and structures from encroaching wildfires while separating the new community and structures (and potential introduction of new ignition sources associated with the new community) from surrounding open space, fuel sources, or habitat areas (Bhandary & Muller, 2009; Braziunas et al., 2021; Cochrane et al., 2012; Fox et al., 2018). Research has also indicated that the likelihood of ignitions occurring in a given location is significantly influenced by the existing vegetation/fuel available (Elia et al., 2019). In addition to protecting structures, fuel treatments and defensible space, when utilized in conjunction with place-based fire-hardened design, also act as a buffer for natural areas and surrounding communities (Safford et al., 2009a; Scott et al., 2016).

The Project will be exposed to naturally vegetated open space to the north, south, and west of the Project site, as well as agricultural lands to the east. Based on the post-development modeled extreme weather flame lengths for the Project Site, average wildfire flame lengths in the unmaintained fuel beds are projected to be 11–20 feet high in grasslands and shrub fuels adjacent to development footprints. The most severe wildfire flame lengths on the Project site under extreme fire weather are projected to be approximately 47 feet in limited areas of chaparral vegetation types exceeding 40% slope. However, these areas are not located in close proximity to development areas. The fire behavior modeling system used to predict these flame lengths was not intended to determine sufficient FMZ widths, but it does provide the average predicted length of the flames, which is a key element for determining "defensible space" distances for providing firefighters with room to work and minimizing structure ignition. Implementing defensible space can reduce the likelihood of structural ignition and support landscape-level risk reduction (Mockrin et al., 2020; Warziniack et al., 2019). Defensible space also serves to decrease the chance of spot fires and allows firefighters to operate around the home (Price et al., 2021). Based on the modeled extreme weather flame lengths for the Project site, the most severe wildfire flame lengths under extreme fire weather are projected to be roughly 24 feet in development areas. For the Centennial Project site, the FMZ widths between the naturally vegetated open space areas and all combustible structures are proposed to be 100–200 feet, approximately 5–10 times the modeled flame lengths based on the fuel type represented adjacent to the

development footprint. A 20-foot- to 50-foot-wide roadside FMZ along each side of the roads adjacent to the open space shall be required as well.

Although FMZs are very important for setting back structures from adjacent unmaintained fuels, the greatest concern is from firebrands or embers from off-site areas as a principal ignition factor for igniting onsite structures. To that end, the Project site, based on its location and ember potential, is required to include the latest ignition and ember resistant construction materials and methods for roof assemblies, walls, vents, windows, and appendages, as mandated by the LACoFD and County's Fire and Building Codes (e.g., Chapter 7A).

3.3.1.1 State Responsibility Areas Fuel Modification Zone Standards

An FMZ is a strip of land where combustible vegetation has been removed and/or and partially or totally replaced with more adequately spaced, drought-tolerant, low-fuel-volume plants in order to provide a reasonable level of protection to structures from wildland fire. The purpose of this section is to document SRA standards and make them available for reference. The LA County Fire Code requires defensible space to be maintained around all buildings and structures in all unincorporated land designated by the State Board of Forestry and Fire Protection as SRA per PRC 4290 and "SRA Fire Safe Regulations" California Code of Regulations, Title 14, Division 1.5, Chapter 7, Subchapter 2, Section 1270. However, as the Project is within Los Angeles County and the County will be reviewing the Project, a fuel modification plan shall be submitted and have preliminary approval prior to any subdivision of land; or, have final approval prior to the issuance of a permit for any permanent structure used for habitation; where, such structure or subdivision is located within areas designated as a Fire Hazard Severity Zone within State Responsibility Areas (LA County Fire Code Title 32, Section 4908.1). As designated by PRC 4291 a fuel modification zone typically consists of at least 100 feet, measured in a horizontal plane, from the exterior façade of all structures towards the undeveloped areas. According to LACoFD's Fuel Modification Unit, a typical landscape/fuel modification installation consists of a 30-foot-wide Zone A (including a 5-foot Ember resistant zone), a 70-foot-wide Zone B, and a 100-foot wide Zone C for a total of 200 feet width. As described above, the Project-specific FMZ delineation with FMZ between 100 and 200 feet, based on actual fire threat and will be consistent with County requirements in most cases, and will include off-site FMZ in some areas, as presented in the Fuel Modification Exhibit. Areas with proposed FMZs less than 200 feet in width will require the approval of LACoFD. A Fuel Modification Plan shall be reviewed and approved by the Forestry Division of the LACoFD for consistency with defensible space and fire safety guidelines.

A Fuel Modification Plan shall be reviewed and approved by the Forestry Division of the LA County Fire Department for consistency with defensible space and fire safety guidelines on behalf of the State.

To ensure long-term identification and maintenance, a fuel modification area shall be identified by a permanent zone marker meeting the approval of LA County Fire. All markers will be located along the perimeter of the fuel modification area at a minimum of 500 feet apart or at any direction change of the fuel modification zone boundary. FMZs will be maintained on at least an annual basis or more often as needed to maintain the fuel modification buffer function.

An on-site inspection will be conducted by staff of the Forestry Division of the LA County Fire upon completion of landscape installation before a certificate of occupancy is granted by the County's building code official.

Zone 0 – Ember Resistant Zone (ERZ) – 0 to 5 feet from the structure

The ERZ is designed to keep fire or embers from igniting materials that can spread to structures. It includes the area under and around all attached decks and requires more stringent wildfire fuel reduction. In 2020, the concept of the ERZ was added to PRC 4291 to designate a more intense fuel reduction area immediately adjacent to homes and/or structures to reduce the likelihood of ember-based home ignition. In addition to compliance with the County's fuel modification regulations, the Project would provide additional restrictions in the Zone 0 area (0-5 feet from structures), if required. Although Zone 0 regulations are not currently mandated, they are expected to be codified in 2026. The Project will be designed and constructed in compliance with the applicable Zone 0 requirements in effect at the time of build-out. This will be enforced through LACoFD approval of Fuel Modification Plans (LA County Fire Code 4906.3).

Zone A – minimum 30 feet from the structure

Zone A is an irrigated, limited planting area measured from the outermost edge of the structure or appendage outward to 30 feet (horizontal distance), or the property line for perimeter lots adjacent to native vegetation.

1. Zone A should be planted with plants from Appendix B: Acceptable Plant List by Fuel Modification Zone[1]. Plant selection for Zone A should consist of small herbaceous or succulent plants less than two to three feet in height or regularly irrigated and mowed lawns.
2. Plants identified as "Target" or undesirable plants (See Appendix C: Fuel Modification Zone Undesirable Plant List) by LA County Fire shall not be planted within Zone A.
3. Trees should be spaced to allow a minimum 10-foot canopy clearance at full maturity to the structure.

Zone B – from the outer edge of Zone A up to 100 feet from the structure

Zone B is the area (maybe irrigated or not irrigated) measured horizontally from the outer edge of Zone A to 100 feet from the structure or property line, whichever is first.

1. Zone B can be planted with a slightly higher plant density than Zone A as long as the landscape does not create any horizontal or vertical fuel ladders (e.g., fuel that can spread fire from the ground to trees).
2. **Exception:** Screen plantings are permissible if used to hide unsightly views. However, hedging is discouraged as it promotes the accumulation of dead litter inside the live hedge.
3. Trees found in Appendix C can be planted if they are Zone B appropriate and the tree canopies at maturity are not continuous.
4. Plants identified as "Target" or undesirable plants (See Appendix C) by LA County Fire shall not be planted within Zone B.
5. Avoid planting woody plant species taller than 3 feet in height at maturity directly underneath any tree canopy
6. Zone B may not be landscaped, but it is still subject to brush clearance standards (https://www.fire.lacounty.gov/forestry-division/fire-hazard-reduction-programs/)

[1] (LA County Fire 2021)

Zone C - Native Brush Thinning Zone

100 feet from the outer edge of Zone B. Irrigation systems are not required if the zone entirely consists of native plants.

1. Vegetation may consist of existing native plants, adequately spaced ornamental shrubs, trees, or both.
2. In all cases, the overall characteristics of the landscape provide adequate defensible space in a fire environment.
3. Plants in Zone C shall be spaced appropriately, and existing native vegetation shall be managed by thinning and removal of species constituting fire risks such as but not limited to chamise, sage, sagebrush, and buckwheat.
4. General spacing for existing native shrubs or groups is 15 feet between canopies. Native plants may be thinned by reducing the amounts as the distance from the development increases.
5. General spacing for existing native trees or groups of trees is 30-feet between canopies. This may be increased or decreased depending on the slope, arrangement of trees, and the species of the trees.

Zone C is considered a thinning zone. When provided, either by conditions of development, voluntary by the property owner, or required by the LACoFD, this zone is more of a progressive thinning zone to lessen the spread of fire as it approaches the primary FMZ adjacent to structures. The amount of fuel reduction and removal should take into consideration the type and density of fuels, aspect, topography, weather patterns, and fire history.

3.3.1.2 Annual Fuel Modification Maintenance

Required by LACoFD Fuel Modification Zone Guidelines, all fuel modification area vegetation management within the FMZs shall be completed annually by May 1 of each year and more often as needed for fire safety, as determined by the LACoFD.

The individual homeowners shall be responsible for all fuel modification vegetation management on their lots in compliance with this plan and the LACoFD requirements and MM 3-9. The Project's HOA shall be responsible for all fuel modification vegetation management for all common areas of the Project site, including roadsides clearance and fuel modification zones. The Project's HOA will assure private homeowner lots comply with this plan initially and on an ongoing basis. Chapter 7A requirements for ongoing maintenance of fire resistive building materials and fire sprinkler systems will be included in the CC&R's and Deed encumbrances for each lot (MM 3-9). The CC&Rs or disclosure statements prepared by the Project Applicant/Developer shall be submitted to the County to confirm that new property owners would be informed of their responsibilities for maintaining the fuel modification zone(s) on their property. Additionally, the Project's HOA shall be responsible for ensuring long-term funding and ongoing compliance with all provisions of this WSP, including vegetation planting, fuel modification on the perimeter, and maintenance requirements on all common areas and roadsides.

Maintenance of FMZ's and Defensible Space is an important component for long term fire safety of the Project. Maintenance obligations will be as follows:

Centennial HOA:

- Shall maintain the access roads, including a minimum of 20 feet clearance on each side of road(s) within the Development Footprint adjacent to open space areas.

- Shall be required to annually maintain the common area FMZs (or as needed)
- Shall maintain all common areas, including trees planted along roadways and in other areas throughout Project site.
- As required through the Climate Resolve Settlement Agreement, the Project residents and occupants shall be provided with ongoing education regarding wildfire safety and defensible space. The Master HOA has the authority to impose fines on any homeowner who violates any provision of the CC&R related to Fire Safety Requirements.

Resident/Homeowner:

- Shall maintain the vegetation on individual property lots.

3.3.1.3 Vegetation Management for Off-site Improvements

The Project's off-site improvements would be required to comply with all applicable Federal, State, and LA County Fire safety regulations related to vegetation management. As these off-site improvements are related to utilities and infrastructure, no residential structures are proposed.

Vegetation conditions in areas where off-site improvements are proposed are generally similar to those across the broader Project site and are primarily characterized by low fuel–load grassland vegetation. In many locations, these areas are already disturbed and include existing paved surfaces or expanses of bare soil, which substantially limit the presence of continuous or receptive fuels. As a result, fuel availability is reduced compared to undisturbed areas.

Specific regulations pertaining to vegetation management for off-site improvements are described in Section 3.2.8 of the Recirculated Partial Draft EIR. Based on existing site conditions in the areas where off-site improvements would occur, and with compliance with applicable regulatory requirements, wildfire impacts are less than significant.

3.4 Other Centennial Vegetation Management Requirements

3.4.1 Code Exceeding Annual Fuel Modification Inspection

To confirm that the Project's FMZs and landscape areas are being maintained according to this WSPs and the LACoFD's fuel modification guidelines, the Project HOA would obtain an FMZ inspection and report from a qualified LACoFD-approved 3rd party inspector in May/June of each year certifying that vegetation management activities throughout the Project site have been performed as required from the Climate Resolve Settlement Agreement. If the FMZ areas are not compliant, the Project's HOA as required in the CC&Rs will have a specified period to correct any noted issues so that a re-inspection can occur and certification can be achieved. The CC&Rs prepared by the Project Applicant/Developer shall be submitted to the County for review and verification.

3.4.2 Roadway Fuel Modification Zones

As required under the LA County Fire Code Section 503.2.1, fire engine apparatus roads will be maintained with a minimum 20-foot wide roadway that is clear to the sky. An exemption allows for a minimum vertical clearance of 13 feet 6 inches may be allowed for protected tree species adjacent to access roads. Any applicable tree-trimming permit from the appropriate agency is required. All flammable vegetation or other combustible growth shall be removed on each side of fire access roads and driveways for a minimum of 10 feet (Title 32 Section 325.10), however, the Centennial Project will provide a code exceeding 20 feet roadside FMZ where roads exist directly adjacent to open space areas as required under the Climate Resolve Settlement Agreement *(See Appendix D – Additional Wildfire Risk Reduction Measure 5)* . The clearance of 30 feet does not apply to single specimen trees, ornamental shrubbery, or cultivated ground cover, such as grass, ivy, succulents, or similar plants used as ground cover, provided that they do not form a means of readily transmitting fire.

Roadside fuel modification for the Centennial Specific Plan Project consists of mowing grasses to less than four inches in height and/or maintaining ornamental landscapes, including trees, clear of dead and dying plant materials. Roadside fuel modification shall be maintained by the Project's HOA.

3.4.3 Stormwater Basins

Fire-safe vegetation management will be performed within the basins on a yearly basis in accordance with the following guidelines as mandated by this WSP.

1. Groundcovers or shrubs included in the basin shall be low-growing with a maximum height at maturity of 36 inches. Single tree specimens or groupings of two to three trees per grouping of fire-resistive trees or tree form shrubs may exceed this limitation if they are located to reduce the chance of transmitting fire from vegetation to habitable structures and if the vertical distance between the lowest branches of the large, trees or tree form shrubs and the tops of adjacent plants are three times the height of the adjacent plants to reduce the spread of fire through ladder fueling.
2. All trees shall be planted and maintained at a minimum of 10 feet from the tree's mature drip line to any combustible structure.
3. The water detention basin area will be maintained to brush management Zone A standards.
4. Grasses must be maintained/mowed to 6 inches in height.
5. The water quality basins will not be re-vegetated with plant species that are found in Appendix C.
6. This area shall be maintained annually free of dying and dead vegetation.

3.4.4 Vacant Lots and Parcels

- Vacant Lots will not be required to implement Vegetation management strategies until construction begins. However, perimeter Vegetation Management Zones must be implemented prior to commencement of construction utilizing combustible materials.
- Prior to issuance of a permit for any construction, grading, digging, installation of fences, the outermost 30 feet of the lot is to be maintained as a Vegetation Management Zone as required in the LA County Fire Code.

- Existing flammable vegetation shall be reduced by 60% on vacant lots upon commencement of construction.
- Dead fuel, ladder fuel (fuel which can spread fire from ground to trees), and downed fuels shall be removed and trees/shrubs shall be properly limbed, pruned and spaced per this plan.
- The remainder of the Vegetation Management Zones required for the particular lot shall be installed and maintained prior to combustible materials being brought onto any lot under construction.

3.4.5 Environmentally Sensitive Areas/Riparian Areas

In environmentally sensitive areas that contain sensitive habitat, cultural sites, riparian areas, biological buffer areas, detention basins, etc, permission will be needed from the County, and the appropriate resource agencies (California Department of Fish and Game, U.S. Fish and Wildlife Service, Army Corps of Engineers) prior to any vegetation management activities within those areas.

Further, as required by the Centennial EIR, in order to ensure that no direct impacts to Significant Ecological Area (SEA) 17 occur, brush clearance zones shall be contained within the current Project impact boundary and no overlap with the adjacent SEA 17 shall occur. Vegetation management for fire abatement purposes is not authorized in SEA areas. An Implementation Plan, including fire risk abatement measures (including but not limited to vegetation management) required to comply with State and LA County Fire prevention and response legal requirements, shall be submitted as part of the tentative tract map for portions of the Project site that border an SEA or mitigation preserve area. The Plan shall include: (a) a summary of applicable State and LA County Fire risk abatement requirements; (b) a prohibition on the use of vegetation clearance within SEA 17 or mitigation preserve areas. The Plan shall be submitted to the County for approval with the first tentative map, and shall be updated to include new or State or LA County Fire risk abatement requirements as part of each subsequent tentative tract map submittal (Mitigation Measure MM 7-21).

3.4.6 Private Lots

None of the plant materials listed in the County's prohibited plant list shall be planted within the Project's fuel modification zones. The HOA will provide that list and the Prohibited Plant Species list from Section 3.4.4 from the Specific Plan and MM 7-13 and MM WILD-3 while providing recommendations to all buyers in a private property owners' guide to fire safe vegetation management on private lots. Deed restrictions will be recorded against private lots including any portion of the fuel modification zones on the private lot, including approved plant palettes, and prohibitions regarding combustible structures, including fencing and other accessory structures. Deed restrictions shall run with the land and be conveyed to any subsequent owner of the private lot. In addition, the Project's Covenants, Conditions and Restrictions (CC&Rs) shall include a reference to the WSP to ensure compliance with the WSP. Owners of private lots shall be notified in the Project's CC&Rs and property disclosures that they are prohibited from conducting any vegetation management activities outside their private property.

3.4.7 Landscaping Plan

The Project Applicant/Developer shall develop a Landscaping Plan for review and approval by the County Biologist. The Landscaping Plan shall be (1) prepared by a qualified biologist, (2) submitted to the County for approval with each tentative map, (3) provided to builders, (4) provided to future project occupants as described in the Specific Plan, and (5) include a plant palette composed of non-invasive species that are adapted to the conditions found on

the Project site and do not require high irrigation rates. The Landscaping Plan shall also include a list of invasive plant species prohibited from being planted on the Project site. In addition, retail sales of these invasive plan species will be prohibited at any businesses (nurseries) located within the Project site. Landscape plans shall encourage planting of local natives typical of native vegetation within ten miles of the Project site (Mitigation Measure MM 7-13). Additionally, as required by the Project's Specific Plan, a Community Forester (licensed arborist or licensed with the Department of Forestry and/or fire warden) shall oversee implementation of the long-term landscape plan within developed areas.

The Project's Specific Plan also details the Project's plant pallet, which was prepared in accordance with the LACFD's Fuel Modification Plan Guidelines and requires the use of fire-retardant plants in fuel modification zones. Additionally, the Project's Specific Plan requires landscaping in the plan's Open Space Zone to be dominated by native and/or drought tolerant trees, shrubs, and ground cover, taking into consideration fuel modification requirements, such as using plants that are fire resistant.

The Project's Green Development Program (Appendix E) and Hillside Design Guidelines (Appendix F) of the Specific Plan require the Project to implement fire-safe landscaping techniques to reduce fire risks to biological resources and human safety in the fuel modification zones, and landscaping in a manner that, among other things, increases fire protection, respectively.

3.4.8 Special Fuel Management Issues

On the Project site, tree planting in the fuel modification zones and along roadways is acceptable, as long as they meet the following restrictions as described below and in the County's Fire Code and the LACoFD's Guide to Defensible Space and Fuel Modification Zones spacing requirements:

- For streetscape plantings, trees should be planted 10 feet from edge of curb to center of tree trunk. Care should be given to the type of tree selected, that it will not encroach into the roadway, or produce a closed canopy effect.
- Crowns of trees located within defensible space shall maintain a minimum horizontal clearance of 15 feet for a single tree. Mature trees shall be pruned to remove limbs one-third the height or six feet, whichever is less, above the ground surface adjacent to the trees.
- Dead wood and litter shall be regularly removed from trees.
- Ornamental trees shall be limited to groupings of 2–3 trees with canopies for each grouping separated horizontally.

3.4.8.1 Specific Landscaping Requirements

- The following requirements are provided for HOA-maintained fuel modification zones. All landscaping shall be maintained by the HOA as required through the Climate Resolve Settlement Agreement.
- Plants used in the fuel modification areas or landscapes will include drought-tolerant, fire resistive trees, shrubs, and groundcovers. The planting list and spacing will be reviewed and approved by LACoFD, included on submitted landscape plans. The plantings will be consistent with LACoFD's Suggested Plant Reference Guide (refer to Appendix C). The intent of the suggested plant reference guide is to provide examples of plants that are less prone to ignite or spread flames to other vegetation and combustible structures during

a wildfire. Additional Plants can be added to the landscape plant material palette with the approval from LACoFD.

3.4.8.2 Pre-Construction Requirements

- Perimeter fuel modification areas must be implemented and approved by the LACoFD prior to combustible materials being brought on site as required by the LA County Fire Code.
- Existing flammable vegetation shall be reduced by 50% on vacant lots upon commencement of construction.
- Dead fuel, ladder fuel (fuel which can spread fire from ground to trees), and downed fuel shall be removed, and trees/shrubs shall be properly limbed, pruned, and spaced per this plan.
- See the Project's Construction Fire Prevention Plan (CFPP) for a complete description of pre-construction vegetation management requirements

3.4.9 Undesirable Plants

Certain plants are considered prohibited in the landscape due to characteristics that make them highly flammable. These characteristics can be physical (structure promotes ignition or combustion) or chemical (volatile chemicals increase flammability or combustion characteristics). The plants included in the FMZ Undesirable Plant List (refer to Appendix C) are unacceptable from a fire safety standpoint and will not be planted or allowed to establish opportunistically within FMZs as required by the LA County Fire Code.

3.4.10 Construction Phase Vegetation Management

Vegetation management requirements will comply with the Project's CFPP, and shall be implemented at commencement and throughout the construction phase. Vegetation management for the Project area shall be performed pursuant to this WSP and LACoFD requirements on all building locations prior to the start of work and prior to any import of combustible construction materials. Fuel modification zones with characteristics in accordance with, or more extensive than provided in section 3.2.2.1, shall be created around all grading, site work, and other construction activities in areas where there is flammable vegetation. Combustible Materials will not be brought on site without prior fire department approval.

In addition to the requirements outlined above, the project will comply with the following important risk-reducing vegetation management guidelines:

- All new on-site power lines shall be underground for fire safety. Temporary construction power lines may be allowed in areas that have been cleared of combustible vegetation.
- Caution must be used not to cause erosion or ground (including slope) instability or water runoff due to vegetation removal, vegetation management, maintenance, landscaping, or irrigation.
- Construction activities associated with off-site infrastructure would be required to comply with applicable regulations related to vegetation management as detailed in Section 3.2.8 of the Recirculated Partial Draft EIR.

3.4.11 Funding Towards Off-site Wildfire Mitigation Projects

Climate Resolve and Centennial have mutually agreed to make certain additional commitments to fund wildfire prevention, protection, and response activities within the Project, and to fund grants to improve wildfire prevention, protection, and response activities in nearby communities. This may include funding for offsite vegetation management projects including roadside fuels reduction, fuel breaks, and community defensible space projects. This funding agreement is not mitigation required to reduce Project impacts but will provide additional benefit for wildfire prevention within the Project and vicinity.

3.5 Fire Apparatus Access

3.5.1 Access

Primary Ingress/Access Routes

The Project would involve the construction of new structures, roadways, and would generate new trips to and from the Project site. Project site access, including road widths and connectivity, will be consistent with the then current County roadway standards (Title 21) and the CFC Section 503. Additionally, an adequate water supply and approved paved access roadways shall be installed prior to any combustibles being brought on site and will include:

- The Centennial Specific Plan Project site's primary access would be from multiple locations along Hwy 138 and a comprehensive internal circulation system. As discussed in the Project's Specific Plan, Project improvements to Highway 138 will help further reduce fire risk and provide better emergency egress. The road system will be developed to be consistent with the County's roadway standards (Title 21) and the LA County Fire Code, Section 503.
- Roadways and/or driveways will provide fire department access within 150 feet of all portions of the exterior walls of the first floor of each structure in accordance with the LA County Fire Code Section (503.1.1).
- Per the Project's Specific Plan, classifications and street cross-sections were developed in partnership with the Department of Regional Planning, as well the County of LA's Public Works and Fire Departments: modifications to these cross-sections require approval from Public Works and LACFD.
- Access roads shall be completed and paved prior to issuance of building permits and prior to the occurrence of combustible construction.
- The developer will provide information illustrating the new roads, in a format acceptable to the LACoFD for updating of Fire Department response maps in accordance with the LA County Fire Code Section (106.2.1).
- As required by MM 3-8, the Project Applicant/Developer shall prepare a Traffic Control Plan in accordance with the California Manual on Uniform Traffic Control Devices (MUTCD). The Traffic Control Plan shall be reviewed and approved by the California Department of Transportation (Caltrans), and all construction activities in the public right-of-way shall comply with the approved Traffic Control Plan to the satisfaction of Caltrans. Documentation of Caltrans approval shall be provided to the County for any Tentative Map involving construction within State Route 138 right-of-way (MM 3-8).

3.5.2 Road Width and Circulation

- Fire apparatus roads shall have an unobstructed width of not less than 20 feet, exclusive of shoulders, except for approved security gates in accordance with Section 503.6, and an unobstructed vertical clearance clear to the sky to allow aerial ladder truck operation (LACoFC 503.2.1).
  - **Exception:** A minimum vertical clearance of 13 feet 6 inches may be allowed for protected tree species adjacent to access roads. Any applicable tree-trimming permit from the appropriate agency is required.
- In accordance with LA County Fire Code Section (503), typical, interior Project roads will comply with all fire apparatus access road standards; all interior fire access roadways where a fire hydrant is located shall be constructed to a minimum unobstructed road width of 26 feet, exclusive of shoulders and shall be improved with aggregate cement or asphalt paving materials (LACoFC 403.2.1.2.1). The interior residential access roads will be designed to accommodate a minimum of a 75,000-pound (lb.) fire apparatus load (LACoFC 503.2.3).
- Interior circulation streets include all roadways that are considered common or primary roadways for traffic flow through the site and fire department access serving all proposed residential and commercial structures. Any dead-end streets serving new buildings or dwellings that are longer than 150 feet shall have approved provisions for fire apparatus turnaround in accordance with LA County Fire Code Section (LACoFC 503.2.5).
- Private and public streets for each phase shall meet all Project approved fire code requirements and/or mitigated exceptions for maximum allowable dead-end distance, paving, and fuel management prior to combustibles being brought to the site.
- As stated in the Project's Specific Plan, the curb-to-curb width of each private driveway and fire lane will be approved by the LA County Fire Department and Department of Public Works.
- Roads with a median or center divider will have a minimum 20 feet unobstructed width on both sides of the center median or divider.
- Cul-de-sacs and fire apparatus turnarounds will meet requirements and LA County Fire cul-de-sac length restrictions (County Code Section 21.24.190) as follows:
  - 500 feet in length, when serving land zoned for industrial or commercial use.
  - 700 feet in length, when serving land zoned for residential uses having a density of more than four dwelling units per net acre.
  - 1,000 feet in length, when serving land zoned for residential uses having a density of four or fewer dwelling units per net acre.

3.5.3 Gates

Gates on private roads are permitted but subject to LA County Fire Code requirements and standards. Gates shall be equipped with conforming sensors for detecting emergency vehicle "Opticom" strobe lights from any direction of approach if required. All entrance gates will be equipped with a key switch, which overrides all command functions and opens the gate. Gate activation devices will be equipped with a battery backup or manual mechanical disconnect in case of power failure. As such, if gates are installed along the secondary access road they will be supplied with backup power and open upon the approach of a vehicle whether via pressor sensors or infrared sensors. In addition, should a gate be installed along the secondary access road it shall also comply with the

minimum requirements set forth in this section per Title 32 Section 503.6 and CFC Section 503.6. Any gates within the Project site will be:

- Minimum 20 feet wide of clearance for one-way traffic when fully open at the entrance.
- Gates shall be swinging or sliding type.
- Construction of gates shall be of materials that allow manual operation by one person.
- Gates shall be maintained in operative condition at all times and replaced/repaired when defective.
- Electric gates shall be listed in accordance with UL 325
- Gates intended for automatic operation shall be designed, constructed, and installed in accordance with American Society for Testing and Materials (ASTM) F2200.
- Minimum of two feet wider than road width at the exit.
- Constructed from non-combustible or exterior fire-rated treated wood materials.
- Inclusive of provisions for manual operation from both sides if power fails. Gates will have the capability of manual activation from the development side or a vehicle (including a vehicle detection loop).

3.5.4 Grade

The Project complies with the Los Angeles County grade requirements (LACoFC 503.2.7). Fire apparatus access roads shall not exceed 15 percent in grade. Exception: For a fire access road serving no more than two single-family dwellings, grades shall not exceed 20 percent when approved by the fire code official.

3.5.5 Premises Identification

Identification of roads and structures will comply with LA County Fire Code Section (505) as follows:

- All residential structures shall be identified by street address. Numbers shall be 4 inches in height, 1/2 - inch stroke, and located 6 to 8 feet above grade. Addresses on multi-residential buildings shall be 6 inches high with 1/2-inch stroke. Numbers will contrast with background.
- Multiple structures located off common driveways or roadways will include posting addresses on structures and on the entrance to individual driveway/road or at the entrance to the common driveway/ road for faster emergency response.
- Streets will have street names posted on non-combustible street signposts. Letters/numbers will be per County standards.
- As required by the Project's Specific Plan, no sign shall be installed, relocated, or maintained so as to prevent free ingress to or egress from any door, window, or fire escape. No sign of any kind shall be attached to a standpipe or fire escape, except those signs as required by other codes or ordinances.

3.6 Structural Ignition Resistance

In WUI areas, homes can be considered fuel as well as an ignition point for wildfires. The WUI fire problem centered around the issue of wildland fire causing structural ignitions; therefore, the best mitigation is to reduce the likelihood of building ignition occurring. (Zhou, 2013). Structural characteristics play a large role in whether or not a building burns, which is important in WUI environments as ill-prepared structures may also serve as fuel (Gorte, 2011).

Preventing the ignition of structures can result in the reduction of fire spread in surrounding WUI areas (Maranghides & Mell, 2012). The benefit of structure-based mitigation is that it not only lowers the onsite risk but also lowers the risk of wildfire across a landscape (Mockrin et al., 2020).

The proposed structures within the Project will be built utilizing the most current construction methods designed to mitigate wildfire exposure, required by LA County Fire, at the time of construction, while also reducing the likelihood for structure fires to spread into offsite areas. Construction methods intended to mitigate wildfire exposure will comply with the wildfire protection building construction requirements contained in the Los Angeles County Building Code and the 2022 CBC including the following:

1. **Chapter 5 of the California WUI Code (CWUIC):** Special Building Construction Regulations, which includes the Materials and Construction Methods for Exterior Wildfire Exposure from CBC Chapter 7A.
2. Los Angeles County Building Code
3. Los Angeles County Residential Code, Section R327

Construction practices respond to the requirements of the LA County Fire Code Title 32 and the Los Angeles County Building Code (Title 26, Chapter 7A), "Construction Methods for Exterior Wildfire Exposure." These requirements include the ignition resistant requirements found in Chapter 12-7A of the Los Angeles County Referenced Standards Code. A key component to addressing the wildfire problem is to address the structural ignition. (Zhou, 2013). Addressing structural ignition potential is an effective mitigation strategy for preventing wildfires and increasing WUI ignition resistance (Zhou, 2013). Research has found that structural characteristics, especially roofing, play a significant role in reducing a structure's vulnerability to fire and the likelihood of burning (Gorte, 2011; Knapp et al., 2021; Kolden & Henson, 2019; Manzello et al., 2011; Syphard et al., 2017; Zhou, 2013). Further, reducing a structure's likelihood of ignitions reduces the risk for the individual homeowners and the risk associated with fire spreading to other homes or wildland areas (Mockrin et al., 2020).

The 7A Materials and Construction Methods for Exterior Wildfire Exposure (CBC) chapter detail the ignition resistant requirements for the following key components of building safely in wildland-urban interface and fire hazard severity zones. Each of the critical exterior building features summarized below has been addressed within Chapter 7A to minimize the potential for structural ignition from wildfire exposure as well as from airborne embers. In addition, these requirements reduce the likelihood of structural fires spreading into offsite areas.

3.6.1 Roofing Assemblies

Roofing shall comply with Chapter 7A and Chapter 15 of the CBC. Roof assemblies shall be a Class A rating in accordance with ASTM E108 or UL790. Where the roof allows a space between the roof covering and roof decking the space shall be constructed to prevent the intrusion of embers, or is installed over a combustible deck, be fire stopped with a 72-In cap sheet meeting the ASTM D3909 Standard Specification for "Asphalt Rolled Roofing Surfaces with Mineral Granules", shall be installed over the roof deck. Bird stops are to be used at the eaves, and hip and ridge caps will be mudded in to prevent the intrusion of embers. Roof valley flashing shall be no less than 0.019 inches No. 26 gauge galvanized sheet corrosion-resistant metal installed over no less than one layer of minimum 72 lb. mineral surfaced nonperforated cap sheet compliant with ASTM D3909, at least 36 inches wide running the full length of the valley. Gutters shall be provided with means to prevent the accumulation of embers.

Wood shake shingles and wood shakes are prohibited in any Fire Hazard Severity Zone regardless of classification per LACBC Section 705A.2.

3.6.2 Vents and Openings

Any vent openings, enclosed eaves soffit spaces, enclosed rafter spaces formed where ceilings are applied directly to the underside of roof rafters, and underfloor ventilation shall comply with Section 1203 and Section 706A.1 through 706A.3 of the CBC and Section 706A of the LACBC. All vents and openings shall be fully covered with Wildland Flame and Ember Resistant vents approved and listed by the California State Fire Marshal or WUI vents listed in ASTM E2886. This also applies to any gable ends, ridge ends, crawl spaces, foundations, and all other vents that mount onto a vertical wall. Vents shall not be installed on the underside of eaves or cornices unless they are WUI vents as described above.

3.6.3 Exterior Wall Covering

Exteriors walls shall comply with Section 707A.3 of the CBC and be either noncombustible or ignition-resistant. This applies to exterior wall coverings, exterior wall assembly, exposed undersides or eaves or soffits, undersides of porch ceilings, the underside of floor projections, and exterior underfloor areas.

3.6.4 Open Roof Eaves

Any exposed roof deck material on the underside of open roof eaves shall either be noncombustible, ignition-resistant, one layer of 5/8 inch thick Type X gypsum, or a 1-hour fire-resistive exterior wall assembly designed for exterior fire exposure using gypsum panel and sheeting in accordance with CBC Section 707A.4.

3.6.5 Closed Roof Eaves and Soffits

Enclosed eaves and soffits shall comply with CBC Section 707A.5. The exposed underside of enclosed eaves or soffits shall be protected by either noncombustible material, ignition-resistant material, one layer of 5/8 inch Type X gypsum sheeting, a 1-hour fire-resistive exterior wall assembly, assemblies that meet the performance criteria in Section 707A.10, or assemblies that meet the performance criteria in State Fire Marshal (SFM) Standard 12-7A-3.

3.6.6 Floor Projections and Underfloor Protection

The underside of floor projections must comply with Section 707A.7 of the CBC. The exposed underside of a cantilevered floor projection, where a floor assembly extends over an exterior wall, must be protected by noncombustible materials, ignition-resistant materials, one layer of 5/8 in Type X gypsum, 1-hour fire resistive exterior wall assembly that meets the criteria in Section 707A.10, or meets performance criteria in SFM Standard 12-7A-3. The underfloor area of an elevated or overhanging building shall be enclosed in accordance with CBC Section 707A.8.

3.6.7 Underfloor Appendices

When required by LA County Fire, the underside of overhanging appendages shall be enclosed per CBC Section 707A.9. Or the underside of the exposed underfloor shall consist of noncombustible material, ignition-resistant material, one layer of 5/8 inch Type X gypsum, 1-hour fire resistive exterior wall assembly, or meets the performance criteria in SFM Standard 12-7A-3 or ASTM E2957.

3.6.8 Windows, Skylights, and Doors

Assemblies shall meet one of the following requirements:

- Be constructed of multiplane glazing with a minimum of one tempered pane meeting the requirements of Section 2406 Safety Glazing.
- Be constructed of glass block units.
- Have a fire-resistive rating of no less than 20 minutes per National Fire Protection Association (NFPA) 257.
- Be tested to meet the performance requirements of SFM Standard 12-7A-2.

Skylights shall be protected by a non-combustible mesh screen with openings of no more than 1/8 inches. Wall assemblies behind structural glass veneers shall comply with Section 707A.3 of the CBC.

3.6.9 Exterior Doors

Exterior doors shall be constructed as follows:

- Noncombustible material
- Ignition-resistant construction
- A solid wood core that has stiles and rails no less than 1 3/8-inch-thick and panels no less than 1 ¼ inch thick.
- Fire-resistance rating of no less than 20 minutes per NFPA 252
- Surface or cladding that meets the performance criteria of CBC Section 707A.3.1 when tested per ASTM E2707 or SFM Standard 12-7A-1.

Garage doors shall resist the intrusion of embers by preventing gaps between doors and roof openings at the top, bottom, and sides of doors. Gaps cannot exceed 1/8 inch and shall be controlled by either weather stripping that meets ASTM D638 and ASTM G155, weather stripping shall also have a V-2 or better flammability rating, be constructed so that doors overlap onto jams and headers, or the garage door jams and headers are covered with metal flashing.

3.6.10 Decking

Any deck, porch, balcony, or stairs within 10 feet of a building shall comply with CBC Section 709A. The walking surface shall either comply with Section 709A.4 when tested per ASTM E2632 and ASTM E2726, ignition-resistant material, material that meets the criteria of SMF Standard 12-7A-4 and SFM Standard 12-7A-5, noncombustible material, any material that meets SFM Standard 12-7A-4A when attaches to exterior walls that are noncombustible or ignition-resistant or any material that meets Section 709A.5 and is attached to an exterior wall that is noncombustible or ignition-resistant.

3.6.11 Accessory Structures

Accessory structures are applied to buildings covered by LACBC Section 710A.3, Exception 1 as well as any building that requires a permit including but not limited to trellises, arbors, patio covers, gazebos, and similar structures

within less than 3 feet of the building or otherwise determined by LA County Fire. Buildings that are less than 120 square feet in floor area and are more than 30 feet but less than 50 feet from structures shall be noncombustible or ignition-resistant per CBC Section 704A.2. No requirements shall apply to an accessory building or miscellaneous structures when located at least 50 feet from an applicable building. Applicable accessory buildings and attached miscellaneous structures, or detached miscellaneous structures that are installed at a distance of fewer than 3 feet from an applicable building, shall comply with LACBC Section 710A. Structures that meet the requirements of an accessory or miscellaneous structures shall be noncombustible or ignition resistant per CBC Section 704A.2.

3.7 Fire Protection Systems

3.7.1 Water Supply

The Golden Valley Municipal Water District (GVMWD), or other public utility district (PUD), would be the water purveyor to provide domestic water supplies and fire flows to the Specific Plan area. Approval from the California Public Utility Commission would be required prior to construction improvements to the water system. New water infrastructure would be required to provide service to the Project site. The water needs of Centennial will be met through various water resource management strategies and secure water sources throughout the buildout of the Project. The water plan includes multiple sources of potable water such as groundwater, State Water Project (SWP), independent purchased water by Tejon Ranch, return flows, recycled water, and banked water. Consistent with Government Code Section 66473.7, each proposed subdivision will have an available water supply that meets or exceeds Project demand under normal, single-dry, and multiple-dry year scenarios. This Water Service Plan will provide a flexible, reliable water supply throughout Project development without adversely affecting other local groundwater users or other users of critical SWP resources.

The Project will be consistent with County Title 20, Section 20.16.060 for fire flow and fire hydrant requirements within a VHFHSZ. These internal waterlines will also supply sufficient fire flows and pressure to meet the demands for required onsite fire hydrants and interior fire sprinkler systems for all structures. Water supply must meet a 2-hour fire flow requirement of 2,500 gpm with 20-psi residual pressure, which must be over and above the daily maximum water requirements for this development. Water utilities will be connected prior to any construction. Further, the Project area has several large water sources that can support firefighting efforts, such as Quail Lake, the California Aqueduct, and the Tehachapi Afterbay.

The minimum fire flow may be adjusted as determined by the fire chief or fire marshal based on local conditions, exposure, and/or congestion, and construction of buildings. Building permits shall be accompanied by evidence indicating to LA County Fire a reliable water supply and a certificate from LA County Fire that there is sufficient water supply for fire protection. The water supply for the Project shall be consistent with approved types of water supply such as reservoirs, pressure tanks, elevated tanks, water mains, or other fixed systems capable of providing required fire flow per Title 32 Section 507.2. Any water tanks and associated structures shall be installed and maintained in accordance with NFPA 22 and LA County Fire.

Within the internal roadways, additional 12-inch water supply lines will provide the main water supply to commercial and domestic services to each structure and common landscape area. These internal waterlines will also supply sufficient fire flows and pressure to meet the demands for required onsite fire hydrants and interior fire sprinkler systems for all structures.

In addition, LA County Fire helicopters can obtain water for dropping on wildland fires from Quail Lake, the DWR afterbay located just north of the Project, or from the California Aqueduct which passes through the Project site.

The Project would meet all water and water pressure requirements for fire flow.

3.7.2 Hydrants

Fire Hydrants shall be located along fire access roadways as determined by LACoFD Fire Chief or Fire Marshal and current fire code requirements to meet operational needs. The required fire hydrant spacing will be 600 feet apart for single-family residential as required in LA County Fire Code Section (C105.2).

Fire Hydrants will be consistent with applicable County Design Standards. Hydrants will have one 2.5-inch outlet and one 4- inch outlet and be of bronze construction per the LA County Fire Code. Reflective blue dot hydrant markers shall be installed in the street to indicate location of the hydrant (LACoFC 507.5.7). Crash posts will be provided where needed in on-site areas where vehicles could strike fire hydrants or fire department connections (CFC 507.5.6). Prior to issuance of building permits, the appropriate number of fire hydrants and their specific locations will be approved by LACoFD.

3.7.3 Automatic Fire Sprinkler Systems

All structures in the Project, of any occupancy type, in accordance with LA County Fire and National Fire Protection Association (NFPA) Standards 13, 13R, and 13D will include automatic sprinklers. This is crucial in preventing off-site impacts as embers can also be generated by a structure fire and can be blown over the fuel modification into native fuels. Automatic sprinklers can isolate a fire to the point of origin, limit its ability to spread to the rest of the building, and even extinguish a fire before the responding firefighters arrive, thus damping the likelihood of ember production (NFPA, 2021). As proven through ember production research, wildfire severity greatly impacts the degree of which embers are produced (Zhou, 2015). Automatic sprinklers have an extremely high success rate in controlling or suppressing the severity of interior structure fires (NFPA, 2021). This also reduces impacts on fire response capacity as the automatic sprinklers will allow firefighters to focus on reducing additional ignitions beyond the point of origin. These factors all contribute to mitigate structural fire severity and shorter burn periods which combine to reduce ember production from structural fires. The Project is inclusive of both protection measures including components to resist ignitions from wildland fuels, and the built environment.

3.7.4 Residential Hazard Detectors

All residences will be equipped with residential smoke detectors and carbon monoxide detectors and comply with current CBC, CFC, and California Residential Code standards.

3.7.5 Ban on Wood-Burning Fireplaces

As required by MM 11-3 and the Specific Plan's General Development Standards, the Project's plans and specifications shall prohibit wood-burning fireplaces as required by SCAQMD Rule 445 in single-family residences throughout the entire Project site, including at residences that are 3,000 or more feet above mean sea level at which the SCAQMD prohibition would otherwise not apply. These requirements shall be posted on the community intranet and shall be clearly described and distributed to home buyers through their home purchase contracts and CC&Rs (Mitigation Measure MM 11-3).

3.8 Pre-Construction Requirements

Per LA County Fire Code, 4906.2, a fuel modification plan shall be submitted and have preliminary approval prior to any subdivision of land; or, have final approval prior to the issuance of a permit for any permanent structure used for habitation; where, such structure or subdivision is located within areas designated as a Fire Hazard Severity Zone within State Responsibility Areas or Very High Fire Hazard Severity Zone within the Local Responsibility areas, applicable Fire Hazard Zone maps, and Appendix M of the LA County Fire Code at the time of application. An on-site inspection must be conducted by the personnel of the Forestry Division of the Fire Department and final approval of the fuel modification plan issued by the Forestry Division prior to a certificate of occupancy being granted by the building code official. Construction activities would also comply with Chapter 33 of the CFC, Fire Safety During Construction and Demolition, and with the Project's Construction Wildfire Safety Plan (CWSP).

3.8.1 Construction Fire Prevention Plan

The Centennial Construction Fire Prevention Plan (CFPP) minimizes construction-phase ignition risks by establishing comprehensive controls on combustible materials, equipment use, and site operations. Fire risk is reduced by limiting the amount of flammable and combustible materials stored on site and requiring any necessary materials to be stored away from potential ignition sources. Vegetation management around parking areas, including clearing grass and brush within a minimum 10-foot buffer, further reduces the likelihood of vehicle-related ignitions. The CFPP also ensures evacuation routes remain unobstructed, supporting both fire safety and emergency response.

The plan addresses ignition hazards from construction activities and equipment through strict operational requirements. Hot work is required to follow fire-safe practices, be conducted in controlled environments, and include readily available fire suppression equipment. A dedicated fire watch with extinguishing capability is required during all hot work activities. Electrical fire risks are minimized by prohibiting overloaded circuits, limiting reliance on extension cords, and requiring equipment to be turned off and unplugged when not in use. Fuel-related hazards are reduced through prompt reporting and repair of leaks and clear labeling and storage of hazardous materials.

To further reduce wildfire ignition potential, the CFPP restricts the use of high-risk equipment during Red Flag Warning conditions. When such equipment is in use, water trucks and hand tools are required to be immediately accessible. All construction vehicles are equipped with fire extinguishers, water suppression tools, hand tools, and first-aid kits to support rapid response to any ignition. Finally, the plan includes clear evacuation procedures to ensure personnel accountability and safe, orderly departure from the site if fire conditions warrant, minimizing risk to workers and supporting coordinated emergency response.

3.9 Regulatory Requirements Applicable to Activities in a Hazardous Fire Area

The Project will comply with LA County Fire requirements for activities per Section 326 Activities in Wildfire Risk Areas of Title 32:

1. Permits shall be required for the following similar activities: recreational activities such as but not limited to rifle ranges, carnivals, public assembly events, fireworks, open burning, stands for cooking, or other activities which could provide an ignition source.

2. The following but not limited to fire protection facilities/conditions shall be required to maintain fire safety during activities:
    a. Adequate water supply
    b. Firebreaks
    c. No smoking signs
    d. Removal of dry grass and weeds along roadways, parking areas, or other areas accessible to the public/participants of the activity
    e. Fire watch or fireguards when the activity is taking place.
    f. Adequate access and parking facilities to prevent congestion, permit adequate egress for evacuation, and permit movement of fire apparatus equipment.
    g. Restriction of activities during periods of high fire hazard weather conditions
    h. Fencing
    i. Other conditions, limitations, or provisions to maintain reasonable fire safety.
3. Any portion of public or private land in a wildfire risk area may be closed to the public by the fire code official at the request of the owners when in the opinion of the fire official the closure is necessary to prevent fires.
4. Per Section 326, no person shall use or operate in, upon, or within a wildfire risk area any tractors, construction equipment, machinery, or any steam, oil, or gasoline operated stationary or mobile equipment unless said equipment is provided with a qualified device or spark arrestor.
4. Any chimney to a fireplace, incinerator, or heating appliance that uses a solid or liquid fuel within a wildfire risk area shall be maintained with a spark arrestor with heavy wire mesh or other non-combustible material with no more than ½ inch openings.
5. No person shall operate or use an open flame device (torches, butane burners,etc.) within a wildfire risk area.
6. No person except for a public officer shall drive or park a motorcycle, motor scooter, or motor vehicle upon any fire road or firebreak, obstruct the entrance to a fire road or firebreak, or install or maintain radio or television aerials or any other obstruction on a fire road or fire break that is less than 16 feet above said fire road or fire break.

3.10 Examples of Communities Designed Against Wildfire

When communities incorporate the regulatory requirements and mitigation measures like the ones described above, they can offer a safer landscape that is resistant to WUI fire disasters. The 2017 Thomas fire in Santa Barbara County consumed over 1,000 homes predominately during the high wind events in the first few days of the incident (Kolden & Henson, 2019). The unincorporated area of Montecito is classified as VHFHSZ and has significant fire history inclusive of home loss (Kolden & Henson, 2019). Two decades prior to the Thomas Fire, the Montecito Fire Protection District started to address wildfire vulnerability in the community using place-based reduction strategies (Kolden & Henson, 2019). These strategies focused on recurring structural ignition potential, fire-resistant materials, structural modifications, increasing defensible space, fire scaping, and developing a fire protection code (Kolden & Henson, 2019). As a result, when the Thomas Fire, during Sundowner winds, spread to Montecito the area experienced minimal damage and was largely passed over (Kolden & Henson, 2019). By having

mitigation not be isolated to wildland areas or just to homes, but implemented on multiple scales, Montecito was able to effectively protect not just the WUI areas, but the entire community.

The Witch Creek fire was one of the most destructive fires in California's history and destroyed thousands of homes in San Diego County (Mutch et al., 2011). However, after the 1990 Paint Fire in Santa Barbara and the 1991 Oakland Hills Tunnel Fire the community-started efforts to become adaptive to a very high fire hazard environment (Mutch et al., 2011). They implemented fire codes, and developed restricted defensible space rules, home hardening measures, and vegetation restrictions; all of which were maintained and enforced by the HOA (Mutch et al., 2011). As a result, when the Witch Creek fire spread to Rancho Santa Fe in the five communities that adopted this approach no homes were lost versus the older communities which were heavily impacted (Mutch et al., 2011).

One of the primary threats to home survival is radiant heat from nearby burning structures. Even with ember-resistant features mandated by Chapter 7A of the California Building (now Chapter 5 of the CWUIC), intense radiant heat can break windows, ignite combustible siding, and cause interior ignition once flames penetrate vulnerable openings. As a result, the effectiveness of ignition-resistant construction increases substantially when it is implemented not just at the individual structure level, but consistently across an entire neighborhood or community.

At the community scale, ignition-resistant construction reduces the likelihood that any one home becomes a high-intensity radiant heat source capable of igniting adjacent structures. When neighboring homes are all built with ignition-resistant roofs, noncombustible or fire-resistant siding, tempered glass windows, and protected vents, the probability of structure-to-structure fire spread declines significantly. This creates a compounding protective effect as fewer ignitions lead to lower radiant heat output overall, which in turn reduces exposure to surrounding homes. In contrast, even a single non-compliant or highly combustible structure can act as a weak link, generating sufficient radiant heat to compromise nearby buildings, regardless of their individual hardening features.

Research demonstrates a strong "neighborhood effect," meaning that a structure's survival is closely tied to the condition, materials, and spacing of surrounding buildings (Knapp et al. 2021). The presence of combustible outbuildings, fences, or closely spaced homes can substantially increase radiant heat exposure and the likelihood of cascading ignitions. Conversely, when ignition-resistant standards are uniformly applied across a development, the built environment functions as a system rather than as isolated parcels, reducing the potential for domino-style fire spread. Community-scale implementation of ignition resistant building requirements transforms ignition-resistant construction from a defensive, parcel-level measure into a collective risk-reduction strategy.

Additionally, the following communities which feature similar fire protection measures as the Project, have experienced minimal to no fire encroachment as a result of their design:

- Casino Ridge, Yorba Linda[2]
- Serrano Heights, Anaheim Hills[3]
- Cielo, Rancho Santa Fe[4]
- 4S Ranch, San Diego[5]

2 (Orange County Fire Authority, 2008)
3 (FEMA, n.d.)
4 (Mutch et al., 2011)
5 (Audencial, 2016)

- Orchard Hills, Irvine[6]

As described above, the Project site is designed to not only be hardened against fire but designed to prevent fires from occurring and quickly suppressing them when they do occur. The Project takes a multi-scaled approach to fire protection through wildfire education, ignition prevention, fuels management, increased response capacity, and ignition-resistant construction. The dual benefit of creating a development that can prevent a fire is that it offers protection to the surrounding communities and the environment. The requirements and recommendations outlined in the WSP have been designed specifically for the proposed construction in VHFHSZ and HFHSZ and can significantly reduce the potential threat to offsite areas.

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4 Wildfire Behavior Modeling

4.1 Fire Behavior Modeling – Flame Length, Fireline Intensity, and Rate of Spread

Fire behavior modeling was conducted to document the type and intensity of a fire that would be expected adjacent to the Centennial Project Site, given characteristic site features such as topography, vegetation, and weather during "worst case" fire conditions (e.g., during Santa Ana winds). For planning purposes, the averaged worst-case fire behavior is the most useful information for conservative fuel modification design.

To evaluate potential flame lengths and fire line intensities, FlamMap (Finney 2004) fire behavior modeling software was utilized that incorporates site-specific fuel, topography, and weather data. FlamMap fire behavior calculations are based on the algorithms included in the BehavePlus 3.0.2 fire behavior modeling program (Andrews, Bevins, and Seli 2004) and are performed in a GIS-based interface which provides graphical outputs of fire behavior modeling results. These outputs were utilized to graphically portray the anticipated pre-development fire behavior for the Project site.

4.1.1 Fire Behavior Modeling Analysis

Field data collection and fire behavior modeling was completed by Dudek to document the predicted type and intensity of fire that would be expected on this site given characteristic site features such as topography, vegetation, and weather. Fire behavior modeling is conducted based on the existing conditions. Understanding the anticipated fire behavior on the site pre-construction provides insight into how to best address the risk that the open space areas that will remain in post-development conditions present. Naturally, the areas that are converted to urban landscapes will result in a reduced fire risk and reduced fire intensity. Areas subject to hardscape and irrigated landscaping post-development can be expected to have flame lengths and intensity well below areas on the periphery of the community, the wildland urban interface.

Fire behavior modeling conducted on this site includes a high level of detail and analysis which results in reasonably accurate representations of how wildfire may move through available fuels on Centennial. 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 movement of a fire will likely never be fully predictable, especially considering the variations in weather and the limits of weather forecasting. Nevertheless, practiced and experienced expert judgment, coupled with a validated fire behavior modeling system, results in useful and accurate fire prevention planning information (Rothermel 1983).

Although fire behavior models, like all models, have limitations, they have performed well in providing valuable estimated fire behavior predictions, which can be used as a tool in the decision-making process. In order to make reliable estimates of fire behavior and interpret fire spread models, one must understand the relationship of fuels to the fire environment and recognize the variations in these fuels, and have experience with wildland fires or applicable knowledge of how fire reacts in similar fuels.

Natural fuels are made up of the various components of vegetation, both live and dead, that occur on a site. Vegetation is comprised of living and dead fuel. The type and quantity will depend upon the soil, climate, geographic features, disturbance regimes, and the fire history of the site. 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 and is affected by weather (wind, air temperature) and seven principal fuel characteristics: fuel loading, size and shape, compactness, horizontal continuity, vertical arrangement, moisture content and chemical properties.

The seven principal 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 in FlamMap 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 and the custom Southern California (SCAL models) fuel models:

- Grasses — Fuel Models 1 through 3
- Brush — Fuel Models 4 through 7, SCAL 14 through 18
- Timber — Fuel Models 8 through 10
- Logging Slash — Fuel Models 11 through 13.

In addition, the aforementioned fuel characteristics were utilized in the recent development of 40 new fire behavior fuel models (Scott and Burgan 2005) developed for use in FlamMap modeling efforts. These new models attempt to improve the accuracy of the standard 13 fuel models outside of severe fire season conditions, and to allow for the simulation of fuel treatment prescriptions. The following describes the distribution of fuel models among general vegetation types for the new 40 fuel models:

- Non-Burnable — Models NB1, NB2, NB3, NB8, NB9
- Grass — Models GR1 through GR9
- Grass Shrub — Models GS1 through GS4
- Shrub — Models SH1 through SH9
- Timber Understory — Models TU1 through TU5
- Timber Litter — Models TL1 through TL9
- Slash Blowdown — Models SB1 through SB4.

Table 6 provides a description of 11 fuel models observed on the Project site and that were subsequently used in the FlamMap analysis for this Project:

Table 6. Site Fuel Model Characteristics

Fuel Model	Description	Tons/acre; Btu/lb	Fuel Bed Depth (Feet)
6	Dormant Brush, Hardwood Slash	6 tons/acre; 8,000 Btu/lb	2.5
GR2	Low Load, Dry Climate Grass	1.1 tons/acre; 8,000 Btu/lb	1.0

Table 6. Site Fuel Model Characteristics

Fuel Model	Description	Tons/acre; Btu/lb	Fuel Bed Depth (Feet)
GR3	Low Load, Very Coarse, Humid Climate Grass	2 tons/acre; 8,000 Btu/lb	2.0
GS2	Moderate Load, Dry climate grass/shrub	2.6 tons/acre; 8,000Btu/lb	1.5
SCAL18	Sage/Buckwheat	9.7 tons/acre; 9,200 Btu/lb	3.0
SH2	Moderate Load Dry Climate Shrub	8.4 tons/acre; 8,000 Btu/lb	1.0
SH7	Very high load dry scrub	14.4 tons/acre; 8,000 Btu/lb	6.0
TL2	Low Load Broadleaf Litter	5.9 tons/acre; 8,000 Btu/lb	0.2
TL6	Moderate Load Broadleaf Litter	4.8 tons/acre; 8,000 Btu/lb	0.3
98	Open water	N/A	N/A
NB1	Urban/developed	N/A	N/A

4.1.1.1 FlamMap Fire Modeling Inputs

Dudek utilized FlamMap software to graphically depict fire behavior modeling results for the Project site. FlamMap utilizes the same fire spread equations built into the BehavePlus software package but allows for a geographical presentation of fire behavior outputs as it applies the calculations to each pixel in an associated Geographic Information Systems (GIS) landscape. Both summer weather conditions (50th percentile) and more extreme fall weather conditions (95th percentile) were modeled.

FlamMap software requires a minimum of five separate input files that represent field conditions on the Project site, including elevation, slope, aspect, fuel model, and canopy cover. Each of these files was created as a raster GIS file using ArcGIS 9.3 software, exported as an ASCII grid file, then utilized in creating a FARSITE (Finney 1998) Landscape file that served as the base for the FlamMap runs. The resolution of each grid file and associated ASCII file that was used in the models described herein is 10 feet, based on an existing digital elevation model (DEM) for the site provided by Bonterra. In addition to the Landscape file, wind and weather data are incorporated into the FlamMap model. Output files chosen for each of the modeling runs included flame length (feet), rate of spread (feet/minute), and fireline intensity (Btu/feet/second).

The following provides a description of the input variables used in processing the FlamMap models. In addition, data sources are cited and any assumptions made during the modeling process are described.

Weather. For the purposes of understanding site weather conditions, Dudek evaluated data from two local Remote Automated Weather Stations (RAWS) located in the vicinity of the Project site. As of the date of this report, no RAWS are located on the Centennial property. The following summarizes the location and available data ranges for the two stations:

- Chuchupate RAWS
  - ***Latitude:*** 34.8064
  - ***Longitude:*** -119.0128

  - ***Elevation:*** 5,250 feet
  - ***Data years:*** 1961 to 2008
- Poppy Park RAWS
  - ***Latitude:*** 34.73250
  - ***Longitude:*** -118.38333
  - ***Elevation:*** 2,760 feet
  - ***Data years:*** 1995 to 2008.

Utilizing the FireFamily Plus v. 4.0.0 (FireFamily Plus 2007) software package, data from both RAWS were analyzed by developing a Special Interest Group (SIG). The SIG is a composite of weather station data that is analyzed concurrently. In this case, the SIG weighted data from each RAWS equally and was analyzed to determine 50th and 95th percentile wind and fuel moisture conditions for inclusion in the fire behavior modeling efforts conducted for the Project site. Fuel moisture information was analyzed and incorporated into the Initial Fuel Moisture file used as an input in FlamMap. Wind speed (20-foot) values for the different FlamMap runs were manually entered during the data input phase and were based on two wind scenarios: summer fire (50th percentile) with 7 mph winds, and fall fire (95th percentile) with 47 mph winds (maximum observed RAWS wind speed).

Elevation. Elevation data were derived from the Centennial DEM file, projected in NAD 1983, California State Plane, Zone 5 with units in feet. The resolution of the DEM was 10 feet and elevation on site ranges from 2,988 feet to 4,310 feet. These data were utilized to create an elevation grid file, using units of feet amsl. The elevation data are a necessary input file for FlamMap runs and are necessary for adiabatic (air cooling or heating) adjustment of temperature and humidity and for conversion of fire spread between horizontal and slope distances.

Slope. Using ArcGIS Spatial Analyst tools, a slope grid file was generated from the elevation grid file described previously. Slope measurements utilized values in percent of inclination from horizontal. Slope values on site range from 0% to 95%. The slope input file is necessary for computing slope effects on fire spread and solar radiance.

Aspect. Using ArcGIS Spatial Analyst tools, an aspect grid file was generated from the elevation grid file described previously. The aspect values utilized were azimuth degrees. Aspect values are important in determining the solar exposure of grid cells.

Fuel Model. Vegetation coverage data in the form of a GIS shapefile were used in this analysis to create a fuel model file. Derived from Bonterra's 2009 Vegetation Type classifications included in their vegetation mapping data for the Project site, vegetation types were classified into fuel models as described in Table 6. Vegetation mapping data was utilized in field assessment efforts to classify vegetation cover type with an appropriate fuel model. Specifically, 11 separate fuel models were utilized for the Project site, of which, two were non-combustible classifications (e.g., water, pavement). Once fuel model values were assigned to vegetation types, the vector-based vegetation data file was converted to a grid file for inclusion in FlamMap modeling. Table 6 outlines the fuel model values applied to the different vegetation types found on the Project site.

Canopy Cover. Canopy cover is a required raster file for FlamMap operations. It is necessary for computing shading and wind reduction factors for all fuel models. Canopy cover is measured as the horizontal fraction of the ground that is covered directly overhead by tree canopy. Crown closure refers to the ecological condition of relative tree crown density. Stands can be said to be "closed" to recruitment of canopy trees but still only have 40% or 50% canopy cover. Coverage units can be categories (0 through 4) or percentage values (0 through 100). For the

purposes of this analysis, timber litter fuel models (TL2 and TL6) were classified as category 3 (50% to 75% cover) while the remaining models were considered to have no canopy, due to the lack of any significant tree cover in these areas.

Table 7 summarizes the input variables used in the FlamMap modeling efforts.

Table 7. FlamMap Model Input Variables

Model Variable	50th Percentile Weather	95th Percentile Weather (w/ Max. Wind)
1 h fuel moisture	5%	2%
10 h fuel moisture	6%	3%
100 h fuel moisture	12%	6%
Live herbaceous moisture	60%	30%
Live woody moisture	70%	60%
20 ft wind speed (mph)	7 mph	47 mph (maximum observed Fall wind speed)
Wind direction	Up-slope	Up-slope
Slope steepness	Variable by location, range: 0% to 95%	Variable by location, range: 0% to 95%

4.1.1.2 FlamMap Fire Modeling Outputs

Two output grid files were generated for each of the two FlamMap runs and include representations of flame length (feet) and fireline intensity (Btu/feet/second). The aforementioned fire behavior variables are an important component in understanding fire risk and fire agency response capabilities. Flame length, the length of the flame of a spreading surface fire within the flaming front, is measured from midway in the active flaming combustion zone to the average tip of the flames (Andrews, Bevins, and Seli 2004). It is a somewhat subjective and non-scientific measure of fire behavior, but is extremely important to fireline personnel in evaluating fireline intensity and is worth considering as an important fire variable (Rothermel 1991). Fireline intensity is a measure of heat output from the flaming front, and also affects the potential for a surface fire to transition to a crown fire. Fire spread rate represents the speed at which the fire progresses through surface fuels and is another important variable in initial attack and fire suppression efforts. The information in Table 8 presents an interpretation of these fire behavior variables as related to fire suppression efforts.

Table 8. Fire Suppression Interpretation

Flame Length (feet)	Fireline Intensity (Btu/ft/s)	Interpretations
Under 4	Under 100	Fires can generally be attacked at the head or flanks by persons using hand tools. Hand line should hold the fire.
4 to 8	100 to 500	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	500 to 1000	Fires may present serious control problems—torching out, crowning, and spotting. Control efforts at the fire head will probably be ineffective.

Table 8. Fire Suppression Interpretation

Flame Length (feet)	Fireline Intensity (Btu/ft/s)	Interpretations
Over 11	Over 1000	Crowning, spotting, and major fire runs are probable. Control efforts at head of fire are ineffective.

Source: BehavePlus 3.0.2 fire behavior modeling program (Andrews, Bevins, and Seli 2004)

Maps depicting flame length and fireline intensity for the 50th and 95th percentile weather scenarios are included in Figures 8-11. The fire behavior analysis results for the Project site vary depending on fuel type. As FlamMap utilizes site-specific digital terrain data (including slope, vegetation, aspect, and elevation data) slight variations in predicted flame length values can be observed based on fluctuations of these attributes across the landscape. As presented, wildfire behavior in each of the fuel types varies depending on weather conditions.

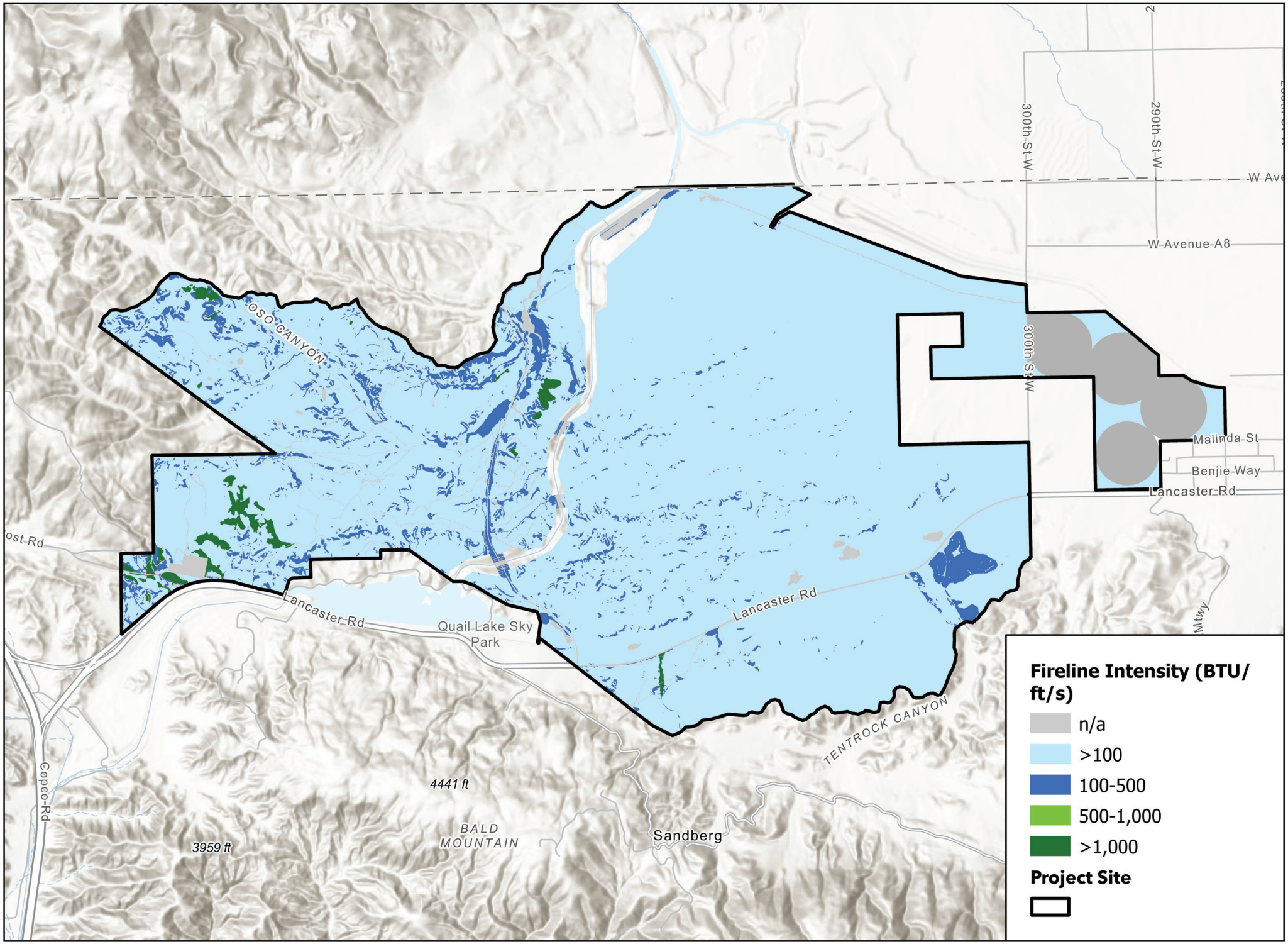

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FIGURE 8
Fireline Intensity - 50th Percentile Weather

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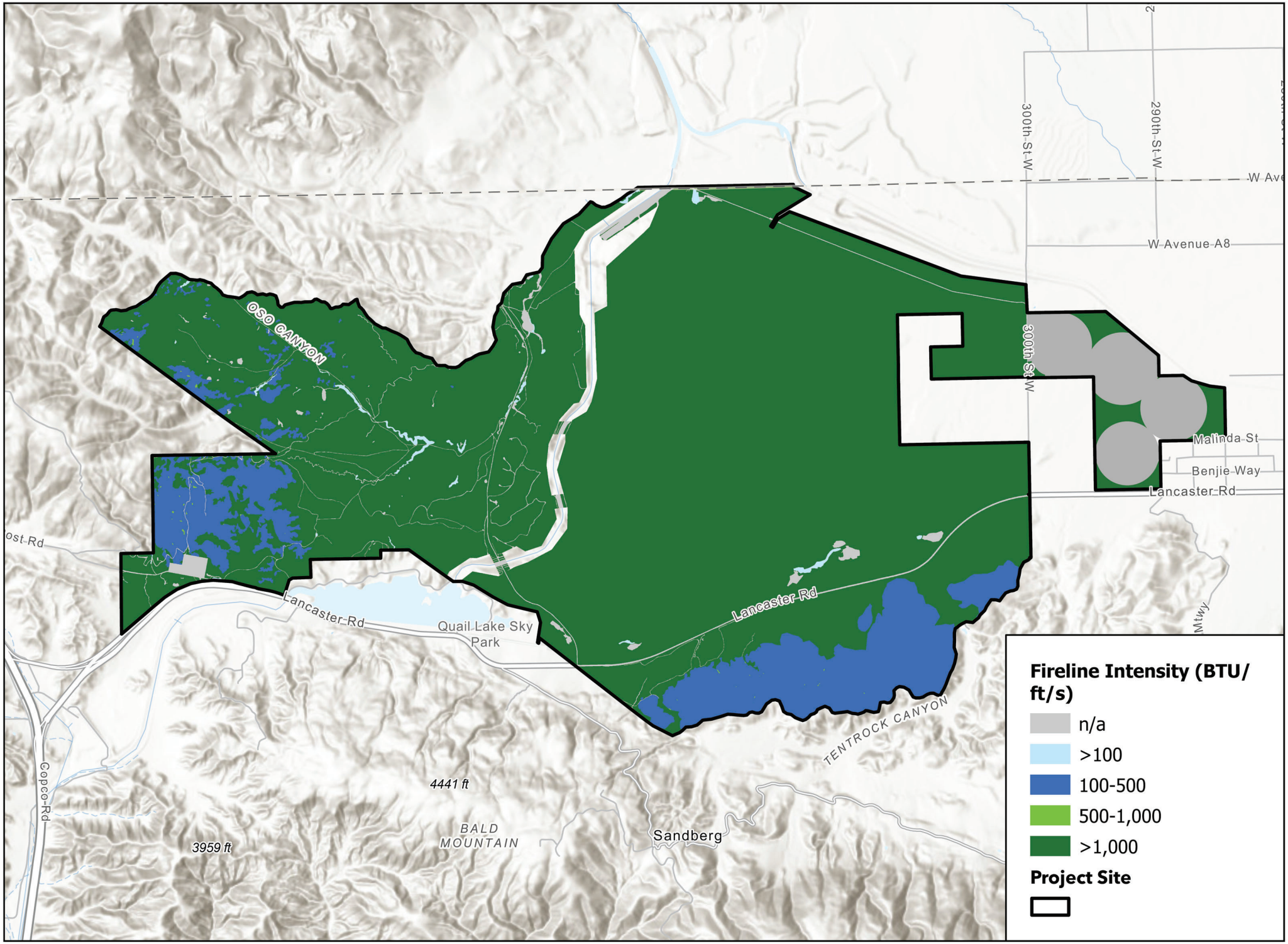

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FIGURE 9

Fireline Intensity - Santa Ana Weather - 47 mph winds

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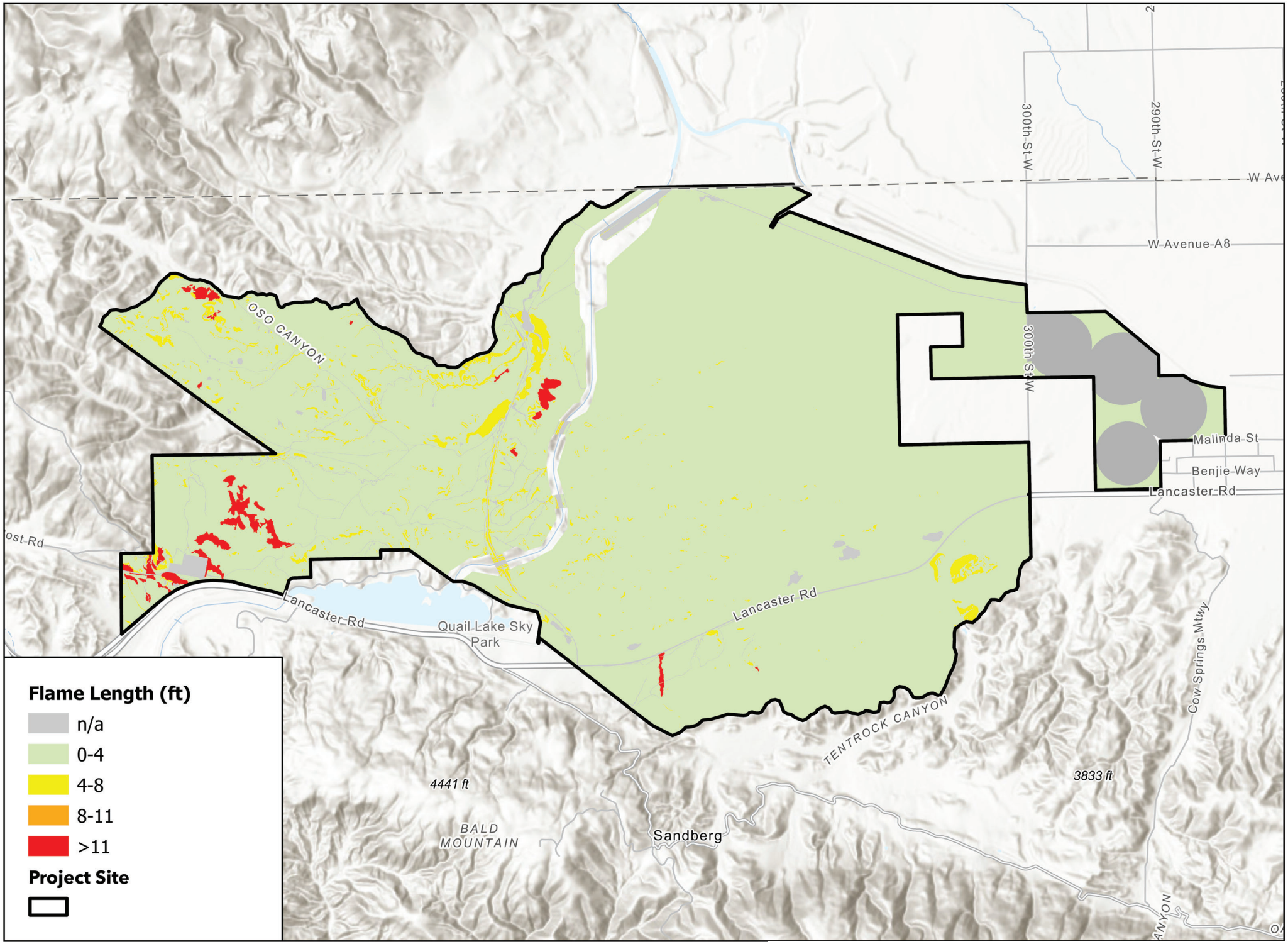

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FIGURE 10

Flame Length (ft) - Santa Ana Weather - 47 mph wind

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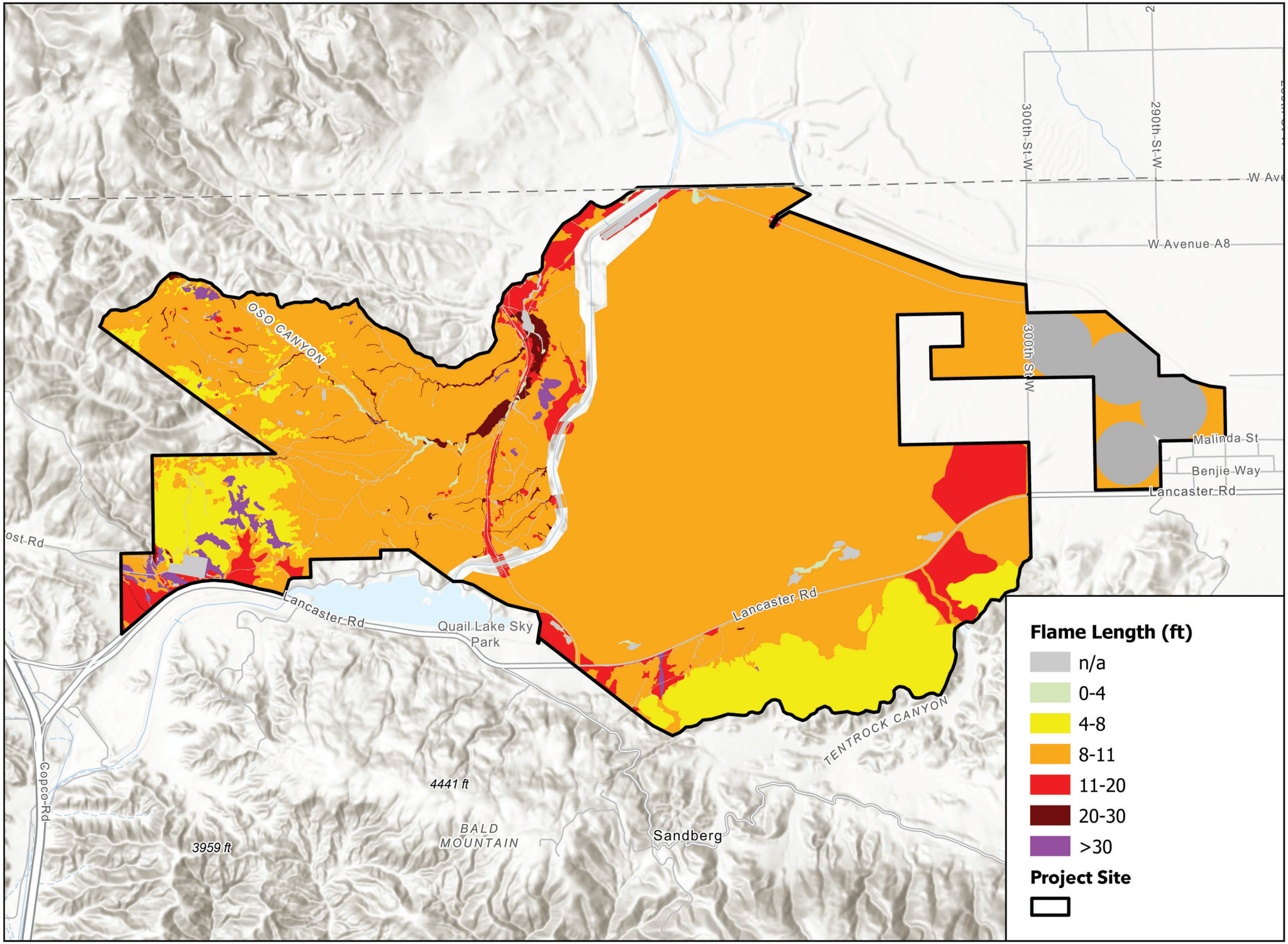

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FIGURE 11

Fireline Intensity - Santa Ana Weather - 47 mph wind

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4.1.1.3 Behave Plus Analysis

An analysis utilizing the BehavePlus software package was conducted to evaluate pre- and post-project flame lengths, intensities, and spread rates within the Project's development edges. These fire scenarios incorporated observed fuel types representing the dominant vegetation and slope gradients in the Project's planned Fuel Modification Zones. Modeling scenario locations were selected to better understand different fire behavior that may be experienced on or adjacent to the site. Identification of fire scenarios' locations is presented graphically in Figure 12.

Baseline vegetation types (Table 9), which were derived from the field assessment for the Project Site, were classified into a fuel model. Fuel Models are simply tools to help fire experts realistically estimate fire behavior for a 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). For post-development conditions, fuel models were assigned to illustrate post-project fire behavior changes in the Project's planned perimeter Fuel Modification Zones. As depicted in Figure 13 , the vast majority of development areas are located adjacent to low hazard grass fuels. Based on the anticipated pre-and post-project vegetation conditions, six different fuel models were used in the fire behavior modeling effort presented herein.

Table 9. Baseline Fuel Model Characteristics

Fuel Model Assignment	Vegetation Description	Location	Fuel Bed Depth (Feet)
8	Zone A – irrigated, landscapes	Perimeter fuel modification zone	<3.0 ft.
Gr1	Zone B/Zone C: grasses cut to 6 inches in height	Perimeter fuel modification zone	<0.5 ft.
GR2	Non-native grasslands	Hillsides and open spaces surrounding the sites	<1.0 ft.
Sh1	Zone B: 50% thinning shrubs	Perimeter fuel modification zone	—
GS2	Moderate Load, Dry climate grass/shrub	Hillsides and open spaces surrounding the sites	<1.5 ft.
TL6	Oak woodland lead leaf litter	Select hillsides and open spaces surrounding the sites	<0.3 ft.

The results of baseline fire behavior modeling analysis are presented in Table 10 for pre-project conditions and Table 11 for post-project conditions. Post-project conditions include fuel model characteristics to represent the reduced fuels, high plant moisture, and engineered landscapes that result in reduced flame lengths, spread rates, and fire intensity.

Table 10. BehavePlus Modeling Results – Pre-Project Baseline Conditions for the Project Area

Fire Scenarios	Flame Length (feet)	Fireline Intensity (Btu[1]/feet/second)	Spread Rate (mph[2])
Scenario 1: Non-Native Grasslands and, 5-10% slope, 97th Percentile Weather			
Fuel Model GR2	14	1,000 +	4.2
Scenario 2: Moderate Load Grass-shrub vegetation, 5-10% slope, 97th Percentile Weather			
Fuel Model GS2	24	1,000 +	6.6
Scenario 3: Oak woodland vegetation, 5-10% slope, 97th Percentile Weather			
Fuel Model TL6	12	500-1,000	1.5
Fuel Model GR2	14	1,000 +	4.2
Scenario 4: Non-Native Grasslands and, 5-10% slope, 50th Percentile Weather			
Fuel Model GR2	6	>0-500	0.7
Scenario 5: Moderate Load Grass-shrub vegetation, 5-10% slope, 50th Percentile Weather			
Fuel Model GS2	7	>0-500	0.6
Scenario 6: Oak woodland vegetation, 5-10% slope, 50th Percentile Weather			
Fuel Model TL6	4	<100	0.1
Fuel Model GR2	6	>0-500	0.7

Notes
1 Btu = British thermal unit(s)
2 mph = miles per hour
3 Spotting distance from a wind-driven surface fire

Table 11. BehavePlus Modeling Results – Post-Project Conditions for the Project Area

Fire Scenarios	Flame Length (feet)	Fireline Intensity (Btu[1]/feet/second)	Spread Rate (mph[2])
Scenario 1: Fuel Modification Zones, Non-Native Grasslands and, 5-10% slope, 97th Percentile Weather			
Fuel Model 8 (Zone B)	3	<100	0.1
Fuel Model GR1 (Zone C)	3	<100	0.5
Scenario 2: Fuel Modification Zones, Moderate Load Grass-shrub vegetation, 5-10% slope, 97th Percentile Weather			
Fuel Model 8 (Zone B)	3	<100	0.1
Fuel Model SH1 (Zone C)	9	>500-1000	1.2
Scenario 3: Fuel Modification Zones, Oak woodland vegetation, 5-10% slope, 97th Percentile Weather			
Fuel Model 8 (Zone B)	3	<100	0.1
Fuel Model GR1 (Zone C)	3	<100	0.5
Scenario 4: Fuel Modification Zones, Non-Native Grasslands and, 5-10% slope, 50th Percentile Weather			
Fuel Model 8	1	<100	<0.1

Table 11. BehavePlus Modeling Results – Post-Project Conditions for the Project Area

Fire Scenarios	Flame Length (feet)	Fireline Intensity (Btu[1]/feet/second)	Spread Rate (mph[2])
Fuel Model GR1	2	<100	0.2
Scenario 5: Fuel Modification Zones, Moderate Load Grass-shrub vegetation, 5-10% slope, 50th Percentile Weather			
Fuel Model 8	1	<100	<0.1
Fuel Model SH1	1	<100	<0.1
Scenario 6: Fuel Modification Zones, Oak woodland vegetation, 5-10% slope, 50th Percentile Weather			
Fuel Model 8	1	<100	<0.1
Fuel Model GR1	2	<100	0.2

The results presented in Tables 10 and 11 which are described in further detail below, Section 4.2, 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.[7]

[7] Please note, 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.

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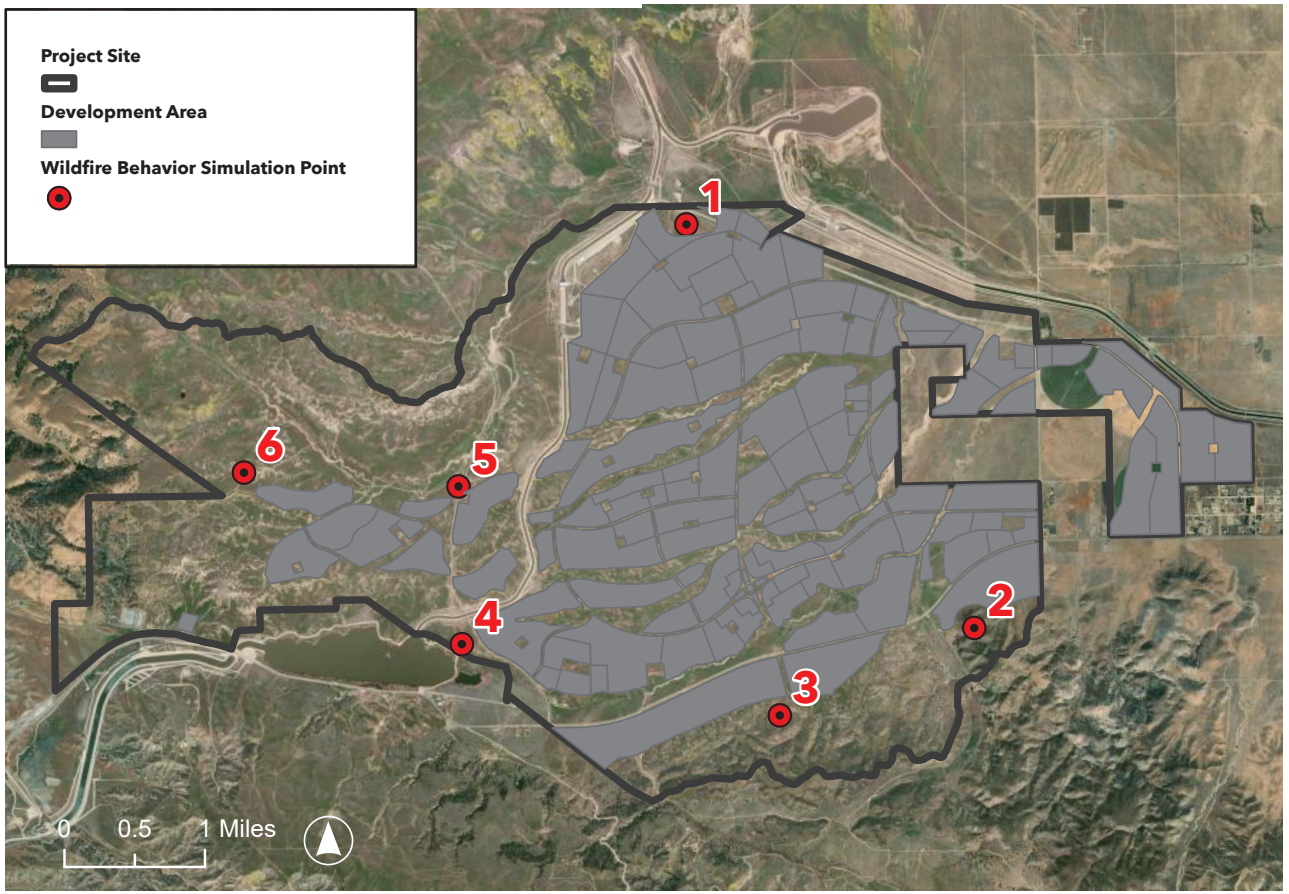

Model Input Variables

Model Variable	50th Percentile Weather	95th Percentile Weather (w/ Max. Wind)
1 h fuel moisture	5%	2%
10 h fuel moisture	6%	3%
100 h fuel moisture	12%	6%
Live herbaceous moisture	60%	30%
Live woody moisture	70%	60%
20 ft wind speed (mph)	7 mph	47 mph (maximum observed Fall wind speed)
Wind direction	Up-slope	Up-slope
Slope steepness	Variable by location	Variable by location

Fuel Model Assignment	Vegetation Description	Location	Fuel Bed Depth (Feet)
8	Zone A – irrigated, landscapes	Perimeter fuel modification zone	<3.0 ft.
Gr1	Zone B/Zone C: grasses cut to 6 inches in height	Perimeter fuel modification zone	<0.5 ft.
GR2	Non-native grasslands	Hillsides and open spaces surrounding the sites	<1.0 ft.
Sh1	Zone B: 50% thinning shrubs	Perimeter fuel modification zone	
GS2	Moderate Load, Dry climate grass/shrub	Hillsides and open spaces surrounding the sites	<1.5 ft.
TL6	Oak woodland lead leaf litter	Select hillsides and open spaces surrounding the sites	<0.3 ft.

BehavePlus Modeling Results – Pre-Project Baseline Conditions

Fire Scenarios	Flame Length (feet)	Fireline Intensity (Btu[1]/feet/second)	Spread Rate (mph[2])
Scenario 1: Non-Native Grasslands and, 5-10% slope, 97th Percentile Weather			
Fuel Model GR2	14	1,000 +	4.2
Scenario 2: Moderate Load Grass-shrub vegetation, 5-10% slope, 97th Percentile Weather			
Fuel Model GS2	24	1,000 +	6.6
Scenario 3: Oak woodland vegetation, 5-10% slope, 97th Percentile Weather			
Fuel Model TL6	12	500-1,000	1.5
Fuel Model GR2	14	1,000 +	4.2
Scenario 4: Non-Native Grasslands and, 5-10% slope, 50th Percentile Weather			
Fuel Model GR2	6	>0-500	0.7
Scenario 5: Moderate Load Grass-shrub vegetation, 5-10% slope, 50th Percentile Weather			
Fuel Model GS2	7	>0-500	0.6
Scenario 6: Oak woodland vegetation, 5-10% slope, 50th Percentile Weather			
Fuel Model TL6	4	<100	0.1
Fuel Model GR2	6	>0-500	0.7

BehavePlus Modeling Results – Post-Project Conditions

Fire Scenarios	Flame Length (feet)	Fireline Intensity (Btu[1]/feet/second)	Spread Rate (mph[2])
Scenario 1: Fuel Modification Zones, Non-Native Grasslands and, 5-10% slope, 97th Percentile Weather			
Fuel Model 8 (Zone B)	3	<100	0.1
Fuel Model GR1 (Zone C)	3	<100	0.5
Scenario 2: Fuel Modification Zones, Moderate Load Grass-shrub vegetation, 5-10% slope, 97th Percentile Weather			
Fuel Model 8 (Zone B)	3	<100	0.1
Fuel Model SH1 (Zone C)	9	>500-1000	1.2
Scenario 3: Fuel Modification Zones, Oak woodland vegetation, 5-10% slope, 97th Percentile Weather			
Fuel Model 8 (Zone B)	3	<100	0.1
Fuel Model GR1 (Zone C)	3	<100	0.5
Scenario 4: Fuel Modification Zones, Non-Native Grasslands and, 5-10% slope, 50th Percentile Weather			
Fuel Model 8 (Zone B)	1	<100	<0.1
Fuel Model GR1 (Zone C)	2	<100	0.2
Scenario 5: Fuel Modification Zones, Moderate Load Grass-shrub vegetation, 5-10% slope, 50th Percentile Weather			
Fuel Model 8 (Zone B)	1	<100	<0.1
Fuel Model SH1 (Zone C)	1	<100	<0.1
Scenario 6: Fuel Modification Zones, Oak woodland vegetation, 5-10% slope, 50th Percentile Weather			
Fuel Model 8 (Zone B)	1	<100	<0.1
Fuel Model GR1 (Zone C)	2	<100	0.2

DUDEK

Source: Tejon Ranch, 2023

FIGURE 12

Behave Plus Fire Behavior Analysis

Notes:
1 Btu = British thermal unit(s)
2 mph = miles per hour
3 Spotting distance from a wind-driven surface fire

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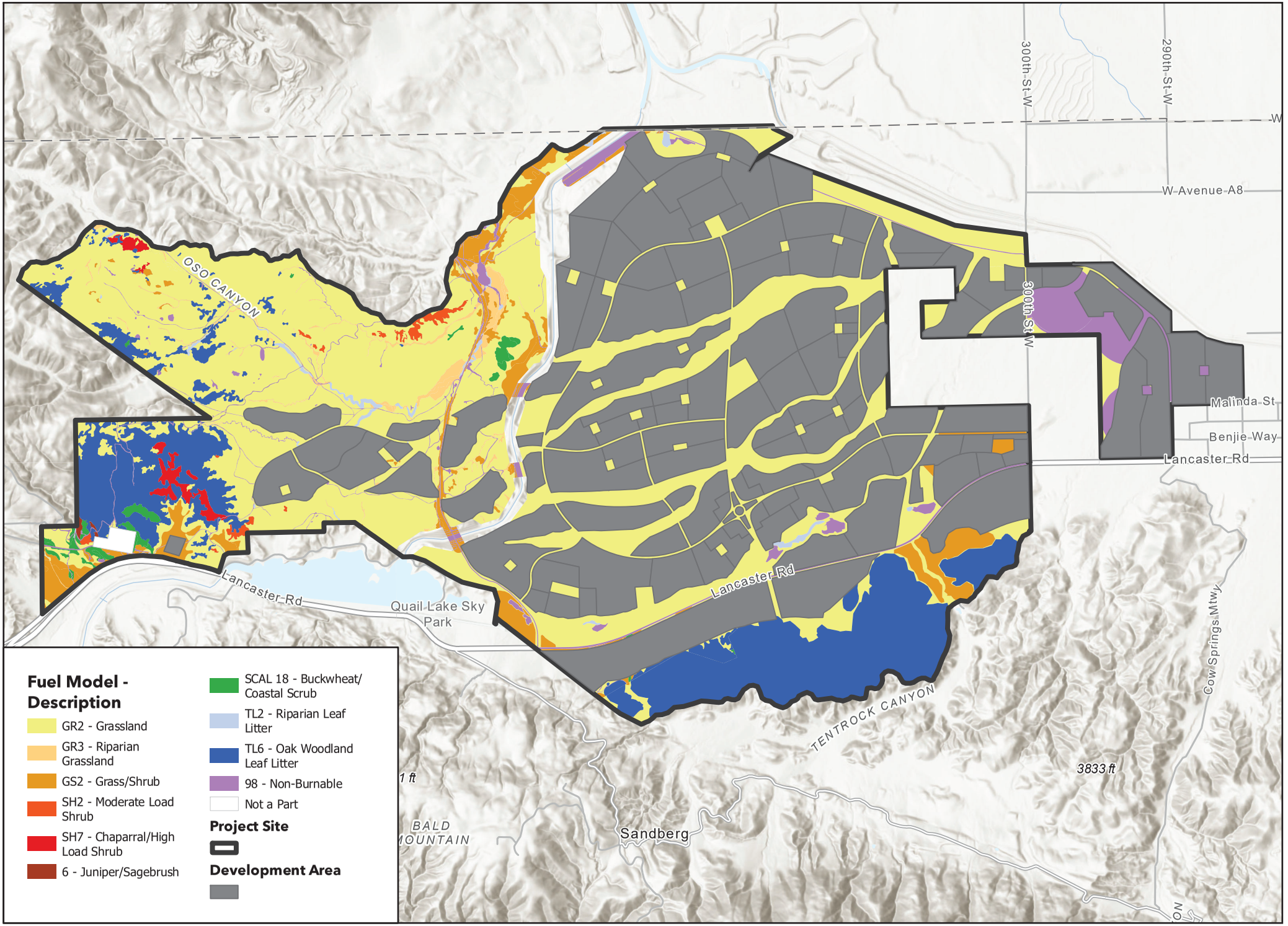

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0 0.5 1 2 Miles

Source: Bonterra, 2009, Tejon Ranch, 2023

FIGURE 13

Vegetation - Fuel Models (Post-development)

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4.2 Wildfire Behavior Summary

4.2.1 Pre-Project Baseline Conditions

Given the climatic, vegetation, and topographic characteristics along with the fire history and fire behavior modeling results discussed in this WSP, the Centennial Specific Plan Project site is determined to be potentially vulnerable to wildfire starting in, burning onto, or spotting onto the site. Based on this information, the anticipated Project-related human population growth and corresponding increase in potential ignition sources, and the fire history of the area, it is expected that wildfires will occur on this site in the future, although over half of the currently available fuels will be converted to urban, irrigated landscapes, representing a reduction in the potential ignition and spread of wildfire.

Under extreme fall weather conditions (95th percentile fuel moistures and maximum wind speeds of 47 mph), fire can move rapidly through the site's fuels. The most common type of fire anticipated in the vicinity of the Project area is a fire burning onto the Project site from the south (e.g., originating along Highway 138), or one approaching the Project site from I-5. Worst-case flame lengths near planned development areas were calculated at approximately 24 feet in grass-shrub vegetation types. Spread rates on site may exceed 6 mph in dry flashy fuels (grasses and scrub) under extreme weather and slope conditions. Finally, under extreme weather and wind conditions, fireline intensity values may exceed 1,000 Btu/feet/second limiting the options for fire response personnel and emphasizing the importance of fuel modification and defensible space for the planned community.

4.2.2 Post-Development Conditions

As presented in Table 11 Dudek conducted modeling of the Centennial Project Site for post-FMZ fuel requirements. Fuel modification includes the establishment of irrigated and thinned zones on the periphery of the Project's planned development areas. For modeling the post-FMZ treatment condition, fuel model assignments were re-classified for the FMZ Zone A (Fuel Model 8) and FMZ Zone B (50% thinning zones – Fuel Model GR1, Fuel Model Sh1). The FMZ areas experience a significant reduction in flame length and intensity. The maximum 20-foot (Annual Grassland and Grass-shrub Fuels) and 11-foot (Oak woodland) tall flames predicted during pre-treatment modeling during extreme weather conditions are reduced to less than 11 feet tall at the outer edges and less than 4 feet in the near the structures of the development due to the higher live and dead fuel moisture contents. While not presented, the fire intensity and flame lengths in untreated, open space areas outside of FMZs would remain the same.

4.3 Modeling Results When Including Ongoing Livestock Grazing

The Project, along with the larger Tejon Ranch, benefits from reduced fire ignitions and fire behavior resulting from the ongoing Tejon Ranch agricultural and grazing activities. Specifically, the livestock grazing program utilizes practices implemented on the greater Ranch over and continues these practices as part of the holistic land management approach and managing wildfire risk simultaneously.

Exhibit 1. Photograph taken at the Centennial Site showing short and sparse grassland fuels which have been managed by historical and ongoing cattle grazing (Fuel Model GR1). Note that the steeper hillsides are outside of the Project development area.

This modeling described above conservatively does not consider any benefits from Tejon's ongoing grazing operations by analyzing the Project area's fire behavior with a vegetation baseline condition that is assumed to be untreated/undisturbed, native fuel beds. This conservative approach ensures that the provided FMZ widths are adequate for protecting the structures and future populations even if the ongoing grazing operations were to cease in the future for a period of time.

However, for information purposes, the modeling also considered the scenario with ongoing livestock grazing, which results in reduced fire behavior in terms of flame lengths, fire spread rates, heat output, and overall intensity. For example, flame lengths are reduced throughout the treated area and the highest modeled flame lengths were reduced from 14 feet to 3 feet (See Table 12). It is anticipated that the livestock grazing program will continue to provide these benefits, but even if the program is halted at some future date, the Project's planned FMZs provide the necessary setbacks and protection and do not rely on livestock treatments. Thus, the ongoing livestock grazing program provides additional benefits with respect to wildfire protection but is not necessary for the purpose of this WSP's evaluation.

Table 12. Differences in wildfire behavior across three grass fuel models (GR1 and GR2)

Fuel Model	BehavePlus Output	97th Percentile Weather Fire Behavior
GR1 (Grazed grass fuels)	Surface Rate of Spread	0.47
	Flame Length	3.1 ft.
	Fireline Intensity	<100 BTU-ft-sec
GR2 (Ungrazed grass fuels)	Surface Rate of Spread	4.1 mph
	Flame Length	14.0 ft.
	Fireline Intensity	1000+ BTU-ft-sec

4.4 Landscape Burn Probability Modeling

Landscape burn probability (LBP) represents the likelihood that a given location in a landscape would burn, considering the model inputs used. Burn probability is related to the size of fires that occur on a given landscape, where larger fires produce higher burn probabilities than smaller fires. Because fire size is a function of wildfire spread rate and wildfire duration, weather conditions that reduce spread rates reduce burn probability (USDOI and USDA 2022b). In this analysis, weather conditions were set to 97th percentile and 50th percentile conditions to mimic extreme and average fire weather conditions that would be experienced at the Project site. LBP results are useful to identify the relative likelihood of fire occurring at the landscape level.

The modeling results for burn probability are displayed with seven distinct categories describing relative probability. The first two classes represent pixels that did not burn:

- Non-burnable – Pixels have a non-burnable fuel model and cannot burn.
- Burnable but did not burn – Pixels have burnable fuels but did not burn (e.g., a fire never reached the pixel, or a fire started within the pixel, but it was unable to burn out of the pixel because the fire spread rate was too slow).

The other five classes are dynamic and based on the maximum value of burn probability for the model run:

- Lowest (0–20% of maximum)
- Lower (20–40% of maximum)
- Middle (40–60% of maximum)
- Higher (60–80% of maximum)
- Highest (80–100% of maximum)

Results

As displayed in Figures (14 and 15), the Project site is situated away from areas with greater burn probabilities during both average (50th percentile) and extreme Santa Ana conditions (97th percentile).

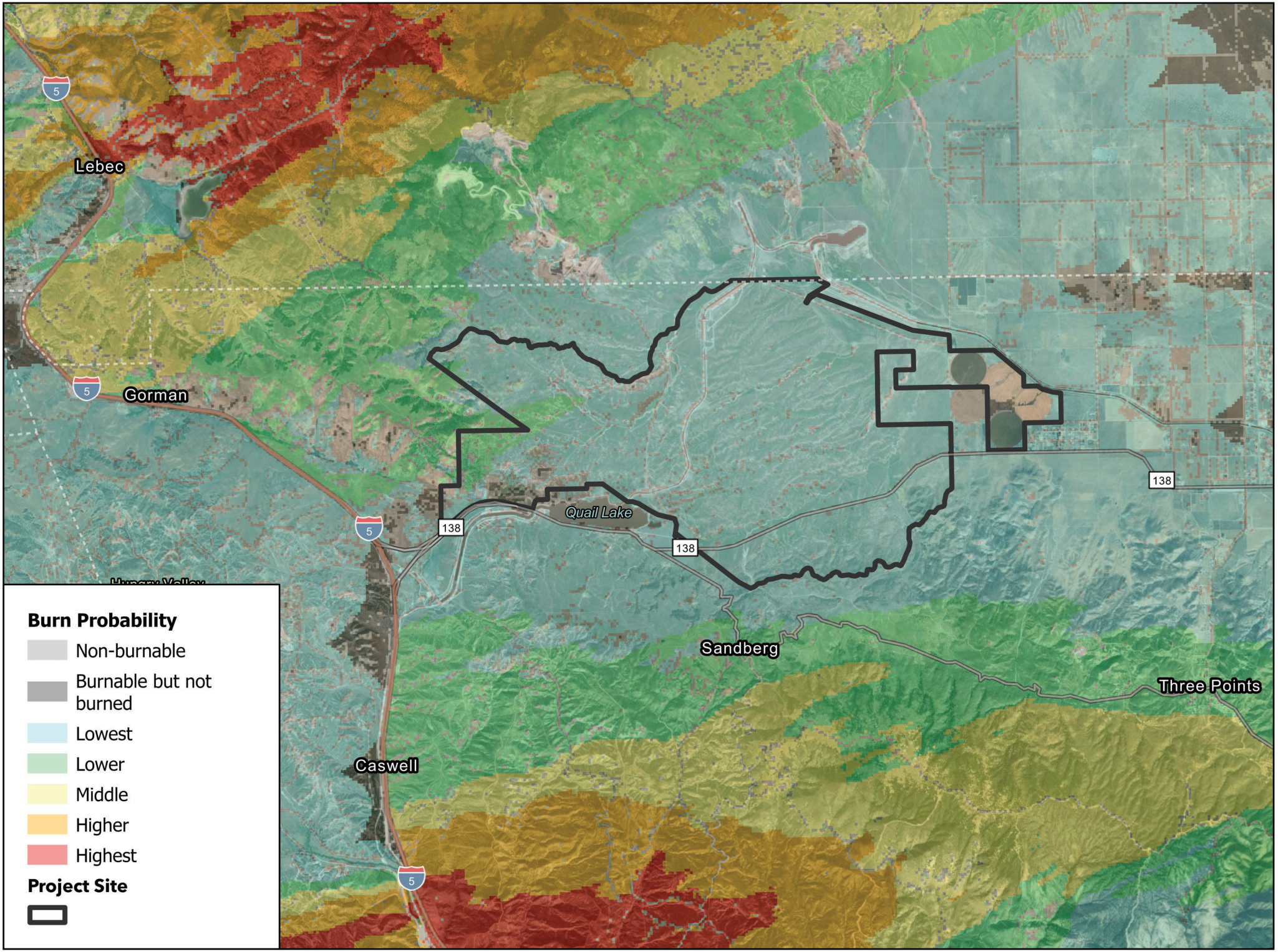
Santa Ana Weather

During Santa Ana conditions, large wildfires are much more likely to occur in the steep, heavily vegetated, and mountainous terrain to the south and north of the Project site as presented in Figure 14. The location of the Project site makes it less susceptible to significant and direct wildfire impacts during Santa Ana weather. Although Santa Ana winds blow strongly from the northeast, the fuel conditions and terrain in that direction are not likely to lead to large, high-intensity wildfires reaching the Project site. This area, at the western edge of the Antelope Valley, consists of light fuel loads in grasslands and agricultural land. If a wildfire were to ignite to the northeast or east of the Project site, it would likely be a grass fire with minimal risk to developed areas. Furthermore, the offsite areas to the northeast have many access points that firefighters can use to contain any wildfires approaching the Project site. The California Aqueduct and the adjacent disturbed areas also border the Project site's northeastern edge, serving as a permanent fuel break during wind-driven grass fires.

If wildfires occur southeast of the Project site, Santa Ana winds from the northeast are likely to push the fires southwest, where the terrain and fuel conditions are more conducive to fire spread. It is possible that these fires could reach the southeastern edge of the Project site, where commercial development is planned. However, this development is set back from the more hazardous fuels found in the steeper terrain to the south. Additionally, fires in this area during Santa Ana conditions are likely to move parallel to the wind direction, known as a flank fire. Flank fires typically burn at lower intensities compared to head fires, which spread in the wind's direction. Potential wildfire impacts in this area would be mitigated by perimeter parking areas, Fuel Modification Zones (FMZs), and fire-hardened commercial buildings.

Average Weather

During typical weather conditions, large wildfires are more likely to occur in areas northwest and south of the Project site as presented in Figure 15. Fires to the south are not expected to move towards directly towards the site due to the prevailing northwest wind direction. While wildfires to the northwest could spread towards the Project site, the grassland fuels and moderate terrain in this region are not conducive to high-intensity fires. This is especially true during average weather conditions, when fuel moisture is higher, and wind speeds are lower. An analysis of historic wildfires shows that no fires have ever encroached on the Project site from the north or northwest



DUDEK

Source: Tejon Ranch, 2023

N

0 0.5 1 2 Miles

FIGURE 14

Landscape Burn Probability (Santa Ana Weather)

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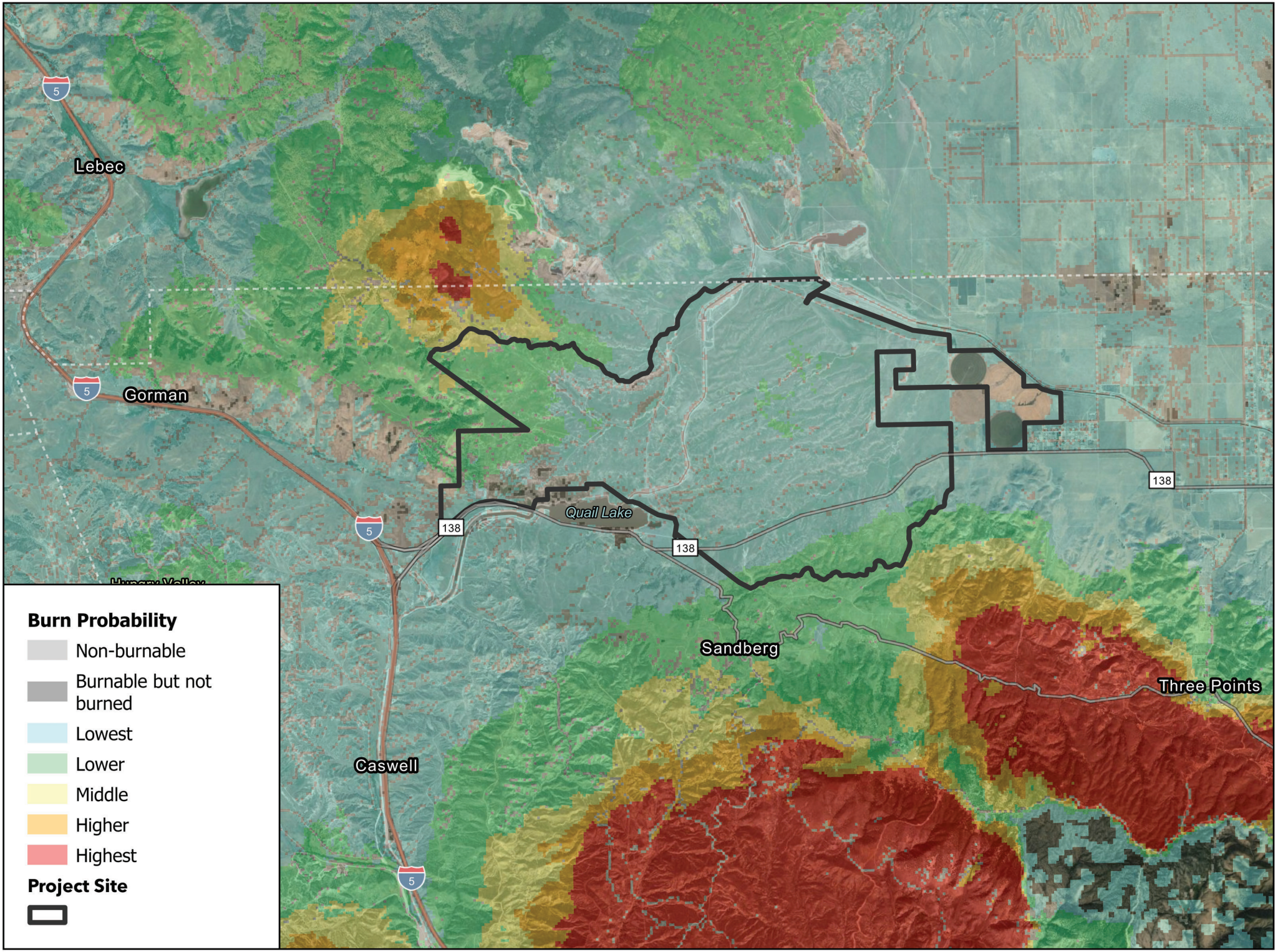

DUDEK

Source: Tejon Ranch, 2023

N

0 0.5 1 2 Miles

FIGURE 15

Landscape Burn Probability (50th Percentile Weather)

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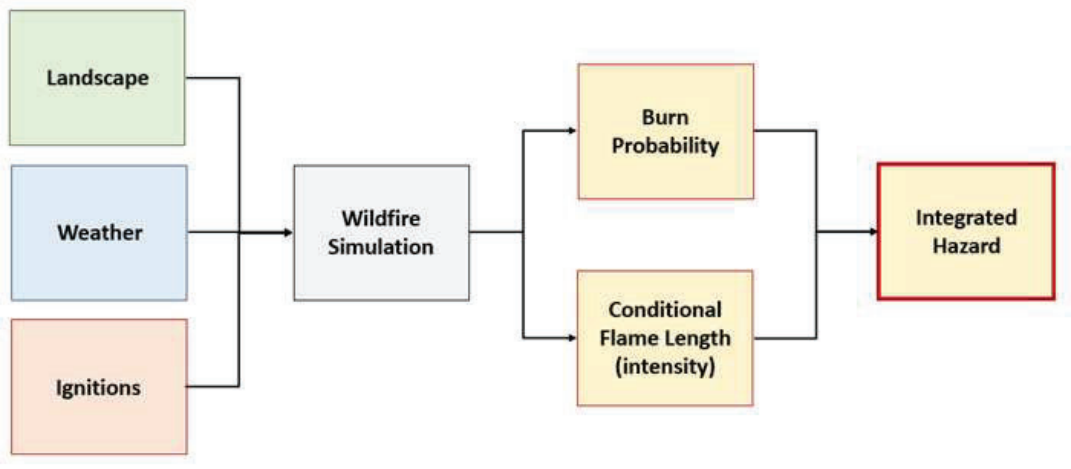
4.5 Integrated Hazard Modeling

Integrated Hazard is quantified and categorized using the Landscape Burn Probability Model embedded within the Interagency Fuel Treatment Decision Support System (IFTDSS) fire behavior modeling system. Integrated Hazard is a term used in fire behavior modeling to evaluate (1) the probability of a fire occurring at a specific point under a specified set of conditions, and (2), if a fire does occur, the fire intensity at that specific point.

A diagram of the Integrated Hazard analysis process is provided in Figure 16. IFTDSS Integrated Hazard is categorized into seven distinct hazard classes. The first two are for pixels that did not burn, and the remaining five classes are dynamic based on the integrated hazard matrix presented in Figure 17. The seven classes are as follows:

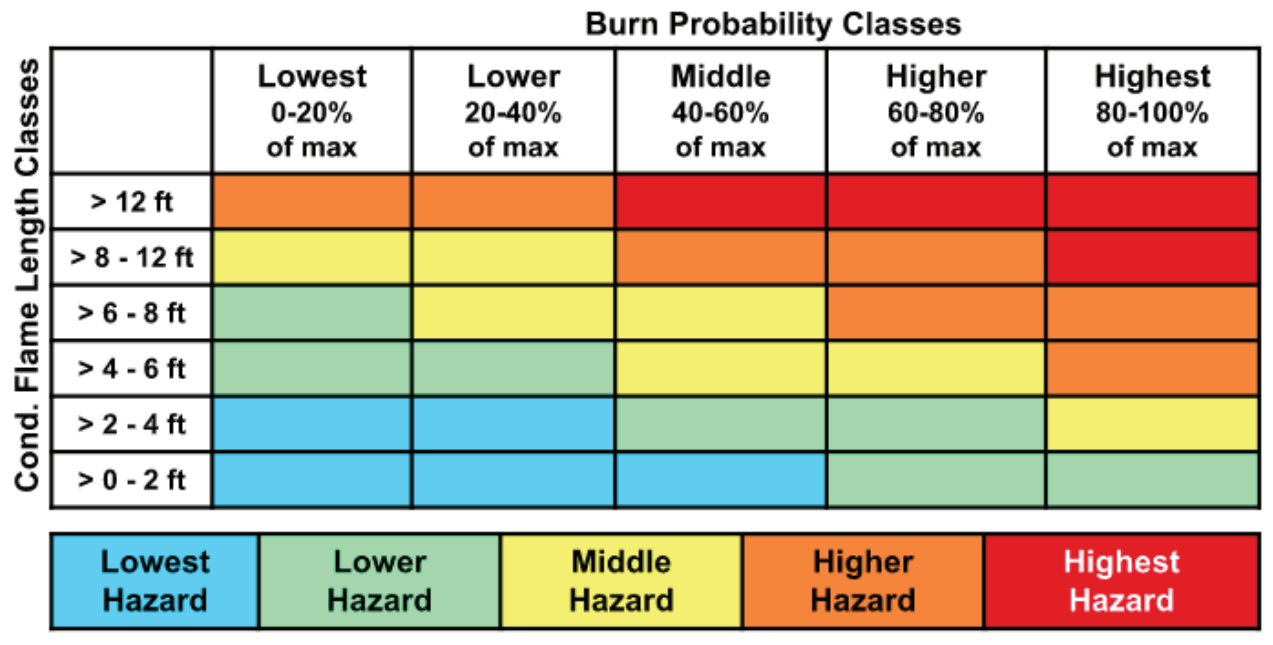
- Non-Burnable
- Burnable but Not Burned
- Lowest Hazard
- Lower Hazard
- Middle Hazard
- Higher Hazard
- Highest Hazard

Figure 16. IFTDSS Integrated Hazard Model Diagram



Source: USDOI and USDA 2022b.

Figure 17. IFTDSS Integrated Hazard Matrix



Source: USDOI and USDA 2022b.

Results

Integrated hazard modeling outputs for the Project site and surrounding areas during Average and Santa Ana weather conditions are provided in Figures (18 &19) and Table 13. In both scenarios, greater wildfire intensity and likelihood is expected in offsite areas to the north, northwest, and south due to heavier fuels and steeper terrain compared to conditions within the Project site itself.

During average weather conditions, wildfire hazard within the Project site is considered low, with 72% percent of the Project site considered lowest hazard. As expected, due to higher wind speeds and lower fuel moistures, wildfire hazard within the Project site during Santa Ana weather increases the areas considered middle and higher hazard. However, areas mapped as lowest and lower hazard still remain dominant, accounting for 68 and 81% percent of the Project site during Average and Santa Ana weather conditions, respectively.

Table 13. Integrated Hazard within the Project site during Average and Santa Ana weather conditions

Integrated Hazard Score	Santa Ana Conditions (97th Percentile)	Average Conditions (50th Percentile Weather)
Non-burnable	13%	13%
Burnable, not burned	<1%	<1%
Lowest Hazard	15%	72%

Table 13. Integrated Hazard within the Project site during Average and Santa Ana weather conditions

Integrated Hazard Score	Santa Ana Conditions (97th Percentile)	Average Conditions (50th Percentile Weather)
Lower Hazard	53%	9%
Middle Hazard	9%	5%
Higher Hazard	8%	<1%
Highest Hazard	0%	0%

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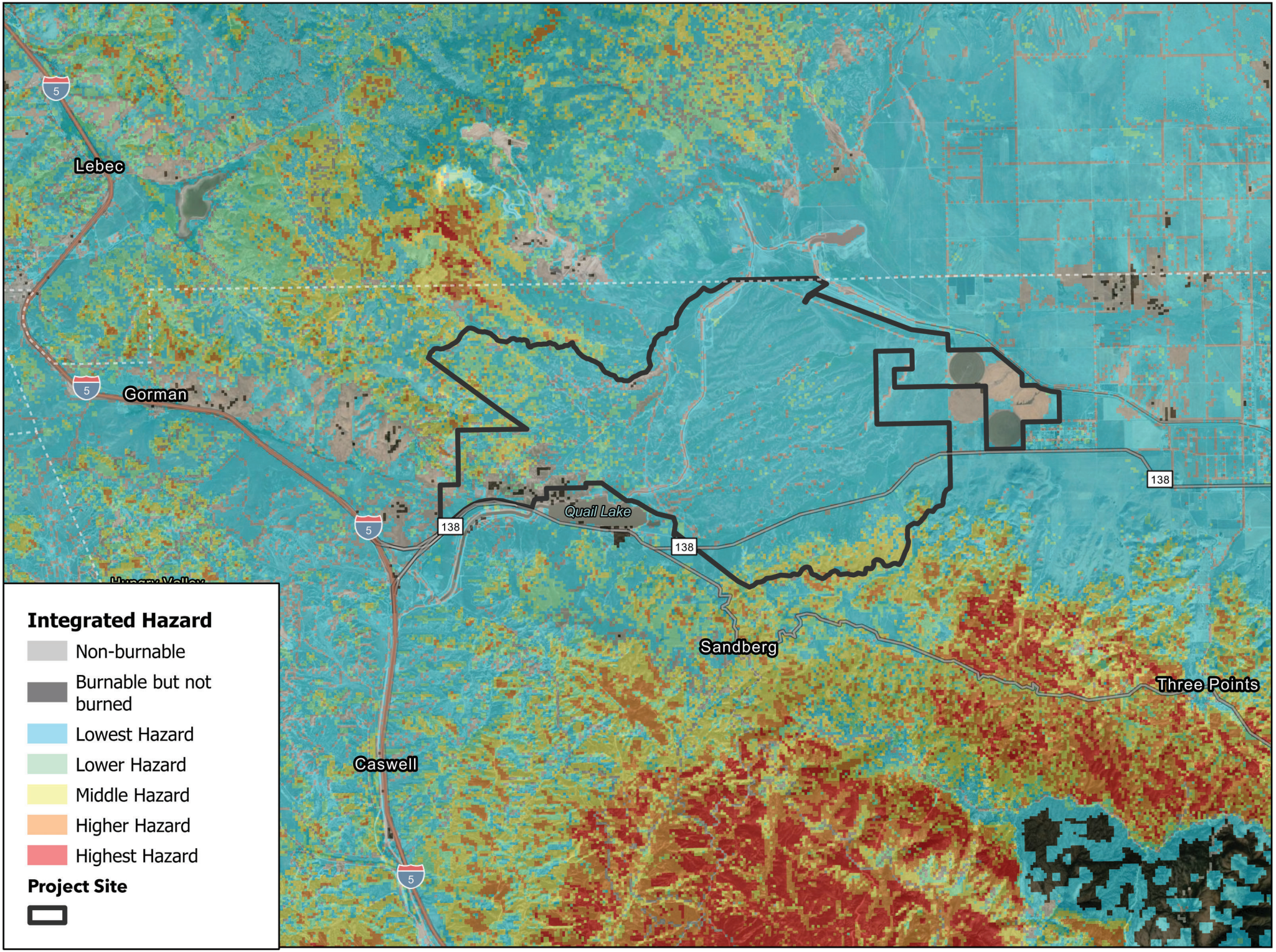

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Source: Tejon Ranch, 2023

N

0 0.5 1 2 Miles

FIGURE 18

Integrated Hazard (50th Percentile Weather)

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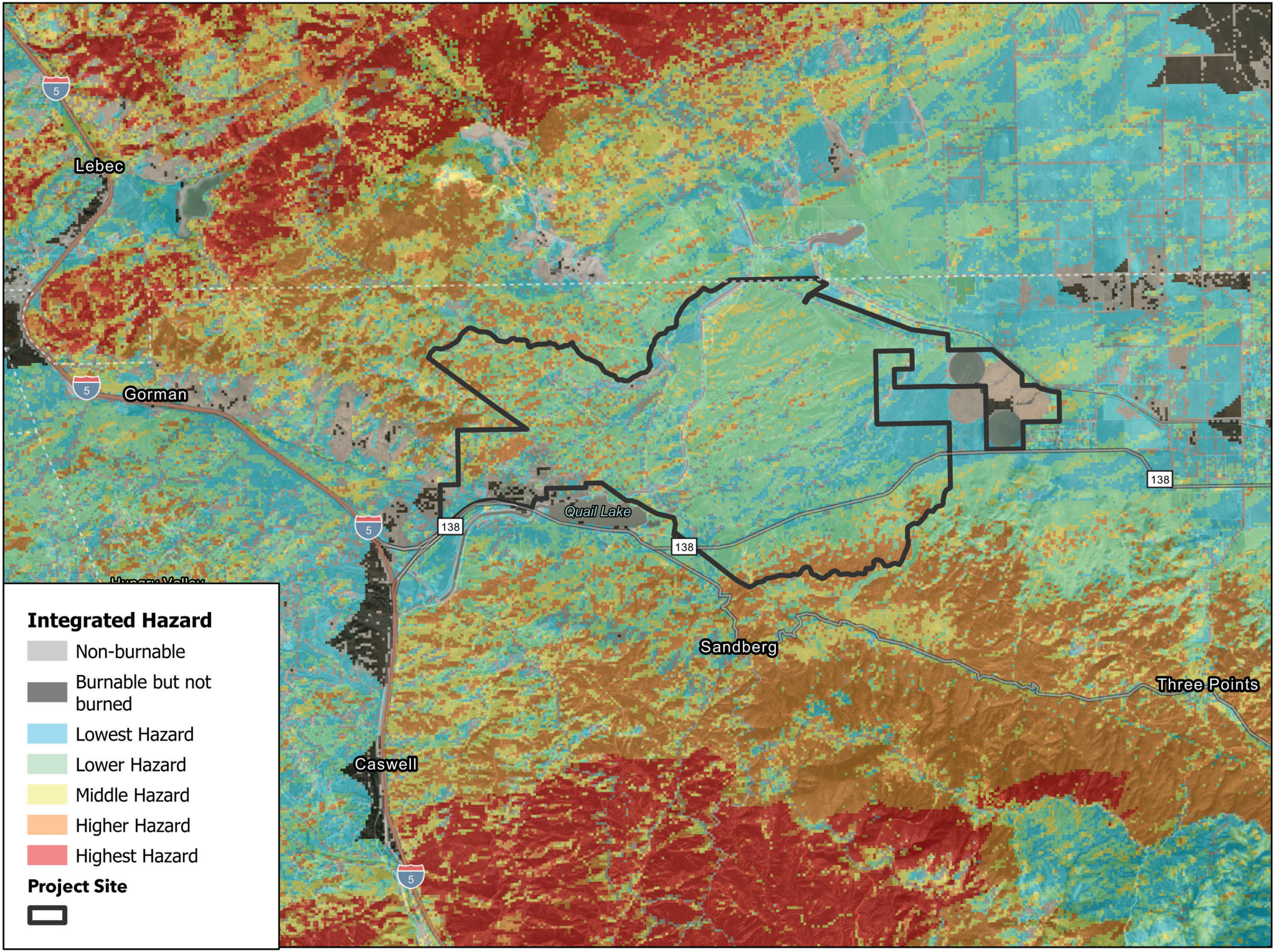

DUDEK

Source: Tejon Ranch, 2023

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0 0.5 1 2 Miles

FIGURE 19

Integrated Hazard (Santa Ana Weather)

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4.6 Wildfire Progression Modeling

Wildfire Progression Modeling was performed to assess how wildfires may spread towards the Project site and how fires may influence Project evacuations. Fire progression modeling predicts how a fire will spread over time by simulating its behavior based on current conditions such as fuel types, weather, and topography. These simulations forecast the fire's intensity, spread, and perimeter under specific conditions. Using hypothetical ignition locations, the simulations depict fire arrival times based on predicted wildfire spread.

Through a review of fire history records and landscape burn probability model results, wind patterns, terrain, and vegetation, three scenarios were modeled to simulate likely fire events in the Project's vicinity. Ignition points were mapped out in a linear fashion to consider various possible starting points for wildfires in each scenario. Table 14 below provides information on the ignition points for each scenario along with the corresponding weather conditions.

Table 14. Fire Progression Modeling Scenarios

Scenario	Ignition Location	Weather
1	Interstate-5 Eastern Roadside	50th Percentile Weather, winds 7 mph from the NW
2	Undeveloped land to the north	97th Percentile Santa Weather, winds 47 mph from the NE
3	Undeveloped land to the southeast	97th Percentile Santa Weather, winds 47 mph from the NE

Wildfires encroaching on the site from the south were not modeled as wind patterns are not conducive to wildfire spread towards the Project site from these directions. While Santa ana winds do blow from the east, wildfire spread towards the Project from fires burning directly from the east was also not modeled due to substantial agricultural areas and sparse fuel loads present in the Antelope Valley which prevent wildfire ignition and spread (See Fire History, Figure 6). In addition, the burn probability modeling results as presented in Figures 14 & 15 indicate a low likelihood of fire occurrence and spread within the region to the east of the Project site.

Results

In all modeled scenarios, the direction and speed of wildfire spread are influenced by various factors. Weather conditions, particularly wind speed and direction, play a significant role, alongside low humidity, high temperatures, and dry conditions, which can accelerate fire propagation. Additionally, topography, including slope and aspect, impacts the fire's path and speed, with steep slopes often facilitating faster movement. Fuel availability and moisture content also contribute; dry, dense vegetation ignites more easily and burns more rapidly than moist or sparse vegetation. The ignition source affects the initial spread and, once ignited, fire behavior, including flame intensity and ember spotting, further dictates spread patterns. Fire suppression is not accounted for during this analysis.

Scenario 1 – Fire Approaching from the Northwest:

This scenario assumes a wildfire that ignites along Interstate-5 northwest of the project site and spreads is a southeast/eastern direction toward the Project site. Wildfire spread is slow due to lighter wind speeds during these

weather conditions. The wildfire is not predicted to reach the Project site within the 8-hour simulation period. While a shelter in place approach at the Project site is likely during this scenario, evacuation via SR-138 east is unlikely to be impacted by wildfire as displayed in Figure 20.

Scenario 2 – Fire Approaching from the Northeast

This scenario assumes a wildfire that ignites northeast of the Project site and spreads in a southwest direction through undeveloped areas to the northeast of the Project site. This scenario further assumes that wildfire is driven by strong Santa ana winds and moves at a rapid rate of spread. Assuming no fire suppression efforts, the wildfire is modeled to reach development areas in the northern extreme of the Project site within 245 minutes (approximately 4 hours). The fire skirts the northern edge of the Project site and continues to travel southwest. When considering evacuations during this scenario, SR-138 eastbound and westbound is not expected to be impacted by wildfire as displayed in Figure 21

While the fire is modeled to reach the Project site (assuming no fire suppression efforts), the predicted fire behavior near planned development areas is modeled to be generally of low to moderate intensity. Fireline intensity is lower in these areas to due light fuels and moderate terrain which are not conducive to extreme fire behavior (See Figure 22). Perimeter FMZs bordering development areas would act to further reduce Fireline intensity near development areas.

Scenario 3: Fire Approaching from the Southeast:

This scenario assumes a wildfire that ignites southeast of the Project site and spreads in a southwest direction through undeveloped areas to the south of the Project site. The wildfire is driven by strong Santa ana winds and moves at a rapid rate of spread. Assuming no fire suppression efforts, the wildfire is modeled to reach far southeastern development areas within 295 minutes (roughly 5 hours). The fire skirts the northern edge of the Project site and continues to travel southwest (Figure 23).

Similar to Scenario 2, fire intensity where the fire is modeled to reach the southern edge of the proposed development areas is considered low (Figure 24). Given the fire's southwest direction of spread which is not directly towards the Project site, fire behavior along the Project's southern edge would represent a flanking fire. Unlike head fires, which move in the direction of the wind and exhibit greater fire severity, flank fires move parallel to the wind direction and therefore burn at reduced severity. In addition to increased likelihood of successful suppression of a flank fire in the Project's southern edge, potential wildfire impacts in this area would be mitigated by perimeter parking areas, Fuel Modification Zones (FMZs), and fire-hardened commercial buildings.

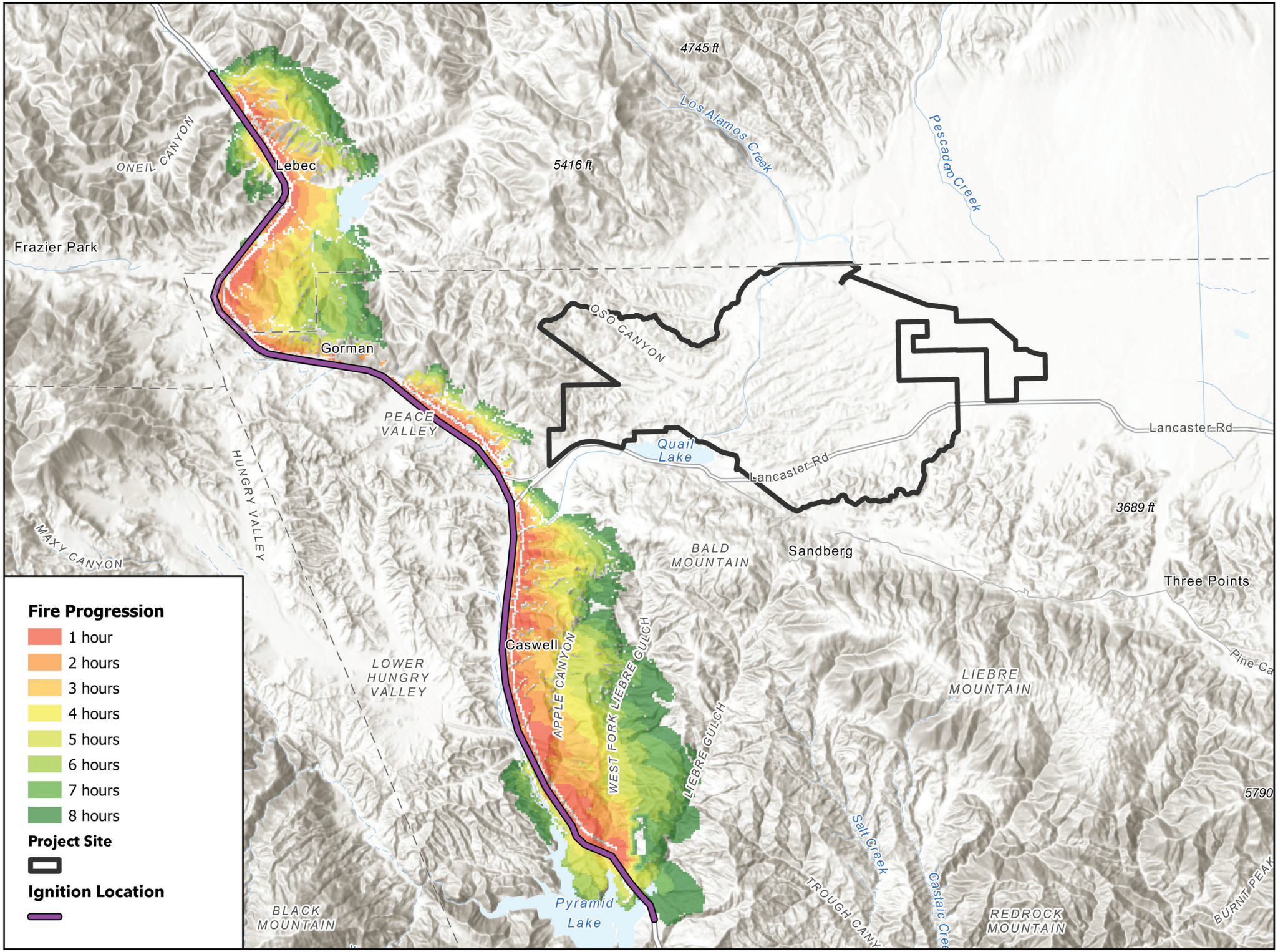

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FIGURE 20

Fire Progression - Northwest Ignition (50th Percentile Weather)

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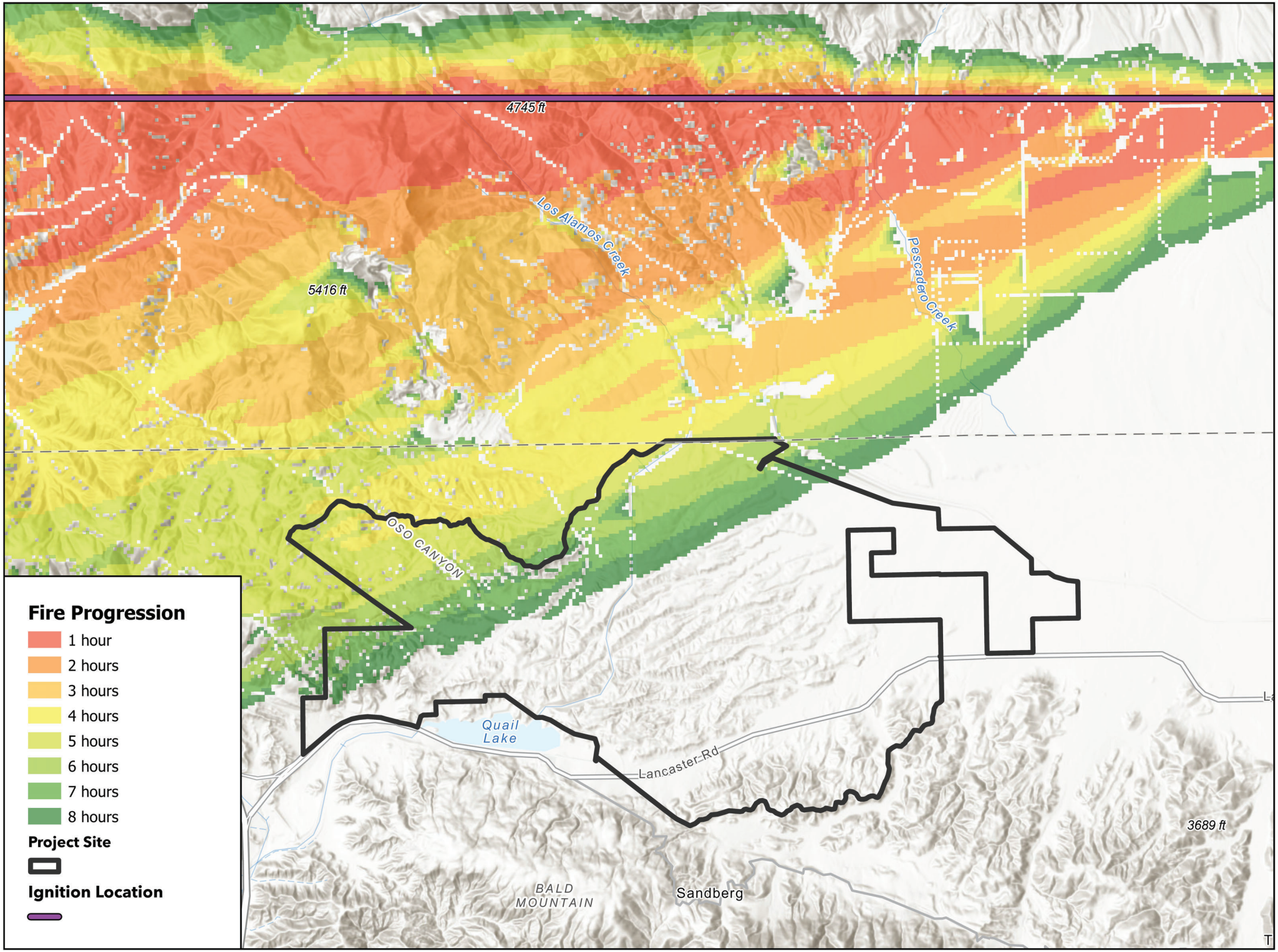

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FIGURE 21
Fire Progression - North Ignition (Santa Ana Weather)

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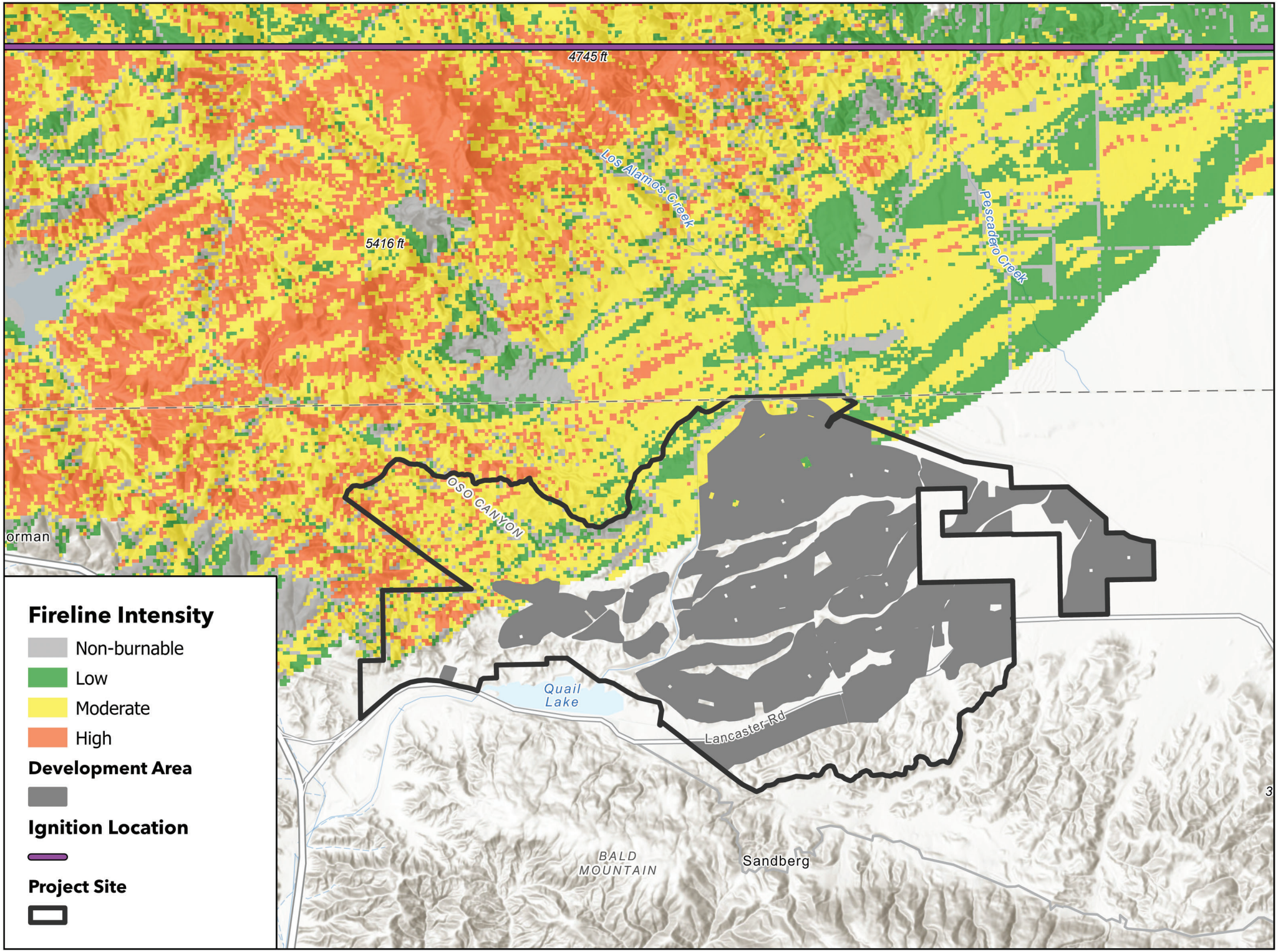

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FIGURE 22
Fireline Intensity - North Ignition (Santa Ana Weather)

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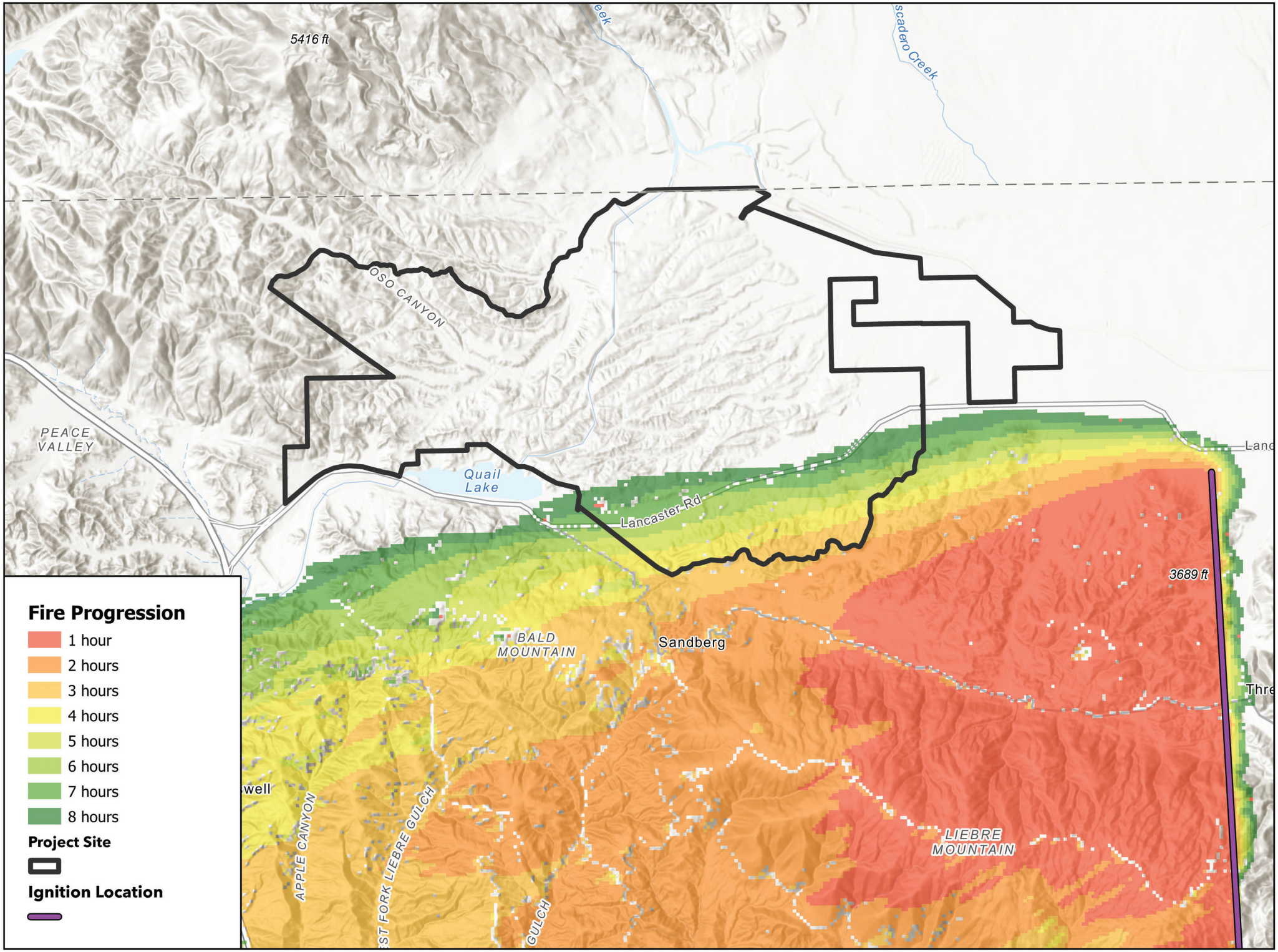

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FIGURE 23
Fire Progression - Southeast Ignition (Santa Ana Weather)

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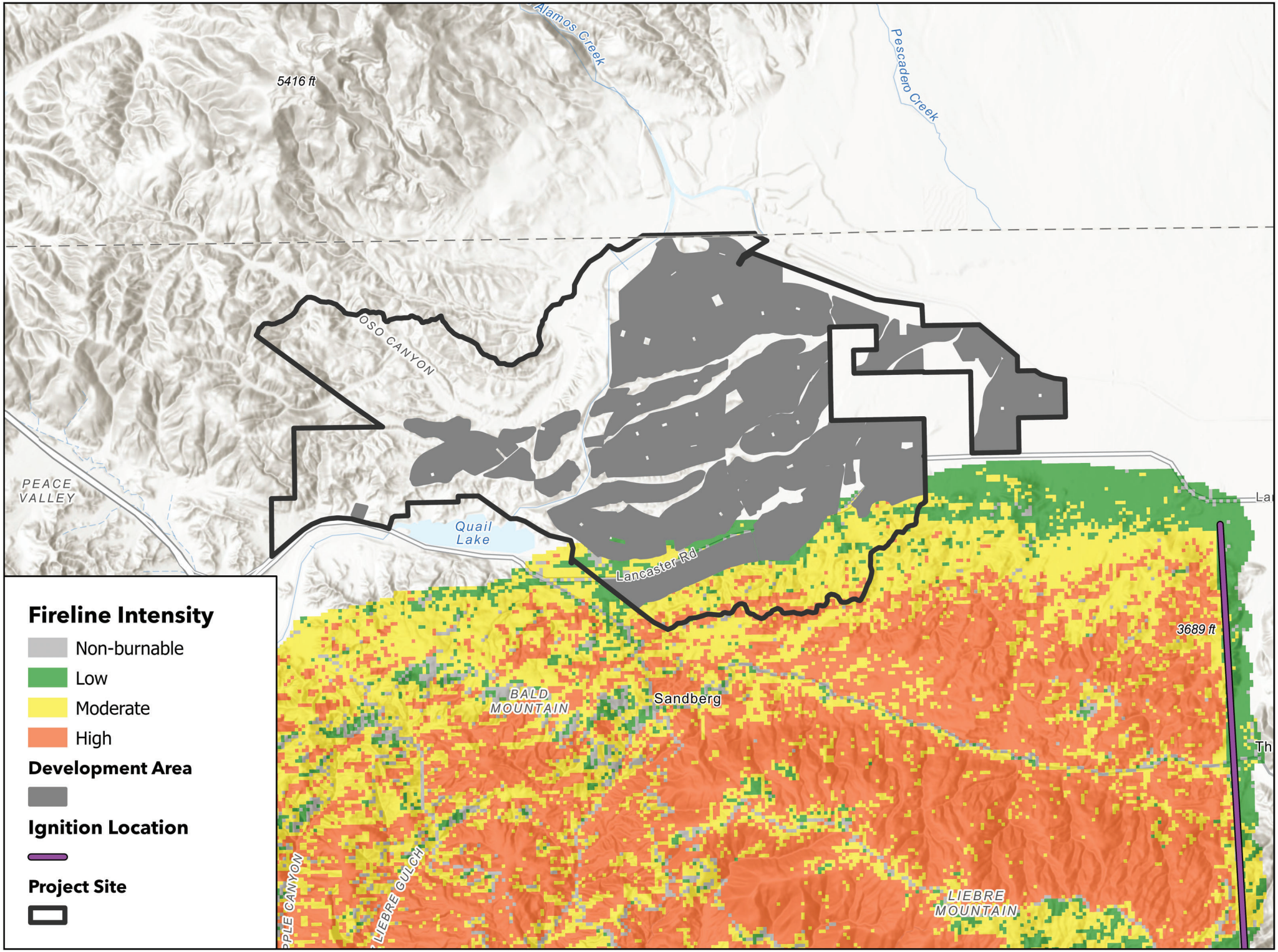

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FIGURE 24
Fireline Intensity - Southeast Ignition (Santa Ana Weather)

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4.7 Firebrand Hazard Discussion

Airborne embers, commonly referred to as firebrands, are burning materials which become airborne and carried for some distance in an airstream (Babrauskas 2020). Firebrands can serve as ignition sources through a phenomenon defined as spotting. Spotting occurs when firebrands are lofted into the air and ignite small fires called spot fires ahead of the main fire front when landing on a receptive fuel bed. Wildfire spotting is multi-faceted and occurs at varying levels of severity. Main drivers of wildfire spotting include (NWCG, 2021):

- Firebrand Source, Size, and Amount
- Firebrand travel distance
- Probability of ignition where firebrands land

Firebrands pose significant risk to communities. In extreme cases, California chapparal has been found to cause ignitions up to four miles away from the main fire front. However, these risks can be mitigated through the implementation of fire-resistant construction methods, properly maintained landscaping, Fuel Modification Zones, and ignition resistant landscaping (NIST, 2022, Tacaliti, 2023). While the majority of home losses in the WUI are due to firebrands (NIST, 2021), a review of structural loss data highlights that modern master-planned communities are extremely unlikely to be destroyed by wildfires (CBIA, 2022). Of all wildfires in California since 2017, less than 1% of structures lost were structures built after 2010 (CBIA, 2022). Structural hardening requirements mandated through Title 32- County of Los Angeles Fire Code, Chapter 5 and implementation of adequate defensible space at the community and parcel scale are designed to effectively mitigate structural ignition risks from firebrands.

The following section discusses wildfire hazards caused by firebrands. Factors influencing firebrand production, transport, and ignition are highlighted, emphasizing the importance of fire-resistant construction methods and defensible space.

4.7.1 Firebrand Generation

In extreme cases, fire spread by firebrands can become the dominant form of fire spread and overwhelm fire suppression efforts. In order for firebrands to pose a hazard, they must have had sufficient initial size to sustain enough heat during transport to ignite a receptive fuel bed (Babrauskas 2020). Firebrand size is influenced by an array of factors including fuel type, fire intensity, and wind speed (Adusumilli and Blunck, 2023, Suzuki and Manzello, 2022). However, the complex nature of firebrand production and spread remains relatively unstudied. Limited research exists regarding processes of firebrand generation and its relation to the source materials which produce firebrands (Manzello and Suzuki, 2023). The vast majority of available firebrand research is focused on transport of firebrands, with little research focused on the burnout process of firebrands following generation and transport (CBC, 2022).

Currently, no computed models exist for predicting firebrand generation. Instead, research into the topic relies on experimental studies. In general, greater fire intensity is found to generate more firebrands (Thomas et al. 2021). Fuel load, or the total amount of combustible fuels, has been found to be related to the severity of firebrand production. The total number of burning firebrands has been observed to increase alongside an increase in the height of trees or shrubs (Adusumilli et al., 2021).

4.7.2 Firebrand Transport

Firebrand transport is the most commonly studied component of firebrands. This is likely because the processes behind firebrand transport are the simplest to model. In addition, understanding maximum firebrand transport provides important information for firefighters and emergency managers during wildfires. Models predicting maximum firebrand transport or spotting distance account for factors such as fuel type, tree height and crown width, wind speed, spotting location (ex. Ridgetop, valley) (Albini 1979, Chase 1981, Rothermel 1983, Albini 1983, Chase 1984, Morris 1987). Before firebrands can travel downwind in the atmospheric air current, they first must be lofted into the air. Ember lofting leads to firebrands and is influenced by fire intensity, fuel loading, and terrain features (NWCG, 2021). Once airborne, firebrand transport distance is mainly driven by wind speed and firebrand size (Manzello and Suzuki, 2023).

4.7.3 Firebrand Ignition

Several properties influence a firebrand's ignition potential upon landing. Firebrand characteristics such as mass and size, thermal degradation or burnout, and environmental conditions (i.e. weather) greatly influence the potential for new ignition caused by firebrands (Bearinger et al., 2020). For example, firebrands may burnout completely in the atmosphere, or, after landing, undergo glowing combustion and die out, smolder, or transition into flaming and grow into a larger fire (Manzello et al, 2021). While the relationship between firebrand characteristics and ignition potential is understudied, several factors are known to mitigate structure losses from firebrands in the WUI. It is known from general understanding of thermodynamics that the condition of the receptive fuels, both urban and natural, is a significant predictor of new ignitions from firebrands.

Ensuring code compliant defensible space surrounding structures has been found to mitigate structure losses from firebrands in the WUI. Defensible space is often created in the form of Fuel Modification Zones, which create buffers between natural vegetation and structures. In many jurisdictions, Fuel Modification Zones within 30 feet of structures are required to be irrigated, further limiting the potential for firebrand ignitions. New research has shown that vegetation, decorations, and additional flammable material attached to the house are of the most important factors contributing to structure ignition from firebrands (IBHS, 2023). Research has shown that firebrands more easily collect around the edges of structures and can significantly contribute to structure ignitions if fuels are readily ignitable (IBHS, 2023). In response to these findings, CAL FIRE has created a new defensible space zone, Zone 0, which requires the first 5 feet from structures to be void of combustible materials.

The condition of building materials themselves greatly determines structure losses from firebrands (NIST, 2022). Studies suggest that building construction is as if not more important than defensible space in determining structure losses in the WUI (Syphard et al. 2017). As mentioned previously, firebrands are responsible for the majority of structure losses in the WUI. Chapter 7A of the California Building Code has been developed through partnership with experimental research into structure losses. Incorporating the building construction and design requirements outlined in Chapter 7A (ex. Roof type and assembling, exterior decking, siding materials, etc.) have been proven to mitigate structure losses from firebrand ignitions (NIST, 2022).

4.8 Firebrand Production From Urban Fuels

The following sections discuss the potential for firebrand production from structure fires in modern master-planned communities, noting the effectiveness of building design features and fire safety measures in reducing the risk

producing firebrands from onsite wildfires. Historical data on wildfires caused by structure fires are also presented, identifying common characteristics associated with wildfire incidents caused by structure fires.

4.8.1 Historical Wildfires Caused by Structure Fires

CAL FIRE maintains fire history data throughout the state and includes ignition causes when available (CAL FRAP, 2023). According to the historical fire record, wildfires caused by structure fires account for only <1% percent of all wildfires where the cause is known. Wildfires by cause in California is summarized below in Table 15.

Table 15. Wildfire Occurrences in California by Cause

Fire Cause	Frequency	Percent of All Causes
1 - Lightning	3483	22%
9 - Miscellaneous	3458	22%
2 - Equipment Use	1325	8%
7 - Arson	945	6%
5 - Debris	757	5%
10 - Vehicle	534	3%
11 - Powerline	444	3%
4 - Campfire	391	3%
3 - Smoking	337	2%
8 - Playing with fire	192	1%
18 - Escaped Prescribed Burn	103	1%
6 - Railroad	78	<1%
15 - Structure	27	<1%
19 - Illegal Alien Campfire	17	<1%
16 - Aircraft	15	<1%
13 - Non-Firefighter Training	11	<1%
12 - Firefighter Training	5	<1%

Source: CAL FIRE FRAP, 2022
Note: Does not include wildfires with Unknown cause

Through a detailed assessment of these fires, clear patterns and characteristics related to community design and the surrounding landscape are identified. These include:

- Wildland Urban Intermix stye development with substantial vegetation surrounding structures.
- Limited setback from wildland vegetation with structures located in close proximity to unmaintained natural vegetation.
- Adjacent wildland vegetation often resembles heavy fuels. Vegetation surrounding structures is rarely herbaceous.
- Surrounding terrain is often steep with structures located on steep slopes.
- Structures are often positioned atop slopes.
- Development can be described as rural, with structures located far from existing communities or fire stations.
- Structure age is considered old.

Appendix E provides a graphical depiction of historical wildfires caused by structure fires. These occurrences exemplify many or all of the characteristics identified above. It is important to note that the Centennial Project is set apart from these characteristics and features a clustered master plan design with code compliant design features that minimize the potential for onsite structure fires to result in offsite ignitions. Centennial's development footprint does not include unmaintained vegetation near structures. Structures will be constructed in accordance with the latest building code requirements for fire safety and each structure will be equipped with automatic interior fire sprinklers. Development edges feature one, continuous interface between development and offsite grassland fuels buffered by annually maintained Fuel Modification Zones. Planned development pads are not located on steep terrain or on ridgelines. Further, Centennial will include three onsite fire stations with an optional fourth as determined necessary by LACoFD to ensure rapid response to potential onsite structure fires. **As described, Centennial does not include factors that increase the potential for offsite ignitions caused by onsite structure fires.**

4.8.2 Potential for Firebrand Production from Structure Fires in Modern Master Planned Communities

It is possible for structure fires to produce firebrands when the structures are assembled with combustible materials (Manzello and Suzuki, 2023). However, firebrand production from structure fires is highly dependent on fire safety features, building construction, and structure fire intensity.

The installation of Interior Automatic Fire Sprinklers is understood as the single most effective tool for extinguishing structure fires in their early stages (NFPA, 2021). Structural fire suppression aims to extinguish fires early or contain the fire to its original point of origin without spreading to additional portions of the structure. In buildings equipped with automatic fire sprinklers, 95% of fires were confined to their room of origin, a 24% increase compared to buildings without automatic fire sprinklers. In addition, structure losses have been reduced by up to 68% when equipped with automatic fire sprinklers (NFPA, 2021). It can be concluded that firebrand production from structure fires is likely to occur when the structure and its exterior become engulfed in flames. **When fires are confined to the interior of the structure, it is not likely that firebrands will escape its interior. Therefore, automatic fire sprinkler systems are an effective way to prevent firebrand production from structure fires.**

As with vegetative fuels, characteristics of structure fuels influence ember production, transport, and offsite ignitions. Heydayati et al. (2020) found that a modern wall assembly utilizing fiber cement siding produced 28.6 percent less firebrands under high winds than a wall assembly utilizing cedar siding. Suzuki and Manzello (2016) found that firebrands produced by cedar siding had large projected areas and low mass that caused them to be easily lofted long distances under applied wind as compared to assemblies with only studs and sheathing. Roofing characteristics have been observed to substantially influence firebrand production from structure fires, specifically, avoiding wooden roofing assemblies. Wood-shake roof shingles are notorious for producing large firebrands that can travel extensive distances. The maximum spotting distance recorded from untreated wood shake roofs was 8 miles (Wilson 1962). This figure stemmed from a large-scale conflagration known as the Bel Air Fire that created significant convective air currents capable of lofting firebrands far in advance of the flaming front. **It can be concluded that constructing buildings with fire-resistant building materials reduces the potential for ember production from structure fires.**

As described above, the potential for firebrand production from structure fires is influenced by fire safety building design features, building construction, and structure fire intensity. **Modern master planned communities like the Centennial Project do not include design features that are likely to contribute to high intensity structure fires that may ignite offsite wildfires.**

First, all Centennial structures will be equipped with interior automatic fire sprinklers which have been proved to effectively keep fires form spreading beyond their point of origin (NFPA 2021). Therefore, if they do occur, structure fires are unlikely to reach high intensities that may result in active combustion of the entire structure and related firebrand production. In addition to interior fire sprinklers, fire response time plays a large role in preventing extreme losses during structure fires. Buffington and Ezekoye (2019) found that fire response times were strongly correlated with extreme damage to at least one story of a structure. Centennial's planned onsite fire stations are designed to ensure quick fire response in the event of a structure fire occurring onsite. Quick fire fighter response at Centennial is likely to reduce the severity of structure fires leading to a decrease in firebrand production.

As described, greater fire intensity is found to increase firebrand production. In an urban environment, fire intensity and fire suppression difficulty increase dramatically when multiple structures are burning simultaneously. This phenomenon is referred to as an urban conflagration when offsite wildfires encroach upon communities and destroy multiple structures in one event. Code compliant master planned communities such as Centennial are designed to prevent the occurrence of urban conflagration as proven in multiple studies (FEMA, 2023). Code compliancy across structures, fire department access, and community design create a layered approach towards reducing the potential for conflagrations. Preventing conflagrations, started by either offsite or onsite fires, and confining structure fires to their structure of origin is influential towards decreasing the amount of firebrands produced from structure fires.

While design features of master planned communities are largely designed to prevent losses to structures from wildfires originating offsite, the same features can be concluded to prevent losses to structures caused by structure fires originating onsite. In the scenario of a structure fire, ignitions to neighboring structures are effectively mitigated through code-compliant ignition-resistant building construction which significantly reduces structural ignition through features such as dual pane windows, non-combustible siding, and Class A non-combustible roofing, among others. In addition, ignition resistant landscaping achieved through maintained Fuel Modification Zones further reduces the potential for spot fires caused by structure fires to ignite adjacent structures.

4.9 Project Area Fire Risk Assessment

Wildland fires are a common natural hazard in most of southern California with a long and extensive history. Southern California landscapes include a diverse range of plant communities, including vast tracts of grasslands and shrublands, like those found adjacent to the Project Site. However, because the adjacent lands are part of a historic grazing operation, the fuels are lighter, spacing is less dense, and ongoing grazing maintains reduced fire behavior. Wildfire in Mediterranean-type ecosystems 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). Supporting this are the facts that 1) native landscapes, from forests to grasslands, become highly flammable each fall, and 2) the climate of southern California has been characterized by fire climatologists as the worst fire climate in the United States (Keeley 2004) with high winds (Santa Ana) occurring during autumn after a six-month drought period each year. The most common type of fire anticipated in the vicinity of the Project Area is a wind-driven fire from the north/northeast, moving through the grazed remnants of non-native grasses and sage scrub shrubs. With the conversion of the landscape to ignition-resistant development, wildfires may still encroach upon and drop embers on the Project Site, but would not burn readily 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, and 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.

Therefore, it will be critical that the latest fire protection requirements, developed through intensive research and real-world wildfire observations and findings by fire professionals, for both ignition-resistant construction and for creating defensible space 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 100-200-foot FMZ widths and the fuel breaks provided by the grazed lands immediately adjacent to the Project provide a significant buffer and reduce wildfire intensity and flame lengths to levels that present a much lower threat to a hardened community like the Centennial Project.

4.9.1 Assessment of the Characteristics of Communities Destroyed by Wildfire in California

Nine of California's most destructive wildfires have occurred since 2015 resulting in extensive property damage and loss of life. While wildland fires are highly dynamic and dependent on a variety of factors such as weather conditions, fuels, and terrain among others, most communities that experience significant losses include key characteristics that make them highly susceptible to severe impacts.

As a result of the recent wildfires in northern California, there have been concerns expressed regarding the development of new communities in Los Angeles County, specifically those proposed within Urban Wildland Interface Areas. Some of the public concerns that have been raised relate to recent wildfires in other parts of the State, specifically the Camp Fire in Butte County, the Tubbs Fire in Sonoma County, and the Woolsey Fire in Los Angeles County.

This section assesses community characteristics of these highly destructive fires which when combined resulted in 26,083 structures destroyed and 136 deaths. The characteristics of the communities impacted by these fires are compared and contrasted with the proposed Centennial development to highlight their substantial differences.

4.9.1.1 2025 Palisades and Eaton Fires

During both the Palisades and Eaton Fires of January 2025, wildfire was driven into the Palisades and Altadena communities by extreme Santa Ana winds exceeding 80 mph. This rare level of extreme weather combined with other factors, such as outdated home construction and dense urban vegetation without enforced or prevalent fuel modification, can contribute to urban conflagrations. In both the Palisades and Eaton Fires, structures themselves became the main driver of wildfire spread (IBHS 2025). While methods for modeling the potential for structural conflagration and the resulting fire behavior are currently being researched, the key factors listed below are common community characteristics believed to have contributed to widespread structure losses during the Eaton and Palisades Fires (IBHS 2025).

- The majority of the construction in the Palisades and Eaton neighborhoods took place in the 1950s, before the introduction of California's Chapter 7A, which regulates building standards in wildfire-prone areas. High density of non-ignition resistant homes resulted in rapid spread from structure to structure.
- Connective fuels laced between homes and hazardous plant species (palms, cypress, pines) created pathways for structure-to-structure fire spread and contributed of extreme fire behavior within the Palisades and Altadena communities.

- Narrow roadways and road blockages caused by parked and abandoned vehicles prevented and slowed emergency response and limited direct wildfire suppression efforts.

4.9.1.2 Camp Fire

The Camp Fire occurred in Butte County on November 8, 2018, and had devastating impacts. It stands as the deadliest and most destructive wildfire in California's history with 85 deaths. The fire destroyed more than 18,000 buildings with the towns of Paradise and Concow particularly impacted, with nearly 95% of their structures destroyed. Other areas, such as Magalia and Butte Creek Canyon, also suffered significant damage. The fire ignited due to a faulty electric transmission line and quickly traveled downslope driven by a strong windstorm.

The extensive damage and loss of life during the Camp fire was influenced by extreme fire behavior, fuel conditions, and community features which left structures highly susceptible to losses from wildfire. Strong downslope winds paired with heavy forest fuels and steep terrain resulted in extreme fire behavior and long-range spotting. To make conditions even worse, the region had not experienced significant precipitation within the past 200 days. Vegetation surrounding impacted communities included 100-year-old, highly dense forested areas with limited separation between tree canopies and surface and ladder fuels. This resulted in an active crown fire which occurs when fire moves uncontrollably through the forest canopy. Active crown fire led to substantial firebrand production which caused the majority of structure losses. Fuel ignition potential, or the likelihood of firebrands to start new spot fires, was considered extreme. Many first responders have stated that ember ignitions were 100%, meaning each landing firebrand resulted in a new ignition. Fuel receptivity within communities was extreme due to the density of vegetative fuels near structures and the ignition potential of the structures themselves. The communities of Paradise, Concow, and Magalia resemble Wildland Urban Intermix communities that have been developed over time within the local wildland vegetation. Because of this, fire was able to spread rapidly through the heavy fuels between and around structures, resulting in uncontrollable structure-to-structure spread.

Mass destruction during the Camp Fire was largely related to homes igniting via an ember storm. Many homes burned from the inside out following embers entering the structure via vents, windows, under doors, etc. The community of Paradise included many old homes which were not built to the current ignition resistant standards. In a review of the structures lost, structural hardening factors such as the presence of fire-resistant siding and roofing, double paned windows, and the absence of entry points such as uncovered vents were very important in determining structural survival. Newer structures built after 2007 experienced significant reductions in losses largely due to construction materials in compliance with Chapter 7A of the California Building Code.

4.9.1.3 Tubbs Fire

The Tubbs Fire occurred in Northern California during October 2017 and burned through parts of Napa, Sonoma, and Lake counties, inflicting the greatest damage in the city of Santa Rosa. At the time, it held the distinction of being the most destructive wildfire in California's history. The Tubbs Fire consumed approximately 36,810 acres and claimed the lives of at least 22 people. It started in the rural northern part of Calistoga, Napa County and was caused by a private electrical system adjacent to a residential structure. The destruction was immense, with more than 5,643 structures lost, half of which were homes in the City of Santa Rosa. The economic toll on Santa Rosa was estimated at $8.7 billion, with five percent of the city's housing stock destroyed. The Community of Coffey Park was severely impacted by the fire, with almost every structure of the residential community destroyed.

Fire severity during the Tubb's Fire was extreme and exacerbated by strong winds referred to regionally as the Diablo winds. Wind speeds were observed as high as 70 miles per hour leading to crowning in forested area and significant firebrand production, causing an ember storm in urbanized areas. Fire whirls were commonly observed which can occur when intense heat and turbulent winds interact, creating rotating columns of fire. From its point of ignition, the fire quickly ran 12 miles in just 4 hours.

In the community of Coffey Park specifically, structure loss was largely attributed to structure-to-structure spread. Initial structure fires were caused by firebrands which blew across Highway 101 and ignited structures. The fire quickly turned into a conflagration with multiple structures burning simultaneously caused by rapid structure-to-structure spread. Rapid spread from structure to structure was likely caused by poor ignition resistance of the community's homes which often included features such as combustible siding, large exterior vents, and wooden fences adjacent to homes. These features would not be present had the homes not been constructed prior to the requirements mandated by Chapter 7A of the California Building Code. In addition, defensible space in the Coffey Park community was poorly enforced, with many homes surrounded by poorly maintained ornamental vegetation. This condition increased the potential for new spot fires and likely drove the spread of fire within the community.

4.9.1.4 Tunnel/Oakland Hills Fire

The Tunnel Fire, also referred to as the Oakland Hills Fire, occurred in October of 1991. The fire started in the Berkeley Hills and was extinguished by firefighters who left the area at nightfall. However, embers that remained after ~~during~~ the mop up effort were kicked up by Diablo winds and the fire reignited and spread into adjacent brush and grasses. Fueled by strong winds and dry conditions, the fire burned rapidly through residential areas destroying 2,900 structures and killing 25 people. In addition to the extreme winds, the fire's intensity and destruction is attributed to a combination of factors including hazardous fuels, steep terrain, and limited water supply.

Fuel loading within communities is believed to be a major reason for the extreme fire behavior observed during the Tunnel Fire. Blue gum eucalyptus trees were prevalent within communities and significantly contributed the fire's severity. Eucalyptus trees are considered hazardous from a fire perspective. Fuel buildup in blue gum eucalyptus stands is very rapid, exceeding that of other tree species, and its litter (dead leaves and debris) is especially flammable (Agee et al. 1973; NPS 2006; Wolf and DiTomaso 2016). The bark of Blue gum eucalyptus is also highly flammable and carries fire readily into the tree canopy. Burning eucalyptus leaves are often lofted high into the air and travel far downwind, increasing the potential for spot fires and structure losses. Eucalyptus trees in the Tunnel Fire are believed to have contributed as much as three-quarters of the fire's energy.

Terrain in the Oakland Hills is steep and variable, with many homes accessed by windy and narrow roadways. During the fire, many emergency vehicles were prevented from accessing threatened houses due to congestion and private vehicles blocking the narrow and steep roadways. Water supply for fire suppression also was an issue, as many water pumps existed above ground and were damaged during the fire. This prevented water flow in many areas of the community. In addition, hydrants lacked universal hookups, meaning emergency responders from different departments were unable to pull water from hydrants.

Building construction and inadequate defensible space were also to blame for the extensive structure losses during the Tunnel Fire. Many homes were constructed with wooden shake roofs which are highly receptive to ignition from airborne embers. Rooftop ignitions were further fueled by poor maintenance and the accumulation of leaf and pine-needle litter on shingles and within gutters. Paired with dense urban vegetation and combustible construction materials, fire spread rapidly through the Oakland Hills.

4.9.1.5 Common Features Associated with Communities Destroyed in Historic Wildland Fires in California and Comparison to the Centennial Project

Table 16 provides a list of community and characteristics that led to extensive damage and loss of life during the Pacific Palisades, Eaton Canyon, Camp, Tubb's, and Tunnel/Oakland Hills Fires. These characteristics are juxtaposed with those of the Centennial Project in Table 17 to highlight the stark differences between the factors leading to these disasters and those present at the Centennial Project. In many cases, communities impacted by these destructive fires were exposed to heavy fuel loading in offsite wildlands and within the communities themselves. Defensible space is generally limited, with many structures in close proximity to flammable fuels. In some cases, steep terrain exacerbated fire intensity while also presenting challenges for emergency access and evacuation. Across the board, structure losses were largely caused by structure-structure spread due to buildings constructed to poor ignition resistance standards.

Table 16. Characteristics of California's Three Most Destructive Wildfires

Fuels in Adjacent Wildlands	Urban Fuels	Terrain	Building Construction	Other Factors
▪ Heavily forested with high fuel loading ▪ Limited crown separation creating conditions conducive to crown fire. ▪ Stressed and fire receptive vegetation due to prolonged drought. ▪ High proportion of non-native species, many of which are considered hazardous species	▪ Wildland vegetation intermixed within communities at a high degree. ▪ Contiguous forests present within Community areas. ▪ Poor separation between vegetation and structures ▪ Abundant vegetation existing between parcels. ▪ Heavy Pine needle accumulation on rooftops ▪ Poor defensible space enforcement	▪ Development bounded by steep canyons that funnel winds towards communities. ▪ Communities built on steep slopes	▪ Buildings constructed prior to the construction requirements mandated in Chapter 7A of the California Building Code ▪ Combustible building materials prevalent ▪ Building construction is susceptible to ignition from airborne embers	▪ Steep and narrow roads limit emergency response and evacuation ▪ Roads with numerous burnover potentials hinder evacuations. ▪ Limited water supply ▪ Community members not well versed in evacuation procedures. ▪ Communities are not generally within HOAs, resulting in high variability in the creation and maintenance of defensible space.

Table 17. Characteristics of the Centennial Project Site

Fuels in Adjacent Wildlands	Urban Fuels	Terrain	Building Construction	Other Factors
▪ Offsite fuels are predominantly grass fuels. ▪ Fuel loads are considered light and are maintained through long withstanding grazing management.	▪ Urban vegetation will consist of irrigated landscaping that will undergo routine maintenance. ▪ Hazardous plant species will be prohibited. All ornamental plants will be approved by LACoFD.	▪ Onsite terrain is considered flat to rolling. ▪ Development is not located on ridgetops or near terrain features likely to exacerbate wind speeds.	▪ All buildings will be constructed in accordance with the ignition resistant standards mandated in Chapter 7A of the California Building Code	▪ Centennial will include onsite fire stations and rapid emergency response. ▪ In addition to code complaint water supply, Centennial also includes multiple dip sites for aerial fire suppression resources.

Table 17. Characteristics of the Centennial Project Site

Fuels in Adjacent Wildlands	Urban Fuels	Terrain	Building Construction	Other Factors
▪ The Project site is located far away from higher hazard chapparal fuels	▪ All structures will be provided with at least 150 feet of fuel modification. ▪ Perimeter Fuel Modification Zones will be inspected and maintained annually, with irrigate landscaping required within the first 100 feet from structures. ▪ Zone 0- Ember Resistant Zone will be required for all structures	▪ Development is setback considerably from steep slopes present in offsite wildlands.	▪ Structures will be highly resistant to ignitions from airborne embers and not conducive to structure-structure spread	▪ The Centennial HOA will fund and enforce wildfire mitigation practices including the perimeter Fuel Modification Zones ▪ Centennial's Wildfire Evacuation Plan and Education Program will educate residents how to prepare for wildfire and evacuate safely ▪ Evacuation at Centennial would be an unlikely occurrence, but if necessitated, there are major roadways and low potential for burnover exposures compared to areas experiencing evacuation difficulties

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5 Additional Factors Reducing Potential Wildfire Risks Associated with the Project's Introduction of New Development

Research indicates that while humans can drive wildfire ignition risk in the WUI, comprehensive actions can be taken to mitigate such risks to less than significant levels (Elia et al., 2019). When fire protection is implemented at the parcel level and leverages ignition resistant building materials, infrastructure improvements, increased response capacity, and incorporates landscape design FMZs, the wildfire risk can be reduced not only within the proposed development but in the surrounding environment as well (Newman et al., 2013). The following section summarizes factors for determining wildfire risk from new development and potential opportunities to mitigate such risks.

Research has indicated that increased human activity in WUI areas can result in an increased likelihood of ignition (Keeley & Syphard, 2018; Syphard, Clayton, et al., 2007; Syphard & Keeley, 2015). As such, residential development within fire-prone areas is commonly characterized as the principal driver of wildfire risk (Keeley & Syphard, 2018; Syphard, Clayton, et al., 2007; Syphard & Keeley, 2015). However, as humans can drive wildfire risk they can in turn reduce it by household level or parcel level decisions, such as home siting, building materials, and landscape design that can reduce risk in the WUI environment (Newman et al., 2013). These decisions can take the form of reducing fire ignition risks by converting fire-prone areas to ignition-resistant, maintaining ground covers, constructing ignition-resistant homes and hardscapes, and increasing the development setback from the wildland-urban interface (Newman et al., 2013). This change occurs through the strategic implementation of fire protection measures that result in planned alterations to fuel, increased ignition resistant construction, enhanced fire protection features, higher wildfire risk awareness, and maintenance of fire protection features. When developments are planned accordingly, the fuel availability and fuel continuity decrease, while the probability of fire suppression increases (Fox et al., 2018). The dual benefit of building a fire-hardened development is that the same features that protect the development from a wildfire also play a significant role in protecting wildlands and surrounding areas from Project-related fires through ignition reduction.

5.1 Reducing Wildfire Risks Associated with Introducing Ignition Sources and increasing Human Activities in the WUI

As previously mentioned, in southern California humans play a major role in ignitions by influencing the timing and spatial pattern of fires (Keeley & Syphard, 2018). As a result, humans account for more than 95% of ignitions in the region (Keeley & Syphard, 2018). The relationship between human activities and natural dynamics has contributed to altering fire regimes (Syphard et al., 2007). One alteration is that urban development increases the risk of repeated fires on the landscape (Syphard, Clarke, et al., 2007). As humans move into landscapes with patterns of ignitions change as well (Syphard, Clarke, et al., 2007). However, the number of ignitions and the area burned varies by an ignition source (Syphard & Keeley, 2015). Overall, human-caused ignitions peaked in 1980

and have since dropped likely due to increased efficiencies in fire prevention, changes in infrastructure, a decline in smoking, neighborhood watch program, penalties for arsonists, and new developmental rules (Keeley & Syphard, 2018). However, while the number of ignitions has decreased the area burned has not changed, indicating while fires are fewer they are larger in magnitude (Keeley & Syphard, 2018). The relationship between ignitions and human development is complex. While human-caused ignitions increase as populations and development expand into the WUI this increase reaches a peak and then declines at the point at which development or impervious surfaces (hardscape) outweigh the wildland fuels (Keeley & Syphard, 2018).

By analyzing all wildfire ignitions included in the CAL FIRE Fire and Resource Assessment Program (FRAP) database dating back over 100 years it was found that in the case of one Southern California county (San Diego County), equipment-caused fires were by far the most numerous (Syphard & Keeley, 2015). These ignitions accounted for most of the area burned, followed closely by the area burned by power line fires (Syphard & Keeley, 2015). This pattern is consistent beyond San Diego County and is applicable in Los Angeles County. In Los Angeles County a common source of wildfire ignition stems from human activities such as smoking, playing with fire, and powerlines (Keeley & Syphard, 2018). Ignitions are classified as equipment caused resulted from exhaust or sparks from power saws or other equipment with gas or electric motors, such as lawnmowers, trimmers, or tractors. In San Diego County and Los Angeles County, ignitions were more likely to occur close to roads and structures, and intermediate structure densities (Syphard & Keeley, 2015). Powerline-based ignitions that have caused or contributed to recent fires, such as the Camp Fire in 2018, have demonstrated how the presence of powerlines (particularly the lower height distribution lines) can result in significant wildfire ignitions. Part of the challenge is that as humans push into WUI areas powerlines are often located in areas where access is difficult creating challenges for firefighting tactics (Syphard & Keeley, 2015). Research has indicated that important factors in structure loss are the coincidence of human-caused ignitions with severe weather and the location and pattern of housing development (Schwartz & Syphard, 2021). However, it is important to note that often these themes are researched in isolation with small proportions studying two more themes limiting our understanding of the interactions and dependencies (Price et al., 2021).

Given the number and intensity of wildfires in recent years, there has been an increasing focus on wildfires and reducing the size of wildfires (Syphard et al., 2014). However, addressing wildfires in the WUI with fuels reduction and prescribed burning is often faced with challenges related to private property constrictions (Schwartz & Syphard, 2021). Studies have shown that land-use decision-making, defensible space, homeowner preparation, and ignition prevention can complement traditional management in reducing wildfires and addressing fuels management (Schwartz & Syphard, 2021; Syphard et al., 2017). Further, given the importance of the WUI and often the lack of capacity for large-scale fuels reduction such as grazing creating safer spaces within the WUI is critical (Schwartz & Syphard, 2021). Because most fires are caused by humans ignition reduction is a powerful management strategy (Syphard & Keeley, 2015). Given that we are moving into a more hazardous wildfire future land-use planning and ignition prevention represent the most effective long term solutions while traditional management and fuel breaks still play a role in addressing the coincidence of human-caused ignitions and severe fire weather (Schwartz & Syphard, 2021; Syphard et al., 2017). To minimize the negative effects, the Project has designed multi-scaled fire protection features to address the existing fire hazard, reduce ignition probability, and lower the fire risk for the Project and the surrounding area. As discussed above, one of the most effective solutions to wildfire problems in the WUI is to address the wildfire hazard through land-use planning and ignition prevention. The Project would result in the conversion of readily ignitable fuels, such as grass and scrub fuels, to irrigated/thinned landscaping and development. Notably, the Project minimizes ignition risk by incorporating 100-200 foot FMZs around the entire project perimeter, which will provide defensible space and reduce fire intensity and flame lengths in the event of ignition occurring. These FMZs, which are based on LA County Fire requirements and confirmed with site-specific

modeling, will be implemented by knowledgeable professionals, inspected by third-party inspectors, and maintained in perpetuity by the Project HOA. Additionally, other fuel modification/landscaping requirements like the Project's roadway fuel modification zones, stormwater basin vegetation management, and the prohibition of certain highly flammable plants will further reduce the risk of fire ignition and spread despite the introduction of additional humans in the area. Critically, the structures in the Project will also be built in accordance with the most state-of-the-art, ignition-resistant construction standards and building codes required by the County and the State, including Chapter 7A of the Los Angeles County Building Code (Title 26, Chapter 7A), which requires that the buildings are resistant to ignitions from direct flames, heat, and embers. Other structural requirements include fire-resistant roofing, vent covering and opening limitations, noncombustible or ignition-resistant exterior walls, ignition-resistant eaves, and porch ceilings, insulated windows and exterior doors, and other measures that have proven to substantially reduce the risk of building ignition and fire spread. Finally, a key component of reducing the chances of fire ignition and spread involves educating residents to have a high fire risk awareness. In this respect, the Project includes as mitigation a robust education awareness program that will provide residents with wildfire safety information and create greater risk awareness for occupants and their employees. Through this program, residents will learn about necessary landscape maintenance, activities in a wildfire risk area, preventing wildfires, structural-based fire protection features, and wildfire evacuation information.

As evidenced by these measures and the other measures described in Section 3 Fire Safety Requirements – Regulations and Design Features, the Project has outlined steps in which it will implement ignition reduction from common anthropogenic ignition sources, leverage its capacity for implementing fuels reduction including defensible space, and consider both onsite and offsite wildfire risk. In addition, Centennial has agreed to make certain additional commitments to fund wildfire prevention, protection, and response activities within the Project, and to fund grants to improve wildfire prevention, protection, and response activities in nearby communities.

Still, there are other project-specific anthropogenic fire risks that are worthy of being highlighted for the purposes of this WSP. These include powerlines, vehicles, and machinery. Each is discussed below.

5.1.1 Powerlines

Common ignition sources in southern California are related to powerlines and many destructive fires across the State have been caused by powerlines (Keeley & Syphard, 2018). However, this risk can be mitigated by burying powerlines. The Project will underground all new project-related distribution power lines on the Project site.

To accommodate off-site improvements, the Project may add new powerlines to existing poles and transmission line corridos, but the Project would underground new powerlines where existing poles are not available. The existing poles and lines are located generally along rights-of-way and are not proximate to trees.

5.1.2 Vehicles

A potential source of vegetation ignitions in the Project area is the existing Interstate (I-5), SR-138, and other roads used by Project residents and occupants. The Project provides roadside fuel modification via the removal of flammable vegetation and provisions for landscaping along roads it controls. Additionally, Tejon Ranch's historic grazing program in areas adjacent to developed and developing areas reduces fuel loads adjacent to Project access roads. The Project includes provisions for creating increased separation from potential roadside ignition sources and potential fuel beds that will not only protect the Project but also adjacent communities such as Gorman and Lebec. These efforts reduce or minimize the ability of a vehicle-related spark, catalytic converter failure, or another ignition source to ignite and

spread fire from the roadsides into unmaintained fuels. **While the Centennial Project will lead to an increase of vehicle traffic on offsite roadways, ongoing maintenance along I-5 and SR-138 is required by Caltrans under the LA County Fire Code Section 325.10 and is required to continue, if not increase in frequency as part of overall fire reduction efforts that are beyond the control of the Project.** Caltrans's Integrated Vegetation Management (IVM) program utilizes various methods of vegetation control to meet specific roadside vegetation control goals, including herbicides, mowing, weed whacking, targeted grazing, and hand removal. **In addition, portions of the Good Neighbor Fire Protection Fund from the Climate Resolve Settlement Agreement could be used to fund offsite roadside fuels reduction projects in the region.** As such, the Project is not expected to significantly increase the already known fire risk associated the preexisting roads. The onsite roadways would comply with all fire department access requirements and be adjacent to fuel modification. Further, the Interior roadways are also not expected to result in significant vehicle ignitions due to roadside FMZs that would minimize receptive fuel beds for sparks or hot metal from vehicles as described in Section 3.3.1 and the Project's Construction Fire Prevention Plan (CWSP). Therefore, even if ignition were to occur within the Project, it is highly unlikely it would be sustained or spread beyond the Project site due to the hardened landscapes, hardscape, and adjacent fuel modifications areas.

5.1.3 Machinery

The use of equipment in WUI areas is another common source of modern-day human-caused ignitions. This is due to heated machinery, sparks, hot fluids, or exhaust igniting vegetation. Potential ignitions due to equipment use can occur during construction activities or ongoing operational risk.

5.1.3.1 Construction Activities

Construction activities associated with the Project would introduce potential ignition sources to the Project site. However, the Project would comply with LA County Fire requirements for activities in hazardous fire areas and the CFC. Spark arrestors would be required on all equipment with a solid or liquid fuel motor used on the Project Site. The Project would also comply with Section 326.12.1 of the LA County Fire Code which prohibits the use or operation of any tractor, construction equipment, engine, machinery, or any steam, oil, or gasoline-operated stationery or mobile equipment, from which a spark or fire may originate unless such equipment is provided with a qualified device that has been approved by the state fire marshal and that will prevent the escape of fire or sparks. Further construction activities would comply with Chapter 33 of the CFC Fire Safety During Construction and Demolition. Per Section 3304 the Project would take precautions against ignitions such as but not limited to prohibiting smoking except in approved areas, preventing the accumulation of and removing combustible debris, implementing fire watch personnel where required by the fire code official, having approved water supply onsite, and maintaining vehicle access for firefighting to all construction and demolition area. Additionally, the project includes a Construction Fire Prevention Plan (CFPP) that address fire safety practices to reduce the possibility of fire during construction activities. As required under the LA County Fire Code and Centennial CFPP, on-site utilities, access roads, and fuel modification zones would be first established prior to combustible materials being brought on-site. The regulatory requirements and CFPP would reduce the risk of wildfire ignition and spread from the Project during construction activities.

The Recirculated Partial Draft EIR assessed the wildfire impacts associated with construction of the Project's off-site improvements (See Section 3.24).

The analysis determined that construction of the proposed off-site improvements would result in a low to negligible wildfire risk and a less-than-significant impact. Most off-site work areas, including SR-138 intersections, utility

crossings, well sites, aqueduct crossings, telecommunications infrastructure, and substation upgrades, are located within paved, gravel, previously disturbed, or concrete-dominated environments that contain minimal or no vegetation, thereby limiting the availability of combustible fuels needed to support wildfire ignition or spread. In many cases, the existing infrastructure and surfaces function as firebreaks or consist of non-combustible materials, further reducing risk. Construction activities would also be conducted in compliance applicable fire prevention standards, which include ignition prevention measures and response protocols throughout the duration of work. Additionally, improvements would largely occur within existing access roads or previously disturbed corridors, avoiding new disturbance in vegetated areas, and any potential impacts would be temporary and cease once construction is complete. Features such as aqueduct crossings located adjacent to water or concrete infrastructure provide additional natural or engineered barriers that further reduce wildfire potential. Based on these factors, the likelihood of wildfire occurrence during or after construction of the off-site improvements is considered minimal, and impacts would be less than significant.

5.1.3.2 Operational Activities

Operational activities associated with maintenance or use of the Project site also have the potential to introduce ignitions to the area. The operational activities would also be required to comply with the CFC spark arrestor requirements, Chapter 33 Fire Safety During Construction and Demolition for any post-development construction, maintenance, or renovations, and other applicable codes and requirements based on the activity type. Operational activities would also comply with LA County Fire requirements for activities in fire hazard areas as described above. FMZs and landscaping within the Project site would require ongoing maintenance as required by the Project CC&Rs and confirmed by the County as required by the Climate Resolve Settlement Agreement. These common area landscapes and perimeter FMZs would be managed and maintained by the HOA through a qualified contractor. The contractor would be required to meet fire safety requirements regarding equipment, the timing of maintenance, and fire suppression capabilities. This type of maintenance program is far safer and more controlled than if each homeowner provided their own maintenance of FMZ areas. Additionally, maintaining the FMZs and landscaping accordingly would allow them to continue their function purpose of reducing potential ignition and fire spread both from fire onsite or offsite in origin. Further, even if the equipment were to cause a fire it is unlikely it would spread offsite due to the adjacent FMZs and ignition resistant landscape. A robust wildfire education program would provide residents and occupants with ongoing education regarding wildfire, as described in Section 6.1. The education program would be implemented by the HOA and have a layered approach to wildfire awareness that includes both passive and active features. The educational program would cover a wide range of information such as residential evacuation planning, defensible space guidelines, how to maintain fire protection features, activities in a fire risk area, and more, all provided in easy-to-understand, graphically based materials. This would provide education regarding safe activities in wildfire risk areas, including the appropriate use of machinery, during red flag warning days, restrictions on the use of machinery in the Project area, and would be maintained and monitored by the HOA in accordance with the Climate Resolve Settlement Agreement. This requirement, in conjunction with the Project Design and regulation compliance, will significantly reduce potential ignitions both in the Project area and limit the potential impact on the surrounding area.

5.1.4 Wildfire Risk Reduction Measures Addressing Fire Risk Associated with Increasing Human Activities in the WUI

5.1.4.1 Vegetation Management

The fuel conditions immediately adjacent to the Project will be addressed through FMZs and ongoing vegetation management and maintenance. The existing hazardous fuel, mostly shrub fuels, on the Project site and within FMZ areas would be converted into hardscape and or to reduce fuel densities that are managed and maintained. In an FMZ, combustible vegetation would be removed and/or and partially or totally replaced with more appropriately spaced drought-tolerant, fire-resistant plants including an irrigated zone. This would provide a managed area where fire spread is not facilitated toward the Project or away from the Project into wildland areas by redistributing the fire risk on a landscape and altering the interaction between fire, fuels, and weather (Cochrane et al., 2012). FMZs would also reduce the likelihood of canopy fires, lower ember cast, and have a shadow effect on the untreated landscape by reducing the probability of burning and the potential fire size (Cochrane et al., 2012). As such, the Project would lower ignition potential in the area by reducing and altering the available fuel scape to a less flammable managed condition not conducive to fire spread and increasing the probability of fire suppression if ignition occurs (Fox et al., 2018). Further, Project benefits from Tejon Ranch's historic grazing program addresses larger scale landscape fuel conditions. As a result, the risk of a structure being destroyed, whether from a fire from within the development or outside the development, is significantly lower when defensible space is implemented. Studies have also indicated that treatments in close proximity to residential buildings provide greater protection (Syphard et al., 2014). Accordingly, the Project will provide an ERZ which is a 5-foot wide non-combustible zone around all structures to address the potential for ember-caused ignitions next to structures.

The Project's FMZs and fuels management will serve to create defensible space around the structures. Defensible space adjacent to structures also functions to limit the spread of fire from the built environment into off-site vegetation (Warziniack et al., 2019). The FMZ areas and historic grazing areas function as fuel breaks which are crucial in reducing fire risk and facilitating effective fire prevention (Wang et al., 2021) The irrigated zone acts as a green barrier that uses specific vegetation growth, such as high-internal moisture, fire-resistive species, to reduce fire spread (Wang et al., 2021). The high internal moisture and spacing between plant groups make it more difficult for ignition to occur and fires to spread from plant to plant. This affects fire behavior by reducing flame lengths, slowing spread rates, and lowering fire intensity. If a fire from a structure or vehicle spread to the irrigated zone, the fire-resistive species in this zone would be less likely to ignite and reduce the likelihood of the fire spreading off-site (Wang et al., 2021). The use of irrigated areas to reduce wildfire impacts can achieve wildfire mitigation and offer wildfire protection in fire-prone areas beyond the Project site (Wang et al., 2021). Further fuel treatments also have an ecological benefit by reducing the potential fire severity which can result in high post-fire litter cover, higher herbaceous plant cover, higher biodiversity, and lower levels of invasive pests, benefiting adjacent open space areas (Safford et al., 2009b). The benefits of defensible space and FMZs are not solely limited to the built environment. Positioning the low plant density, irrigated zone directly adjacent to the development pad, and implementing defensible space provides a significant buffer between structures and open space areas. These techniques aid in preventing ignitions in the built environment but also across the larger landscape.

However, long-term protection of the development and the surrounding area is dependent on the maintenance of fuel modification as even fire-safe designs can degrade over time. To alleviate this concern, the Project will conduct annual assessments of the FMZs and the Project HOA will be responsible for the long-term funding of fire protection features. During this maintenance, dead and dying material and undesirable plants will be removed. Thinning will

also be conducted as necessary to maintain plant spacing and fuel densities. This will keep the FMZs and landscaped areas in a highly fire-resistive condition free of accumulated flammable debris and plants.

These features will further reduce the potential for wildfire in open space areas and potential impacts on surrounding communities.

5.1.4.2 Ignition Resistant Construction

With the incorporation of ignition-resistant construction, the likelihood of structural ignition occurring within the Project area is minimized. Ignition-resistant construction is critical in preventing building ignitions from windblown embers. The Project will comply with Chapter 5 of the CWUIC and Chapter 7A of the Los Angeles County Building Code (Title 26, Chapter 7A), "Construction Methods for Exterior Wildfire Exposure" so that the buildings are resistant to ignitions from direct flames, heat, and embers. The Project, based on its location and ember potential, is required to include the latest ignition and ember resistant construction materials and methods for roof assemblies, walls, vents, windows, and appendages, as mandated by the LA County Fire and the County's Fire and Building Codes (e.g., Chapter 7A). The structure design is crucial against wind-driven fires and newer homes are more likely to survive. Dual paned windows were significant in protecting against thermal exposure. (Syphard et al., 2017). This lowers the threat of onsite fires impacting offsite areas as the structures themselves are very unlikely to act as fuel which will minimize the potential for home-to-home ignitions, reducing the likelihood of an onsite fire spreading within the community or toward open space. Additionally, the adjacent fuel modification will aid in isolating onsite structure fires or accidental ignitions to the Project area should they occur.

Structure design, such as the Project's, is crucial in protecting an area against wind-driven fires. The Project provides features that not only prevent fire intrusion but prevent structure fires from escaping into offsite areas. This allows the Project to not only protect the immediate area but the surrounding environment.

5.2 Site Specific Assessment of Offsite Ignition Risk

The following section summarizes the assessment of the constructed and inhabited Project, including off-site features, resulting in an increased likelihood of wildfire ignitions that impact existing land uses in the Project's proximity. This assessment has been conducted as part of the Project's proactive approach to fire safety.

To date, there is no organized method for analyzing off-site ignition risk impacts from a proposed Master Plan Community. There are various data available that can be used to evaluate some aspects of the potential for a population to result in ignitions, but understanding how specific and targeted design features and mitigation measures lessen the potential ignition increase, if not prevent it altogether, have not been formalized. In many cases, Centennial's features and measures also provide a public benefit beyond lessening the potential for increased ignitions and off-site fire spread, as discussed herein. To that end, this analysis provides a new and comprehensive approach to evaluating the potential off-site ignition and spread related impacts for a new master planned community in a fire hazard severity zone.

A team of fire protection experts was assembled to develop this assessment method utilizing best practices, extensive research, publicly available and project-specific fire environment data, and years of professional experience to quantify and weight the various fire protection measures. The process involved creation of an off-site wildfire risk matrix that calculates risk based on provisions for fire safety and protection features (See Centennial Focused Off-site Ignition Risk Analysis).

5.2.1 Centennial Offsite Wildfire Risk Potential

A Focused Off-site Ignition Risk Assessment was conducted to determine the Project's potential to exacerbate wildfire risk in off-site areas (See Centennial Focused Off-site Ignition Risk Analysis). The off-site ignition risk evaluation of the proposed Project included reliance on a vast amount of site-specific information, fire environment data, fire behavior and spread modeling, and extensive mitigations that will be provided above and beyond the strict code requirements. This information was available for this effort because the Project applicant made considerable investment to evaluate wildfire risk and needed protections as part of its planning process. As such, the Project bases its off-site risk analysis on supporting information provided within the (1) Project WSP; (2) Project Construction Fire Prevention Plan (3) Fuel Modification Plan; and (4) a Project Wildfire Evacuation Technical Report. In addition, extensive analysis and modeling was conducted as part of an FHSZ remapping comment exercise, based on which CAL FIRE corrected their initial remapping of the site to reduce the total extent of the Very High Fire Hazard Severity Zone. Based on Dudek's technical review of the site and surrounding areas and development of a comprehensive wildfire ignition risk and risk reduction method, it was determined that the Project's off-site ignition risk of Moderate, as determined by the presented method, is accurate and supported. Taken together, the fire prevention, suppression, and response measures incorporated into the Project and mandated by applicable regulatory requirements serve to adequately protect both on-site and off-site resources in the event of an on-site fire ignition, the most significant of which are as follows:

- Wide FMZ around the perimeter of the Project.
- Commitment to continued grazing of Project's open space.
- Ignition-resistant structures.
- Interior fire sprinklers.
- Ignition-resistant, planned, and maintained landscape.
- Undergrounding of power lines.
- On-site fire stations.
- Code Compliant Water availability and fire flow.
- Code Compliant Fire access roads.

5.3 Fire Facilities

Fire protection to the Centennial Specific Plan Project site is provided by the LACoFD. The fire department currently serves the area from Battalion 6, which has 13 fire stations located primarily in the Santa Clarita Valley. In addition, Kern LA County Fire Department (KCFD) provides assistance through an automatic mutual aid agreement. Four of the KCFD Fire Stations are within 30 miles of the Centennial Specific Plan Project site. The LACoFD and KCFD Fire Stations that would be the likely responders to an incident on site are summarized in Table 18.

Table 18. Current LA County Fire Department Response Configuration

Fire Station Number	Location	Estimated Response Time/Miles to Project Entrance
LACoFD		
77	468333 Peace Valley Road, Gorman, California 93423	5 minutes/4 miles
149	31770 Ridge Route, Castaic, California 91350	25 minutes/21.2 miles
78	17021 Elizabeth Lake Rd, Lake Hughes, California 93532	30 minutes/24.9 miles
112	8812 Ave E-8, Lancaster, California 93536	31 minutes/29.7 miles
76	27223 Henry Mayo Dr., Valencia, California 91355	35 minutes/29.5 miles
126 (Hdqtrs)	26320 Citrus Street, Santa Clarita, California 91355	38 minutes/31.7 miles
111	26829 Seco Cyn. Rd., Saugus, California 91350	39 minutes/32.7 miles
124	25870 Hemingway Ave., Stevenson Ranch, California 91381	41 minutes/33.8 miles
73	24875 N. San Fernando Rd., Newhall, California 91321	41 minutes/34.1 miles
156	24525 W. Copper Hill Dr., Santa Clarita, California 91350	42 minutes/35.2 miles
104 (Temp)	26201 Golden Valley Road, Santa Clarita, California 91350	43 minutes/36.1 miles
107	18239 W. Soledad Cyn., Canyon County, California 91351	46 minutes/38.1 miles
123	26321 N. Sand Cyn. Rd., Canyon Country, California 91351	56 minutes/ 46.5 miles
132	29310 Sand Canyon Rd., Canyon Country, California 91387	57 minutes/47.2
75	23310 Lake Manor Dr., Valencia, California 91355	1 hour and 7 min/55.7 miles
KCFD – Automatic Mutual Aid Response		
56	1548 Golden State Highway Lebec, California 93242	15 minutes/12 miles
57	P.O. Box 402, 729 West End Drive, Frazier Park, California 93225	20 minutes/16 miles
55	5441 Dennis McCarthy Road, Mettler, California 93243	23 minutes/18 miles
58	P.O. Box 5179, 2420 Symonds Drive, Pine Mountain Club, California 93222	38 minutes/29 miles

As depicted in Table 18, there are a minimum of 19 LACoFD and KCFD Fire Stations that may respond to wildfire or other emergencies at the Centennial Specific Plan Project site. However, only one station, Fire Station No. 77, can reach the Project's entrance (Gorman Post Road and Lancaster Road) within approximately 5 minutes. Because the Project site is large, it would take at least another 15 minutes to reach more remote portions of the Project site.

5.3.1 Local Response Standards

The County's General Plan includes a response time goal consistent with National Fire Protection Association (NFPA) standards (NFPA Standard 1720, 2020 edition). It should be noted that there are no national standards for response times to vegetation fires, but a 5-minute response and a 1.5-mile service radius is used in the County for typical urban response. According to these response standards, the current Fire Station distribution does not include a station that could respond according to the minimal proposed standards. However, as required by MM 16-3, the Project Applicant/Developer shall provide land, convey title, and shall construct and equip, to the specifications and requirements of the LACFD, for up to four new Fire Stations to the LACoFD. The approved final plans and specifications for the Project shall identify locations of the fire stations. The LACoFD shall have final

approval over the fire station site locations. The timing for the construction of the on-site fire stations shall be established by the LACFD dependent upon the phasing of development, with the first on-site fire station operational no later than the time the 1,000th dwelling unit is built on site (Mitigation Measure MM 16-3). Additionally, as required by MM 16-1, at buildout, the LA County Fire Department (LACoFD) fire stations shall be located such that response times to the Project site shall be 5 minutes or less for fire service responses and 8 minutes or less for the advanced life support (paramedic) unit responses within the Project site. Figure 3-30 of the Specific Plan provides approximate locations of existing and proposed fire stations. Further, also required by MM 16-2, the Developer must pay developer fees in accordance with the LACoFD Developer Fee Program until such time as the Developer has conveyed an approved, operational fire station to LACFD, unless otherwise agreed to by the Developer and LACoFD in accordance with the LACoFD Developer Fee Program's land-in-lieu of fees provisions.

With properly built, ignition-resistant protection for structures, internal fire sprinklers, customized fuel modification zones, water supply, fire hydrants and access roads, as detailed in this WSP, the structural fire risk and exposure risk to structures from a vegetation fire can be significantly reduced. However, the Emergency Medical Services (EMS) risk and need for timely EMS response is critical and requires on-site capabilities.

According to County standards, the first arriving emergency unit, with paramedic and structural firefighting capabilities, should arrive within approximately a 5-minute timeframe for basic life support and eight minutes for advanced life support.

Common mitigating measures for projected slower emergency response for residential structural fires includes the inclusion of additional firefighting resources closer to the assets and/or the use of interior fire sprinklers. Fire Stations in close proximity to assets result in reduced travel distance and correspondingly reduced response time. Conversely, interior sprinklers minimize the need for additional Fire Stations (to a threshold) by extinguishing interior fire or extending the time for “flashover” of structure fires. This corresponds directly to enabling more time for firefighting resources to arrive on site and begin attack.

The Project is committed to providing a safe environment for residents and visitors of the proposed community. Therefore, the Project is consistent with County standards for emergency response and interior sprinklers.

5.4 Estimated Calls and Demand for Service from the Project

Emergency call volumes related to typical projects, such as new residential and commercial developments, can be reliably estimated based on the historical per-capita call volume from a particular fire jurisdiction. The LACoFD documented 379,517 total incidents for 2020 generated by a County-wide service area total population of approximately 4,067,549 persons in 58 cities and all unincorporated communities within Los Angeles County. The County’s per capita annual call volume is approximately 93 calls per 1,000 persons. The resulting per capita call volume is 0.093 (LACoFD 2021).

The following estimated emergency calls are based upon annual emergency call data for the entire area protected by LACoFD. This data was applied to the Centennial Specific Plan Project for anticipated total estimated calls, structure fires, vegetation fires and emergency medical calls as a comparison for perspective. The per capita call generation for this development is based upon the development-specific information provided by the Project’s EIR. The following sections provide an analysis of the estimated call volume and overall demand on the response capability of the existing stations.

The following is an estimated annual emergency call volume for the Centennial Specific Plan Project that is based upon per capita data from total annual LACoFD calls within their jurisdiction (based on 2019 data), except as noted previously:

- Total population served by LACoFD: 4,096,325
- Total annual calls: 382,202. Per capita call generation: 0.093

Using the assumptions noted previously, the estimated annual emergency call volume for Centennial Project was calculated. In order to provide this conceptual estimate, Project-specific data was provided by the Project applicant, which includes a residential population and commercial user population totaling roughly 57,150 persons. This number is a conservative estimate and may be somewhat more than the actual population. Based on this population, the calculated call volumes by type of call are provided in Table 19.

Table 19. Calculated Call Volume (Conceptual Based on 57,150 Persons)

Type of Call	Per Capita Call Generation Factor	Number of Estimated Annual Calls (per day)
Total Calls	0.097	5,315 (14.5)
Total Fires	0.0017	97 (0.3)
Total EMS/Rescue Calls	0.082	4,686 (12.8)

As mentioned, these conceptual estimates may be somewhat high, as the LACoFD annual data includes areas in the County where call volumes are typically higher due to the type of calls associated with higher density urban populations. The on-site public, recreational, business and retail, golf course and equestrian centers will generate more calls than the single family, detached dwellings and most of those calls will be EMS.

A call volume of approximately 15 per day would be considered high for one Fire Station. However, these calls will be divided amongst three stations, averaging between 3 and 5 calls per day, depending on the station. This is not excessive for a fire station crew. For perspective, five calls per day are probably average in an urban or suburban area. A busy fire station company would be one with 10 or more calls per day. The medical emergency call data is calculated using LACoFD data. EMS calls for this development will probably amount to about 80% of all calls (approximately 12 per day).

5.4.1 Response Capability Impact Assessment

Fire Response

One possible result of the Project is a fire response service decline. The Centennial Specific Plan Project represents an increase in service demand on LACoFD's existing facilities due to the number of new structures and people living in or using the community. Based on the calculations presented in the preceding sections, and the estimated 15 calls per day generated by the Project, additional on-site firefighting capabilities plus other emergency response recommendations are made in this Wildfire Safety Plan.

A second result of development in a WUI setting is related to the potential for increased exposure of residents to wildland fire. Based on the response times from existing stations, Centennial Project would require on-site fire protection capabilities.

The effects on the firefighting and response resources and to the residents residing within Centennial Project are considered substantial. However, the measures provided by the Project comprise a layered fire protection system, designed to reduce demands placed on the fire responders while minimizing exposure of humans to potentially harmful fire environments and backed by the construction and operation of three new fire stations with a possible forth as determined necessary by LACoFD in the community along with upgrades to an existing station.

The following key elements of the Project's fire protection program are discussed in detail throughout this WSP and include:

- Inclusion of firefighting capabilities on site and meeting County codes
- Use of interior residential fire sprinklers to Code
- Ignition resistant structures designed to withstand significant wildfire
- Customized fuel modification on the Project's managed land.

Ambulance Response

The number of estimated EMS calls per day represents a substantial demand on current response capabilities and to the people who could require fast medical response for a variety of emergency medical situations. The demand justifies the need for timely response to EMS emergencies and the need for paramedics as paramedic calls may amount to about 60% of the total EMS call volume (7 Advanced Life Support calls per day).

The Project will station a private paramedic ambulance company, or equivalent LACoFD paramedic unit on site. In the event of a full cardiac arrest, five trained responders, including a medic are needed in 4 to 6 minutes, and the medic is needed within eight minutes of the beginning of the arrest.

6 Wildland Fire Evacuation Technical Report and Education Program

Early evacuation for any type of wildfire emergency at the Project Site is the preferred method of providing for resident safety, consistent with the LA County Fire's current approach within Los Angeles County. With early evacuation, evacuations often take place over a staggered period of time (staged evacuation) and are adjusted as authorities watch fire events. Under this strategy, the goal is to focus on evacuating strategic areas depending on the risk (Chen and Zhan 2008). This allows for evacuations to flow more smoothly and reduces the likelihood of significant congestion. Staged evacuations have also increased in practice with many cities and judication implementing staged evacuation tools such as Genasys Protect. LA County Fire and the Los Angeles County Sheriff Department (LASD) have extensive experience with evacuating large masses of people during wildfire events under both types of scenarios. During the Woolsey fire in 2017 LASD and other law enforcement were able to successfully coordinate the mass evacuation of over 250,000 people (County of Los Angeles, 2019). For perspective, the Project's estimated population is 57,150 people. The Project is within the Los Angeles County Operational Area Emergency Response Plan (OAERP) (County of Los Angeles, 2012). The OAERP addresses the coordinated response to an emergency within the County. The Project is created with wildfire in mind, and this includes the potential for an evacuation. The Project is located in major traffic corridors, such as the I-5 and State Route 138, that would allow for evacuations to occur in multiple directions. Additionally, the Project would provide multiple areas for ingress and excess as well as improved firefighter access. For a detailed description of potential evacuation scenarios and associated evacuation time, please refer to the Centennial Wildfire Evacuation Technical Report (WETR).

As such, the Project's HOA would formally adopt, practice, and implement a "Ready, Set, Go!" approach to evacuation. The "Ready, Set, Go!" concept is widely known and encouraged by the State of California and LA County Fire. Pre-planning for emergencies, including wildfire emergencies, focuses on being prepared, having a well-defined plan, minimizing the potential for errors, maintaining the Project Site's fire protection systems, and implementing a conservative (evacuate as early as possible) approach to evacuation and Project Area activities during periods of fire weather extremes. Additionally, the ignition-resistant rating of the structures, incorporation of expensive fuel modification, and urbanized landscape would allow for emergency managers to direct residents to take temporary refuge within their protected residences.

"Ready! Set! Go!" is the LA County Fire adaptation of the State "Ready, Set, Go!" wildfire evacuation preparedness program. The goal of the program is to aid residents of the County to prepare to leave their homes as early and with confidence that they have done everything reasonably possible to protect their homes from wildfire. The "Ready!" aspect of the campaign is centered around preparing your home for wildfire through defensible space implementation and home hardening. The "Set!" component educates residents on how to create a wildfire action plan. Wildfire action plans are prepared in advance of a wildfire and include information for the household such as important phone numbers, what to take, evacuation preparation, emergency supply kits, and pre-evacuation steps to take. Finally, the "Go!" aspect of the campaign is about the steps to take when evacuating from a wildfire. The goal is for residents to leave as early as possible during a wildfire. Within the "Go!" campaign there is also information on what to do if you become trapped, whether on foot, in a car, or at home.

Support for the "Ready, Set, Go!" model has been provided by the preparation of a Wildland Fire Evacuation Technical Report (WETR) for the Project Site, which is available under separate cover (Dudek, 2023). The WETR is

based on standard evacuation planning used by the Los Angeles County Office of Emergency Services. The WETR provides Project residents and occupants with potential egress route information and instructions for following the "Ready, Set, Go!" model. The WFEP provides Project Area-specific procedures for wildfire evacuations and would be provided to the Centennial residents and commercial tenants and posted on the community website.

The WETR would be reviewed by residents at least annually through organized meetings and educational outreach by the HOA, Community Services District, or other means. Evacuation information would be disseminated to residents through a variety of means such as bi-annual mailers, online, workshops, and more detailed below. Among the important concepts that would be included in evacuation, education is the Project Area's fire environment, mitigation strategies, roles and responsibilities, homeowner education materials, preparedness checklist, route planning, and specific procedures for early relocation and contingency planning for situations where evacuation is considered unsafe.

As described above, the Project would not result in impacts to an adopted emergency response plan or emergency evacuation plan.

6.1 Wildfire Education Program

As part of the Project, the HOA will provide Project residents and occupants shall be provided with ongoing education regarding wildfire as described in the WSP and the Wildfire Evacuation Plan. This educational information would support the fire safety and evacuation features/plans designed for this community. Informational handouts, community website pages, mailers, fire-safe council participation, inspections, and seasonal reminders are some methods that would be used to disseminate wildfire and relocation awareness information. The HOA will coordinate with LA County Fire for review and input on all wildfire educational material/programs before printing and distribution as required through the Climate Resolve Settlement Agreement.

The Centennial Wildfire Education Program's goal is to provide targeted outreach to residents and other site occupants living in a fire risk area in order to foster a community that has fire adaptive capacity. The educational program would cover a wide range of information such as residential evacuation planning, defensible space guidelines, how to maintain fire protection features, activities in a fire risk area, and more, all provided in easy-to-understand, graphically based materials. The educational program will be based on a layered approach to wildfire awareness that includes both passive and active features. The program will be ongoing in order to maintain high awareness of wildfire, even as the community grows and evolves. Program features are as follows:

1. **Bi-annual email and mailers:** Residents and occupants will be provided with bi-annual emails and mailers in May and in August. They will include information such as reminders about annual defensible space inspections, maintaining the ERZ, how to prepare for wildfire season, evacuation information, and how to prevent wildfires. There will also be links to various resources on where to get trusted information such as LA County Fire, 211 LA County, and Ready LA County.
2. **Website:** There will be a dedicated community website with more detailed information and resources about wildfire awareness and prevention. The website will serve as a centralized resource for the fire education program and include information from the WSP. The website will also have fire watch and red flag warning alerts, as well as information on restrictions during fire weather conditions. Residents will also be able to use the website to sign up for an annual voluntary residential defensible space inspection from the HOA Fire Committee.

3. **Community workshops and webinars:** Two times a year there will be either in-person or virtual community workshops. The goal of the workshops will be to cover various fire topics more in-depth. For example, this could include having a LA County Fire representative come to meet the community, a workshop on how to make a go-bag, a workshop on how to make a residential evacuation plan, or how to maintain the home ignition zone.
4. **New resident packet:** All residents and new residents in the future will also be presented with a wildfire awareness and safety package upon purchase or rental of a home. This will also be given to businesses as part of their employee training program. Within the package will be a link to the website which will harbor the evacuation plan, a list of fire protection features, information on the regional fire hazard, prohibited activities in fire risk areas, how to build a go-bag, and a list of agencies and resources for receiving trusted information.
5. **Emergency alert campaign:** Residents and businesses will be encouraged to sign up for Alert LA County. Alert LA County is the mass notification system for emergency alerts, weather alerts, health notifications, building alerts, and other updates from County, State, and Federal agencies. The campaign will occur annually and encourage residents to sign up for Alert La County. Reminders will also be sent out in the bi-annual mailers and emails, on the community website, in the workshops, and in the new resident package.
6. **Fire watch groups:** Within the community, there will also be volunteer fire watch groups. These will be residents or businesses who volunteer to participate in a fire watch group for the community. During red flag warning days, this group will be responsible for reminding businesses and residents of fire-safe practices and restrictions. During red flag warning days, the fire watch group will also maintain vigilance of potential fires and will be trained on procedures for alerting LA County Fire in the event of a fire.
1. **HOA fire safety committee:** The fire safety committee will be responsible for overseeing the maintenance of community-wide fire protection features. Residents will be able to report fire hazards or hazardous fuel conditions to the HOA committee for remediation. The committee will be responsible for the coordination of the 3rd party FMZ inspections and the volunteer residential defensible space inspections. The committee will also be responsible for organizing and coordinating an annual education workshop on how to maintain the ERZ. The committee will also be responsible for the creation and distribution of the educational program for the Project. The committee will serve as a communication link between LA County Fire and the community.

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7 Project-Specific Wildfire Risk Reduction Measures

7.1 Regulatory Requirements

7.1.1 Measure 1: Proximity to Fire Stations

With the construction and staffing of onsite fire stations, the Project is within LA County Fire's response time goals for initial response. The overall call volume has a less than significant impact on the planned response capacity. Response capacity would be enhanced by three on-site fire stations within the community that will provide a fast response throughout the Project Area.

7.1.2 Measure 2: Ignition Resistant Construction

All structures within the Project will be constructed of ignition-resistant construction materials consistent with wildfire protection building construction requirements contained in the Los Angeles Building Code including Los Angles Building Code Title 26 Chapter 7A, Los Angeles County Residential Code Section R327, and Los Angeles County Reference Standards Code Chapter 12-7A. These requirements include ignition resistance construction and are a key component in preventing structural ignition *(Section 3.5 Structural Ignition Resistance Regulatory Requirements).*

7.1.3 Measure 3: Automatic Interior Fire Sprinklers

Per LA County Fire Code all structures of any occupancy type within the Project will be equipped with an NFPA 13, 13R, and 13D automatic sprinkler system. Automatic sprinklers prevent ember generation by structure fires, isolate fires to the point of origin, and limit fires from spreading within the building. *(Section 3.6.3 Automatic Fire Sprinkler System)*

7.1.4 Measure 4: Fuel Modification Zones

Per LA County Fire Code Section 4906 defensible space shall be maintained around all within and structures in all unincorporated land designated as SRA. Consistent with PRC 4290, SRA Fire Safe Regulations, California Code of Regulation Title 14 Division 1.4 Chapter 7 Subchapter 2 Section 1270, and LA County Fire Code Title 32 Section 4908.1 the Project will provide at least 100 feet from the exterior of structures toward the undeveloped wildland areas that are divided into a 30-foot wide irrigation Zone A and a 70 foot wide thinning Zone B.

In addition to compliance with the County's fuel modification regulations, if required, the Project would provide additional restrictions in the Zone 0 area (0-5 feet from structures) according to applicable regulations as they are codified. Although Zone 0 regulations are not currently mandated, they are expected to be codified in 2026. The Project will be designed and constructed in compliance with the applicable Zone 0 requirements in effect at the time of build-out. This will be enforced through LACoFD approval of Fuel Modification Plans (LA County Fire Code 4906.3).

The FMZs reduce fire intensity and flame lengths from fires in wildland areas advancing towards structures or vice versa. *(Section 3.2 of WSP Defensible space and Vegetation Management Regulatory Requirements)*

7.1.5 Measure 5: Roadside Fuel Modification Zones

As required under the LA County Fire Code Section 503.2.1, fire engine apparatus roads will be maintained with a minimum 20-foot wide roadway that is clear to the sky. An exemption allows for a minimum vertical clearance of 13 feet 6 inches may be allowed for protected tree species adjacent to access roads. Any applicable tree-trimming permit from the appropriate agency is required. All flammable vegetation or other combustible growth shall be removed on each side of fire access roads and driveways for a minimum of 10 feet (Title 32 Section 325.10); however, the Centennial Project will provide a code exceeding 20 feet roadside FMZ where roads exist directly adjacent to open space areas.

7.1.6 Measure 6: Fire Access Infrastructure Conditions

All Project access shall be in compliance with all applicable Los Angeles County Roadway Standards in Title 21-County of Los Angeles Subdivision Code, Title 32-County of Los Angeles Fire Code, Chapter 5, and the Department of Public Works' Private Drives and Traffic Calming Design Manual. Typical interior roads will have a minimum width of 24 feet width of unobstructed access. Private or public streets that provide fire apparatus access to buildings three stories or more in height shall be improved to 30 feet unobstructed width. All interior residential streets will be designed to accommodate a minimum of 75,000-lb. fire apparatus load. Fire apparatus access roads shall not exceed 15 percent in grades. Dead-end roads and cul-de-sacs will comply with Title 21 to ensure fire apparatus access.

Per the Subdivision Ordinance, each tentative map application and approved tentative map must demonstrate that Project internal circulation system, site access, road dimensions, road connectivity, and other standards related to fire apparatus access are consistent with all applicable County's roadway and fire code standards.

7.1.7 Measure 7: Water Availability

Water capacity and delivery will provide for a reliable water source for operations and during emergencies requiring extended fire flow. All water system requirements in Title 32-County of Los Angeles Fire Code, Chapter 5, and in Appendix's B and C. *(Section 3.6.1 Water Supply and Section 3.6.1 Hydrants)*

7.1.8 Measure 8: Ember Resistant Zone

Although not currently required by law, the Project will also include an Ember Resistant Zone (ERZ) within Zone A, consistent with PRC 4291 to include more intense fuels reduction within the immediate vicinity of structures. The ERZ is from the 5 feet of a structure and includes the area under and around all attached decks. The ERZ forces on preventing structure ignition via ember showers by reducing/eliminating all combustible within this zone. *(Section 3.2 of WSP Defensible space and Vegetation Management Regulatory Requirements)*

7.1.9 Measure 9: Underground Utilities

As required by the County's subdivision ordinance, all tentative map applications must depict the location of proposed utility easements. As required by applicable standards, all of the Project's horizontal utilities, including but not limited electric transmission lines, will be installed underground to significantly reduce the potential for equipment-related fire starts.

7.1.10 Measure 10: Construction Fire Prevention Plan (CFPP)

As required by Chapter 33 of the CFC, prior to any construction activities, a detailed Construction Fire Prevention Plan (CFPP) shall be implemented for the Project and submitted to the County of Los Angeles for review and approval prior to the issuance of the first grading permit. The CFPP shall designate fire safety measures to reduce the possibility of fires during construction activities, including fire watch during hot works and heavy machinery activities (e.g., welding), spark arrestors on all equipment, water supply via hose lines attached to hydrants, or a water tender pursuant to LA County Fire requirements, red flag period restrictions, and mandatory on-site fire resources. Employees would be presented with basic prevention fire training upon employment, and the on-site safety officer and/or supervisor/foreman shall maintain documentation of training. Training shall consist of the Project WSP requirements, review of Occupation Safety and Health Administration (OSHA) Fire Protection and Prevention, proper response and notification of a fire, and the use of fire extinguishing equipment. A site safety officer shall be responsible for the implementation of the CWSP, ensuring fire control equipment are maintained in good working conditions, monitoring combustibles onsite, conducting fire safety surveys, posting fire rules in an area visible to employees, stopping work activities that pose a fire hazard or are not in compliance with the CFPP, and reporting all fire ignited on-site to LA County Fire. LA County Fire shall review site fire safety conditions prior to the commencement of construction activities.

7.1.11 Measure 11: Pre-Construction Requirements

As required by Chapter 33 of the CFC, the applicant shall submit site improvement plans to LA County Fire prior to the issuance of the building permits. Prior to bringing lumber or combustible materials related to residential and nonresidential building construction onto the Project Site, site improvements within the active development area shall be in place, including utilities, operable fire hydrants, and an approved, temporary roadway surface and fuel modification zones shall be established. Combustible materials may be utilized onsite prior to stated site improvements as needed for providing the improvements (e.g., wood forms for cast-in-place concrete) or for infrastructure construction prior to utilities being installed (e.g. operable fire hydrants). LA County Fire shall review site fire safety conditions prior to the commencement of building activities.

7.1.12 Measure 12: Annual Fuel Modification Maintenance

As required by LA County Fire Code 4908.1, all vegetation management with the FMZs and common areas shall be completed annually by May 1 of each year. Vegetation management may be completed more often for fire safety if determined necessary by LA County Fire. The Project HOA or equivalent entity shall be responsible for the annual maintenance of all vegetation management within the Fuel Modification Zones (FMZs) in the common areas ensuring compliance with LACoFD fuel modification guidelines. Property owners will be responsible for maintaining the Ember Resistant Zone (ERZ), if required, and any fuel modification within their property.

The annual maintenance requirements would be managed and maintained by the Project HOA through a qualified contractor that will be required to meet fire safety requirements regarding equipment, the timing of maintenance, and fire suppression capabilities. Maintenance activities would include but not be limited to removing dead and dying material, removing undesirable plant species, and conducting thinning activities to maintain adequate spacing requirements. The Project HOA or similar entity will be responsible for ensuring the long-term funding and ongoing compliance with all provisions of the WSP including, vegetation planting, fuel modification of the perimeter areas, vegetation management on all common areas including roadsides, and open space areas under their control. The Project HOA will be responsible for the implementation of the annual FMZ maintenance in common areas subject to ongoing enforcement by LA County Fire. The HOA and LA County Fire would enforce the vegetation management requirements detailed in the WSP and such requirements would be made a part of deed encumbrances and CC&Rs for each lot, as appropriate. Documentation, as part of the inspection report per Recommended Measure -4, on maintenance activities detailing the FMZS, maintenance operation, and consistency with current County brush clearance requirements shall be submitted to LA County Fire Bush Clearance Program.

7.1.13 Measure 13: Landscape Plan

As required by LA County Fire Code 4906.3, the Project Applicant/Developer shall develop a Landscaping Plan for review and approval by the County for each tentative map application submittal.

7.1.14 Measure 14: Confirmation of Code Compliance

At the building permit and site plan review stage of Project development, the County will confirm that all building plans comply with all applicable codes. The Project shall comply with applicable portions of Title 30, 32, and 33 of the Los Angeles County Code at the time of building permit and site plan review.

The Project would also be subject to the provisions of Section 4291 of the Public Resources Code regarding brush clearance standards around structures and the LA County Fire Department guidelines for Fuel Modification Plans. The Project is required to comply with all future code updates as development proceeds. Code compliance shall also be confirmed by County building inspectors prior to issuance of certificates of occupancy.

7.2 Settlement Agreement Requirements

Following the certification of the Centennial EIR in 2019 by the Los Angeles County Board of Supervisors, Climate Resolve, a California nonprofit public benefit corporation, filed a petition commencing litigation in the Los Angeles County Superior Court captioned Climate Resolve v. County of Los Angeles, et al. (Case No. 19STCP01917), challenging the County's approval of the Project and its certification of the EIR. The Settlement Agreement Requirements are not mitigation measures needed to reduce Project impacts to Wildfire to less-than-significant levels but are additional fire prevention and resiliency measures proposed by the Project that provide further benefits with respect to Wildfire impacts.

7.2.1 Measure 15: Centennial HOA Wildfire Education Program

Within one year of occupancy permits being granted for Centennial, the Wildfire Education Program shall be established. The Project residents and occupants shall be provided with ongoing education regarding wildfire, the WSP, and the Wildfire Evacuation Plan. The education program would support fire safety, evacuation practices, and

fire safety features designed for the community. The Centennial Wildfire Education Program would provide target outreach to residents and occupants living in a fire risk area and would be a layered approach to maintaining high wildfire risk awareness that includes active and passive features. Contents of the educational program would be reviewed and approved by LA County Fire before printing and distribution. The Project HOA or similar entity shall be responsible for the ongoing funding and maintenance of the wildfire education program. The HOA or similar entity shall enforce and maintain the education program requirements such requirements would be made a part of CC&Rs for the Project. The educational program shall consist of the following:

1. **Bi-annual email and mailers**: Residents and occupants will be provided with bi-annual emails and mailers in May and in August. Mailers would be sent to each property address and property owners would receive digital copies. Property owners would be highly encouraged to share this information with tenants should they choose to rent their property. The mailers and emails include information such as reminders about annual defensible space inspections, maintaining the Ember Resistant Zone (ERZ), how to prepare for wildfire season, evacuation information, and how to prevent wildfires. There would also be links to various resources on where to get trusted information such as LA County Fire, 211 LA County, and Ready LA County.
2. **Website**: There shall be a dedicated community website with more detailed information and resources about wildfire awareness and prevention. The website would serve as a centralized resource for the fire education program and include information from the WSP. The website will also have fire watch and red flag warning alerts, as well as information on restrictions during fire weather conditions. Residents will also be able to use the website to sign up for an annual residential defensible space inspection from the HOA Fire Committee.
3. **Community workshops and webinars**: Two times a year there shall be either in-person or virtual community workshops. The goal of the workshops would be to cover various fire topics more in-depth. For example, this could include having a LA County Fire representative come to meet the community, a workshop on how to make a go-bag, a workshop on how to make a residential evacuation plan, or how to maintain the home ignition zone.
4. **New resident packet**: All residents and new residents in the future shall also be presented with wildfire awareness and safety package upon purchase or rental of a home. This would also be given to businesses as part of their employee training program. Within the package will be a link to the website which will house with the evacuation plan, a list of fire protection features, information on the regional fire hazard, prohibited activities in fire risk areas, how to build a go-bag, and a list of agencies and resources for receiving trusted information.
5. **Emergency alert campaign**: Residents and businesses would be encouraged to sign up for Alert LA County. Alert LA County is the mass notification system for emergency alerts, weather alerts, health notifications, building alerts, and other updates from County, State, and Federal agencies alerts, health notifications. The campaign shall occur annually and encourage residents to sign up for Alert La County. Reminders would also be sent out in the bi-annual mailers and emails, on the community website, in the workshops, and in the new resident package.
6. **Fire watch groups**: Within the community, there shall also be volunteer fire watch groups. These would be residents or businesses who volunteer to participate in a fire watch group for the community. During red flag warning days, this group would be responsible for reminding businesses and residents of fire-safe practices and restrictions. During red flag warning days, the fire watch group would also maintain vigilance of potential fires and would be trained on procedures for alerting LA County Fire in the event of a fire.
7. **HOA fire safety committee**: The fire safety committee shall be responsible for overseeing the maintenance of community-wide fire protection features. Residents would be able to report fire hazards or hazardous fuel conditions to the HOA committee for remediation. The committee will be responsible for the

coordination of the 3rd party Fuel Modification Zone (FMZ) inspections and the volunteer residential defensible space inspections. The committee shall also be responsible for organizing and coordinating an annual education workshop on how to maintain the ERZ. The committee shall also be responsible for the creation and distribution of the educational program for the Project. The committee would serve as a communication link between LA County Fire and the community.

7.2.2 Measure 16: Enhanced Wildfire and Prevention and Protection

Fire Prevention and Resiliency Funding:

- Requires establishment and funding of two funds for up to 30 years or until Project buildout:
  - ***On-site Fire risk reduction*** – Fire Protection Plan: $500,000/yr funding to provide for implementation of the EIR-required Wildfire Safety Plan, which identifies community fire hazard reduction measures including building, design, and fuel management requirements.
  - ***Off-site Fire risk reduction.*** Good Neighbor Fire Protection Fund: $500,000/yr funding to provide grants to communities surrounding Tejon Ranch to plan for or implement fire reduction activities, including fuel management, to reduce off-Centennial fire risk
- Fire Protection Plan
  - Fire Protection Plan outlining code compliance and project fire risk reduction measures

Centennial Monitoring Group (CMG):

- Independent non-profit entity established to monitor compliance with agreement and implementation of terms.
- CMC monitors compliance with commitments made under the Settlement agreement (including fire).
- CMG to publish an Annual Report regarding compliance
- CMG has an enforcement mechanism - arbitration / award - if Centennial is found to be non-compliant.
- Centennial to fund CMG operations annually, starting at $300,000/yr and adjusting as CMG implementation workload varies.
- Will receive and disburse Good Neighbor Firewise Fund grants.

1. Centennial shall implement the Wildfire Safety Plan (“WSP”), which shall be updated and submitted to the CMG for compliance monitoring purposes any time Centennial files a tract map to include any new or state or LA County Fire prevention, protection, and response requirements and will through CC&Rs ensure that each phase of the Project’s development is at all times in compliance with then-prevailing standards and fire codes.
   a. Prior to the filing of the first application for a building permit for Dwelling Units at the Project, Centennial shall cause the creation of a master Homeowners Association ("HOA") for all Dwelling Units at Centennial to fund the ongoing implementation, including education, inspections, enforcement, and corrective action, of the WSP. Such HOA shall be authorized to assess on each Dwelling Unit at the Project an ongoing, permanent fee, tax, or assessment in the total cumulative amount for the Project of no more than $500,000 per year, inflation adjusted, with a presumptive pro-rata allocation of

$26.00 per Dwelling Unit ("Onsite WSP Assessment"). The HOA shall disperse funds consistent with, and to further the implementation of, the WSP.

b. Centennial shall ensure, pursuant to the WSP, that the master Homeowners Association for Centennial will hire a qualified third-party compliance inspector approved by the LA County Fire Department to conduct a fuel management zone inspection and submit a Fuel Management Report to the CMG before June 1 of each year certifying that vegetation management activities throughout the Project site have been timely and properly performed. The CMG Board will review the Fuel Management Report and will vote whether to verify ongoing compliance of the defensible space, vegetation management, and fuel modification requirements of, and any continuing obligations imposed under, the WSP.

c. Every 2 years after the first Dwelling Units are occupied, Centennial and CMG will meet with the purpose of reviewing evacuation policies and Centennial will demonstrate that they are clearly understood and communicated with residents. Centennial will also work with the HOA to promote creation of Firewise USA communities within the Project.

2. Centennial shall establish a Good Neighbor Firewise Fund, which will provide grants to needs-based applicants to be awarded by the CMG to aid communities with a population of less than 100,000 within 15 miles of the boundaries of Tejon Ranch to reduce offsite fire risks, increase fire prevention, protection and response measures, and avoid adverse impacts of fire, for the Project's residents and neighboring communities. The 100,000-population limit will be adjusted commensurately with population changes in Los Angeles, Kern and Ventura Counties as documented by each Census. ***Centennial shall fund the Good Neighbor Firewise Fund in the inflation-adjusted amount of $500,000 annually.*** CMG will review applications and award the grants to applicants based on a majority vote of the CMG Board. The grants shall be in support of the following actions:

   a. Updating planning documents and zoning ordinances, including general plans, community plans, specific plans, local hazard mitigation plans, community wildfire safety Plans, climate adaptation plans, and local coastal programs to protect against the impacts of wildfires;

   b. Developing and adopting a comprehensive retrofit strategy;

   c. Funding fire-hardening retrofits of residential units and other buildings;

   d. Reviewing and updating the local designation of lands within the jurisdiction as very high fire hazard severity zones;

   e. Implementing wildfire risk reduction standards, including development and adoption of any appropriate local ordinances, rules, or regulations;

   f. Establishing and initial funding of an enforcement program for fuel and vegetation management;

   g. Performing infrastructure planning, including for access roads, water supplies providing fire protection, or other public facilities necessary to support the wildfire risk reduction standards;

   h. Partnering with other local entities to implement wildfire risk reduction;

   i. Updating local planning processes to otherwise support wildfire risk reduction;

   j. Completing any environmental review associated with the listed activities;

   k. Covering the costs of temporary staffing or consulting needs associated with the listed activities;

   l. Implementing community-scale risk reduction programs to become Firewise USA sites;

   m. Implementing resiliency plans such as resiliency centers with stable electricity supplies (e.g., microgrid, solar, and battery equipment) available to residents during times of power shutdowns or other emergencies; and

n. Other fire-related risk-reduction activities that may be approved by the CMG Board.

The detailed and specific actions and responsibilities outlined in the FPP and the Settlement Agreement result in a package of on and off-site fire safety that is unprecedented. The fire protection, prevention, and suppression measures combine to present a robust fire hazard reduction strategy that contributes significantly to Centennial's off-site ignition risk ratings.

7.2.3 Measure 17: Master HOA Enforcement of CC&Rs Through Monetary Penalties

To promote enforcement of the CC&Rs, the governing documents of the Master HOA shall vest the governing board of the Master HOA with authority to impose fines on any homeowner who violates any provision of the CC&R related to Fire Safety Requirements, and shall establish a schedule of reasonable monetary penalties to be assessed by the Master HOA against any homeowner that violates any provision of the CC&Rs related to Fire Safety Requirements. The required schedule of monetary penalties shall also be included as part of a general CC&R enforcement policy to be adopted and administered by the governing board of the Master HOA, which policy shall describe in detail the steps to be followed in enforcing the Master HOA governing documents and CC&Rs. As provided in California Civil Code Section 5855, no fine shall be assessed against a homeowner for violating a provision of the CC&Rs related to Fire Safety Requirements unless and until the Master HOA first conducts a hearing on the alleged violation. At least ten days advance notice must be provided to the relevant homeowner of the date and time of the hearing, the general nature of the allegation of rules violation against such homeowner, and informing such homeowner that they have the right to attend such hearing and to address the governing board.

7.2.4 Measure 18: Master HOA Ongoing Maintenance

The governing documents of the Master HOA shall provide that the Master HOA is responsible for the long-term funding and ongoing maintenance of private roads and fire protection systems, including fire sprinklers and private fire hydrants. The Master HOA governing documents shall also provide that the Master HOA is responsible for the long-term funding and implementation of all fuel modification vegetation management in Project common areas, including but not limited to roadsides (including a minimum of 20 feet clearance on each side of roads within the Project development footprint adjacent to open space areas), open space and landscape areas, and fuel modification zones. In addition, the Master HOA shall establish a reverse 9-1-1 system capable of contacting every listed telephone number in the community by computer at a rate of at least 250 calls per minute.

7.2.5 Measure 19: Fire Protections Education Committee

The governing documents of the Master HOA shall establish a Fire Protection Education Committee (FEPC) The purpose of the FEPC shall be to (i) promote education programs and tools that provide information to Project homeowners about the Project's overall Fire Safety Requirements and about each homeowner's individual obligations thereunder; (ii) promote education programs and tools that provide information about wildland fire ecology, management, protection, and prevention; and (iii) coordinate with the LACoFD and other stakeholders to identify opportunities for improvement in all areas of wildland fire communication, education, protection, and prevention.

The governing documents of the Master HOA shall require the FEPC to prepare and implement of a community-wide fire education program based on the Firewise Communities structure and designed to establish the community as a Firewise USA site and to fully educate Project homeowners of their various responsibilities under the Fire Safety Requirements, including but not limited to maintaining fuel management zones areas on their respective properties. The Project master developer shall ensure that development and ongoing implementation such fire education program is funded by assessment district or by permanent and irrevocable property owner fees.

The FEPC shall annually conduct on-site community fire safety education and training programs, which programs shall be undertaken in coordination with the LACoFD's Community Risk Reduction Unit to the extent feasible or other qualified subject-matter experts, and which shall include community education regarding implementation of the Project's required FMP and ERP, and shall ensure that copies of such plans are provided to all Project homebuyers at the initial point of sale.

The FEPC shall also post on the community intranet information regarding the importance of maintaining fuel management areas in accordance with the FMP, complying with the Project's fire-resistant landscape plan, implementing all applicable Fire Safety Requirements, and regularly reviewing and becoming familiar with the Project's ERP. Complete copies of the FMP and ERP shall also be made accessible for download from the community intranet. LACoFD shall review and approve all wildfire educational material/programs before printing and distribution by the FEPC. In addition, the FEPC shall ensure that annual reminder notices are provided to each homeowner reminding them review the ERP and stay familiar with community evacuation protocols.

The FEPC shall also provide Project homebuyers, at the initial point of sale, educational materials about the health and safety benefits of emergency preparation and the need to maintain adequate emergency response supplies, such as a seven-day supply of potable water and food and solar-powered batteries for communication and refrigeration, to respond to earthquakes and other potential disasters, at the initial point of property sale, and annually thereafter in Property Owner Association Website Notices.

The FEPC shall coordinate with commercial vendors of emergency response supplies and solar batteries in order to secure discounts or other preferential terms to Project site occupants, and shall include a list of such vendors on the community intranet and in educational materials published by the FEPC.

7.2.6 Measure 20: Third-Party Compliance Inspectors

To confirm that the Project’s fuel management zones and landscape areas are being maintained according to the Fire Safety Requirements and the LACoFD’s fuel modification guidelines, the Master HOA shall obtain a fuel management zone inspection and report from a qualified LACoFD-approved third-party inspector in May/June of each year certifying that vegetation management activities throughout the Project site have been timely and properly performed. If the third-party inspector determines that a fuel management zone or landscape area is not compliant with all applicable fire-safety standards, the Master HOA shall have a specified period, not to exceed sixty days, to correct any noted issues so that a re-inspection can occur, and certification can be achieved. Annual inspection fees may be subject to the current Fire Department Fee Schedule.

7.3 Project Specific Wildfire Risk Reduction Mitigation Measures

The Project includes a comprehensive set of mitigation measures that address wildfire safety and emergency preparedness, consisting of both measures previously included in the Centennial EIR and new mitigation measures introduced in this RPDEIR. The measures from the Centennial EIR are denoted as "Existing" in parentheticals to clearly indicate the reference to the Centennial EIR and the new measures are denoted as "WILD".

7.3.1 Mitigation Measure 3-7: Emergency Response Plan (Existing Centennial EIR MM 3-7)

The Project Applicant/Developer shall prepare an Emergency Response Plan for the Project, which shall be updated as needed for each Tentative Map and shall be submitted to the County for review and approval. The Project Applicant/Developer shall be responsible for distributing the current Emergency Response Plan to each purchaser or tenant of each property within Centennial and shall distribute the Plan to all landowners through the Transportation Management Agency (TMA).

7.3.2 Mitigation Measure 3-8: Traffic Control Plan (Existing Centennial EIR MM 3-8)

The Project Applicant/Developer shall prepare a Traffic Control Plan in accordance with the California Manual on Uniform Traffic Control Devices (MUTCD). The Traffic Control Plan shall be reviewed and approved by the California Department of Transportation (Caltrans), and all construction activities in the public right-of-way shall comply with the approved Traffic Control Plan to the satisfaction of Caltrans. Documentation of Caltrans approval shall be provided to the County for any Tentative Map involving construction within SR-138 right-of-way.

7.3.3 Mitigation Measure 7-13: Landscape Plan (Existing Centennial EIR MM 7-13)

The Project Applicant/Developer shall develop a Landscaping Plan for review and approval by the County Biologist. The Landscaping Plan shall be (1) prepared by a qualified biologist, (2) submitted to the County for approval with each tentative map, (3) provided to builders, (4) provided to future project occupants as described in the Specific Plan, and (5) include a plant palette composed of non-invasive species that are adapted to the conditions found on the Project site and do not require high irrigation rates. The Landscaping Plan will also include a list of invasive plant species prohibited from being planted on the Project site. In addition, retail sales of these invasive plant species will be prohibited at any businesses (nurseries) located within the Project site. Landscape plans shall encourage planting of local natives typical of native vegetation within ten miles of the Project site.

The Homeowners Associate shall supply future residents of the Project site with the list of invasive plant species from the Landscaping Plan that will be prohibited from being planted on the Project site and educational materials that emphasize the importance of adhering to the list. The prohibition shall be clearly described and distributed to home buyers through their home purchase contracts and CC&Rs. A list of local native plants and educational materials shall be provided to homeowners and shall be posted on the community intranet.

7.3.4 Mitigation Measure 7-21: Implementation Plan (Existing Centennial EIR MM 7-21)

In order to ensure that no direct impacts to Significant Ecological Area (SEA) 17 occur, brush clearance zones shall be contained within the current Project impact boundary and no overlap with the adjacent SEA 17 shall occur. Vegetation management for fire abatement purposes is not authorized in SEA areas. An Implementation Plan, including fire risk abatement measures (including but not limited to vegetation management) required to comply with State and LA County Fire prevention and response legal requirements, shall be submitted as part of the tentative tract map for portions of the Project site that border an SEA or mitigation preserve area. The Plan shall include: (a) a summary of applicable State and LA County Fire risk abatement requirements; (b) a prohibition on the use of vegetation clearance within SEA 17 or mitigation preserve areas. The Plan shall be submitted to the County for approval with the first tentative map, and shall be updated to include new or modified State or LA County Fire risk abatement requirements as part of each subsequent tentative tract map submittal.

7.3.5 Mitigation Measure 10-5: Construction Traffic Control Plan (Existing Centennial EIR MM 10-5)

The Project Applicant/Developer shall submit Traffic Management Plans to the County for review and approval. The Traffic Management Plans shall describe traffic-control measures that shall be implemented to maintain traffic flow in all directions, including where utilities and other improvements are being implemented in existing roadways. The Traffic Management Plans shall identify the following: construction haul routes; duration and location of lane closures; location of parking for the public and construction workers during construction phases; use of flag persons; and any pedestrian-related impacts to sidewalks and intersection crossings. The Traffic Management Plan shall be implemented during all stages of Project construction that generate traffic impacts.

7.3.6 Mitigation Measure 11-3: Ban on Wood Burning Fireplaces (Existing Centennial EIR MM 11-3)

The Project's plans and specifications shall prohibit wood-burning fireplaces as required by SCAQMD Rule 445 in single-family residences throughout the entire Project site, including residences that are 3,000 or more feet about mean sea level at which the SCAQMD prohibition would otherwise not apply. Natural gas fireplaces shall be limited to a total of 13,954. These requirements shall be posted on the community intranet and shall be clearly described and distributed to home buyers through their home purchase contracts and CC&Rs.

7.3.7 Mitigation Measure 16-2: Developer Fees (Existing Centennial EIR MM 16-2)

The Project Applicant/Developer shall pay developer fees in effect at the time of construction permit approval, in accordance with the LACFD Developer Fee Program until such time the Project Applicant/Developer has conveyed an approved, operational fire station to the LACFD. As an alternative to fee payment, the Developer Fee Program allows the LACFD and the Project Applicant/Developer to agree on a program whereby the Project Applicant/Developer would provide land and would construct and equip the fire stations required for the Project in exchange for a credit towards the Project’s fee payments.

7.3.8 Mitigation Measure 16-3: Construct and Equip Fire Stations (Existing Centennial EIR MM 16-3).

The Project Applicant/Developer shall provide, convey title, and shall construct and equip to the specifications and requirements of LACFD, for up to four new Fire Stations to the LACFD. The approved final plans and specifications for the Project shall identify location of the fire stations. The timing for the construction of the on-site fire stations shall be established by the LACFD dependent upon the phasing of development, with the first on-site fire station operational no later than the time the 1,000th dwelling unit is built on site.

7.3.9 Mitigation Measure 16-4: Law Enforcement Facilities Mitigation Fee (Existing Centennial EIR MM 16-4)

The Project Applicant/Developer shall pay Law Enforcement Facilities Mitigation Fee (LEFMF) to the Los Angeles County Sheriff's Department (LASD) pursuant to the requirements established in County Ordinance No. 2008-0033. The amount of fees to be paid would be determined based on the established fee in Section 22.74.030 of the County Code. The Project incorporates a temporary "store front" sub-station, followed by construction of a permanent LASD Station included on the Project site, in lieu of a portion of the LEFMF, as allowed under Section 22.74.090 (Consideration in Lieu of Fee) of the County Code. Costs associated with the construction of the temporary "store front" sub-station and permanent LASD Station would be credited against the LEFMF.

Prior to completion of the permanent LASD Station, the "store front" sub-station may be located on site in Village 1 on the north side of the SR-138. This temporary sub-station shall be properly outfitted in accordance with applicable occupancy requirements of the LASD for such "store front" facilities and shall be operational prior to the approval of the first certificate of occupancy for the first phase of Project development.

The Centennial Land Use Plan identifies a conceptual location for one LASD Station in the Business Park area on the Project site north of SR-138. The permanent LASD Station shall be constructed immediately following completion of the first phase of development. The LASD shall have final approval over the temporary sub-station and permanent LASD Station site locations.

7.3.10 Mitigation Measure WILD1: Construction Fire Prevention Plan (New Mitigation Measure)

Prior to the issuance of grading or building permits, the project proponent/operator shall develop and implement a Construction Fire Prevention Plan for use during construction. The project proponent/operator shall submit the plan, along with maps of the project site and access roads, to the LA County Fire Department for review and approval. A copy of the approved Construction Fire Prevention Plan shall be submitted to the Department of Regional Planning. The Construction Fire Prevention Plan shall provide standard protocols and approaches for reducing the potential of ignitions for typical construction site activities, including, but not limited to, the following:

A. Emergency notification and evacuation procedures.
B. Designation of a Site Safety Officer whole shall understand the CFPP and its mandates for fire prevention, fire suppression, and evacuation and shall have authority to stop project work activities that pose a fire hazard or are not in compliance with the approved CFPP.

C. Vehicles shall be equipped with specified fire prevention equipment.

D. All internal combustion engines, both stationary and mobile, shall be equipped with spark arresters.

E. Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials.

F. Red Flag Warning Weather and Hot Work restrictions.

G. Fire rules shall be posted on the project bulletin board at the contractor's field office and areas visible to employees.

H. Procedures shall be established for minimizing potential ignition, including, but not limited to, vegetation clearing and management, parking requirements/restrictions, idling restrictions, smoking restrictions, and proper use of gas-powered equipment.

I. Personnel shall be trained in the practices of the CFPP relevant to their duties. Construction and maintenance personnel shall be trained and equipped to extinguish small fires to prevent them from growing into more serious threats.

J. The project proponent/operator shall restrict the use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to days when the LA County Fire Department Daily Fire Danger Rating is low. When the above tools are used, water tanks equipped with hoses, fire rakes, and axes shall be easily accessible to personnel.

7.3.11 Mitigation Measure WILD 2: Fuel Modification Plan (Superseded 2019 EIR MM 3-9)

The Project Applicant/Developer shall prepare a Fuel Modification Plan demonstrating compliance with the LA County Fire Code Title 32 and shall provide all new residents and business owners with recorded Covenants, Conditions, and Restrictions (CC&Rs) or disclosure statements that identify the responsibilities for maintaining the fuel modification zone(s) on their property, as defined in the approved Fuel Modification Plan. The CC&Rs or disclosure statements prepared by the Project Applicant/Developer shall be submitted to the County to confirm that new property owners would be informed of their responsibilities for maintaining the fuel modification zone(s) on their property.

7.3.12 Mitigation Measure WILD 3: Fire-Safe Landscaping (New Mitigation Measure)

Consistent with the Specific Plan's Green Development Program and Hillside Design Guidelines, the Project shall implement fire-safe landscaping techniques consistent with the Specific Plan's plant palette to reduce fire risks to biological resources and human safety in fuel modification zones. The Project shall include landscaping in the Open Space Zone dominated by native and/or drought tolerant trees, shrubs and ground cover, taking into consideration fuel modification requirements, such as using plants that are fire resistant and avoid plants with characteristics that make them more readily combustible such as plants with oils, wax or resin content, plants that accumulate dead material or shed bark, and/or plants that grow rapidly. Plants selected will be consistent with LACFD Planting Guideline regarding prohibited species and appropriate plant spacing with respect to zone location.

7.3.13 Mitigation Measure WILD 4: Ban on Outdoor Fire Pits and Fireplaces (New Mitigation Measure)

The Project's plans and specifications shall prohibit outdoor fire pits and outdoor freestanding fireplaces throughout the Project site. This requirement will be enforced at the time of building permit issuance and site plan review. Compliance with this Fire Safety Requirement shall also be confirmed by County building inspectors prior to issuance of certificates of occupancy for each single-family home.

7.3.14 Mitigation Measure WILD 5: Operational Emergency Response Enforcement (New Mitigation Measure)

The Project Applicant/Developer shall submit the Emergency Response Plan required by MM 3-7 to the Fire Department and/or County Sheriff's Department and California Department of Forestry and Fire for review and approval. The Emergency Response Plan shall utilize existing information from Los Angeles County Office of Emergency Management, coordinate with County emergency planners, and provide site specific procedures for various emergency situations including wildfire. The Property CC&Rs shall require future residential and commercial property owners associations to develop and implement an emergency preparation and response plan, including shelter-in-place and evacuation plans as well as first aid and emergency electric power supplies.

7.4 Proposed Specific Plan Requirements

7.4.1 Measure 21: Fire-safe Sign Requirements

As required by the Specific Plan, no sign shall be installed, relocated, or maintained so as to prevent free ingress to or egress from any door, window, or fire escape. In addition, no sign of any kind shall be attached to a standpipe or fire escape, except those signs required by other applicable codes or ordinances. This requirement will be enforced at the time of building permit issuance and site plan review. Compliance with this Fire Safety Requirement shall also be confirmed by County building inspectors prior to issuance of certificates of occupancy for each single-family home. During project operation, this Fire Safety Requirement shall be enforced by the Master HOA.

7.4.2 Measure 22: Master HOA Formation and CC&R Recordation

Per the Specific Plan, a non-profit Master HOA shall be formed, and the Master HOA's declaration of conditions, covenants, and restrictions (CC&Rs) will be recorded after the recordation of the Project's first final subdivision map consisting of one or more residential lots and prior to the date of the first transfer of any residential lot to a person other than the subdivider. As additional final maps are approved and recorded, the Project area covered by those maps will be annexed by the Master HOA to ensure that control of development and implementation of the CC&Rs can be maintained. Per the Specific Plan and the MMRP, the applicant for a final map shall submit to the Department of Regional Planning the form of CC&Rs so that it may confirm that new homeowners will be informed about their responsibilities under the Fire Safety Requirements. Per Title 32 of the County Code, a copy of the recorded CC&Rs describing the fuel modification requirements must be provided to the LACoFD's Forestry Division.

To the extent permitted by the California Department of Real Estate, the CC&Rs for each final map shall include provisions obligating each homeowner to comply with all of the Fire Safety Requirements applicable to that homeowner's lot and residential unit, including but not limited to all Fire Safety Requirements that (i) mandate the use of fire-safe landscaping techniques, (ii) require the maintenance of fuel modification zones on their property, (iii) prohibit the use of wood fireplaces, (iv) prohibit the installation, relocation, or maintenance of any sign so as to prevent free ingress to or egress from any door, window, or fire scape; (v) mandate the use of code compliant spark arrestors in chimneys of any fireplace, barbeque, or any heating appliance in which solid or liquid fuel is used; (vi) mandate that only Class A fire rated roof coverings be used when maintaining or repairing roof coverings; (vii) mandate that exterior windows, window walls, glazed doors, and glazed openings in exterior doors only be repaired or replaced code compliant materials (e.g., multi-pane glazing units with a minimum of one tempered pane); and (viii) require that access be provided for biannual fuel modification zone inspections.

7.4.3 Measure 23: Community Forester

In accordance with the Specific Plan, the Master HOA shall hire a Community Forester who is trained in urban forestry, arboriculture, horticulture, or landscape architecture to undertake tree management responsibilities. The Community Forester will also coordinate FMZs 3rd party inspections on the Project site. The Community Forester is required to developing a policy for managing public trees on the Project site and educating Project residents about the importance of trees in the community, and is responsible for implementing the Project's fire-resistant landscape plan. The Specific Plan further requires the Community Forester to develop programs that involve community organizations and residents in tree preservation, planting and tree care so as to ensure that community trees are, among other things, maintained in accordance with all Fire Code access requirements. Per the Specific Plan, the Community Forester must also prepare an annual tree management plan and implement programs to improve the communities tree canopy in a manner that complies with all Fire Code and LAFCD requirements. In addition, the Specific Plan requires the Community Forester to maintain the Project's fire-resistant plant palette and to consult with the County's staff biologist regarding proposed revisions to the community plant palette described in the Specific Plan. However, the LAFCD shall have final approval over the final plant palette for fuel modification zones and modifications thereto.

7.5 Additional Requirements

7.5.1 Measure 24: Community Wildfire Evacuation Plan

The Project shall formally adopt, practice, and implement a “Ready!, Set!, Go!” approach to evacuation through the creation of a Wildland Fire Evacuation Plan (WFEP) for the Project. The WFEP would be based on standard evacuation planning used by the Los Angeles County Office of Emergency Services and provide residents and occupants with potential egress route information and procedures. The WFEP would be provided to the Centennial residents and commercial tenants and posted on the community website. The WFEP would be reviewed by residents at least annually through organized meetings and educational outreach by the HOA, Community Services District, or other means. Every ten years the WFEP will be reviewed and updated by the HOA or similar entity based on current land use, evacuation polies, and regulations. The WFEP will be available for review and input from LA County Fire and County sheriff.

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8 Conclusion

The requirements and recommendations set forth in this WSP meet fire safety, building design elements, infrastructure, fuel management/modification, and landscaping recommendations of the applicable codes defined in Section 3 Fire Safety Requirements – Regulatory Requirements and Design Features and summarized in Tables 18 and 19 below in Appendix D. The measures provided in this WSP also have been designed specifically for the proposed construction of structures within a VHFHSZ area. The goal of the fire protection features, both required and those offered above and beyond the Codes, provided for the Project is to provide the structures with the ability to survive a wildland fire with little intervention from firefighting forces.

The fire protection system provided for the Project site includes a redundant layering of code-compliant, fire-resistant construction materials, and methods that have been shown through post-fire damage assessments to reduce the risk of structural ignition. When properly implemented on an ongoing basis, the fire protection strategies listed in this WSP, summarized in Tables 20 and Table 21, should significantly reduce the potential fire threat to the community, its structures, and the surrounding area. Additionally, the Project should assist LACoFD in responding to emergencies through improved fire access, increased water capacity, and enhanced firefighting resources. Given the Project's adherence to code and regulations and the inclusion of Project-specific wildfire risk reduction measures, the Project is not expected to pose a risk to or be impacted significantly by wildfire.

The Project's off-site improvements must comply with all applicable Federal, State, and LA County Fire safety regulations for vegetation management, design, and construction phase ignition risk reduction. Vegetation in the off-site improvement areas generally consists of low fuel–load grasslands, and many locations are already disturbed with paved surfaces or bare soil, reducing the continuity and availability of combustible fuels compared to undisturbed areas. With adherence to regulatory requirements and given existing site conditions, wildfire impacts associated with the off-site improvements were determined to be less than significant.

Study Limitations

Note: fire is a dynamic and somewhat unpredictable occurrence. As such the WSP does not guarantee that a fire will not occur or will not result in injury, loss of life, or loss of property. There are no warranties, expressed or implied, regarding the suitability or effectiveness of the recommendations and requirements in this WSP, under all circumstances. The Project's developers, contractors, engineers, and architects are responsible for the proper implementation of the concepts and requirements set forth in the WSP. It will be extremely important for all homeowners, property managers, and occupants to comply with the recommendations and requirements described and required by the WSP on their property. Homeowners and property managers are also responsible for maintaining their structures and lots, including fuel modification and landscape, as required by this WSP, LA County Fire, and as required by the LA County Fire Code. It is recommended that the homeowners or other occupants who may reside within the Project adopt a conservative approach to fire safety. The approach must include maintaining the landscape and structural components according to the appropriate standards and embracing a "Ready, Set, Go" stance on evacuation. The HOA or similar entity would be responsible for ongoing education and maintenance of the common areas, and LA County Fire would enforce the vegetation management requirements detailed in this WSP. Such requirements would be made a part of deed encumbrances and CC&Rs for each lot, as appropriate. Alternative methods of compliance with this WSP can be submitted to the fire authority for consideration.

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9 List of Preparers

Project Manager

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GIS Analysis and Mapping

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Appendix A

Centennial Fire Protection Plan (2021)

SETTLEMENT AGREEMENT

This Settlement Agreement ("Agreement") is entered into as of the Effective Date by and between Climate Resolve, a California nonprofit public benefit corporation, on the one hand, and Centennial Founders LLC, a Delaware Limited Liability Company ("Centennial"), and Tejon Ranchcorp, a California corporation ("Tejon Ranchcorp") on the other hand.

DEFINITIONS

As used in this Agreement, the following terms have the meanings specified below.

Board and **CMG Board:** the Board of Directors of the Centennial Monitoring Group.

Business As Usual Emissions ("BAU Emissions"): for purposes of this Agreement, BAU is 15 million metric tons of greenhouse gas emissions (MMTCO2e).

California Air Resources Board ("CARB"): The California regulatory agency named "California Air Resources Board."

California Environmental Quality Act ("CEQA") is California Public Resources Code sections 21000-21189.7.

Centennial Monitoring Group ("CMG"): A non-profit entity to be established by Climate Resolve as set forth in this Agreement to monitor Centennial's and Tejon Ranchcorp's compliance with this Agreement.

Climate Action Reserve ("CAR"): The California corporation named "Climate Action Reserve."

County: Los Angeles County.

Disadvantaged Communities ("DACs"): Communities identified as such by the California Environmental Protection Agency under Health and Safety Code § 39711.

Disadvantaged Vulnerable Communities ("DVCs"): The 25% highest-scoring areas according to the California Communities Environmental Health Screening Tool (CalEnviroScreen), all tribal lands, areas with median household incomes below 60% of the state median, and areas that score in the highest 5% of Pollution Burden with CalEnviroScreen but don't receive an overall score due to poor data.

Dwelling Unit: a structure or the part of a structure that is used as a home or residence by one or more persons maintaining a household, including but not limited to attached or detached homes, apartments and condominiums.

Effective Date: the Effective Date of this Agreement is November 30, 2021.

Electric Vehicle Supply Equipment ("EVSE"): A station for charging electric vehicles. One EVSE may have one or more connectors that each allow an EV to be charged.

Environmental Impact Report ("EIR"): The Environmental Impact Report certified by Los Angeles County on April 30, 2019 (State Clearinghouse Number 2004031072).

Fire Protection Plan ("FPP"): A plan for reducing fire risk on and around the Project Site, as drafted by Centennial, as updated from time to time. A copy of the current version of the FPP is attached to this Agreement as Exhibit 1.

Greenhouse Gases ("GHGs"): Gases which contribute to the greenhouse effect, including carbon dioxide and methane.

Inflation-Adjusted: Adjusted based on the Consumer Price Index for Los Angeles/Riverside/Orange Counties, using the Effective Date as a baseline.

Itemized GHG Mitigation Measures: Those measures set forth in Section 1.a below, to mitigate the Project's GHG emissions.

Litigation: The case captioned Climate Reserve v. County of Los Angeles, Los Angeles Superior Court Case No. 19STCP01917, filed May 15, 2019.

Mitigation: For purposes of this Agreement, the term "mitigation" or "Mitigation" shall be understood in its most generic sense and shall not be limited in any technical sense as a Los Angeles County CEQA term.

Mitigation Credit: A certification or other documented award by CARB or a CARB-approved registry that is equivalent to one metric ton of carbon-dioxide-equivalent greenhouse gas emissions that is or will be reduced, sequestered, or avoided.

MTCO2e means metric tons of CO_2 equivalent.

Non-Itemized GHG Mitigation Measures: Those measures set forth in Section 1.b, below, to mitigate the Project's GHG emissions.

Non-Residential: Square footage constructed to include commercial, employment, institutional, or other non-residential uses authorized at the Project Site which does not include Dwelling Units. Mixed use structures may include Non-Residential square footage, and Dwelling Units.

Parties: the parties to this Agreement, Climate Resolve, Centennial Founders LLC, and Tejon Ranchcorp.

Project: the entire Centennial Project and offsite improvements, as described in the EIR.

Project Site: That certain real property commonly known as Centennial comprising approximately a 12,323-acre portion of the Tejon Ranch, in the geographical area covered by the

Centennial Specific Plan No. 02-0232-(5) and offsite improvements associated therewith as described in the EIR.

SCAQMD: South Coast Air Quality Management District.

Tejon Ranch: That certain real property commonly known as Tejon Ranch comprising approximately 270,000 acres, as further described and depicted on Exhibit 2 attached hereto.

Vehicles:

- Vehicles are classed according to their **Gross Vehicle Weight Rating (**"GVWR"**).**
- **Light-Duty:** Cars and trucks of classes 1 through 3, weighing less than 14,000 pounds GVWR.
- **Medium-Duty:** Trucks of classes 4 through 6, weighing between 14,000 and 26,000 pounds GVWR
- **Heavy-Duty:** Trucks of classes 7 through 9, weighing 26,000 pounds or more GVWR.

RECITALS

A. Centennial is the applicant for a master-planned development project encompassing the development of up to 19,333 dwelling units, 8,529,048 square feet of business park commercial and recreational/entertainment uses, 1,568,160 square feet of institutional/civic uses, 5,624 acres of open space, 163 acres of parks, and other uses sited on an approximately 12,323-acre portion of the approximately 270,000-acre Tejon Ranch. The Project Site is largely unimproved land located approximately one mile east of Interstate 5 in the northwestern portion of the Antelope Valley in unincorporated Los Angeles County. The Property and the Project are approximately 35 miles north of Santa Clarita, 5 miles east of Gorman, 36 miles west of Lancaster, and 50 miles south of Bakersfield. State Route 138 runs through the southern portion of the Property.

B. On April 30, 2019, Los Angeles County, through its Board of Supervisors certified the EIR pursuant to CEQA for the development of the mixed-use, mixed-income master planned Centennial community on land owned by Tejon Ranchcorp, including offsite infrastructure improvements identified in the EIR.

C. On April 30, 2019, the County also issued initial entitlement approvals for the Project, consisting of (a) the Centennial Specific Plan to govern the Project's development, (b) a General Plan Amendment to amend the highway maps of the Los Angeles County General Plan and the County's Antelope Valley Area Plan, (c) a Zoning Ordinance Amendment to change the Property's zoning from Open Space, Light Agricultural-Two Acre Minimum Required Lot Area, Residential Planned Development, Commercial

Planned Development, and Manufacturing Industrial Planned Development to SP (Specific Plan), (d) a Vesting Tentative Parcel Map to create 20 large-lot parcels on 8,408 acres of the Property for lease, conveyance, and financing purposes only, (e) a Conditional Use Permit to authorize the Specific Plan development process, and (f) a development agreement to vest the approved land use entitlements and provide specified community benefits including but not limited to affordable housing.

D. On May 15, 2019, Climate Resolve filed a petition commencing litigation in the Los Angeles County Superior Court captioned Climate Resolve v. County of Los Angeles, et al. (Case No. 19STCP01917), challenging the County's approval of the Project and its certification of the EIR.

E. On April 5, 2021, after briefing and oral argument, the court issued an order granting in part Climate Resolve's petition.

F. Subsequent to the court's decision, Climate Resolve and Centennial have mutually agreed to make certain additional commitments to assure that the Project will be a Net Zero GHG Project, including mandates that are more stringent than those agreed to in previously-approved projects in Los Angeles County.

G. Climate Resolve and Centennial have mutually agreed to make certain additional commitments to fund wildfire prevention, protection and response activities within the Project, and to fund grants to improve wildfire prevention, protection and response activities in nearby communities.

H. Climate Resolve and Centennial have mutually agreed to fund ongoing compliance monitoring to assure that Centennial complies with the net-zero and fire-protection obligations in this agreement.

I. For purposes of this Agreement, implementation of the measures included in Section 1 will make the Project a net zero GHG project ("Net Zero GHG Project"), and the measures included in Section 1.e will mitigate wildfire risks.

J. The purpose of this Agreement is to resolve and settle all disputes between the Parties involving the Litigation, the Project, and Los Angeles County, and for Climate Resolve to agree to not pursue or support litigation or other challenges to future agency approvals of the Project that are consistent with the approved scope of the Project as set forth in the EIR or other projects on Tejon Ranch as further described herein, provided that Centennial and Tejon Ranchcorp fully comply with their obligations in this Agreement.

AGREEMENT

The Parties agree as follows:

1 Centennial's Obligations

The Project will be a Net Zero GHG Project. To accomplish this goal, Centennial will mitigate the Project's GHG emissions with two types of GHG mitigation measures: (1) Itemized GHG Measures, and (2) Non-Itemized GHG Measures, both as set forth herein.

Centennial will also implement measures to reduce the risk of wildfires in the vicinity of the Project.

Tejon Ranchcorp owns all Tejon Ranch land relevant to this Agreement. Tejon Ranchcorp formed Centennial LLC to develop the Project. Centennial is the obligor under this Agreement, but (a) Tejon Ranchcorp is obligated to enforce a ban on natural gas service to residences in the Grapevine project located in Kern County and located on Tejon Ranch ("Grapevine Project"); and (b) as described in Section 6.a, Tejon Ranchcorp shall assume Centennial's obligations under this Agreement if Centennial (including without limitation Centennial's successors or assigns) fails to perform Centennial's obligations in compliance with the outcome of the meet and confer process set forth in Section 5 of this Agreement or 90 days following the issuance of an arbitration award against Centennial as set forth in Section 5.

a. Itemized GHG Mitigation Measures

Centennial, to the extent it is a direct consumer of electricity on the Project Site, shall use the 100% renewable CCA option in Los Angeles County for construction activity.

1. Residential. Centennial will:

   a) Provide an Inflation-Adjusted $5,000 in reimbursement incentives to the renters or purchasers of each of the Project's Dwelling Units starting at the time of purchase or rental to support the purchase of an EV, until such time as the incentive has been provided to 50% the Project's Dwelling Units. Informational material on the incentives shall be provided at the time of home purchase or rental and regularly advertised through HOA communications;

   b) Install one operable Level-2 or higher-capacity EVSE at each single-family Dwelling Unit;

   c) Install operable Level 2 or higher-capacity EVSEs in the parking area of each multi-unit Residential building in such capacity so that one electrical charger is provided for one assigned parking space of each Dwelling Unit.

2. Non-Residential. Centennial will:

a) Install in nearby parking spaces for all Non-Residential structures operable Level 2 or higher-capacity EVSEs at a rate of at least one EVSE for each 3,500 square feet of space and no fewer than 3,500 charging connectors;

b) Install 100 operable EVSEs to serve Medium-Duty and Heavy-Duty vehicles at Tejon Ranch Commerce Center;

c) Include in enforceable Covenants, Conditions and Restrictions or other enforceable obligations (collectively, "CC&Rs") that future Non-Residential owners maintain and keep operable the EVSEs on their respective properties, and include in CC&Rs a non-enforceable encouragement to opt into any available 100% renewable energy source as a power supply.

d) Provide $7,500 in reimbursement incentives per vehicle for 500 vehicles to businesses that conduct activities on Tejon Ranch to purchase Medium-Duty and Heavy-Duty vehicles expected to be used in part on Tejon Ranch, for a total of $3,750,000. The EV incentive shall be offered in for Class 1-7 trucks or vans.

3. Other Fleets. Centennial will:

a) Provide an EV grant program of $5,000 per vehicle for 300 vehicles, for public agency service fleets that serve the Project's community, but are controlled by public agencies not specific to the Project, such as for public safety, maintenance, and operations for a total of $1,500,000;

b) Provide an EV grant program of $5,000 per vehicle to provide for up to 100 vehicles for Project-specific community agencies or organizations, including the Homeowners Association, Commercial and Hospitality Associations, and Transportation Management Association.

c) The total amount of the incentives described in subparagraphs (a) and (b) immediately above shall be $2,000,000.

d) Provide incentives totaling $8,000,000 to support the purchase of school and transit buses and vans for the Project's schools and community transit fleets, and for the installation of EVSEs to serve them.

4. SCAQMD Offsite Chargers. Centennial will:

a) Install 5,000 operable Level 2 or higher-capacity EVSEs within the SCAQMD territory. The EVSEs will be sited and operated in

Disadvantaged Communities or Disadvantaged Vulnerable Communities. These EVSEs will be non-networked ("dumb") to the extent such EVSEs are available and commercially feasible.

5. Onsite Reductions. Centennial will further mitigate GHG within the Project Site as described in the following four paragraphs.

   a) Centennial will include in CC&Rs that no natural gas infrastructure may be installed within the Project Site for residential buildings, recreation centers, and/or public facilities, and will through CC&Rs ensure that natural gas use is prohibited in such structures. Centennial will likewise include in such CC&Rs the prohibition of natural gas by Non-Residential tenants for non-essential uses, which include space heating, non-industrial water heating, space cooling, and non-commercial cooking. Fireplaces that use fossil fuels will be prohibited in Centennial. If the Project's Non-Residential customers procure biogas, then Centennial shall ask the Southern California Gas Company ("SoCalGas") to report on the origins of that biogas as a term of their contracting and shall include that report in the annual reports described below.

   b) All building developers, including without limitation residential, commercial, industrial, or public buildings, shall install battery storage systems as required by code, or, if battery storage systems are not required by code, shall be required to offer them as an option available for purchase or lease.

   c) Centennial will include in CC&Rs that Community Choice Aggregation or an equivalent Southern California Edison ("SCE") plan with 100% Clean Power ("Clean Power Plan") is required to the extent allowed by law, and is the default choice when not required by law, for all residents, businesses, recreation centers, and public facilities at the Project.

   d) Tejon Ranchcorp will include in CC&Rs that no natural gas infrastructure may be installed for residential buildings on the Grapevine project, and will through CC&Rs ensure that natural gas use is prohibited in such structures. Tejon Ranchcorp will include in CC&Rs that fireplaces that use fossil fuels shall be prohibited at Grapevine.

6. Itemized GHG Mitigation Measures Timing. The Itemized GHG Mitigation Measures shall be implemented as set forth below:

   a) Residential EV incentives shall be provided as described in Section 1.a.1.a above.

   b) Residential EVSEs shall be installed and made operable prior to the

Dwelling Unit's receipt of its certificate of occupancy.

c) Non-Residential EVSEs shall be installed and made operable prior to each respective Non-Residential buildings' receipt of certificate of occupancy.

d) Non-Residential EVSEs shall be installed and made operable to serve Medium-Duty and Heavy-Duty vehicles at Tejon Ranch Commerce Center, with 1 EVSE required to be installed prior to receipt of a certificate of occupancy for the 100,972nd square feet of non-residential uses at Centennial, and 1 additional EVSE required prior to issuance of a certificate of occupancy for each subsequent 100,972 square feet of non-residential uses thereafter.

e) A total of $2,000,000 in EV incentives shall be offered to public service and community service fleet vehicles used at Centennial, to be awarded in $5,000 grants with one $5,000 grant awarded prior to the certificate of occupancy for the 48th Dwelling Unit, and additional $5,000 grants for every subsequent 48th Dwelling Unit until the incentives are fully depleted. Incentives shall be offered continuously with active marketing efforts.

f) A total of $3,750,000 in EV incentives shall be offered to businesses or other entities for Class 1-7 Vehicles that conduct activities on Tejon Ranch, to be awarded in $7,500 grants with one $7,500 grant award prior to the certificate of occupancy for the 38th Dwelling Unit, and additional $7,500 grants for every subsequent 38th Dwelling Unit until such incentives are fully depleted. Incentives shall be offered continuously with active marketing efforts.

g) A total of $8,000,000 shall be awarded in EV and EVSE incentives for the Project's schools and community transit fleets, with one $20,000 grant awarded prior to the certificate of occupancy for the 48th Dwelling Unit and an additional $20,000 grant for each subsequent 48th Dwelling Unit thereafter.

h) A total of 5,000 EVSEs shall be installed within SCAQMD, with the first EVSE installed prior to issuance of a certificate of occupancy for the 4th Dwelling Unit, with one additional EVSE installed for every 4th Dwelling Unit thereafter.

b. Non-Itemized GHG Mitigation Measures

Centennial will become a Net Zero GHG Project by also implementing the Non-Itemized GHG Mitigation Measures, as described in this Section 1.b of the Agreement and in Exhibit 3 to further mitigate the Project's GHG emissions by 6,964,111 MTCO2e. The mitigation measures

implemented under this Section 1.b will be in addition to the Itemized GHG Mitigation Measures described in Section 1.a above, and the emissions mitigations achieved by the Itemized GHG Mitigation Measures will not count toward the 6,964,111 MTCO2e in Non-Itemized GHG Mitigation Measures required by this section.

1. Centennial may implement additional onsite GHG reduction measures beyond those required as Itemized GHG Mitigation Measures for submittal to the CMG as described below in Section 3.e.5; however, if all of the Project's GHG emissions cannot first be fully mitigated by direct GHG emissions reductions within the Project, then Centennial shall achieve Net Zero GHG as required by this Agreement by funding direct investments in offsite GHG emissions reduction projects that generate direct GHG emissions reductions.

    a) Centennial shall fund only Direct Mitigation Projects that generate qualified GHG credits under the CAR's Climate Forward program from CAR's approved list of methodologies, under a CARB protocol, or under a protocol listed under one of CARB's approved list of Offset Project Registries, which are currently American Carbon Registry ("ACR"), CAR, and Verra (collectively, "Registries"); provided, however, that evidence of actual GHG reductions from these Registries shall be confirmed by these Registries prior to issuance of certificates of occupancy for Residential or Non-Residential structures as required above.

    b) Centennial shall obtain from such registries a certificate, report, or other written documentation of the quantity of Mitigation Credits that the registry has awarded to Centennial for Direct Mitigation Projects that Centennial has undertaken or funded. Centennial shall report such quantities of awarded Mitigation Credits in Annual Reports submitted to the CMG Board and the public as set forth herein.

    c) Centennial may elect to fund the development of new GHG mitigation methodologies under CARB or CARB-approved registries. After CARB or the CARB-approved registry approves a new methodology, Centennial may then fund Direct Mitigation Projects that generate qualified GHG credits based on that methodology.

    d) As part of the offsite GHG mitigations, Centennial may directly undertake or fund projects on Tejon Ranch. However, any projects that reduce, avoid, or sequester GHG emissions on Tejon Ranch must result in quantified Mitigation Credits awarded by CARB or a CARB-approved registry, or approved by the CMG.

1) Renewable energy projects that provide power solely to the Project would be an exception. Given the Project's commitment to Zero Net Energy and 100% renewable power, Centennial may elect to develop renewable energy projects elsewhere on the Tejon Ranch to provide power solely to the Project, for example in connection with a microgrid system, without necessitating the involvement of a third-party registry. This type of renewable energy project would not qualify as a Non-Itemized GHG Mitigation Measure, but could provide a reliable source of renewable power for the Project at a lower cost per Watt than rooftop solar. (A renewable energy project on Tejon Ranch that provides power to an off taker other than the Project would require CARB or a CARB-approved registry to award Mitigation Credits for the renewable energy project to be considered a Non-Itemized GHG Mitigation Measure.)

e) Centennial shall not purchase emissions offsets to fulfill its mitigation obligations under this Agreement, including but not limited to those offsets offered by CARB, CAR, American Carbon Registry and Verra, unless approved as a last resort compliance option for one phase of the Project by a majority vote of the CMG Board, and only to the extent that the Board determines that it will be otherwise infeasible for Centennial to reduce or avoid the GHG emissions of that phase of the project to become a Net Zero GHG Project under the terms of the Agreement. Such a Board vote would be on a temporary, phase-by-phase case and would not be applicable to the entire Project.

c. Locational Requirements. The locational requirement percentage distribution set forth below applies to the BAU Emissions of 15,000,000 MTCO2e from the Project that the Parties have agreed to for purposes of this Agreement. Centennial shall become a Net Zero GHG Project by funding emissions reductions or avoidances within the following geographic limitations, in order of priority:

1. At least 51% of BAU Emissions mitigations within Tejon Ranch, which shall include all of the emission mitigations associated with the Itemized GHG Mitigation Measures, and such other reductions as may be approved either through approved Registries or by CMG as described below.

2. At least 69.5% of BAU Emissions mitigations within California, including 0.83% of BAU Emissions mitigations within Disadvantaged Communities or Disadvantaged Vulnerable Communities. Of the 0.83% of such BAU Emissions mitigations in such Communities, 25% of such reductions shall be in Los Angeles County and the remainder shall be in San Bernardino, Kern, Riverside and Inyo Counties. Installation of EVSE's in such Communities is recognized for locational distribution purposes at 22 MTCO2e per charger but does not count as a Non-

Itemized GHG Mitigation.

3. At least 82.25% of BAU Emission mitigations within the United States of America;

4. No more than 17.75% of BAU Emission mitigations from International projects.

d. Fifteen-Year True-Up

1. Prior to the expiration of fourteen years from the Effective Date, Centennial may elect in writing to undertake a comprehensive process (the "True-Up") for assessing the extent to which Centennial has progressed towards becoming a Net Zero GHG Project to revisit the calculations and technology assumptions used by the Parties in this Agreement in 2021 to calculate BAU emissions, and to calculate GHG reductions from Itemized and Non-Itemized GHG Mitigations, as shown in Exhibit 3 based on then-existing technology, law, market conditions, or other circumstances that result in quantifiable GHG emissions that may be different from what was used in Exhibit 3 ("Modified GHG Calculations"). The True-Up shall not authorize modifications to the locational requirements of Non-Itemized Mitigations. Further, changes to the Itemized Mitigations shall be limited to those required by changes in law, or that take advantage of improvements in technology. Non-Itemized Mitigation reduction quantities may be modified if GHG emissions as a result of the True-Up are lower (or higher) than those set forth in Exhibit 3.

2. Centennial shall provide to CMG a scope of work for the True-Up, which will include use of a qualified GHG consultant. Centennial shall work with the CMG Board to develop a schedule and consultation process for review of a draft and final True-Up Report for review and approval by the Board. Unless otherwise agreed by the Board, the True-Up Report will be received and considered during the first Board meeting of the sixteenth year following the Effective Date, along with any proposed revisions by Centennial to modify the Itemized and Non-Itemized GHG Mitigation Measures. The Board shall by majority vote agree to accept, modify or reject the True-Up Report and/or the modified GHG Calculations, or Itemized or Non-Itemized GHG Mitigation Measures. Disputes regarding the True-Up are subject to the Dispute Resolution procedures set forth in Section 5 herein. Upon Board Approval, or upon a favorable arbitration award from the Section 5 Dispute Resolution process, Centennial shall proceed to implement such Modified GHG Mitigation Measures for the remaining term of this Agreement.

e. Enhanced Wildfire Prevention and Protection

1. Centennial shall implement the Fire Protection Plan ("FPP") attached to this Agreement as Exhibit 1. The FPP shall be updated and submitted to the CMG for compliance monitoring purposes any time Centennial files a tract map to include

any new or modified state or county fire prevention, protection, and response requirements and will through CC&Rs ensure that each phase of the Project's development is at all times in compliance with then-prevailing standards and fire codes.

a) Prior to the filing of the first application for a building permit for Dwelling Units at the Project, Centennial shall cause the creation of a master Homeowners Association ("HOA") for all Dwelling Units at Centennial to fund the ongoing implementation, including education, inspections, enforcement, and corrective action, of the FPP. Such HOA shall be authorized to assess on each Dwelling Unit at the Project an ongoing, permanent fee, tax, or assessment in the total cumulative amount for the Project of no more than $500,000 per year, inflation adjusted, with a presumptive pro-rata allocation of $26.00 per Dwelling Unit ("Onsite FPP Assessment"). The HOA shall disperse funds consistent with, and to further the implementation of, the FPP.

b) Centennial shall ensure, pursuant to the FPP, that the master Homeowners Association for Centennial will hire a qualified third-party compliance inspector approved by the Los Angeles County Fire Department to conduct a fuel management zone inspection and submit a Fuel Management Report to the CMG before June 1 of each year certifying that vegetation management activities throughout the Project site have been timely and properly performed. The CMG Board will review the Fuel Management Report and will vote whether to verify ongoing compliance of the defensible space, vegetation management, and fuel modification requirements of, and any continuing obligations imposed under, the FPP.

c) Every 2 years after the first Dwelling Units are occupied, Centennial and CMG will meet with the purpose of reviewing evacuation policies and Centennial will demonstrate that they are clearly understood and communicated with residents. Centennial will also work with the HOA to promote creation of Firewise USA communities within the Project.

2. Centennial shall establish a Good Neighbor Firewise Fund, which will provide grants to needs-based applicants to be awarded by the CMG to aid communities with a population of less than 100,000 within 15 miles of the boundaries of Tejon Ranch to reduce offsite fire risks, increase fire prevention, protection and response measures, and avoid adverse impacts of fire, for the Project's residents and neighboring communities. The 100,000-population limit will be adjusted commensurately with population changes in Los Angeles, Kern and Ventura Counties as documented by each Census. Centennial shall fund the Good Neighbor Firewise Fund in the inflation-adjusted amount of $500,000 annually. CMG will review applications and award the grants to applicants based on a

majority vote of the CMG Board. The grants shall be in support of the following actions:

a) Updating planning documents and zoning ordinances, including general plans, community plans, specific plans, local hazard mitigation plans, community wildfire protection plans, climate adaptation plans, and local coastal programs to protect against the impacts of wildfires;

b) Developing and adopting a comprehensive retrofit strategy;

c) Funding fire-hardening retrofits of residential units and other buildings;

d) Reviewing and updating the local designation of lands within the jurisdiction as very high fire hazard severity zones;

e) Implementing wildfire risk reduction standards, including development and adoption of any appropriate local ordinances, rules, or regulations;

f) Establishing and initial funding of an enforcement program for fuel and vegetation management;

g) Performing infrastructure planning, including for access roads, water supplies providing fire protection, or other public facilities necessary to support the wildfire risk reduction standards;

h) Partnering with other local entities to implement wildfire risk reduction;

i) Updating local planning processes to otherwise support wildfire risk reduction;

j) Completing any environmental review associated with the listed activities;

k) Covering the costs of temporary staffing or consulting needs associated with the listed activities;

l) Implementing community-scale risk reduction programs to become Firewise USA sites;

m) Implementing resiliency plans such as resiliency centers with stable electricity supplies (e.g., microgrid, solar, and battery equipment) available to residents during times of power shutdowns or other emergencies; and

n) Other fire-related risk-reduction activities that may be approved by the CMG Board.

f. Reporting to Centennial Management Group

Phasing. For reporting purposes, Centennial will divide the Project among Vesting Tentative Tract Maps (referred to herein as "VTTM" or "phase"). Centennial will allocate to each phase, during the planning process, the phase's compliance obligations for: (a) Itemized GHG reduction obligations on a pro rata basis for Itemized GHG reduction obligations; and (b) Non-Itemized GHG mitigation on a pro rata basis as determined by multiplying the total amount of GHG emissions to be mitigated (6,964,111 MTCO2e) by the percentage value of that phase. For the purpose of calculating the pro rata amount of the GHG emissions to be mitigated in the VTTM, the calculation is based on that VTTM's share of the total of the 19,333 Dwelling Units and Non-Residential square footage of 10,097,208 square feet that are included in the Project. Centennial will through CC&Rs ensure that all Project activities with the potential for generating GHG emissions are included in a phase of the Project. Concurrent with submittal to the County of any new or modified VTTM, Centennial shall submit to the CMG a GHG Mitigation Plan. Each GHG Mitigation Plan shall demonstrate how Centennial plans to reduce the phase's pro-rata share of the Project's GHG emissions as set forth herein in this Section by detailing the number of metric tons of GHG emissions that are associated with that phase and the type and amount of Itemized and Non-Itemized GHG Mitigation Measures consistent with this Agreement that Centennial will implement to achieve a Net Zero GHG Project. Upon request by Centennial, the CMG may approve Centennial's purchase and use of GHG emissions offsets to replace Direct Mitigation Credits that are delayed or otherwise not timely issued, provided that Centennial establishes, to the satisfaction of the CMG, that Centennial was not the cause of the unavailability of the Direct Mitigation Credits.

1. Annual Report. Each year after the first annual report submitted after the submission of the first VTTM, on March 1, Centennial shall deliver to the CMG an annual report for the period covering the prior calendar year, ("Annual Report").

    a) The Annual Report shall document all of Centennial's actions implemented in the previous calendar year to comply with Centennial's obligations and requirements under the Agreement, including, without limitation, the information on all Itemized and Non-Itemized GHG Mitigation Measures in Exhibit 3, organized by VTTM. The Annual Report shall also include information regarding the implementation of the FPP, and updates on all other compliance issues described in previous Annual Reports.

b) The Annual Report shall list actions Centennial plans to undertake in the calendar year following its issuance to comply with its obligations and requirements under the Agreement. By way of illustration, without limitation, the Annual Report shall include data for the relevant reporting periods that detail Centennial's applications for tract maps and building permits; the type and amount of EV incentives listed in the Agreement that have been reserved and actually disbursed by Centennial; the number, model type, and locations of operative EVSEs installed by Centennial; and the description number and type of onsite and Registry-certified offsite GHG emissions mitigation measures planned and actually implemented by Centennial. For purposes of the Annual Report, Centennial's obligations and requirements under the Agreement shall include, without limitation, all GHG mitigation measures and all wildfire prevention measures set forth in this Agreement and the FPP.

c) Each Annual Report shall also contain a section providing a cumulative total of Mitigation Credits awarded by Registries to Centennial for Non-Itemized GHG Mitigation Measures since the Effective Date and an accounting how such Mitigation Credits have been allocated to phases of the Project to enable the CMG to track Centennial's progress towards reducing the Project's GHG emissions.

d) To facilitate the development of the Project, Centennial may supplement or amend the most recent Annual Report prior to the due date of the next Annual Report to provide the CMG with updates on activities and other matters affecting the Project and to request approvals and certifications from the CMG.

e) Upon the request of the CMG Board, Centennial shall provide additional information with respect to the implementation of Centennial's obligations under this Agreement to be included in the Annual Report.

f) The CMG Board shall review the Annual Report, inform Centennial of any perceived non-compliance with this Agreement. If there is any perceived non-compliance, then the dispute resolution process may be commenced by the CMG.

g. Public Reporting

1. Within one month after submittal to the CMG of the first Annual Report under this Agreement, and annually for each Annual Report thereafter, Centennial will publish the Annual Report.

a) Each Annual Report will be published and will be made publicly available for download from Centennial's web site free of charge.

b) Concurrently with the annual publication of the Annual Report, Centennial will issue a press release announcing the Annual Report.

c) Make any further public disclosures required for public companies, including as applicable requirements relating to Environmental, Sustainability and Governance ("ESG") disclosure.

h. Reimbursement for Attorneys and Consultants

Centennial will pay, via check or money transfer to "Advocates for the Environment, Inc." Climate Resolve's law firm, within thirty days after the Effective Date and following the Court's dismissal of the Lawsuit, the sum of $481,552 as reimbursement of Climate Resolve's litigation and settlement expenses.

1. $323,141 will be for attorney's fees owed to Advocates for the Environment, Inc., Climate Resolve's law firm, for the services during litigation and settlement expenses of attorneys Dean Wallraff and Kathleen Unger and paralegal Benita Wallraff.

2. $45,000 will be for the services of the Law Offices of Richard Moss during the settlement process.

3. $250 will be for the services of attorney William Choi.

4. $113,161 will reimburse Climate Resolve for the consultants it hired to participate in the settlement process and for staff.

2 Climate Resolve's Obligations

a. On the Effective Date of the Agreement, Climate Resolve, with the cooperation of Tejon Ranchcorp and the County, will draft and file a Request for Dismissal asking the Court to dismiss the Litigation with prejudice. Upon filing the Request, Climate Resolve will affirmatively support actions undertaken by Centennial or the County regarding or involving the lawsuit challenging the Project filed by the Center for Biological Diversity et al., and oppose with oral advocacy and in court filings efforts by the Center for Biological Diversity et al. to be named as prevailing parties or have any standing or other right to sue, appeal or otherwise participate in the Litigation.

b. Climate Resolve will establish the Centennial Monitoring Group, as described in Section 3 below.

c. Non-Opposition. As long as Centennial is in compliance with this Agreement, Climate Resolve shall not Oppose the Project or any other Projects on Tejon Ranch as proposed now or in the future, as detailed below.

1. Previous Project Approvals. Climate Resolve shall not Oppose nor encourage, assist or fund any Opponent to Oppose any Approvals issued on or before the Effective Date by any Governmental Authority that are or may be necessary, useful, or convenient for the completion of any portion or aspect of the Project ("Previously Issued Approvals"). "Approval" or "Approvals" shall mean in this Agreement any permits, approvals, entitlements, voter initiatives specific to the Project or Tejon Ranch, development agreements, parcel and subdivision maps, legislative actions specific to the Project or Tejon Ranch, and/or authorizations of any sort whatsoever, including any and all environmental clearances, together with any and all mitigation measures and the implementation thereof, including the Los Angeles County Project Approvals, Previous Approvals and/or Future Project Approvals. "Governmental Authority" shall mean in this Agreement any federal, state, regional, local, or other governmental entity, body, branch, bureau, official, special district, department, court, or other tribunal, or any other governmental or quasi-governmental authority, including the electorate, exercising or entitled to exercise any administrative, executive, judicial, legislative, police, regulatory, or land use, water, infrastructure, or any other authority or power over the Project.

2. Future Project Approvals. Climate Resolve shall not Oppose nor encourage, assist or fund any opponent to Oppose any Approvals applied for, sought, or issued after the Effective Date by any Governmental Authority that is or may be necessary, useful, or convenient for the completion of any portion or aspect of the Project ("Future Implementation Approvals") as long as such Future Implementation Approvals do not materially amend the Specific Plan or eliminate, reduce, or otherwise amend a mitigation measure in the EIR. A material amendment is an amendment that increases the severity of any significant environmental impact identified in the EIR ("Material Amendment"). Notwithstanding the foregoing, Climate Resolve may engage in the Dispute Resolution process as set forth in Section 3 of this Agreement.

3. Center for Biological Diversity/Third Party Opposition. Climate Resolve understands and acknowledges that the Project is being challenged in litigation brought by the Center for Biological Diversity and affiliated entities ("CBD"), and may in the future be challenged by CBD and/or other third parties (collectively, "Opponents"). Should the Project be required to be reconsidered by Los Angeles County or any other agency due to a partial or full rescission of any Approvals, or any finding of insufficient compliance with CEQA, Climate Resolve shall not Oppose or encourage, assist or fund any Opponent to Oppose re-approval of the Project as long as there are no Material Amendments thereto; including without limitation any future CEQA documentation or Approvals, as long as Centennial continues to comply with the commitments set forth in this Agreement to assure that the Project is a Net Zero GHG Project, and complies with the provisions of this Agreement.

4. Meaning of Opposition. "Opposition," "Oppose," or "Opposing" means (a) opposing, threatening or taking action to oppose, challenging, or seeking to hinder, whether by litigation, public opposition at any proceeding before a government agency, public testimony, comments, or petition to government authorities, a Previously Issued Approval or Future Implementation Approval; (b) providing funding for others to file or maintain litigation opposing, challenging, or seeking to hinder a Previously Issued Approval or Future Implementation Approval; (c) participating in or funding any regional or local plan, policy, regulation, or ordinance, or agency rulemaking that disproportionately causes a negative economic effect or obstacle to development of the Project or other projects or activities on Tejon Ranch projects; or (d) taking any other action to impede the approval, financing, construction or completion of the Project. Climate Resolve shall be deemed to be Opposing a Previously Issued Approval or a Future Implementation Approval if its officers, staff or any individual expressly representing or directed to represent Climate Resolve's interests Opposes such Previously Issued Approval or Future Implementation Approval. Climate Resolve shall advise its staff that Climate Resolve has resolved its dispute with Centennial and of Climate Resolve's obligations under this Agreement, particularly non-Opposition set forth above. "Opposition," "Oppose," or "Opposing" does not include any action permitted under Section 5 of this Agreement. An effect is "disproportionate" if, by way of example only, it applies only to new development (in contrast to a parcel tax or other mechanism that applies to both existing and new development), or if it imposes new economic or environmental obligations through land use planning or zoning advocacy such as Greenprint datasets (currently under consideration by the Southern California Association of Governments) to the extent that such land use planning or zoning advocacy applies to projects and activities on Tejon Ranch (including the Project), in Northern Los Angeles County or Kern County. The Parties shall meet telephonically monthly (or such alternate frequency as the Parties may hereafter agree) to identify planned advocacy by Climate Resolve that could potentially result in unpermitted Non-Opposition, and shall thereafter meet and confer to avoid such unpermitted Non-Opposition.

5. Climate Resolve shall advise members of Climate Resolve's Board of Directors and Advisory Board, and Climate Resolve's attorneys, consultants, and employees, that they may not on behalf of, or as a representative of, Climate Resolve Oppose the Project or other projects and activities on Tejon Ranch.

3 Centennial Monitoring Group

a. Purpose. CMG shall be formed, funded and assigned the duties and authority, as more particularly set forth below, for the purpose of: (1) monitoring and enforcing Centennial's compliance with its obligations under this Agreement, including without limitation, any of those obligations that are to be contractually undertaken by any party other than

Centennial; (2) reviewing Centennial's FPPs for VTTMs concurrently with a VTTM's submission to the County; (3) disbursing funds from the Onsite FPP Assessment pursuant to the FPP then in effect; (4) reviewing annual Fuel Management Reports; and (5) administering and granting the fire protection grants from the Good Neighbor Firewise Fund established under this Agreement.

b. Formation of CMG and Board.

1. Sixth months prior to Centennial's submittal of an application for its first VTTM to the County, Centennial shall provide written notice to the CMG of its intended VTTM application submittal ("VTTM Notice"). Upon receiving the VTTM Notice, Climate Resolve shall cause William C. Choi of the law firm of Rodriguez, Horii, Choi & Cafferata ("RHCC"), under Climate Resolve's supervision and in collaboration with Centennial, and in accordance with the provisions of the Agreement, to form the CMG as a California non-profit public benefit corporation to perform the scope of services described herein, and seek IRS determination of the IRC Section 501(c) (3) status of this corporation. The Parties may also by mutual agreement designate an alternate law firm, with qualifications comparable to William C. Choi, if Mr. Choi is not available or declines to undertake this representation at that time.

2. Within thirty days of the VTTM Notice, Centennial shall tender to Climate Resolve the sum of $300,000 to be used exclusively to pay for the costs of forming and initiating operations of the CMG.

3. Within ninety days after the date on which the County approves the first VTTM (inclusive of resolution of any administrative appeals) ("County Approval of First VTTM"), annual funding as provided below to the CMG commences.

4. The Board shall initially consist of four members, until the Neutral (as defined below) is appointed as provided in this Agreement. Within ninety days after the date on which the CMG is formed: (a) Climate Resolve shall deliver a written notice to Mr. Choi to identify two members to serve on the Board of Directors of the CMG ("Board") on behalf of Climate Resolve ("Climate Resolve Appointees"); and (b) Centennial shall deliver a written notice to Mr. Choi to identify two members to serve on the Board on behalf of Centennial ("Centennial Appointees"). The Parties acknowledge and agree that the Climate Resolve Appointees and Centennial Appointees do not have a conflict of interest in participating (including voting) on the CMG Board. Any potential Neutral Member shall be required to fully disclose and avoid any conflict of interest with Climate Resolve and/or Centennial/Tejon Ranchcorp.

5. Promptly after the identification of the Climate Resolve Appointees and the Centennial Appointees, the Board shall meet and confer to select a fifth member

of the Board ("Neutral Member"), who shall be an Approved Person (as defined below). If the Parties cannot reach agreement, the Neutral shall be selected in the following manner:

a) Climate Resolve shall nominate an Approved Person to serve as the Neutral (the "First Nominee"), and the First Nominee shall serve as the Neutral unless one or both of the Centennial Appointees object to the First Nominee.

b) If one of the Centennial Appointees objects to the First Nominee, the Centennial Appointees shall nominate another Approved Person to serve as the Neutral (the "Second Nominee"), and the Second Nominee shall serve as the Neutral unless one or both of the Climate Resolve Appointees object to the Second Nominee.

c) If one of the Climate Resolve Appointees objects to the Second Nominee, the Climate Resolve Appointees shall nominate another Approved Person to serve as the Neutral (the "Third Nominee"), and the Third Nominee shall serve as the Neutral unless one or both of the Centennial Appointees object to the Third Nominee.

d) If one of the Centennial Appointees objects to the Third Nominee, the Board shall refer the selection of the Neutral to a neutral arbitrator for selection in accordance with the conflict resolution provisions set forth herein, which selection shall be final, absolute and unappealable.

e) For purposes of selecting the Neutral, Approved Person is hereby defined as a person of integrity who possesses professional and/or academic expertise relevant to greenhouse gas emissions, reductions, and accreditation issues or fire protection measures in California master planned communities, who has no financial interest, employment, contract, investor, or other pecuniary relationship to Centennial, Tejon Ranchcorp, or Climate Resolve. Any potential Neutral Member shall be required to fully disclose and avoid any conflict of interest with Climate Resolve and/or Centennial/Tejon Ranchcorp.

f) If the Approved Person selected at the initial meeting of the Board or by the arbitrator declines to act as the Neutral, the Appointees shall, within two weeks of such declination, hold a special meeting of the Board to meet and confer and select another Approved Person to serve as the Neutral, using the procedure described in this Section 4.b.5. The procedure in this Section 4.b.5 will be repeated until the Board has selected an Approved person and that person has agreed to serve as the Neutral on the Board.

6. If, at any time, any of the Climate Resolve Appointees should resign or be unable to fulfill their role as one of the Climate Resolve Appointees due to death or incapacity, or if in its sole discretion Climate Resolve decides to replace its Appointee(s), Climate Resolve shall name and appoint another person to serve as a replacement appointee to the Board. If, at any time, any of the Centennial Appointees should resign or be unable to fulfill that person's role as one of the Centennial Appointees due to death or incapacity, or if in its sole discretion Centennial decides to replace its Appointee(s), Centennial shall name and appoint another person to serve as a replacement appointee to the Board. If, at any time, the Neutral should resign or be unable to fulfill that person's role as the Neutral due to death or incapacity, Climate Resolve and Centennial shall select a replacement Neutral using the selection process set forth in this Section 4.b.5. No failure or delay by Climate Resolve or Centennial to name and appoint a replacement appointee or to engage in the selection process for a replacement Neutral shall prevent the Board from undertaking or deciding any action, provided that such undertaking or decision occurs at a meeting of the Board where the Climate Resolve and Centennial Appointees are all present (telephonically or in person).

c. Administrative Operations. The Board shall determine how to accomplish the administrative and other functions of the CMG in accordance with the CMG's annual budget. In doing so, the Board may hire staff and delegate to such staff any decisions necessary to administer the day-to-day operations of the CMG. Such staff may include, without limitation, an executive director for the CMG, whose duties and responsibilities shall be set by the Board. All decisions by the Board with respect to the administrative operations of the CMG shall be made by the majority of the Board. CMG may conduct such documentary and physical inspections of the Project to audit Centennial's compliance with the Agreement and to verify the accuracy of the Annual Reports, and Centennial shall comply with such inspection and audit requests in a timely fashion.

d. Funding and Annual Budget.

1. The Board shall adopt an initial annual operating budget following the County Approval of First VTTM, and thereafter shall annually adopt a budget setting forth operating and reserve funds for each calendar year. Commencing on the first anniversary of the County Approval of First VTTM ("Anniversary Date"), and continuing on each successive Anniversary Date for three years, Centennial shall contribute $300,000 annually to the CMG to fund CMG operations, and thereafter shall annually contribute $150,000 for such CMG operations. CMG shall maintain an operating account, and a reserve account. It is anticipated that tract-map applications and the 15-Year GHG True-Up as described below will require more staff work, but that neither of these reviews will occur during most years. It is further anticipated that Building Permit and Annual Report monitoring (as described below) will be substantially less complex over time.

2. For each year of funded CMG operations following the County Approval of First VTTM , the Board shall contribute to a reserve account to hold funds in CMG's possession that exceed the projected budget for the next year, plus a 20% contingency factor. CMG shall accumulate such reserve amounts to reduce annual funding amounts. Once the reserve amount reaches $500,000, annual funding from Centennial shall be suspended until the balance of the reserve account is reduced to $200,000, at which time annual funding of $150,000 per year shall resume by Centennial. If the reserve amount is reduced to less than $200,000 at any time during a year, then Centennial will pay $150,000 in annual funding until the reserve amount reaches $500,000. If the CMG Board approves a request by Centennial to initiate the True-Up process, Centennial will pay $300,000 for the True-Up Year to CMG.

3. Commencing six months following the County Approval of First VTTM, and continuing each year thereafter, Centennial shall deliver to the CMG the sum of Good Neighbor Firewise Fund grant. The CMG will administer and distribute such funds consistently with this Agreement. The fire-related funds will not count as CMG operating funds and will not be subject to the reserve limitations in paragraph 2 above.

e. Board Meetings. Procedures for conducting Board meetings shall be set forth in the By-Laws of the CMG, which shall be consistent with the provisions of this Agreement and include, without limitation, the following provisions:

1. The Board shall meet at least twice annually (on the last Thursday of April and October, or such other dates in those months as the Board shall determine), or more frequently as requested by the Centennial Appointees or the Climate Resolve Appointees. Any Board member may propose an item to be placed on the Agenda, and all such items shall be included in the Agenda.

2. The Board will schedule the first meeting of each year on the last Thursday of April after the Board's receipt of the Annual Report on March 1, as specified in Section 1.f above. At this meeting, the Board will evaluate the Annual Report to determine whether Centennial is in compliance with the terms of this Agreement. In particular, the Board's evaluation shall specifically consider whether Centennial has funded GHG emissions mitigation projects and actually received Mitigation Credits with respect to particular phases of the Project to verify that Centennial has satisfied its GHG emissions mitigation plans contained in prior Annual Reports and in GHG Mitigation Plans previously reviewed by the Board. The Board may request further information from Centennial if needed for the evaluation. The CMG Board shall review the Annual Report, and inform Centennial of any perceived non-compliance with this Agreement. If there is any perceived non-compliance, then the dispute resolution process may be commenced by the CMG.

3. The agenda for the second meeting of the Board each year will include (i) awarding grants to Good Neighbor Firewise Fund grant applicants, and (ii) updated information to the extent relevant, including for example changed forecasts, corrective actions, or other relevant activities. The Board or the staff of the CMG upon delegation by the Board, shall promulgate procedures for soliciting, accepting and reviewing Good Neighbor Firewise Fund grant applications and for distributing and monitoring such grants that are awarded.

4. The Board will hold a special meeting within thirty days after the CMG receives a GHG Mitigation Plan, as described in Section 1.f above. At that meeting it will accept or dispute that plan, based on its compliance with the terms of this Agreement. If the Board disputes the plan, the CMG will undertake the CMG Dispute Resolution process described in Section 3.f to bring Centennial into compliance, if necessary.

5. The Board may hold special meetings as necessary to approve or evaluate agendized reports received from Centennial, including but not limited to reports including requests by Centennial that CMG review and accept Non-Itemized GHG Mitigation Measures proposed by Centennial that are not included in an approved Registry but which result in a quantified GHG Mitigation Credit for purposes of this Agreement, or other information relating to Centennial's compliance with this Agreement and to provide Centennial sufficient opportunity, prior to filing an application for any building permit for, or undertaking any construction activities at a particular phase of the Project, to establish that Centennial has funded GHG emissions mitigation projects and actually received Mitigation Credits for each phase in sufficient amounts to be consistent with GHG emissions mitigation plans contained in prior Annual Reports and in GHG Mitigation Plans previously submitted to the Board.

6. The presence (in person or telephonically) of all then-current members of the Board at any meeting of the Board shall establish a quorum for that meeting, and all actions undertaken or decided by the Board at meetings establishing a quorum shall be effective; provided, however, that the presence (in person or telephonically) the Centennial and Climate Resolve Appointees shall be a quorum for purposes of identifying the Neutral, and in the event of the unavailability of a Neutral the Centennial and Climate Resolve Appointees may by unanimous consent make decisions.

f. CMG Dispute Resolution

1. If the CMG finds, by a majority vote of the Board, that Centennial has violated this Agreement, or if the CMG fails to approve an Annual Report or GHG Mitigation Plan, or if the CMG finds that Centennial is not implementing the FPP, the CMG will meet and confer with Centennial to resolve the issue.

2. If the meet and confer fails to resolve the issue, the CMG will take the issue to arbitration in Los Angeles County before one arbitrator. The arbitration shall be administered by JAMS pursuant to its Streamlined Arbitration Rules & Procedures, with the following modifications:

    a) The CMG shall file and serve on Centennial a Notice of Commencement of Arbitration and an opening brief with a maximum length of 20 pages, and include all relevant documentation as exhibits to that brief.

    b) Centennial shall file a response brief of the same maximum length, which shall also include all relevant documentation as exhibits to that brief.

    c) The arbitrator shall meet and confer with each Party to identify the need for any further briefing or documentation.

    d) Each Party shall respond to the arbitrator within 30 days with supplemental briefs of up to 20 additional pages and submit additional documentation as exhibits.

    e) The arbitrator will determine whether a hearing is necessary and if so, shall specify the date and time of a hearing.

    f) The arbitrator will thereafter make a final decision which is binding on CMG and Centennial. The Arbitrator may make any awards necessary to bring Centennial into compliance with this Agreement, including injunctive relief and specific performance. If the issue involves CMG's approval of a report or plan, the Arbitrator may approve the report or plan, or may order Centennial to take any actions necessary to ensure Centennial's compliance with this Agreement.

3. Nothing in this Agreement precludes a Party from disclosing the commencement or completion of an arbitration proceeding, and any final arbitrator determination. Commencement of the arbitration process, and disclosure of the arbitration award, shall not constitute Opposition for purposes of this Agreement.

4. CMG will pay the costs of arbitration unless the arbitrator rules otherwise. The arbitration will take place as noticed by JAMS regardless of whether one of the parties fails or refuses to participate. The Parties' intent is that the arbitration process shall be completed within 90 days following service of the Notice of Commencement of Arbitration.

Should the arbitrator in a CMG-initiated arbitration find that Centennial is not in compliance with one or more of its obligations under the Agreement or otherwise make a ruling to resolve a controversy between CMG and Centennial, the arbitrator's award may require Centennial to comply with Centennial's obligations under this Agreement. The Parties' intent and

agreement is that the arbitration award shall require specific performance of GHG and wildfire obligations of Centennial under this Agreement. In the award, the arbitrator shall determine a reasonable period of time in which Centennial must complete its specific performance obligations. The arbitrator shall retain jurisdiction over the matter arbitrated to ensure that Centennial complies with the award and, upon any failure by Centennial to comply with such an award in a timely fashion, the arbitrator may issue such further awards, which may include requiring Centennial to pay the costs and expenses of the arbitration and CMG's costs expended in the arbitration for consultants and attorneys.

4 Mutual Releases of Claims

a. Except as otherwise provided in this Agreement, Climate Resolve forever waives, releases, and discharges Centennial and Tejon Ranchcorp, the Tejon Ranch Co. (a Delaware corporation), and their affiliates, assigns, subsidiaries, parent entities, and each of their respective employees, officers, directors, members, staff, agents, attorneys, and/or representatives, and each of them (collectively, the "Centennial Released Parties"), from any and all claims, lawsuits, administrative and judicial proceedings, appeals, demands, challenges, liabilities, damages, fees, costs, and causes of action, at law or in equity, known or unknown, in any jurisdiction and before any court, agency, or tribunal (collectively and severally, "Claims") that Climate Resolve has ever had, have, or may have against the Centennial Released Parties, or any of them, arising in any way from or related in any way to the Project, including without limitation, the claims brought by, or that could have been brought by Climate Resolve in the Litigation. Climate Resolve agrees that upon full execution of this Agreement, all Claims shall be extinguished and this Agreement shall be a full, complete and final disposition and settlement of all Claims against Centennial and Tejon Ranchcorp to all matters and issues alleged or raised, or could have been alleged or raised in the CR Litigation. Accordingly, Climate Resolve stipulates and agrees that res judicata and collateral estoppel apply to each of the Claims and actions relating to the Litigation, so that Centennial is forever barred from re-litigating any Claims, matters, and issues which were alleged or raised or could have been alleged or raised, in any other manner in the Litigation.

b. Except as otherwise provided in this Agreement, Tejon Ranchcorp and Centennial release Climate Resolve, its affiliates, subsidiaries, parent entities, and each of their respective employees, officers, members, staff, agents, attorneys, and/or representatives, and each of them (collectively, the "CR Released Parties") from any and all Claims that Centennial has ever had, have, or may have against the CR Released Parties, or any of them, arising in any way from or related in any way to the Project, including without limitation, the Litigation.

c. Civil Code Section 1542 Waiver. To the extent applicable to the foregoing Mutual Releases of Claims, the Parties certify that they have been advised of and hereby waive the application of Section 1542 of the California Civil Code, which states as follows:

A general release does not extend to claims that the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release and that, if known by him or her, would have materially affected his or her settlement with the debtor or released party.

Climate Resolve: _____ Centennial: _____

Tejon Ranchcorp: _____

d. Nothing in this Section shall be interpreted as releasing any Party's right to enforce this Agreement in full as provided in Section 5 herein.

e. Nothing in this Agreement shall prevent Centennial and/or Project tenants, landlords, lessors, lessees, homeowners, or landowners from using the obligations under this Agreement also to satisfy any obligation imposed by laws or regulations, or contractual obligations, including but not limited to third party settlement agreements, whether such law or regulation or contractual obligation arise before or after the Effective Date. Notwithstanding the foregoing, any GHG mitigation credits used to comply with the requirements of this Agreement shall not be used to satisfy GHG obligations imposed by contractual obligations for projects other than the Project, including but not limited to third party settlement agreements that arise before or after the Effective Date; provided, however, that GHG mitigations not used for the Project may be used to satisfy GHG obligations as mandated by law or regulation for the Project or a project on Tejon Ranch.

5 Dispute Resolution

a. Meet and Confer. In the event of any dispute between the Parties related to this Agreement or the Project, the Party initiating the dispute shall, before taking any other action concerning that dispute, provide written notice of the dispute to the other Party and meet and confer in person in a good-faith effort to resolve the dispute within sixty days of the notice, unless otherwise agreed. Any Party that is alleged to be in breach of this Agreement shall have ninety days from that in-person meeting to cure, unless otherwise agreed.

b. Arbitration. Any dispute, claim or controversy arising out of or relating to this Agreement or the breach, termination, enforcement, interpretation or validity thereof, including the determination of the scope or applicability of this agreement to arbitrate, shall be determined by arbitration in Los Angeles County before one arbitrator. The arbitration shall be administered by JAMS pursuant to its Streamlined Arbitration Rules & Procedures, with the following modifications:

1. The Party initiating arbitration shall file and provide notice to the other Party of a Notice of Commencement of Arbitration and an opening brief with a maximum length of 20 pages, and include all relevant documentation as exhibits to that brief.

2. The opposing Party shall file a response brief of the same maximum length, which shall also include all relevant documentation as exhibits to that brief.

3. The arbitrator shall meet and confer with each Party to identify the need for any further briefing or documentation.

4. Each Party shall respond to the arbitrator within 30 days with supplemental briefs of up to 20 additional pages and submit additional documentation as exhibits.

5. The arbitrator will determine whether a hearing is necessary and if so, shall specify the date and time of a hearing.

c. The arbitrator will thereafter make a final decision which is binding on the Parties. The Arbitrator may make any awards necessary to bring Centennial into compliance with this Agreement, including injunctive relief and specific performance.

d. Each Party shall bear its own arbitration costs unless the arbitrator rules otherwise. The arbitration will take place as noticed by JAMS regardless of whether one of the parties fails or refuses to participate.

e. The Parties' intent is that the arbitration process shall be completed within 90 days following service of the Notice of Commencement of Arbitration.

6 Miscellaneous Provisions

a. Successors and Assigns. This Agreement is personal to Climate Resolve, Centennial and Tejon Ranchcorp and the Parties may not assign or transfer their interests under this Agreement except as set forth in this Section 6.a. It is contemplated the Project will be developed over time on a lot-by-lot basis by third party developers and home builders. The Parties understand and agree that Centennial and/or Tejon Ranchcorp may freely assign, in their sole and absolute discretion, from time to time, and at any time, the performance of obligations under this Agreement on portions of the Project to future builders or other parties, but Centennial and/or Tejon Ranchcorp will remain obligated to Climate Resolve if such successors or assigns fail to perform any such assigned obligations (e.g., the installation of EV chargers for Residential and Non-Residential buildings as described in Section 1.a of this Agreement). In the event the entirety of the Project is sold, transferred or conveyed to a non-affiliated third party, including but not limited due to an asset sale, land sale or the sale of either underlying company ("Transfer"), Centennial and Tejon Ranchcorp shall have the right in their sole and absolute discretion to freely assign their interests under this Agreement to a third party receiving such a Transfer, so long as the following two conditions are met: (1) the Transfer must be to an entity with the financial and physical capability of assuming the assigned obligations; and (2) the third-party assignee must agree to assume Centennial's and Ranchcorp's obligations to Climate Resolve (as an intended third party beneficiary to the Assumption Agreement) under this Agreement ("Assumption Agreement")." After such an assignment Centennial

and Ranchcorp shall be fully released at the time of such Transfer from any and all duties or obligations arising from or related to this Agreement. As of the Effective Date, the Parties hereby warrant and represent to one another that neither Party has heretofore assigned or transferred or purported to assign or transfer to any person or entity any of the claims released under Section 4 above.

b. Choice of Law. This Agreement shall be interpreted under the laws of the State of California.

c. No Construction against Drafter. For purposes of any action arising out of the application, interpretation, or alleged breach of this Agreement brought by either Party, each Party waives California Civil Code Section 1654, any other statutory or common law principle of similar effect, and any judicial interpretation of this Agreement that would create a presumption against the other Party as a result of its having drafted any provision of this Agreement. The respective Parties have reviewed and revised this Agreement, and there shall not be applied any rule construing ambiguities against the drafting Party or Parties.

d. Severability. In the event that any provision of the Agreement shall be held invalid or unenforceable, such holding shall not invalidate or render unenforceable any other provisions hereof unless any of the state purposes of the Agreement would be defeated.

e. Entire Agreement. This Agreement contains the entire understanding and complete agreement of the Parties with respect to the subject matter of this Agreement, and all understandings and agreements, if any, previously reached between the Parties are merged into this Agreement. No amendment or modification of this Agreement shall be valid or binding upon the Parties unless made in writing and executed by both Parties.

f. Exhibits. All Exhibits to this Agreement are incorporated herein by reference, and are listed herein for ease of reference:

Exhibit 1: Fire Protection Plan

Exhibit 2: Boundaries of Tejon Ranch

Exhibit 3: GHG Calculations in Agreement of BAU, and Itemized and Non-Itemized GHG Mitigation Measures, with Reporting Template for Tracking Planning and Compliance with Net Zero GHG Project Obligations for Purposes of this Agreement

Exhibit 4: Public Statement

g. Counterparts. This Agreement may be executed in any number of counterparts, each of which shall constitute an original and all of which together shall constitute one and the same instrument. Execution of a copy shall have the same force and effect as execution of an original.

h. Amendment. This Agreement may not be amended except in a writing signed by each of the Parties hereto.

i. Cooperation. The Parties agree to cooperate to draft and execute any documents, or to enter into any further agreements or plans, necessary or convenient to effectuate the intent of this Agreement.

j. Mitigation. Based on standard GHG accounting principles of both additionality and double-counting, no GHG mitigation used for the Project may be used for any other project. Further, any GHG mitigation required under this Agreement shall not be used to satisfy GHG obligations imposed by contractual obligations for projects other than the Project, including but not limited to third party settlement agreements that arise before or after the Effective Date; provided, however, that GHG mitigations not used for the Project may be used to satisfy GHG obligations as mandated by law or regulation for the Project or a project on Tejon Ranch.

k. No Admission of Liability. This Agreement is a compromise of disputed claims and the fact that the Parties hereto have determined to compromise such disputed claims by entering into this Agreement is not to be construed as an admission of liability or otherwise on the part of the Parties.

l. Public Communications Regarding Agreement. On December 1, 2021, Centennial and Climate Resolve shall jointly issue a public statement substantially in accordance with the attached Exhibit 4 to this Agreement. The Parties agree that the Parties' future public statements concerning the Litigation, the Project, the Los Angeles County Initial Project Approvals, the Future Implementation Approvals, or other issues shall not be inconsistent with the joint public statement.

m. Confidentiality. This Agreement shall not be confidential, but the Parties shall keep documents exchanged during the process of negotiating this Agreement confidential as required by the Mutual Non-Disclosure Agreement dated June 18, 2021. The Parties agree not to comment publicly about the process of negotiating this Agreement, but are free to publicly comment on the Agreement and its public-policy implications, subject to the restrictions in Section 6.l above.

n. Tolling. The Parties understand and agree that performance of Centennial and/or Tejon Ranchcorp obligations under this Agreement are dependent upon the ongoing development of the Project. To the extent any third-party challenge or action results in the cessation of development (by way of example only, through litigation challenges to subsequent approvals, denials or delays in subsequent approvals, or the absence of market financing for development), the obligations of Centennial and/or Tejon Ranchcorp under this Agreement that have not yet been triggered are thereafter tolled until development of the Project recommences. Centennial shall provide notice of the commencement of a Tolling Period to the CMG Board. This tolling does not relieve

Centennial from the obligation to provide GHG Reductions for new structures prior to occupancy under building permits as described above. To the extent the tolling period lasts longer than six months, the amount of annual funding due for FPP implementation, Good Neighbor Firewise Fund grant funding, and CMG funding, shall be reduced pro rata by the number of Dwelling Units, and amount of square feet of Non-residential, for which certificates of occupancy have been approved in relation to the number of Dwelling Units and square feet of Non-residential which the County approved as of the Effective Date.

o. Force Majeure. No Party shall be responsible or liable for any failure or delay in the performance of its obligations pursuant to this Agreement arising out of or caused by, directly or indirectly, forces beyond the Party's reasonable control, including, without limitation, fire, explosion, floods, acts of war or terrorism, national emergencies, pandemics, strikes, or riots. Any party claiming a Force Majeure event shall use reasonable diligence to remove the condition that prevents performance and shall not be entitled to suspend performance of its obligations in any greater scope or for any longer duration than is required by the Force Majeure event. Each Party shall use its best efforts to mitigate the effects of such Force Majeure event, remedy its inability to perform, and resume full performance of its obligations hereunder. A Party suffering a Force Majeure event ("Affected Party") shall notify the other Party ("Non-Affected Party") in writing ("Notice of Force Majeure Event") as soon as reasonably practicable specifying the cause of the event, the scope of commitments under the Agreement affected by the event, and a good faith estimate of the time required to restore full performance. Except for those commitments identified in the Notice of Force Majeure Event, the Affected Party shall not be relieved of its responsibility to fully perform as to all other commitments in the Agreement.

p. Termination and Term. The Parties may by mutual agreement terminate this Agreement. The Agreement shall remain in effect until the earlier of thirty years from the Effective Date, or the date upon which building permits have been issued for full build-out of the contemplated square footage of improvements to be built within the Project

q. No Third-Party Beneficiaries. There are no third-party beneficiaries of this Agreement, and nothing in this Agreement creates or may be interpreted as creating a property interest in the Project Site or on Tejon Ranch held by Climate Resolve.

r. Authority. Each signatory to this Agreement represents and warrants that he or she is authorized to sign this Agreement on behalf of the Party for which he or she is signing, and thereby to bind that Party fully to the terms of this Agreement.

s. Notices. All notices shall be in writing and shall be addressed to the affected Parties at the addresses set forth below. Notices shall be: (a) hand delivered to the addresses set forth below, in which case they shall be deemed delivered on the date of delivery, as evidenced by the written report of the courier service; (b) sent by certified mail, return

receipt requested, in which case they shall be deemed delivered five business days after deposit in the United States mail; or (c) transmitted by email in which case they shall be deemed delivered on the date of transmission if sent before 5:00 p.m. or on the first business day after transmission if sent at 5:00 p.m. or later or if sent on a Saturday, Sunday, or California court holiday, provided the Party transmitting notice by email does not receive a delivery status notification indicating that delivery of the email communication failed. Any Party may change its address, its email, or the name and address of its attorneys by giving notice in compliance with this Agreement. Notice of such a change shall be effective only upon receipt. Notice given on behalf of a Party by any attorney purporting to represent a Party shall constitute notice by such Party if the attorney is, in fact, authorized to represent such Party. The addresses and email addresses of the Parties are:

For Climate Resolve:	Jonathan Parfrey Email: jparfrey@climateresolve.org Address: 525 S. Hewitt Street, Los Angeles, CA 90013
With Copy to Counsel:	Dean Wallraff Email: dw@aenv.org Address: Advocates for the Environment, 10211 Sunland Blvd., Shadow Hills, CA 91040
For Centennial:	Greg Bielli, President & CEO Tejon Ranchcorp Email: gbielli@tejonranch.com Address: P.O. Box 1000, Tejon Ranch CA 93243
With Copy to Counsel:	Marc Hardy, General Counsel Email: mhardy@tejonranch.com Address: P.O. Box 1000, Tejon Ranch CA 93243 Jennifer Hernandez, Holland & Knight Email: Jennifer.hernandez@hklaw.com Address: 400 S. Hope St., 8th Floor , Los Angeles CA
For Tejon Ranchcorp.	Greg Bielli, President & CEO Email: gbielli@tejonranch.com Address: P.O. Box 1000, Tejon Ranch CA 93243
With Copy to Counsel:	Marc Hardy, General Counsel Email: mhardy@tejonranch.com Address: P.O. Box 1000, Tejon Ranch CA 93243

Jennifer Hernandez, Holland & Knight
Email: Jennifer.hernandez@hklaw.com
Address: 400 S. Hope St., 8th Floor , Los Angeles CA

[SIGNATURES FOLLOW ON NEXT PAGE]

In Witness Whereof, the Parties have executed this Agreement effective As of the Effective Date.

Tejon Ranchcorp, a California corporation

Date: November 30, 2021

By: Gregory S. Bielli
Its: President & CEO

Centennial Founders, LLC, a Delaware limited liability company
By Tejon Ranchcorp, a California corporation, its Development Manager

Date: November 30 2021

By: Gregory S. Bielli
Its: President & CEO

Climate Resolve, a California nonprofit public benefit corporation

Date: November ___, 2021

By: Jonathan Parfrey
Its: President

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Exhibit 1 - Fire Protection Plan

Fire Protection Plan for Centennial Specific Plan

Prepared for:

Centennial Founders, LLC
28480 Avenue Stanford, 2nd Floor
Santa Clarita, California 91355

Prepared by:

DUDEK
605 Third Street
Encinitas, California 92024
Phone: 760.479.4836
Fax: 760.479.4176

November 2021

1. INTRODUCTION

This Fire Protection Plan (FPP) has been prepared by Dudek and is specifically applicable to the Centennial Specific Plan community (Project) in Los Angeles County (County). This FPP is intended to guide the design, construction, and maintenance of Project improvements in compliance with the Centennial Specific Plan (Specific Plan), applicable fire codes, and the various fire safety mitigation measures described in the Mitigation Monitoring and Reporting Program (MMRP) approved for the Project by the County (collectively, the Fire Safety Requirements, all of which are described in detail on the attached Exhibit A). This FPP address fuel modification, fire protection related infrastructure (water supply, hydrants, primary and second ingress/egress roads, and emergency response) and structural fire protection concepts for the Project. This FPP also addresses how the Project's Fire Safety Requirements will be monitored and enforced over time, as well as the how the Project's master developer will ensure that Project residents are fully educated about their obligations to maintain a fire-safe home. The goal of this FPP is to provide standards to facilitate development of the Project as a "fire hardened" community that will protect Project residents and visitors, as well as the environment, by minimizing and mitigating fire threats on the Project site and reducing Project demands on local fire protection services.

2. OVERVIEW OF THE PROJECT'S FIRE PROTECTION FRAMEWORK

As explained in the Centennial Project Final Environmental Impact Report, State Clearinghouse No. 2004031072 (EIR), the Project would introduce urban development in an undeveloped area subject to wildfire hazards.[1] Fire protection for new developments that, like the Project, are located in a Wildland Urban Interface (WUI) area must utilize a "systems approach" consisting of the components of fuel modification and maintenance, ignition-resistant structures that accounts for expected (potential) exposures (e.g., embers only, radiant heat from adjacent structures or vegetation), water supply, fire protection systems, access (ingress/egress) and emergency response. To that end, this Project will include:

- Substantial on-site firefighting capability (three new fire stations, upgrades to existing fire station), thus ensuring fast response to fire and medical emergencies;

- Customized and peer-reviewed fuel modification zones providing defensible space based on fire behavior modeling results and experienced fire protection planning professionals;

- Ignition-resistant construction meeting Chapter 7A of the California Building Code (CBC), the Title 26 the County of Los Angeles Building Code (LABC), and the Los Angeles County Fire Department (LACoFD) requirements and providing temporary on-site relocation capability for some structures;

[1] Please refer to EIR Chapter 3, *Environmental Setting*, for a detail description of the Project site and its surroundings, and to EIR Chapter 4, *Project Description*, for a detailed description of the Project and its proposed improvements.

- Fire protection systems, including internal fire sprinkler systems, in all structures per applicable code requirements;

- Dedicated fire apparatus and emergency vehicle access via code compliant roads;

- Water capacity, delivery and availability meeting local code requirements;

- Ongoing, funded maintenance, inspections, and enforcement of fuel modification zones and other fire protection features.

- Ongoing resident fire safety education.

The following sections address implementation of the Project's Fire Safety Requirements.

3. IMPLEMENTATION OF THE PROJECT'S FIRE PROTECTION FRAMEWORK

Future development of the Project in accordance with the Specific Plan will require various subsequent discretionary and ministerial approvals from the County, including but not limited to, tentative subdivision maps, final subdivision maps, site plans, conditional use permits, grading permits, and building permits. Initial implementation of the Project's fire protection measures will occur at various stages of the subsequent approval process, as discussed in the Specific Plan, the EIR, and the MMRP. This section describes how each of the Project's fire safety measures will be implemented at various stages of the development process, and describes how the Fire Safety Requirements will be satisfied during Project operation.

a. Fire Safety Requirements Implemented at the Tentative Map Stage of Development.

Pursuant to the Specific Plan and MMRP, the following Fire Safety Requirements will be implemented concurrent with the County's review and approval of any Project tentative subdivision map:

i. Emergency Response Plan

The MMRP requires the Project to prepare an Emergency Response Plan (ERP), which shall be updated as needed for each Tentative Map, and shall be submitted to the County (California Department of Forestry and Fire; and County Fire Department and/or County Sheriff's Department) for review and approval. The ERP will utilize existing information from Los Angeles County Office of Emergency Management, coordinate with County emergency planners, and provide site specific procedures for various emergency situations including wildfire. As required by the DA, the Property Owners shall require future residential and commercial property owners associations to develop and implement an emergency preparation and response plan, including shelter-in-place and evacuation plans as well as first aid and emergency electric power supplies.

With regard to wildfire emergencies, the following components shall be incorporated into the ERP:

- Building and Facility Protection (as defined in this FPP)
- Grounds Protection (fuel modification zone adjacent to common areas and some residential lots purpose)
- Fire Prevention during High Fire Danger and Extreme High Fire Danger periods
- Emergency Supplies
- Telephones/Communications
- FireSafe Council and NFPA Firewise Community Information
- Incident Command List
- Emergency Response Notebook
- Annual Review and Update
- Emergency Notification Procedures
- Advisement of Potential Fire Danger
- Emergency Relocation/Evacuation Plan
- Animal Relocation/Evacuation Plan.

The ERP will provide detailed response procedures for varying types of emergencies, including wildfire emergencies.

Possible wildfire response procedures included in the ERP would vary depending on the type of wildfire threat. Slow moving, distant wildfires that have the *potential* to threaten the Project would require one response whereas a fast moving, wind driven fire nearby or within the Project site would trigger a very different response. Accordingly, the ERP will include response for various types of wildfire emergencies. The following summaries provide potential responses to be considered for various wildfire emergency response scenarios.

Wildfire Emergency Response Scenario

- Fire authority notification of wildfire in jurisdiction, determination of activation of reverse 9-1-1 or mass notification system (if available or provided by Project).
- Reverse 9-1-1 activated – all telephone numbers within district notified via a computer of the fire situation (capable of 264 calls per minute or 15,000 calls within an hour, or more, dependent on system).
- In the absence of Reverse 9-1-1 (for example, should communications be interrupted), fire department sirens and law enforcement intercoms will be used to

inform residents of emergencies. The fire department sirens and police intercoms will be audible by affected parts of the Centennial Specific Plan Project area. The fire department sirens and police intercoms will also be used to supplement the Reverse 911 system.

- On-site LACoFD personnel and law enforcement personnel begin emergency response procedures.

- Centennial employers and residents receive reverse notification call or hear warning sirens and prepare for potential evacuation or on-site relocation.

- If relocation required/recommended, internal relocation plan initiated and residents relocated to designated on-site or off-site areas. LACoFD would direct residents, staff and visitors as well as coordinate with the California Highway Patrol for on-site traffic management.

On-Site Relocation/Off-Site Evacuation Response Scenarios

On-site relocation of Project residents, employees and visitors would typically occur during large, distant wildfire events that, due to weather patterns and difficulty in gaining control, have the potential to threaten parts of the Centennial community but likely do not threaten the entire community. Off-site evacuation would typically occur during large wildfire events that may be closer to the Project and threaten the entire community due to weather patterns and fire containment levels. The required ERP shall plan for both on-site relocation and off-site evacuation scenarios.

If on-site relocation or off-site evacuation of Project residents, visitors and employees of businesses is required in response to a fire threat, the following procedures would be followed and included in the ERP (NOTE: Relocation/evacuation of the Project residents, visitors, and employees, at maximum usage, may require several hours).

- If adequate time is not available for community relocation, partial community relocation may occur. Fire and law enforcement personnel will monitor the situation and relocations will cease when it is determined that it would potentially expose persons to unsafe roadway conditions.

- It is expected that law enforcement will manage the relocation/evacuation of residents. Road closures and traffic control will be among the tasks performed by law enforcement. In addition, each resident will be provided a road circulation map along with at least two designated evacuation routes.

- Law enforcement and LACoFD would evaluate the wildfire event and determine whether and at which point partial on-site relocation would occur, or whether the emergency requires community-wide off-site evacuation. Allowance for adequate relocation/evacuation time will be a key factor in determining the relocation timeframe so that the roads do not become congested. Firefighter access will be a key

priority and the array of improved roads will provide suitable access throughout the site in the event of a wildfire.

- Relocation/evacuation would occur in scenarios that include ample time to relocate the potentially affected number of people from higher exposure areas to designated safer sites. Wolshon and Marchive (2007) simulated traffic flow conditions in a computer derived 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.

- The Project and its structures will be designed and constructed to withstand the type of wildfires anticipated from the surrounding fire environment. Nevertheless, early notification of the Project's fire personnel and subsequently of Project residents, visitors and employees is critical to the timely and safe relocation/evacuation to the designated relocation/evacuation areas.

- Whether to implement on-site relocation scenario would depend on the wildfire location, movement and weather and how it may affect traffic on local roads. There may also be circumstances that require partial on-site relocation of the Project's higher exposed periphery areas. In these cases, potentially affected residents would be instructed to relocate to on-site areas, such as schools or commercial areas, where they will be temporarily accommodated until the wildfire threat has passed.

- On an annual basis, it is recommended that the Project conduct a fire relocation/evacuation fire drill to train staff, and fire personnel, with the results distributed to residents through various media and summarizing what to do during a wildfire. This drill will be supervised by the LACoFD with the authority to revise the procedure as necessary to provide the most efficient and safest relocation process. Residents will not be required to relocate or evacuate during the drills, but the process and procedures will be enforced through pre-drill public relations and post-drill information dissemination.

- Homeowners will receive ongoing outreach from the HOA along with coordination with LACoFD for important fire safety awareness from the Firewise Committee/Board.

- If on-site relocation or off-site evacuation is required, residents will be notified and directed as to their movement to designated areas or notified that they should remain in their homes according to procedures with LACoFD direction and oversight.

The ERP will provide that the Project will implement the "Ready, Set, Go!" program during the relocation/evacuation scenario. The focus of the "Ready, Set, Go!" program is on public awareness and preparedness, especially for those living in the wildland-urban interface (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 planting and maintaining ignition-resistant vegetation near your home. 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 for Reverse 911(if available), Alert LA County, and community alert system. 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 Centennial community, pack your vehicle with your emergency items. Stay aware of the latest news from local media and your local fire department for updated information on the fire. 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.

Shelter-in-Place Scenario

Sheltering-in-place is the practice of going or remaining indoors during or following an emergency event. This procedure is recommended if there is little time for the public to react to an incident and it is safer for the public to stay indoors for a short time rather than travel outdoors. Sheltering-in-place also has many advantages because it can be implemented immediately, allowing people to remain in their familiar surroundings, and providing individuals with everyday necessities such as telephone, radio, television, food, and clothing. However, the amount of time people can stay sheltered-in-place is dependent upon availability of food, water, medical care, utilities, and access to accurate and reliable information.

Sheltering-in-place is the preferred method of protection for people that are not directly impacted or in the direct path of a hazard. This will reduce congestion and transportation demand on the major transportation routes for those that have been directed to evacuate by police or fire personnel. All structures in Centennial community would conform to the ignition-resistant building codes codified in Chapter 7A of the California Building Code, therefore, structures would be ignition-resistant, defensible and designed to require minimal

firefighting resources for protection, which enables this contingency option when it is considered safer than evacuation.

As of this document's preparation, no community in California has been directed to shelter-in- place during a wildland fire. Even the communities in Rancho Santa Fe, California, which are designed and touted as shelter-in-place communities, were evacuated during the 2007 Witch Creek Fire. This is not to say that people have not successfully sheltered-in-place during wildfire, where 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 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 site include:

- Inadequate time to safely evacuate
- Fire evacuations during rush hour traffic 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 local law enforcement and fire agencies 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.

This FPP does not provide guarantee that all Project residents, employees and visitors will be safe at all times because of the advanced fire protection features it requires. There are many variables that may influence overall safety. This FPP provides requirements and recommendations for implementation of the latest fire protection features that have proven to result in reduced wildfire related risk and hazard.

ii. Implementation Plan

Per the MMRP Mitigation Measure MM 7-21, vegetation management for fire abatement purposes is not permitted in the portion of Significant Ecological Area (SEA) 17 or mitigation preserve areas within or bordering the Project site and, therefore, brush clearance zones shall be contained within the current Project impact boundary and no overlap with the adjacent SEA 17 and/or mitigation preserve areas shall occur. The MMRP further requires that an Implementation Plan, including fire risk abatement measures (including but not limited to vegetation management) required to comply with State and County fire prevention and response legal requirements shall be submitted as part of any application for a tentative subdivision map for those portions of the Project site that border an SEA or mitigation preserve area. The Implementation Plan must include: (a) a summary of applicable State and County fire risk abatement requirements; (b) a prohibition on the use of vegetation clearance within SEA 17 or mitigation preserve areas. The Implementation Plan shall be submitted to

the County for approval with the first tentative map, and shall be updated to include new or modified State or County fire risk abatement requirements as part of each subsequent tentative tract map submittal.

iii. Landscape Plan

As required by the MMRP, the Project Applicant/Developer shall develop a Landscaping Plan for review and approval by the County Biologist for each tentative map application submittal. The Landscaping Plan must be prepared by a qualified biologist and include a plant palette composed of fire-resistant, non-invasive species that are adopted to the conditions found on the Project site and do not require high irrigation rates. The MMRP further requires that the Landscaping Plan shall also include a list of invasive plant species prohibited from being planted or sold on the Project site and encourage planting of local natives typical of native vegetation within ten miles of the Project site. The Specific Plan's Green Development Program and Hillside Design Guidelines further require the Project to implement fire-safe landscaping techniques consistent with the Specific Plan's plant palette to reduce fire risks to biological resources and human safety in the fuel modification zones, and landscaping in a manner that, among other things, increases fire protection, respectively. Additionally, the Project's Specific Plan requires landscaping in the plan's Open Space Zone to be dominated by native and/or drought tolerant trees, shrubs and ground cover, taking into consideration fuel modification requirements, such as using plants that are fire resistant and avoid plants with characteristics that make them more readily combustible such as plants with oils, wax or resin content, plants that accumulate dead material or shed bark, and/or plants that grow rapidly. Plants selected will be consistent with LACoFD Planting Guideline regarding prohibited species and appropriate plant spacing with respect to zone location. Finally, the MMRP requires that the map applicant ensure that the approved Landscape Plan be provided to Project builders and all future Project occupants.

iv. Construction Traffic Control Plan

As required by the MMRP, the applicant must include in its application for any tentative map involving construction within the State Route 139 right-of-way a Traffic Control Plan prepared in accordance with the California Manual on Uniform Traffic Control Devices and approved by the California Department of Transportation (Caltrans). The MMRP further requires that all construction activities in the public right-of-way comply with the Traffic Control Plan to the satisfaction of Caltrans. The Traffic Control Plan shall ensure code-compliance access for fire apparatus and first responder vehicles.

v. Fire Access Infrastructure Conditions

Per the Subdivision Ordinance, each tentative map application and approved tentative map must demonstrate that that Project internal circulation system, site access, road dimensions, road connectivity, and other standards related to fire apparatus access are consistent with all applicable County's roadway and fire code standards. Thus, each approved Project tentative map shall require as a condition of final map approval that:

- all interior Project roads comply with all fire apparatus access road standards;

- all interior fire access roadways where a fire hydrant is located will be constructed to a minimum unobstructed road width of 26 feet, exclusive of shoulders and shall be improved with aggregate cement or asphalt paving materials;

- all fire access roadways that are designed to allow parking provide a minimum clear width of not less than 34 feet for parking on one side and a clear width of not less than 42 feet for parking on both sides;

- that the interior residential access roads are be designed to accommodate a minimum of a 75,000-pound (lb.) fire apparatus load;

- that any dead-end streets serving new residential structures that are longer than 150 feet have approved provisions for fire apparatus turnaround;

- that all private and public streets for each Project phase meet all applicable requirements of Title 32 of the Los Angeles County Code, as amended, and adopting by reference the 2019 edition of the California Fire Code (CFC), or current edition at time of Project approval (Fire Code);

- that all fire apparatus roads have an unobstructed width of not less than 20 feet, exclusive of shoulders, except for approved security gates in accordance with CFC Section 503.6, and an unobstructed vertical clearance clear to the sky to allow aerial ladder truck operation (provided that a minimum vertical clearance of 13 feet 6 inches may be allowed for protected tree species adjacent to access roads);

- that all roads with a median or center divider will have a minimum 20 feet unobstructed width on both sides of the center median or divider;

- that all roadways and/or driveways will provide fire department access to within 150 feet of all portions of the exterior walls of the first floor of each structure.

- that access roads will be completed and paved prior to issuance of building permits and prior to the occurrence of combustible construction.

- that the applicant will provide information illustrating the new roads, in a format acceptable to the LACoFD for use in updating LACoFD fire response maps; and

- that the curb-to-curb width of each private driveway and fire lane will be approved by the Los Angeles County Fire Department and Department of Public Works.

vi. Underground Utilities

As required by the County's subdivision ordinance, all tentative map applications must depict the location of proposed utility easements. As required by applicable standards, all of the Project's horizontal utilities, including but not limited electric transmission lines, will be installed underground to significantly reduce the potential for equipment-related fire starts.

vii. Identify Fire Station Locations

As required by the MMRP and DA, the Project shall provide at least three and up to four fully equipped fire stations on site. Per the DA, Fire Station # 1 must be a station of 10,000 square feet, Fire Station # 2 must be a station of 13,000 square feet, and Fire Station #3 must be a station of 10,000 square feet. Per the DA, two fire station sites shall have a building pad consisting of a net buildable area of 1.25 acres, and one shall have a net buildable area of 4 acres. All on-site fire stations must be fully equipped in accordance with applicable LACoFD standards. The general locations of the three required fire stations will be situated as identified on EIR Exhibit 4-1, but LACoFD shall have final approval over all fire station site locations. Per the DA, the final location of Fire Station #1 will be determined when a tentative map is approved for the Project's 1,000th residential unit, and the final locations of Fire Stations #2 and #3 will be determined at the time of any tentative map is approved for a Project residential unit that is located outside of a fire station's five-minute response time radius. Per the DA and MMRP, it remains to be determined whether the Project will be required to construct a fourth fire station, but such determination shall be made by LACoFD and shall be based on need established pursuant to MMRP Mitigation Measure MM 16-1. Finally, until such time as the Developer has conveyed to LACoFD and approved, operational and equipped fire station on the Project site, the applicant shall pay developer fees in accordance with the LACoFD Developer Fee Program, as provided in MMRP Mitigation Measure 16-2. Existing LACoFD Fire Station #77 shall serve the Project site until such time as Fire Station #1 is operational.

b. Fire Safety Requirements Implemented at the Final Map Stage of Development.

Pursuant to the Specific Plan and MMRP, the following Fire Safety Requirements will be implemented concurrent with the County's review and approval of any Project final subdivision map:

i. Fuel Modification Plan

Per the MMRP, the Project must prepare a Fuel Management Plan (FMP) demonstrating compliance with the Fire Code, which must be peer-reviewed by the California Department of Forestry and Fire Protection (CAL FIRE) and approved by LACoFD prior to recordation of the Project's first final subdivision map. An important component of a fire protection system for the Project is the provision for fire resistant landscapes and modified vegetation buffers. The FMP will establish Fuel Management Zones (FMZs) designed to provide vegetation buffers that gradually reduce fire intensity and flame lengths from fire advancing off-site or on-site by strategically placing thinning zones, restricted vegetation zones, and irrigated zones adjacent to each other on the perimeter of the WUI exposed structures. FMZs were originally developed by CAL FIRE to protect natural resources from urban area fires and over the years, have become essential to setting urban areas back from wildland areas with a dual role of protection structures and people while buffering natural areas from urban ignitions, reducing potential for urban fires to spread into wildland areas.

The Project will be exposed to naturally-vegetated open space to the north, south and west of the Project site, as well as agricultural lands to the east. For the Centennial Specific Plan

Project site, the FMZ widths between the naturally vegetated open space areas and all combustible structures are proposed to be 100, 150, or 200 feet. The FMZs will be constructed from structures outwards towards undeveloped areas. A 20-foot wide roadside FMZ along each side of the roads adjacent to the open space shall be required as well.

Although FMZs are very important for setting back structures from adjacent unmaintained fuels, the greatest concern is from firebrands or embers as a principal ignition factor. To that end, the Project site, based on its location and ember potential, is required to include the latest ignition and ember resistant construction materials and methods for roof assemblies, walls, vents, windows, and appendages, as mandated by the LACoFD and the County's Fire and Building Codes.

Per applicable County fuel modification requirements, each fuel modification areas will incorporate three zones, these are 1) a setback zone, 2) an irrigated zone, and 3) a thinning zone. The widths of the zones will vary, depending on the anticipated fire behavior. The widths will either total 100, 150, or 200 feet. Landscaping on private lots directly adjacent the WUI will include standard County fuel modification requirements. Flammable plant species will be restricted, spacing standards implemented, and basic low fuel requirements will be applicable per :LACoFD plant selection guidelines. The following descriptions provide details for the different fuel modification zones on site:

Zone A (Setback Zone)

- Irrigation by automatic or manual systems shall be provided to landscaping to maintain healthy vegetation with high live fuel moisture and greater fir resistance.

- Landscaping and vegetation in this zone shall consist primarily of green lawns, ground covers and adequately spaced shrubs and trees. The overall characteristics of the landscape shall provide adequate defensible space in a fire environment.

- Plants in Zone A shall be inherently highly fire resistant and spaced appropriately. Species selection should be made referencing Appendix E Fuel Modification Plant Reference. Other species may be utilized subject to approval by the Homeowners' Association (HOA).

- Except dwarf varieties or mature trees small in stature, trees are generally not recommended within Zone A, but are not prohibited.

- Vines and climbing plants shall not be allowed on any combustible structure.

- Target tree species (including but not limited to Eucalyptus, Pine, Juniper, Cypress, Cedar, Canary Island Date Palm, Mexican Fan Palm and Bougainvillea) shall not be allowed within 10 feet of combustible structure, defined as any accessory structure not required to be built to Chapter 7A building code standards (ex. Structures under 120 square feet).

- Within Zone A will be the Home Ignition Zone from 0 to 5 feet of the exterior wall surface of the building extending five feet on a horizontal plane.
    - This zone shall be continuous hardscape or limited to fire-resistive plantings acceptable to LACoFD.
    - Vegetation in this zone shall not exceed 6 to 18 inches in height and irrigation is required,
    - This zone shall be free of all combustible materials and the use of mulch is prohibited.

Zone B (Irrigated Zone)

- Irrigation by automatic or manual systems shall be provided to landscaping to maintain healthy vegetation with high live fuel moisture and greater fire resistance.
- Landscaping and vegetation in this zone shall consist primarily of green lawns, ground covers, and/or adequately spaced shrubs and trees. The overall characteristics of the landscape shall provide adequate defensible space in a fire environment.
- Plants in Zone B shall be fire resistant and spaced appropriately. Species selection should be made referencing Centennial Specific Plan, Table 3-7, "Plant List," in Section 3.3, "Landscape Plan." Other species may be utilized subject to approval by the HOA.

Zone C (Native brush thinning zone)

- Irrigation systems are not required for this zone.
- Landscaping and vegetation in this zone may consist of modified existing native plants, adequately spaced ornamental shrubs and trees, or both. There may also be replacement landscape planting with ornamental or less flammable native species to meet minimum slope coverage requirements of County Public Works or Parks and Recreation Landscape or Hillside ordinances. In all cases the overall characteristics of the landscape shall provide adequate defensible space in a fire environment.
- Existing native vegetation shall be controlled by thinning and removal of species constituting a high fire risk; including but not limited to laurel sumac, chamise, ceanothus, sage, sage brush, buckwheat, and California juniper. Please reference the County Fuel Modification Plant Reference.
- Fuel loads shall be reduced by pruning up the lower one-third of remaining trees or shrubs and removing dead wood. Native plants may be thinned by reduced amounts as the distance from development increases.
- Plants in Zone C shall be spaced appropriately. Species selection should be made referencing the County Fuel Modification Plant Reference.

- General spacing for existing native shrubs is 15 feet between canopies. General spacing for existing native trees is 20 feet between canopies.

The distance requirements for each zone are described below:

- 200-foot Setback
    - Zone A extends 20 feet from the edge of any combustible structure, accessory structure, appendage or projection.
    - Zone B extends from the outermost edge of Zone A to 100 feet from structure (or 80 feet from the outermost edge of Zone A).
    - Zone C extends from the outermost edge to Zone B to 200 feet from structure (or 100 feet from the outermost edge of Zone B).
- 150-foot Setback
    - Zone A extends 20 feet from the edge of any combustible structure, accessory structure appendage, or projection.
    - Zone B extends from the outermost edge of Zone A to 50 feet from the structure (or 30 feet from the outermost edge of Zone A).
    - Zone C extends from the outermost edge of Zone B to 150 feet from the structure (or 100 feet from the outermost edge of Zone B).
- 100-foot Setback
    - Zone A extends 20 feet from the edge of any combustible structure, accessory structure, appendage, or projection.
    - Zone B extends from the outermost edge of Zone A to 50 feet from the structure (or 30 feet from the outermost edge of Zone A).
    - Zone C extends from the outermost edge of Zone B to 100 feet from the structure (or 50 feet from the outermost edge of Zone B).

Vegetation Management is recommended within parks and open space areas in compliance with the guidelines in this FPP.

- Undesirable/target flammable vegetation must be removed per LACoFD plant selection guide, Title 32 Section 304.1.2 and Section 325.2.1., or as determined by LACoFD.
- Grasses must be maintained/mowed to 4 inches.

- Types and spacing of trees, plants and shrubs, must comply with the criteria in this plan.

- Areas shall be maintained free of down and dead vegetation.

- Flammable vegetation and flammable trees shall be removed and shall be prohibited.

- Trees shall be properly limbed and spaced and shall not be of a prohibited type (identified in this plan).

- No species from the County Prohibited Plant List.

Vacant Lots will not be required to implement Vegetation management strategies until construction begins. However, perimeter Vegetation Management Zones must be implemented prior to commencement of construction utilizing combustible materials. Moreover, prior to issuance of a permit for any construction, grading, digging, installation of fences, the outermost 30 feet of the lot is to be maintained as a Vegetation Management Zone. Existing flammable vegetation shall be reduced by 60% on vacant lots upon commencement of construction. Dead fuel, ladder fuel (fuel which can spread fire from ground to trees), and downed fuels shall be removed and trees/shrubs shall be properly limbed, pruned and spaced per this plan. The remainder of the Vegetation Management Zones required for the particular lot shall be installed and maintained prior to combustible materials being brought onto any lot under construction.

As required by the MMRP, the FMP shall ensure relocation of grading boundaries and fuel modification zones to completely avoid disturbance to the site(s) of eligible archaeological resources. If it is determined that the relocation of grading boundaries and fuel modification zones in accordance with this subsection is not feasible, then a qualified archaeologist shall be present in the vicinity of eligible archaeological resources sites during grading and fuel modification brush clearance. (NOTE: confidential archaeological mapping is on file at the Natural History Museum of Los Angeles County and the South Central Coastal Information Center [SCCIC] at California State University, Fullerton. Review of this material is restricted to qualified individuals and project proponents on a need to know basis.) Fencing shall be erected outside the eligible archaeological resources sites to visually depict the areas to be avoided during construction. All eligible archaeological resources sites avoided in accordance with this subsection (a) shall be subject to the preservation requirements of MMRP Mitigation Measure MM 6-4.

As further required by the MMRP, if it is determined that the relocation of grading boundaries and fuel modification zones is not feasible with respect to eligible archaeological resources sites CA-LAN-3201, CA-LAN-3240 and/or CA-LAN-3242, as identified in the EIR, then a qualified Archaeologist and a Native American monitor representing the Tejon Indian Tribe shall be present in the vicinity of any such eligible archaeological resources site during grading and fuel modification brush clearance to monitor all activities and ensure that archaeological resources are not impacted. (NOTE: confidential archaeological mapping is on file at the Natural History Museum of Los Angeles County and the SCCIC. Review of this material is restricted to qualified individuals and project proponents on a need to know

basis.) Temporary construction fencing shall be erected outside any such eligible archaeological resources site to visually depict the areas to be avoided during construction, in accordance with MMRP Mitigation Measure MM 6-2. Any temporary fencing materials (i.e., plastic web, chain link, etc.) placed during construction should not become permanent. Any permanent fencing erected in accordance with MMRP Mitigation Measure MM 6-4 to protect the sites should be visually pleasing and consistent with the overall aesthetic experience of the community of Centennial. All eligible archaeological resources sites avoided in accordance within this subsection (a) shall be subject to the preservation requirements of MMRP Mitigation Measure MM 6-4.

ii. Construct and Equip Fire Stations

As required by the MMRP, for each tentative subdivision map that includes a fire station site (as discussed in Section 3(a)(vii) of this FPP), the applicant must construct, equip, and convey title to such fire station prior to final subdivision map approval. Per the DA, each fire station must be equipped to be compatible with LACoFD's Development Impact Mitigation Agreement standards.

c. Fire Safety Requirements Implemented at the Building Permit or Site Plan Review Stage of Development.

Pursuant to the Specific Plan and MMRP, the following Fire Safety Requirements will be implemented concurrent with the County's review and approval of any Project building permit and, as applicable, site plan:

i. Confirmation of Code Compliance

At the building permit and site plan review stage of Project development, the County will confirm that all building plans comply with all applicable codes. The Project shall comply with applicable portions of the Fire Code. The Project will also comply with Chapter 7A of the 2019 California Building Code (CBC) with July 2021 Supplement; the 2019 California Residential Code (CRC), Section 237; and 2018 Edition of the International Fire Code as adopted by the County. Code compliance shall also be confirmed by County building inspectors prior to issuance of certificates of occupancy.

Chapter 7A of the CBC addresses reducing ember penetration into homes, a leading cause of structure loss from wildfires (California Building Standards Commission 2019). Thus, code compliance is an important component of the requirements of this FPP, given the Project's WUI location and VHFHSZ and HFHSZ designations. The Project would meet applicable code requirements for building in these higher fire hazard areas. These codes have been developed through decades of wildfire structure save and loss evaluations to determine the causes of building losses and saves during wildfires. The resulting fire codes now focus on mitigating former structural vulnerabilities through construction techniques and materials so that the buildings are resistant to ignitions from direct flames, heat, and embers, as indicated in the CBC.

The following provides an overview of ignition resistant construction required under the Fire Code, the CBC, and the CRC:

- *Roofs and roof edges* (CBC 705A/CRC R337.5): Roof coverings shall be Class A fire rated as specified in Section 1505.2. Where the roof profile allows a space between the roof covering and roof decking, the spaces shall be constructed to prevent the intrusion of flames and embers, be firestopped with approved materials or have one layer of minimum 72 pound (32.4 kg) mineral-surfaced non-perforated cap sheet complying with ASTM D3909 installed over the combustible decking. Wood shingles and wood shakes are prohibited in any Fire Hazard Severity Zones regardless of classification (LABC Section 705A.2).

- *Exterior Walls/siding* (CBC 707A.3 /CRC R337.7.3): Noncombustible, listed ignition-resistant materials, heavy timber, 5/8" Type X gypsum sheathing behind exterior covering, exterior portion of 1-hr assembly or log wall construction is allowed. The Office of the State Fire Marshall website (https://osfm.fire.ca.gov/) lists many types of exterior wall coverings that are approved.

- *Eaves and porch ceilings* (CBC 707A.4, A.6 / CRC 337.7.4. R337.7.6): The exposed roof deck under unenclosed eaves and underside of porch ceilings shall be noncombustible, listed ignition resistant materials, or 5/8" Type X gypsum sheathing behind exterior covering. Solid wood rafter tails on the exposed underside of roof eaves having a minimum 2" nominal dimension may be unprotected.

- *Vents* (CBC 706A / CRC R337.6): Attic vents and underfloor vent openings must be Wildland Flame and Ember Resistant approved and listen by the Sate Fire Marshal or listed in ASTM E2886. Vents shall be baffled and may include a minimum of 1/16" and maximum 1/8" corrosion-resistant, noncombustible wire mesh or equivalent. Ventilation openings on the underside of eaves are not permitted, unless a State Fire Marshal (SFM) approved vent is installed, or the attic is fire sprinklered. Vents of 1/16" min. and 1/8" max corrosion-resistant and noncombustible wire mesh or equivalent that are greater than 12 feet from a walking surface or grade below are allowed.

- *Windows and exterior doors* (CBC 708A / CRC R337.8): Windows must be insulated glass with a minimum of 1 tempered pane or 20 min rated or glass block. Exterior doors must be noncombustible or ignition resistant material or 1 3/8" solid core, or have a 20 min fire-resistance rating.

- *Exterior decking and stairs* (CBC 709A / CRC R337.9): Walking surfaces of decks, porches. balconies and stairs within 10 feet of the building must be constructed of noncombustible, fire-retardant treated or heavy-timber construction. Alternate materials can be used if they are ignition-resistant and pass performance requirements specified by the State Fire Marshal.

- *Underfloor and appendages* (CBC 707A.8 / CRC R337.7.8): Exposed under-floor, underside of cantilevered and overhanging decks, balconies and similar appendages shall be non-combustible, ignition resistant, 5/8" Type X gypsum sheathing behind exterior covering, exterior portion of 1-hr assembly, meet performance criteria SFM Standard 12-7A-3 or be enclosed to grade.

ii. Ban on Wood Burning Fireplaces

As required by the MMRP, the Project's plans and specifications shall prohibit wood-burning fireplaces in single-family residences throughout the Project site. This requirement will be enforced at the time of building permit issuance and site plan review. Compliance with this Fire Safety Requirement shall also be confirmed by County building inspectors prior to issuance of certificates of occupancy for each single-family home.

iii. Fire-safe Sign Requirements

As required by the Specific Plan, no sign shall be installed, relocated, or maintained so as to prevent free ingress to or egress from any door, window, or fire escape. In addition, no sign of any kind shall be attached to a standpipe or fire escape, except those signs required by other applicable codes or ordinances. This requirement will be enforced at the time of building permit issuance and site plan review. Compliance with this Fire Safety Requirement shall also be confirmed by County building inspectors prior to issuance of certificates of occupancy for each single-family home. During project operation, this Fire Safety Requirement shall be enforced by the Master HOA.

d. Project Operations - Ongoing Enforcement of Fire Safety Requirements, Fire Safety Education, and FMZ Clearance Inspections.

Several entities will play important roles to ensure the ongoing implementation of the Fire Safety Requirements once the Project becomes operational. The LACoFD will have primary enforcement jurisdiction over the Project with respect to matters of Fire Code compliance, while the County's Department of Regional Planning is responsible for the overall enforcement of the Specific Plan. But the Project's master homeowner's association (Master HOA) and its Fire Protection Education Committee will have key roles in ensuring Project compliance with the Fire Safety Requirements, as will the Community Forester and qualified third-party compliance inspectors funded by the Master HOA. This section describes the various responsibilities of each of these parties with respect to the comprehensive implementation of the Fire Safety Requirements during the life of the Project.

i. Master HOA Formation and CC&R Recordation

Per the Specific Plan, a non-profit Master HOA shall be formed, and the Master HOA's declaration of conditions, covenants, and restrictions (CC&Rs) will be recorded after the recordation of the Project's first final subdivision map consisting of one or more residential lots and prior to the date of the first transfer of any residential lot to a person other than the subdivider. As additional final maps are approved and recorded, the Project area covered by those maps will be annexed by the Master HOA to ensure that control of development and implementation of the CC&Rs can be maintained. Per the Specific Plan and the MMRP, the applicant for a final map shall submit to the Department of Regional Planning the form of CC&Rs so that it may confirm that new homeowners will be informed about their responsibilities under the Fire Safety Requirements. Per Title 32 of the County Code, a copy of the recorded CC&Rs describing the fuel modification requirements must be provided to the LACoFD's Forestry Division.

To the extent permitted by the California Department of Real Estate, the CC&Rs for each final map shall include provisions obligating each homeowner to comply with all of the Fire Safety Requirements applicable to that homeowner's lot and residential unit, including but not limited to all Fire Safety Requirements that (i) mandate the use of fire-safe landscaping techniques, (ii) require the maintenance of fuel modification zones on their property, (iii) prohibit the use of wood fireplaces, (iv) prohibit the installation, relocation, or maintenance of any sign so as to prevent free ingress to or egress from any door, window, or fire scape; (v) mandate the use of code compliant spark arrestors in chimneys of any fireplace, barbeque, or any heating appliance in which solid or liquid fuel is used; (vi) mandate that only Class A fire rated roof coverings be used when maintaining or repairing roof coverings; (vii) mandate that exterior windows, window walls, glazed doors, and glazed openings in exterior doors only be repaired or replaced code compliant materials (e.g., multi-pane glazing units with a minimum of one tempered pane); and (viii) require that access be provided for biannual fuel modification zone inspections.

ii. Master HOA Enforcement of CC&Rs Through Monetary Penalties

To promote enforcement of the CC&Rs, the governing documents of the Master HOA shall vest the governing board of the Master HOA with authority to impose fines on any homeowner who violates any provision of the CC&R related to Fire Safety Requirements, and shall establish a schedule of reasonable monetary penalties to be assessed by the Master HOA against any homeowner that violates any provision of the CC&Rs related to Fire Safety Requirements. The required schedule of monetary penalties shall also be included as part of a general CC&R enforcement policy to be adopted and administered by the governing board of the Master HOA, which policy shall describe in detail the steps to be followed in enforcing the Master HOA governing documents and CC&Rs. As provided in California Civil Code Section 5855, no fine shall be assessed against a homeowner for violating a provision of the CC&Rs related to Fire Safety Requirements unless and until the Master HOA first conducts a hearing on the alleged violation. At least ten days advance notice must be provided to the relevant homeowner of the date and time of the hearing, the general nature of the allegation of rules violation against such homeowner, and informing such homeowner that they have the right to attend such hearing and to address the governing board.

iii. Master HOA Ongoing Maintenance

The governing documents of the Master HOA shall provide that the Master HOA is responsible for the long-term funding and ongoing maintenance of private roads and fire protection systems, including fire sprinklers and private fire hydrants. The Master HOA governing documents shall also provide that the Master HOA is responsible for the long-term funding and implementation of all fuel modification vegetation management in Project common areas, including but not limited to roadsides (including a minimum of 20 feet clearance on each side of roads within the Project development footprint adjacent to open space areas), open space and landscape areas, and fuel modification zones. In addition, the Master HOA shall establish a reverse 9-1-1 system capable of contacting every listed telephone number in the community by computer at a rate of at least 250 calls per minute.

iv. Fire Protection Education Committee

The governing documents of the Master HOA shall establish a Fire Protection Education Committee (FEPC) The purpose of the FEPC shall be to (i) promote education programs and tools that provide information to Project homeowners about the Project's overall Fire Safety Requirements and about each homeowner's individual obligations thereunder; (ii) promote education programs and tools that provide information about wildland fire ecology, management, protection, and prevention; and (iii) coordinate with the LACoFD and other stakeholders to identify opportunities for improvement in all areas of wildland fire communication, education, protection, and prevention.

The governing documents of the Master HOA shall require the FEPC to prepare and implement of a community-wide fire education program based on the Firewise Communities structure and designed to establish the community as a Firewise USA site and to fully educate Project homeowners of their various responsibilities under the Fire Safety Requirements, including but not limited to maintaining fuel management zones areas on their respective properties. The Project master developer shall ensure that development and ongoing implementation such fire education program is funded by assessment district or by permanent and irrevocable property owner fees.

The FEPC shall annually conduct on-site community fire safety education and training programs, which programs shall be undertaken in coordination with the LACoFD's Community Risk Reduction Unit to the extent feasible or other qualified subject-matter experts, and which shall include community education regarding implementation of the Project's required FMP and ERP, and shall ensure that copies of such plans are provided to all Project homebuyers at the initial point of sale.

The FEPC shall also post on the community intranet information regarding the importance of maintaining fuel management areas in accordance with the FMP, complying with the Project's fire-resistant landscape plan, implementing all applicable Fire Safety Requirements, and regularly reviewing and becoming familiar with the Project's ERP. Complete copies of the FMP and ERP shall also be made accessible for download from the community intranet. LACoFD shall review and approve all wildfire educational material/programs before printing and distribution by the FEPC. In addition, the FEPC shall ensure that annual reminder notices are provided to each homeowner reminding them review the ERP and stay familiar with community evacuation protocols.

The FEPC shall also provide Project homebuyers, at the initial point of sale, educational materials about the health and safety benefits of emergency preparation and the need to maintain adequate emergency response supplies, such as a seven-day supply of potable water and food and solar-powered batteries for communication and refrigeration, to respond to earthquakes and other potential disasters, at the initial point of property sale, and annually thereafter in Property Owner Association Website Notices.

The FEPC shall coordinate with commercial vendors of emergency response supplies and solar batteries in order to secure discounts or other preferential terms to Project site occupants, and shall include a list of such vendors on the community intranet and in educational materials published by the FEPC.

v. Community Forester

In accordance with the Specific Plan, the Master HOA shall hire a Community Forester who is trained in urban forestry, arboriculture, horticulture, or landscape architecture to undertake tree management responsibilities. The Community Forester will also coordinate FMZs 3rd party inspections on the Project site The Community Forester is required to developing a policy for managing public trees on the Project site and educating Project residents about the importance of trees in the community, and is responsible for implementing the Project's fire-resistant landscape plan. The Specific Plan further requires the Community Forester to develop programs that involve community organizations and residents in tree preservation, planting and tree care so as to ensure that community trees are, among other things, maintained in accordance with all Fire Code access requirements. Per the Specific Plan, the Community Forester must also prepare an annual tree management plan and implement programs to improve the communities tree canopy in a manner that complies with all Fire Code and LAFCD requirements. In addition, the Specific Plan requires the Community Forester to maintain the Project's fire-resistant plant palette and to consult with the County's staff biologist regarding proposed revisions to the community plant palette described in the Specific Plan. However, the LAFCD shall have final approval over the final plant palette for fuel modification zones and modifications thereto.

vi. Third-Party Compliance Inspectors

To confirm that the Project’s fuel management zones and landscape areas are being maintained according to the Fire Safety Requirements and the LACoFD’s fuel modification guidelines, the Master HOA shall obtain a fuel management zone inspection and report from a qualified LACoFD-approved third-party inspector in May/June of each year certifying that vegetation management activities throughout the Project site have been timely and properly performed. If the third-party inspector determines that a fuel management zone or landscape area is not compliant with all applicable fire-safety standards, the Master HOA shall have a specified period, not to exceed sixty days, to correct any noted issues so that a re-inspection can occur and certification can be achieved. Annual inspection fees may be subject to the current Fire Department Fee Schedule.

Exhibit A

Centennial Specific Plan Fire Safety Requirements:

1. Fuel Modification Plan (FMP)

- Required by Mitigation Measure MM 3-9, which provides:

  The Project Applicant/Developer shall prepare a Fuel Modification Plan demonstrating compliance with the County Fire Code Title 32 and shall provide all new residents and business owners with recorded Covenants, Conditions, and Restrictions (CC&Rs) or disclosure statements that identify the responsibilities for maintaining the fuel modification zone(s) on their property, as defined in the approved Fuel Modification Plan. The CC&Rs or disclosure statements prepared by the Project Applicant/Developer shall be submitted to the County to confirm that new property owners will be informed of their responsibilities for maintaining the fuel modification zone(s) on their property.

- Review and approval:

  - Per MMRP, the FMP must be provided to the California Department of Forestry and Fire Protection for peer review and to the LACoFD for review and approval.

- Timing:

  - Per MMRP, the FMP must be approved prior to the recordation of final maps.

- Other Requirements:

  - The Specific Plan, pages 3-99 through 3-100, provides significant detail on the required content and implementation of the FMPs, all of which should be reflected in the Fire Protection Plan.

  - Per the MMRP, a copy of the relevant FMP must be provided to all new residents and businesses with CC&Rs or disclosure statements prior to the sale of any-on-site properties.

  - See also Mitigation Measures MM 6-1, 6-3, MM 7-1, 7-16, and 7-21, which include additional requirements and restrictions regarding fuel modification in order to limit impacts to cultural and biological resources, all of which should be reflected in the Fire Protection Plan.

2. Vegetation Management Fire Abatement Implementation Plan

- Required by Mitigation Measure MM 7-21, which provides:

  In order to ensure that no direct impacts to Significant Ecological Area (SEA) 17 occur,

brush clearance zones shall be contained within the current Project impact boundary and no overlap with the adjacent SEA 17 shall occur. Vegetation management for fire abatement purposes is not authorized in SEA areas. An Implementation Plan, including fire risk abatement measures (including but not limited to vegetation management) required to comply with State and County fire prevention and response legal requirements, shall be submitted as part of the tentative tract map for portions of the Project site that border an SEA or mitigation preserve area. The Plan shall include: (a) a summary of applicable State and County fire risk abatement requirements; (b) a prohibition on the use of vegetation clearance within SEA 17 or mitigation preserve areas. The Plan shall be submitted to the County for approval with the first tentative map, and shall be updated to include new or modified State or County fire risk abatement requirements as part of each subsequent tentative tract map submittal.

- Review and approval:
    - Per the MMRP, the Implementation Plan must be submitted to the California Department of Forestry and Fire Protection for peer review and to the County Department of Regional Planning for review and approval.
- Timing:
    - Per the MMRP, the Implementation Plan must be approved prior to approval of tentative maps for portions of the Project that border a SEA or mitigation preserve area.

3. Fire Stations

- Required by Mitigation Measure 16-1, which provides:

  At buildout, the Los Angeles County Fire Department (LACoFD) fire stations shall be located such that response times to the Project site shall be 5 minutes or less for fire service responses and 8 minutes or less for the advanced life support (paramedic) unit responses within the Project site.

- Required by Mitigation Measure 16-3, which provides:

  The Project Applicant/Developer shall provide land, convey title, and shall construct and equip, to the specifications and requirements of the LACoFD, for up to four new Fire Stations to the LACoFD. The approved final plans and specifications for the Project shall identify locations of the fire stations. The LACoFD shall have final approval over the fire station site locations. The timing for the construction of the on-site fire stations shall be established by the LACoFD dependent upon the phasing of development, with the first on-site fire station operational no later than the time the 1,000th dwelling unit is built on site.

- Review and approval:
    - Per MM 16-3, the LACoFD shall have final approval over the fire station site locations.
- Timing:
    - Per the MMRP, MM 16-1 must be satisfied prior to approval of tentative maps.
    - Per the MMRP, MM 16-3 must be satisfied prior to approval of plans and specifications for final maps.
    - Per the Development Agreement, all fire stations must be equipped to be compatible with the LACoFD's Development Impact Mitigation Agreement standards. See Dev. Agmt., Exhibit G, Section 3.2.
    - Per the Development Agreement, Fire Station # 1 must be a station of 10,000 square feet, Fire Station # 2 must be a station of 13,000 square feet, and Fire Station #3 must be a station of 10,000 square feet and equipped as provided in the Development Agreement, and it must be completed prior to the issuance of a certificate of occupancy. See Dev. Agmt., Exhibit G, Section 3.2.
    - Per the Development Agreement, and per MM 16-3, it remains to be determined whether the Project will be required to construct a fourth fire station, but such determination shall be based on need established pursuant to MM 16-1. See Dev. Agmt., Exhibit G, Section 3.2.
    - Per the Development Agreement, the general locations of the three required fire stations will be situated as identified on Exhibit 4-1 of the FEIR, subject to relocation based on mutual agreement of the Developer and the County. If it is determined that fourth station is required, it will be located based on mutual agreement of the Developer and County. Nevertheless, LACoFD will have final approval of any fire station location. See Dev. Agmt., Exhibit G, Section 3.1.
    - Per the Development Agreement, Fire Station #1 must be completed prior to the issuance of a certificate of occupancy for the Project's 1,000th residential unit, and Fire Stations #2 and #3 must be completed prior to the issuance of a certificate of occupancy for any residential unit located outside of a station's five-minute response time. See Dev. Agmt., Exhibit E-1.
    - Per the Development Agreement, existing Fire Station #77 will serve the first 1,000 Project dwelling units (before Fire Station #1 is operational).
    - Per the Specific Plan, at page 3-37, two fire station sites shall have a building pad consisting of a net buildable area of 1.25 acres. The third site shall have a net buildable area of 4 acres. All sites will be rectangular in shape, with utilities stubbed to the property.

- Other Requirements:

    - Per Mitigation Measure MM 16-2, the Developer must pay developer fees in accordance with the LACoFD Developer Fee Program until such time as the Developer has conveyed an approved, operational fire station to LACoFD, unless otherwise agreed to by the Developer and LACoFD in accordance with the LACoFD Developer Fee Program's land-in-lieu of fees provisions.

4. Emergency Response Plan

- Required by Mitigation Measure MM 3-7, which provides:

  The Project Applicant/Developer shall prepare an Emergency Response Plan for the Project, which shall be updated as needed for each Tentative Map, and shall be submitted to the County (California Department of Forestry and Fire; and County Fire Department and/or County Sheriff's Department) for review and approval. The Project Applicant/Developer shall be responsible for distributing the current Emergency Response Plan to each purchaser or tenant of each property within Centennial, and shall distribute the Plan to all landowners through the Transportation Management Agency (TMA).

- Required by Development Agreement, Exhibit G, Section 12.3, which provides:

  The Property Owners shall require future residential and commercial property owners associations to develop and implement an emergency preparation and response plan, including shelter-in-place and evacuation plans as well as first aid and emergency electric power supplies. The Property Owners shall provide educational information about the health and safety benefits of emergency preparation and response supplies such as a seven-day supply of potable water and food, and solar-powered batters for communication and refrigeration, to respond to earthquakes and other potential disasters, at the initial point of property sale, and annually thereafter in Property Owner Association Website Notices. The Property Owners and Property Owner Association Website Notices may also identify emergency response supply and battery vendors providing discounts or other preferential terms to Project site occupants.

- Review and approval:

    - Per the MMRP, the Emergency Response Plan must be submitted to the California Department of Forestry and Fire Prevention for peer review and to the LACoFD and/or Sheriff's Department for review and approval.

- Timing:

    - Per the MMRP, MM 3-7 must be satisfied prior to approval of tentative maps.

5. Landscape Plan

- Required by Mitigation Measure 7-13, which provides in relevant part:

  The Project Applicant/Developer shall develop a Landscaping Plan for review and approval by the County Biologist. The Landscaping Plan shall be (1) prepared by a qualified biologist, (2) submitted to the County for approval with each tentative map, (3) provided to builders, (4) provided to future project occupants as described in the Specific Plan, and (5) include a plant palette composed of non-invasive species that are adapted to the conditions found on the Project site and do not require high irrigation rates. The Landscaping Plan shall also include a list of invasive plant species prohibited from being planted on the Project site. In addition, retail sales of these invasive plan species will be prohibited at any businesses (nurseries) located within the Project site. Landscape plans shall encourage planting of local natives typical of native vegetation within ten miles of the Project site.

- Review and approval:

  - Per the MMRP, the Landscape Plan must be reviewed and approved by the County Department of Regional Planning.

- Timing:

  - Per Mitigation Measure 7-13, a Landscape Plan must be submitted for approval with each tentative map application.

- Other requirements:

  - The Specific Plan, at page 2-78, provides that "a Community Forester (licensed arborist or licensed with the Department of Forestry and/or fire warden) shall oversee … implementation of the long-term landscape plan within developed areas."

  - The Specific Plan, at page 3-42, explains that the Specific Plan plant pallet was prepared in accordance with the LACoFD's Fuel Modification Plan Guidelines, and, at page 3-99, requires the use of fire-retardant plants in fuel modification zones.

  - The Specific Plan, at page 3-29, requires landscaping in the plan's Open Space Zone to be dominated by native and/or drought tolerant trees, shrubs and ground cover, taking into consideration fuel modification requirements, such as using plants that are fire resistant.

  - The Centennial Green Development Program set forth in Specific Plan Appendix A-1 requires the project to implement fire-safe landscaping techniques to reduce fire risks to biological resources and human safety in the fuel modification zones.

- The Hillside Design Guidelines set forth in Specific Plan Appendix 1-B requires landscaping in a manner that, among other things, increases fire protection.

6. Ban on Wood-Burning Fireplaces

- Required by Mitigation Measure MM 11-3, which provides:

  The Project's plans and specifications shall prohibit wood-burning fireplaces as required by SCAQMD Rule 445 in single-family residences throughout the entire Project site, including at residences that are 3,000 or more feet above mean sea level at which the SCAQMD prohibition would otherwise not apply. Natural gas fireplaces shall be limited to a total of 13,954. These requirements shall be posted on the community intranet and shall be clearly described and distributed to home buyers through their home purchase contracts and CC&Rs.

- Also required by the Specific Plan's General Development Standards. See Specific Plan page 2-78.

- Review and approval:

  - Per the MMRP, compliance with this requirement will be monitored by County Regional Planning and/or the Department of Public Building and Safety.

- Timing:

  - Compliance will be monitored at the building permit stage.

6. Miscellaneous Requirements

- Planned utility undergrounding and Project improvements to Highway 138 will help further reduce fire risk and provide better emergency egress, as discussed on Specific Plan page M-11.

- As discussed on Specific Plan page 3-9, classifications and street cross-sections were developed in partnership with the Department of Regional Planning, as well the County of LA's Public Works and Fire Departments: modifications to theses cross-sections require approval from Public Works and LACoFD.

- As discussed on Specific Plan page 2-83, no sign shall be installed, relocated, or maintained so as to prevent free ingress to or egress from any door, window, or fire escape. No sign of any kind shall be attached to a standpipe or fire escape, except those signs as required by other codes or ordinances.

- As discussed in footnote 21 of the Specific Plan's Appendix 2-C, the curb-to-curb width of each private driveway and fire lane will be approved by the Los Angeles County Fire Department and Department of Public Works

- The Project will be required to comply with all then-current fire code and building safety requirements, which should be detailed in the Fire Protection Plan.

- To ensure safe ingress and egress to, from and within the project site during construction, Mitigation Measure MM 3-8 provides as follows:

  The Project Applicant/Developer shall prepare a Traffic Control Plan in accordance with the California Manual on Uniform Traffic Control Devices (MUTCD). The Traffic Control Plan shall be reviewed and approved by the California Department of Transportation (Caltrans), and all construction activities in the public right-of-way shall comply with the approved Traffic Control Plan to the satisfaction of Caltrans. Documentation of Caltrans approval shall be provided to the County for any Tentative Map involving construction within State Route 138 right-of-way.

Exhibit 2 - Tejon Ranch Boundaries

Tejon Ranch Boundary

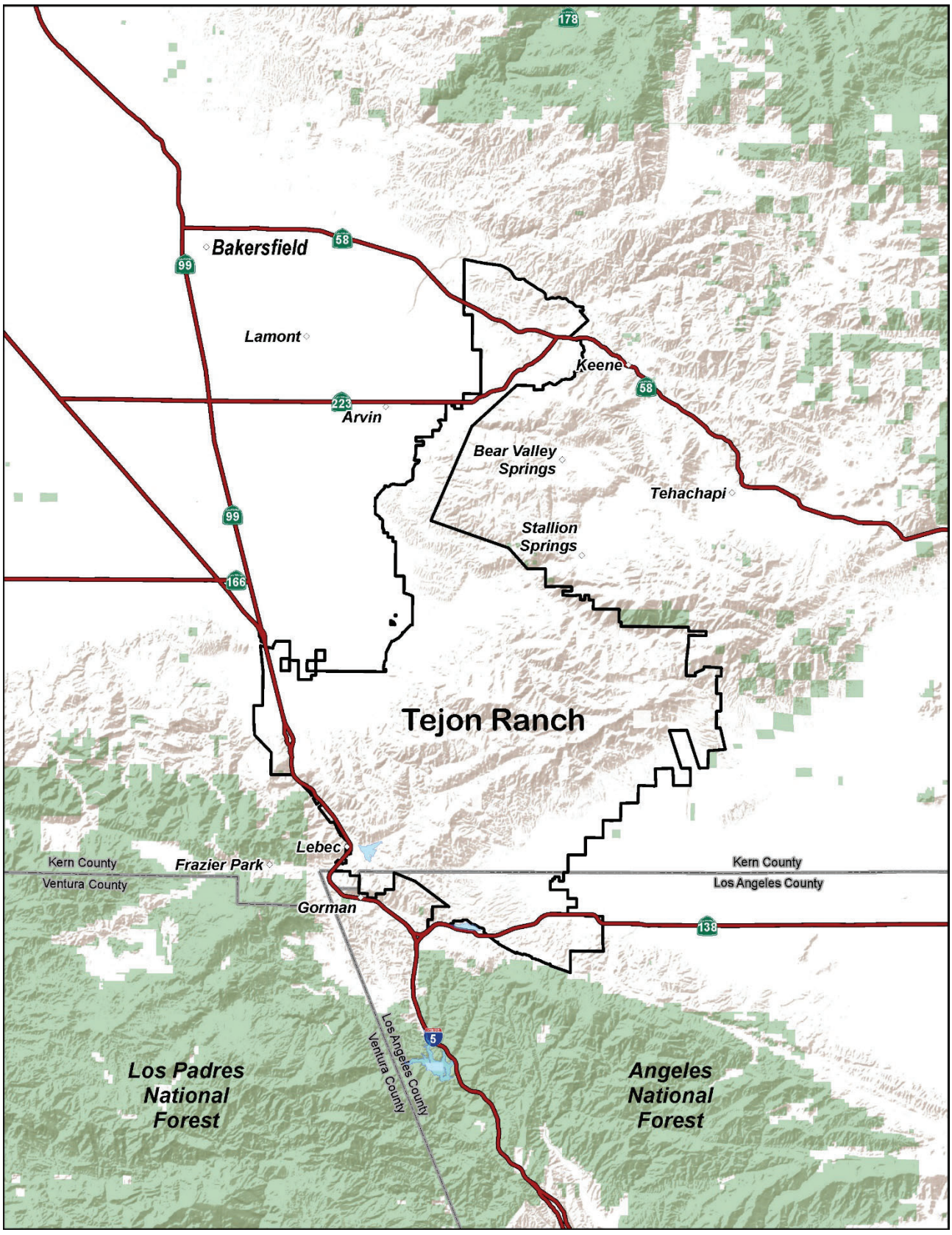

Exhibit 3 - Greenhouse Gas Calculations and Net Zero GHG Project Tracking Tool

The following greenhouse gas calculation have been agreed upon by the Parties for the Project to be a Net Zero GHG Project, and to serve as a tracking tool for Centennial to report on its compliance with the GHG Mitigation Plan, Annual Report, and certificate of occupancy GHG compliance requirements included in the Agreement. All capitalized terms used in this Exhibit have the same meaning as the capitalized terms in the Agreement.

Part 1: GHG Calculations

GHG BAU Emissions/Year (30 Year Basis): 500,000 MT/Year

Reduced by Itemized GHG Mitigation Measures: 185,000 MT/year or 37% of 500,000 MT/Yr

Reduced by Centennial energy requirements: 64,000 MT/Year or 12.8% of 500,000 MT/Yr

Reduced by Grapevine residential gas restriction: 17,313.46 MT/Year or 3.46% of 500,000 MT/Yr

Reduced by class 1-7 truck incentives: 1,549.50 MT/year or .31% of 500,000 MT/Yr (Tejon Ranch reduction)

Total Tejon Ranch reductions: 267,862.96 MT/Year or 53.57% of 500,000 MT/Yr

Total remaining GHG reductions required from Non-Itemized GHG Mitigation Measures: 232,137.04 MT/Year or 46.43%.

GHG applied in ratios to residential/commercial buildings to 232,137.04 MT/Year as follows:

53% of GHG from Residential (Per DU): 190.92 MT/DU

47% of GHG from Commercial (Per 1,000 SF): 324.13 MT/KSF)

Part 2: Net Zero Project GHG Agreement Compliance Tracking Tool:

Part A Reporting: GHG Mitigation Plan for Vesting Tentative Tract Map

1. Onsite Residential: ___ Dwelling Units Included in VTTM Application

Itemized GHG Mitigation Measure Compliance

- One Level 2 or Higher EVSE for single family DUs

Agreement § 1.a.1.b

- One Level 2 or Higher EVSE such that one electrical charger is provided each non-single family DU

Agreement § 1.a.1.c

- ____ $5,000 EV incentives available (of 9,667 incentive DUs)

Agreement § 1.a.1.a

- No natural gas service or fossil fuel fireplaces

Agreement § 1.a.5.a

- Backup Batteries: Included if Code req'd; Option if not required

Agreement § 1.a.5.b

- CCA Renewable Power Compliance

Agreement § 1.a.5.c

Cumulative DU Total in All Approved/Submitted VTTMs: ____ of 19,333 DUs

2. Onsite Non-Residential: ___ square feet (SF) in VTTM Application

Itemized GHG Mitigation Measures

- One Level 2 or Higher EVSE per 3,500 of SF

3,500 EVSE Total per *Agreement § 1.a.2.a*

- Natural gas restricted to essential uses only

Agreement § 1.a.5.a

- Backup Batteries: Included if Code req'd; Option if not required

Agreement § 1.a.5.b

- CCA Renewable Power Compliance

Agreement § 1.a.5.c

3. Other Itemized GHG Mitigation Measures

- One Level 2 or Higher EVSE charger in SCAQMD DACs per 4 DUs

Agreement §§ 1.a.4 (___ cumulative of 5,000 chargers total)

- $____ of $5,000 grants for EV service fleet vehicles per 48 DUs

Agreement §§ 1.a.3.a, 1.a.3. b (___ of 400 $5,000 grants totaling $2 million)

- ____ of $20,000 grants for EV transit/school bus/vans per 48 DUs

Agreement §§ 1.a.3.d (___ of $8M total)

- ___ Medium/Heavy Duty Truck EVSEs at TRCC per 100,972 SF

Agreement § 1.a.2.b (___ of 100 total TRCC Truck EVSEs)

- ____ of $7,500 grants for EVSE Class 1-7 trucks/vans per 38 DUs (__ of $3,750,000 total)

Agreement §§ 1.a.2.d (____ of 500 vehicles total)

EXHIBIT 4 – PUBLIC STATEMENT

Date: December 01, 2021

CENTENNIAL AT TEJON RANCH IS SETTING NEW STANDARDS FOR FIRE SAFE, SUSTAINABLE, AFFORDABLE MASTER PLANNED COMMUNITIES IN CALIFORNIA

In a major new agreement, the master planned community of Centennial, which has already committed to include 18% affordable housing units, will now achieve a net zero carbon project status that exceeds California's climate goals; and include new wildfire resilience measures to significantly enhance safety both in and outside the community.

(Tejon Ranch, CA) Tejon Ranch Co. (NYSE: TRC) and Climate Resolve, a Los Angeles-based nonprofit organization, today announced an unprecedented agreement regarding the Centennial at Tejon Ranch master planned community. The planned development of more than 19,300 homes and 10.1 million square feet of commercial and industrial space, which has received approvals from Los Angeles County, may now proceed to the next steps in the California development process.

Centennial, which has committed to include 3,480 affordable housing units as a part of its Los Angeles County approvals, will now also become a greater net zero project, meeting and exceeding all the state's goals and requirements to combat climate change.

The enhanced climate and wildfire resilience measures contained in the agreement set a new standard for development in California and represent the largest climate investment by a housing development in the state, a milestone achieved through the cooperation of both Tejon Ranch and Climate Resolve.

As part of the agreement, Climate Resolve has agreed to dismiss with prejudice its claim that the County of Los Angeles violated the California Environmental Quality Act (CEQA) when it approved Centennial in May of 2019.

With the dismissal of the lawsuit, Tejon Ranch Co. retains the legislative approval needed to continue the process that will lead *to* the development of a well-planned and critically needed community that will bring thousands of homes and jobs to Los Angeles County.

The agreement includes the following measures and features.

- Net Zero GHG Emissions: The community commits to net zero GHG emissions by reducing to zero all emissions through significant on-site and off-site commitments. A large component prioritizes disadvantaged communities, followed by other projects within Los Angeles County, and other parts of southern and central California.
- Electric Vehicle Advancement: Advance the EV future through commitments to install almost 30,000 chargers within and outside the community. Provide incentives to support the purchase of 10,500 electric vehicles.
- Wildfire Prevention: Funding for on-site and off-site fire protection and prevention measures, including fire-resilient design, planning, and vegetation management with benefits to neighboring communities.

- Unrivaled Transparency: Provide annual public reports and create an organization empowered to monitor progress to ensure the agreement results in the benefits identified.

"We are pleased to reach this agreement with Climate Resolve that will enable us to address California's housing crisis in the most sustainable manner possible," said Gregory S. Bielli, President and CEO of Tejon Ranch Company. "Tejon Ranch has a legacy of environmental stewardship, as well as using its land to meet major needs in California. More than ever, the state desperately needs the 19,333 housing units Centennial will provide, including the nearly 3,500 affordable units. At the same time, California needs to achieve its climate goals. This agreement outlines a way to create this unique climate-friendly, fire-safe, affordable mixed use master planned community that helps California address its housing needs consistent with the state's policy goals."

"Working with Tejon Ranch, we've been able to secure the largest climate commitment by a housing development in the state's history," said Jonathan Parfrey, Executive Director of Climate Resolve. "We're setting a new climate standard that surpasses anything previously done in the state. Our agreement builds upon the 2008 Tejon Ranch Conservation and Land Use Agreement and takes the added steps of further protecting the land from the threat of wildfire and zeroing-out greenhouse gas emissions at the Centennial project."

Both Tejon Ranch Company and Climate Resolve look forward to working together to implement an agreement that sets a new precedent for the development of fire safe, sustainable communities that will meet the needs of California today, and in the future.

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Forward-Looking Statements

This press release contains forward-looking statements, including without limitation statements regarding our commitments under the Settlement Agreement and certain aspects of our real estate operations. In some cases, these statements are identifiable through use of words such as "commit" and "will." These forward-looking statements are not a guarantee of future performance, are subject to assumptions and involve known and unknown risks, uncertainties and other important factors that could cause the actual results, performance or achievements of the Company to differ materially from any future results, performance, or achievement implied by such forward-looking statements. These risks, uncertainties and important factors include, but are not limited to, the impacts of COVID-19 and the actions taken by governments, businesses, and individuals in response to it, success in obtaining various governmental approvals and entitlements for land development activities, and the risks described in the section entitled "Risk Factors" in our annual and quarterly reports filed with the SEC.

Appendix B

Centennial Project Site Photographs

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Appendix C

LA County Undesirable Plant List

Plant Selection Guidelines by Zone

Fuel Modification plant selection and location should focus on the density and arrangement of plants related to structures. Second, choose zone appropriate species based on plant characteristics such as moisture content, resin/pitch and the production of dead litter from leaves, bark, seed pods etc. The following guidelines are intended to simplify this process through zone specific compositions.

Zone A (30' from any qualifying structure or the property line whichever is first)

- Zone A should be planted "lean" and selections should consist of small herbaceous or succulent plants less than 2'-3' in height or regularly irrigated and mowed lawns.
- It is best not to use woody trees, shrubs and perennial species or masses of un-mowed grasses within 10 feet of the structure.
- Occasional accents of woody plants can be used sparingly to soften hard edges of structures if the selections are widely spaced and zone appropriate.
- Consider locating hardscape features such as walkways, patios, driveways, sport courts etc. adjacent to the structure itself. Potted plants can be used to soften walls if necessary.

Zone B (30'-100' from any qualifying structure)

- Zone B can be planted with a slightly higher density than Zone A. However, care should be taken not to create horizontal or vertical fuel ladders (see basic fire behavior graphics).
- Screen plantings can be used to hide unsightly views. Hedging is discouraged as it promotes the accumulation of dead litter inside the live hedge.
- Zone B is the ideal location to introduce larger shade trees provided they are zone appropriate and the canopies are not continuous.
- Avoid planting woody plant species larger than 3' at maturity directly beneath any tree canopy.

Zone C (100'-200' from any qualifying structure)

- Zone C often is not landscaped on many projects but is still subject to hazard reduction requirements (brush clearance). Do not denude the property. http://www.readyforwildfire.org/
- If Zone C is to be landscaped, avoid increasing plant density beyond guidelines for Zone B.

Adjacent to Access Roads

- Maintain Fire Access roads with a 20' wide path that remains clear to the sky.

Fuel Ladders/Basic Fire Behavior

Before selecting and locating plants on a Fuel Modification plan a basic understanding of wildland fire behavior is the key factor in properly arranging plants. Eliminating and avoiding the creation of fuel ladders should be the chief concern. Understanding that anything planted in the landscape can become receptive fuel for wildfire: the way it is arranged and maintained will greatly influence fire intensity. The following diagrams will aide in arranging plant compositions wisely.

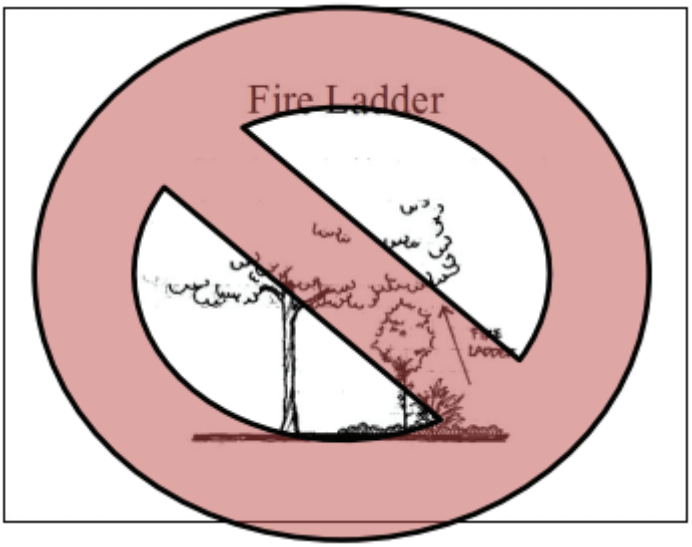

Figure 1: Fire Ladders or Fuel Ladders should be eliminated. The diagram above illustrates what not to do.

Figure 2: Eliminate the vertical and horizontal continuity. This is a good example of adequate separation.

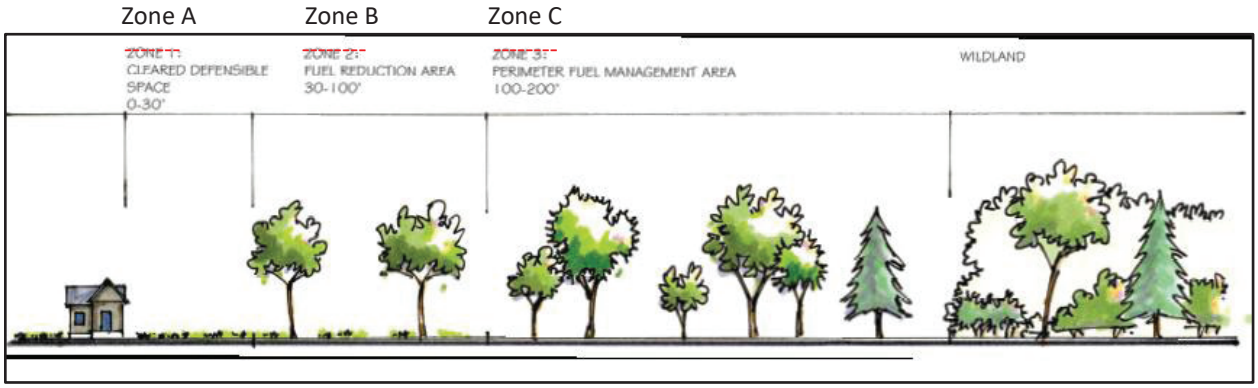

Figure 3: Note the progressive increase in density and arrangement moving away from the structure.

Plant Placement Do's

- Do: use "mass plantings" or herbaceous/succulents as ground covers even if they are not traditionally used as such. Mass plantings if properly selected, can eliminate fuel ladders.
- Do: plant using spacing resulting in near complete coverage at maturity.
- Do: consider using patio trees as an informal screen in Zone A.
- Do: consider vines as an alternative to hedges on walls or fences 10' from structures.
- Do: select varieties of plants that are slower growing and reach manageable sizes at maturity.
- Do: use plants that are appropriately scaled to the size of the property and structure. A single story house does not need to be shaded by a 100' tall Sweetgum.

Plant Placement Don'ts

- Don't plant hedges directly against structures. This includes espaliers of large shrubs not allowed in Zone A, or hedges taller than 6 feet or within 10' of the structure.
- Don't plant large shrubs and trees in continuous lines or large masses in Zones A or B.
- Don't plant at densities that result in an "instant landscape."
- Don't plant large species and use pruning to reduce overall size.
- Don't plant vines on structures. Vines become receptive fuel beds for embers (fire brands).
- Don't assume any plant is "fire proof." All plants will burn and assuming a plant is ignition resistant can be very misleading.
- Don't use large woody species in mass plantings.

Acceptable Plant Selections for Fuel Modification

The provided plant list is intended as a representative sample of plants appropriate for each zone, considering size, moisture content, leaf litter production and chemical composition. This list is not comprehensive, and designers may choose plants not on the list if plant characteristics are zone appropriate. Selecting regionally appropriate plants considering climate and microclimate adaptability is the designer's responsibility.

Undesirable Plants/Target Species

Plants listed below are not allowed as part of an approved Fuel Modification Plan. In addition to this list, designers should avoid planting known invasive plants such as Pampas grass and Hottentot Fig. If there are questions, please reference the California Invasive Plant Council.
http://www.cal-ipc.org/

*This list is not inclusive and some cultivars (dwarf etc.) within the genus listed may be acceptable.

Adenostoma fasciculatum – Chamise

Adenostoma sparsifolium – Red Shank

Artemesia californica – California Sagebrush

Eriogonum fasciculatum – Common Buckwheat

Cortaderia spp. – Pampas Grass

Cupressus spp. – Cypress

Eucalyptus spp – Eucalyptus

Jasminum humile – Italian Jasmine

Plumbago auriculata – Cape Plumbago

Tecoma capensis – Cape Honeysuckle

Example plant selections by zone begin on the next page.

Fuel Modification Plant List

Botanical Name	Common Name	Zone	Minimum distance from structure
Ground Cover			
Acacia redolens 'Desert Carpet'/'Low Boy'	Desert Carpet Acacia	B	30
Achillea tomentosa	Woolly Yarrow	A	
Ajuga reptans	Carpet Bugle	A	
Arctostaphylos (Prostrate Varieties)	Manzanita	B	
Artemisia californica (Cultivars)	Sagebrush - Prostrate Forms	B	30
Artemesia 'Powis Castle'	NCN	B	
Baccharis pilularis 'Pigeon Point'/'Twin Peaks'	Prostrate Coyote Brush	B	
Campanula poscharkyana	Serbian Bellflower	A	
Ceanothus gloriosus	Point Reyes Ceanothus	B	
Cerastium tomentosum	Snow-In-Summer	A	
Chamaemelum nobile	Chamomile	A	
Cistus salviifolius 'Prostratus'	Sageleaf Rockrose	B	
Coprosma kirkii	Mirror Plant	B	
Coreopsis auriculata 'Nana'	Tickseed	A	
Cotoneaster (Prostrate Varieties)	Cotoneaster	B	
Dalea greggii	Trailing Indigo Bush	B	
Delosperma alba	White Training Ice Plant	A	
Dichondra micrantha	Dichondra	A	
Drosanthemum floribundum	Rosea Ice Plant	A	
Duchesnea indica	Indian Mock Strawberry	A	
Dymondia margaretae	NCN	A	
Erigeron glaucus	Seaside Daisy	A	
E. karvinskianus	Santa Barbara Daisy	B	
Euonymus fortunei 'Colorata'	Purple-Leaf Winter Creeper	B	
Festuca cinerea(ovina'Glauca')	Blue Fescue	A	
F. rubra	Red Fescue	A	
Fragaria chiloensis	Wild Strawberrry	A	
Gazania Hybrids	Trailing Gazania	A	
Geranium incanum/sanguineum	Cranesbill	A	
Glechoma hederacea	Ground Ivy	A	
Helianthemum nummularium	Sunrose	A	
Herniaria glabra	Green Carpet	A	
Heuchera species and Cultivars	Coral Bells	A	
Hypericum calycinum/coris	Aaron's Beard	B	
Iberis sempervirens	Evergreen Candytuft	A	
Iva hayesiana	Poverty Weed	B	30
Juniperus (Prostrate species/cultivars)		B	
Laurentia fluviatilis	Blue Star Creeper	A	
Lysimachia nummularia	Moneywort	A	
Liriope spicata	Creeping Lily Turf	A	

Liriope muscari	Lily Turf	A	
Mahonia repens	Creeping Mahonia	B	
Myoporum 'Pacificum' & 'Putah Creek'	Pacific Myoporum	B	
M. parvifolium	NCN	A	
Oenothera berlandieri	Mexican Evening Primrose	B	
O. stubbei	Baja Evening Primrose	A	
Ophiopogon japonicus	Mondo Grass	A	
Pachysandra terminalis	Japanese Spurge	A	
Pelargonium peltatum/tomentosum	Ivy Geranium	A	
Persicaria capitata	Pink Clover	A	
Phlox subulata	Moss Pink	A	10
Phyla nodiflora (Lippia repens)	Lippia	A	
Potentilla tabernaemontanii	Spring Cinquefoil	A	
Ribes viburnifolium	Catalina Perfume	B	
Rosmarinus officinalis (Prostrate Varieties)	Prostrate Rosemary	B	30
Scaevola 'Mauve Clusters'	NCN	A	
Salvia sonomensis	Creeping Sage	B	
Sedum species	Stonecrops	A	
Senecio mandraliscae/serpens	Kleinia/Blue Chalksticks	A	
Soleirolia soleirolii	Baby's Tears	A	
Teucrium cossonii majoricum	Germander	A	
T. X lucidrys 'Prostratum'	Prostrate Germander	A	
Thymus species	Mother of Thyme	A	
Trachelospermum jasminoides	Star Jasmine	A	
Trifolium fragiferum	White Clover	A	
Verbena species (Prostrate Varities)	Garden Verbena	A	
Vinca minor	Dwarf Periwinkle	A	
Viola odorata	Sweet Violet	A	
Wedelia trilobata	Yellow Dot	B	
Zoysia tenuifolia	Korean Grass	A	
Miscellaneous Perennials, Grasses, Ferns etc.			
Acorous gramineous and Cultivars	Sweet Flag	A	
Agapanthus africanus	Lily of the Nile	A	
Alstroemeria cooperi	Peruvian Lily	A	
Armeria species	Thrifts	A	
Bamboos	Bamboo	B	30
Bergenia cordifolia	Heart Leaf Bergenia	A	
Cycas species	Cycads	A	
Cyrtomium falcatum	Holly Fern	A	
Davalia tricomanoides	Rabbits Foot Fern	A	
Epilobium canum	California Fuchia	B	
Helictotrichon sempervirens	Blue Oat Grass	A	15
Hemerocallis hybrids	Daylily	A	
Iris douglassiana	Coastal Iris	A	
Iris germanica	Bearded Iris	A	

Kalanchoe species	Kalanchoe	A	
Leymus condensatus 'Canyon Prince'	Canyon Prince Wild Rye	B	
Lobelia laxiflora		A	10
Pelargonium species	Geranium	A	
Penstemon species	Beard Tongue	A	
Plumeria	Plumeria	A	
Phlebodium aureum	Rabbits Foot Fern	A	
Tulbaghia violacea	Society Garlic	A	
Zephyranthes candida	Zephyr Lily	A	
Shrubs			
Abelia grandiflora (Prostrata)	Glossy Abelia	A	10
Abutilon hybridum	Flowering Maple	A	10
Acanthus mollis	Bear's Breech	A	
Agave species	Agave	A	
Aloe species	Aloe	A	
Alyogyne huegelii	Blue Hibiscus	A	10
Arbutus unedo (Dwarf Cultivars)	Dwarf Strawberry Tree	A	10
Arctostaphylos species	Manzanita	B	
Aucuba japonica	Japanese Aucuba	A	
Baccharis species	Various	B	
Berberis thunbergii	Japanese Barberry	B	
B. thunbergii ' prostrate cultivars'		A	10
Bougainvillea sp.	Bougainvillea	B	
Buddleja davidii	Butterfly Bush	B	
Buxus microphylla japonica	Japanese Boxwood	A	10
Caesalpinia (Shrub Forms)	Bird of Paradise Bush	A	10
Camellia species	Camellia	A	10
Calliandra californica/eriophylla	Baja Fairy Duster	B	
Callistemon citrinus	Lemon Bottlebrush	B	
C. viminalis "Little John"	NCN	A	10
Calycanthus occidentalis	Western Spice Bush	B	
Carissa macrocarpa and Cultivars	Natal Plum	A	10
Carpenteria californica	Bush Anemone	A	10
Cassia artemisioides	Feathery Cassia	A	30
Ceanothus species	Wild Lilac	B	30
Cercocarpus betuiloides	Mountain Mahogany	B	30
Choisya ternata	Mexican orange	B	
Cistus species	Rockrose	B	
Comarostaphylis diversifolia	Summer Holly	B	
Convolvulus cneorum	Bush Morning Glory	B	
Coprosma pumila/repens	Mirror Plant	B	
Cotoneaster species & cultivars	Cotoneaster	B	
Crassula species	NCN	A	
Cuphea hyssopifolia	False Heather	A	
Cycas revoluta	Sago Palm	A	

Dasylirion quadrangulatum/wheeleri	Mexican Grass Tree	A	10
Dendromecon harfordii	Island Bush Poppy	B	
Dietes bicolor/irioides	Fortnight Lily	A	
Dodonaea viscosa (Purpurea)	Hopseed Bush	B	
Elaeagnus pungens & cultivars	Silverberry	B	
Encelia californica	Coast Sunflower	A	10
E. farinosa	Brittle Bush	B	
Erigonum giganteum	St. Catherine's Lace	B	
Escallonia species	Escallonia	A	10
Euonymus japonica & cultivars	Evergreen Euonymus	A	10
Euphorbia species		A	
Euryops pectinatus	NCN	A	
Fatsia japonica	Japanese Aralia	A	
Fouquieria splendens	Ocotillo	A	
Fremontodendron species & cultivars	Flannel Bush	B	
Gardenia jasminoides	Gardenia	A	
Garrya elliptica	Coast Silktassel	B	
Grevillea species & cultivars	Grevillea	B	
Grewia occidentalis	Lavender Starflower	B	
Hakea suaveolens	Sweet Hakea	B	
Hebe species & cultivars	Hebe	A	10
Hesperaloe parviflora	Red Yucca	A	
Hibiscus rosa - sinensis	Chinese Hibiscus	A	10
Ilex species	Holly	B	
Juniperus species	Juniper	B	
Justicia brandegeana	Shrimp Plant	A	10
J. californica	Chuparosa	B	
Keckiella cordifolia	Heart-Leaved Penstemon	B	
Kniphofia uvaria	Red-Hot Poker	A	
Lantana Camara & hybrids	Lantana	A	10
Larrea tridentata	Creosote Bush	B	
Lavandula species	Lavender	A	10
Lavatera assurgentiflora/maritima	California Tree Mallow	B	
Leonotis leonrus	Lion's Tail	B	
Leptospermum scoparium & varities	New Zealand Tea Tree	B	
Leucophyllum species		B	
Ligustrum japonicum	Wax-leaf Privet	A	10
Lupinus species	Lupine	B	
Mahonia aquifolium ('Compacta')	Oregon Grape	A	10
M. fremontii	Desert Mahonia	B	
M. 'Golden Abundance'	NCN	B	
M. lomariifolia	Venetian Blind Mahonia	A	
Malosma - See Rhus			
Malva species	Mallow	A	10
Melaleuca nesophila	Pink Melaleuca	A	10
Mimulus species (Diplacus)	Monkey Flower	A	10
Myrica californica	Pacific Wax Myrtle	B	

Myrsine africana	African Boxwood	A	10
Myrtus communis 'Compacta'	Dwarf Myrtle	A	10
Nandina domestica (including dwarf varieties)	Heavenly Bamboo	A	
Nerium oleander	Oleander	B	
N.o. 'Petite Salmon'	NCN	A	10
Opuntia species	Prickly Pear, Cholla etc.	A	
Phlomis fruticosa	Jerusalem Sage	A	
Phoenix roebelenii	Pygmy Date Palm	A	
Phormium tenax and Cultivars	New Zealand Flax	A	
Photinia fraseri	Photinia	B	
Pittosporum tobira ('Variegata')	Tobira	B	
P.t.'Wheeler's Dwarf'	Dwarf Pittosporum	A	
Punica granatum 'Nana'	Dwarf Pomegranate	A	10
Prunus ilicifolia	Hollyleaf Cherry	B	
Pyracantha species	Firethorn	B	
Rhamnus california/crocea	Coffeeberry	B	
Rhaphiolepis indica and Cultivars	India Hawthorn	A	10
Rhus integrifolia/laurina	Lemonade Berry	B	40
R. ovata	Sugar Bush	B	30
Ribes species	Currant/Gooseberry	A	10
Romneya coulteri	Matilija Poppy	B	
Rosa species (except R. californica)	Rose	A	
Rosmarinus officinalis & cultivars	Rosemary	B	
Salvia species - native varieties	Sage	B	
S. greggii/leucantha	Autumn Sage	A	10
Santolina chamaecyparissus/rosmarinifolius	Lavender Cotton	A	10
Simmondsia chinensis	Jojoba	B	
Strelitzia nicolai/regina	Bird of Paradise	A	
Tagetes lemmonii	Copper Canyon Daisy	B	
Tibouchina urvilleana	Princess Flower	A	10
Trichostema lanatum	Wooly Blue Curls	B	
Viburnum species	Viburnum	A	10
Westringia fruticosa	Coast Rosemary	A	10
Xylosma congestum	Shiny Xylosma	B	
X.c. 'Compacta'	Compact Xylosma	A	10
Yucca species	Yucca	B	
Trees			
Acacia farnesiana	Sweet Acacia	A	15
A. greggii	Catclaw Acacia	B	
A. salicina	Willow Acacia	A	15
A. smallii	NCN	A	15
A. stenophylla	Shoestring Acacia	A	15
Acer negundo	Box Elder	B	
A. palmatum	Japanese Maple	A	
A. saccharinum	Silver Maple	B	30

Aesculus californica	California Buckeye	B	
Agonis flexuosa	Peppermint Tree	B	
Albizia julibrissin	Silk Tree	B	
Alnus rhombifolia	Alder	B	
Arbutus unedo ('Marina')	Strawberry Tree	A	15
Archontophoenix cunninghamiana	King Palm	A	
Bauhinia variegata	Purple Orchid Tree	B	
Betula pendula	European White Birch	A	10
Brachychiton acerifolius/populneus	Flame Tree/Bottle Tree	B	
Brahea armata/edulis	Blue Hesper Palm	A	10
Butia capitata	Pindo Palm	A	10
Callistemon citrinus	Lemon Bottlebrush	B	
C. viminalis	Weeping Bottlebrush	A	15
Calocedrus decurrens	Incense Cedar	B	
Calodendrum capense	Cape Chestnut	B	
Cedrus deodara	Deodar Cedar	B	30
Ceratonia siliqua	Carob	B	30
Cercidium floridum/microphyllum	Blue Palo Verde	A	
Cercis occidentalis/canadensis	Western Redbud	A	10
Chamaerops humilis	Mediterranean Fan Palm	A	10
Chilopsis linearis	Desert Willow	A	15
Chionanthus retusus	Chinese Fringe Tree	A	10
Chitalpa X tashkentensis	Chitalpa	A	10
Chorisia speciosa	Floss Silk Tree	B	
Cinnamomum camphora	Camphor Tree	B	30
Citrus species	Citrus	A	10
Cocculus laurifolius	Laurel Leaf Snail Seed	B	
Cordyline australis	Giant Dracaena	A	
Cyathea cooperi	Australian Tree Fern	A	
Dicksonia antarctica	Tazmanian Tree Fern	A	
Dracaena draco	Dragon Tree	A	
Eriobotrya deflexa/japonica	Bronze Loquat/Loquat	A	10
Erythrina species	Coral Tree	B	
Feijoa sellowiana	Pineapple Guava	A	10
Ficus species	Fig	B	50
Fraxinus species	Ash	B	30
Geijera parviflora	Australian Willow	A	15
Ginkgo biloba	Maidenhair Tree	A	15
Gleditsia triacanthos	Honey Locust	A	15
Grevillea robusta	Silk Oak	B	
Heteromeles arbutifolia	Toyon	A	15
Hymenosporum flavum	Sweetshade Tree	A	15
Jacaranda mimosifolia	Jacaranda	B	
Juglans californica	Black Walnut	B	
Koelreuteria bipinnata/paniculata	Chinese Flame Tree	B	
Lagerstroemia indica	Crape Myrtle	A	10
Laurus nobilis	Sweet Bay	B	

Leptospermum laevigatum	Australian Tea Tree	A	15
Liquidambar formosana	Chinese Sweet Gum	A	15
L. styraciflua	American Sweet Gum	B	
Liriodendron tulipfera	Tulip Tree	B	
Lithocarpus densiflorus	Tanbark Oak	B	
Lophpstemon confertus (Tristania)	Brisbane Box	A	15
Lyonothamnus floribundus	Catalina Ironwood	A	15
Magnolia grandiflora	Southern Magnolia	B	
M. X soulangeana	Saucer Magnolia	A	10
Maytenus boaria	Mayten Tree	A	10
Melaleuca quinquenervia	Cajeput Tree	A	15
Metasequoia glypstroboides	Dawn Redwood	A	15
Metrosideros excelsus	New Zealand Christmas Tree	A	10
Morus alba	White Mulberry	B	
Olea europea	Olive - Fruitless only	A	15
Parkinsonia aculeata	Jerusalem Thorn	A	10
Phoenix dactylifera	Date Palm	B	
Pinus species	Pine	B	75
Pistacia chinensis	Chinese Pistache	B	
Pittosporum phillyraeoides	Willow Pittosporum	A	10
P. rhombifolium	Queensland Pittosporum	B	
Platanus racemosa	California Sycamore	B	
Podocarpus gracilior/macrophyllus	Fern Pine/Yew Pine	B	
Populus fremontii	Fremont Cottonwood	B	
Prosopis chilensis	Chilean Mesquite	B	
P. glandulosa	Honey Mesquite	A	15
Prunus cerasifera 'Atropurpurea'	Purple-leaf Plum	A	10
Punica granatum	Pomegranate	B	
Pyrus calleryana/kawakamii	Ornamental Pear	A	15
Quercus species	Oak	B	30
Rhus lancea	African Sumac	B	
Robinia ambigua	Locust	B	
Sapium sebiferum	Chinese Tallow Tree	B	
Schefflera actinophylla	Queensland Unbrella Tree	A	
Sophora japonica	Japanese Pagoda Tree	B	
Stenocarpus sinuatus	Firewheel Tree	A	10
Syagrus romanzoffianum	Queen Palm	A	
Tabebuia species	Trumpet Tree	A	15
Tipuana tipu	Tipu Tree	B	
Tupidanthus calyptratus	Tupidanthus	A	
Trachycarpus fortunei	Windmill Palm	A	
Umbellularia californica	California Bay	B	
Washingtonia filifera	California Fan Palm	B	30
Zelkova serrata	Sawleaf Zelkova	B	

Appendix D

Project Specific Wildfire Risk Reduction Measures

Code Required Fire Safety Features

Feature No.	Description
1	**Proximity to Fire Stations.** The Project is within LA County Fire's response time goals for initial response. The overall call volume has a less than significant impact on the planned response capacity. Response capacity would be enhanced by three on-site fire stations within the community that will provide a fast response throughout the Project Area.
2	**Ignition Resistant Construction.** All structures within the Project will be constructed of ignition-resistant construction materials consistent with wildfire protection building construction requirements contained in the Los Angeles Building Code including Los Angles Building Code Title 26 Chapter 7A, Los Angeles County Residential Code Section R327, and Los Angeles County Reference Standards Code Chapter 12-7A. These requirements include ignition resistance construction and are a key component in preventing structural ignition *(Section 3.5 Structural Ignition Resistance Regulatory Requirements).*
3	**Automatic Interior Fire Sprinklers.** Per LA County Fire Code all structures of any occupancy type within the Project will be equipped with an NFPA 13, 13R, and 13D automatic sprinkler system. Automatic sprinklers prevent ember generation by structure fires, isolate fires to the point of origin, and limit fires from spreading within the building. *(Section 3.6.3 Automatic Fire Sprinkler System)*
4	**Fuel Modification Zones.** Per State Fire Code Section 4906 defensible space shall be maintained around all within and structures in all unincorporated land designated as SRA. Consistent with PRC 4290, SRA Fire Safe Regulations, California Code of Regulation Title 14 Division 1.4 Chapter 7 Subchapter 2 Section 1270, and Los Angeles County Fire Code Title 32 Section 4908.1 the Project will provide at least 100 feet from the exterior of structures toward the undeveloped wildland areas that are divided into a 30-foot wide irrigation Zone A and a 70 foot wide thinning Zone B. In addition to compliance with the County's fuel modification regulations, the Project would provide additional restrictions in the Zone 0 area (0-5 feet from structures). Although Zone 0 regulations are not currently mandated, they are expected to be codified in 2026. The Project will be designed and constructed in compliance with the applicable Zone 0 requirements in effect at the time of build-out. This will be enforced through LACoFD approval of Fuel Modification Plans (LA County Fire Code 4906.3). The FMZs reduce fire intensity and flame lengths from fires in wildland areas advancing towards structures or vice versa. *(Section 3.2 of WSP Defensible space and Vegetation Management Regulatory Requirements)*
5	**Roadside Fuel Modification Zones.** The internal roadways will be maintained with a minimum of 20 feet to 50 feet total width of vegetation clearance that is clear to the sky to allow for fire apparatus access and prevent vehicle-based ignitions. All flammable vegetation or other combustible growth shall be removed on each side of the roadway for a minimum of 10 feet per County Fire Code Title 32 Section 325.10. *(Section 3.3.1 Roadway Fuel Modification Zones)*
6	**Fire Access infrastructure Conditions.** All Project access will be consistent with County Roadway Standards defined in Title 21 and the 2020 CFC Section 503. Typical interior roads will have a minimum width of 24 feet width of unobstructed access. Private or public streets that provide fire apparatus access to buildings three stories or more in height shall be improved to 30 feet unobstructed width. All interior residential streets will be designed to accommodate a minimum of 75,000-lb. fire apparatus load. Fire apparatus access roads shall not exceed 15 percent in grades. Dead-end roads and cul-de-sacs will comply with Title 21 to ensure fire apparatus access.

Code Required Fire Safety Features

Feature No.	Description
	Per the Subdivision Ordinance, each tentative map application and approved tentative map must demonstrate that Project internal circulation system, site access, road dimensions, road connectivity, and other standards related to fire apparatus access are consistent with all applicable County's roadway and fire code standards.
7	**Water Availability.** Water capacity and delivery will provide for a reliable water source for operations and during emergencies requiring extended fire flow. Water supply will be consistent with County Title 20, Section 20.16.060 for fire flow and fire hydrant requirements within a VHFHSZ. *(Section 3.6.1 Water Supply and Section 3.6.1 Hydrants)*
8	**Ember Resistant Zone** Although not currently required by law, the Project will also include an Ember Resistant Zone (ERZ) within Zone A, consistent with PRC 4291 to include more intense fuels reduction within the immediate vicinity of structures.[1] The ERZ is from the 5 feet of a structure and includes the area under and around all attached decks. The ERZ forces on preventing structure ignition via ember showers by reducing/eliminating all combustible within this zone. *(Section 3.2 of WSP Defensible space and Vegetation Management Regulatory Requirements)*
9	**Underground Utilities.** As required by the County's subdivision ordinance, all tentative map applications must depict the location of proposed utility easements. As required by applicable standards, all of the Project's horizontal utilities, including but not limited electric transmission lines, will be installed underground to significantly reduce the potential for equipment-related fire starts.
10	**Construction Fire Prevention Plan.** As required by Chapter 33 of the CFC, Prior to any construction activities, a detailed Construction Fire Prevention Plan (CFPP) shall be implemented for the Project and submitted to the County of Los Angeles for review and approval prior to the issuance of the first grading permit. The CFPP shall designate fire safety measures to reduce the possibility of fires during construction activities, including fire watch during hot works and heavy machinery activities (e.g., welding), spark arrestors on all equipment, water supply via hose lines attached to hydrants, or a water tender pursuant to County Fire requirements, red flag period restrictions, and mandatory on-site fire resources. Employees would be presented with basic prevention fire training upon employment, and the on-site safety officer and/or supervisor/foreman shall maintain documentation of training. Training shall consist of the Project WSP requirements, review of Occupation Safety and Health Administration (OSHA) Fire Protection and Prevention, proper response and notification of a fire, and the use of fire extinguishing equipment. A site safety officer shall be responsible for the implementation of the CWSP, ensuring fire control equipment are maintained in good working conditions, monitoring combustibles onsite, conducting fire safety surveys, posting fire rules in an area visible to employees, stopping work activities that pose a fire hazard or are not in compliance with the CFPP, and reporting all fire ignited on-site to County Fire. County Fire shall review site fire safety conditions prior to the commencement of construction activities.

[1] Assembly Bill 3074, passed into law in 2020, which requires a third zone for defensible space and amends PRC 4291. The amendment requires the Board of Forestry and Fire Protection to develop the regulation for the new ember-resistant zone (ERZ) within 0 to 5 feet of a structure by January 1, 2023. CAL FIRE currently recommends the implementation of an ERZ. In anticipation of the ERZ requirements becoming codified in PRC 4291, the ERZ has been included in the defensible space requirements for the Project. The above listed requirements are based on the current recommendations for creating an ERZ detailed on CAL FIRE Defensible Space website (https://www.fire.ca.gov/programs/communications/defensible-space-prc-4291/). These requirements will be reviewed and updated once the Board of Forestry and Fire Protection updates the regulations for the ERZ in PRC 4291.FIRE Defensible Space website (https://www.fire.ca.gov/programs/communications/defensible-space-prc-4291/). These requirements will be reviewed and updated once the Board of Forestry and Fire Protection updates the regulations for the ERZ in PRC 4291.

Code Required Fire Safety Features

Feature No.	Description
11	**Pre-Construction Requirements.** As required by Chapter 33 of the CFC, The applicant shall submit site improvement plans to County Fire prior to the issuance of the building permits. Prior to bringing lumber or combustible materials related to residential and nonresidential building construction onto the Project Site, site improvements within the active development area shall be in place, including utilities, operable fire hydrants, and an approved, temporary roadway surface and fuel modification zones shall be established. Combustible materials may be utilized onsite prior to stated site improvements as needed for providing the improvements (e.g., wood forms for cast-in-place concrete) or for infrastructure construction prior to utilities being installed (e.g. operable fire hydrants). County Fire shall review site fire safety conditions prior to the commencement of building activities.
12	**Annual Fuel Modification Maintenance.** As required by Los Angeles County Fire Code 4908.1, all vegetation management with the FMZs and common areas shall be completed annually by May 1 of each year. Vegetation management may be completed more often for fire safety if determined necessary by County Fire. The Project HOA or equivalent entity shall be responsible for the annual maintenance of all vegetation management within the Fuel Modification Zones (FMZs) in the common areas ensuring compliance with LACoFD fuel modification guidelines. Property owners will be responsible for maintaining the Ember Resistant Zone (ERZ) and any fuel modification within their property. The annual maintenance would be managed and maintained by the Project HOA through a qualified contractor that shall be required to meet fire safety requirements regarding equipment, the timing of maintenance, and fire suppression capabilities. Maintenance activities would include but not be limited to removing dead and dying material, removing undesirable plant species, and conducting thinning activities to maintain adequate spacing requirements. The Project HOA or similar entity shall be responsible for ensuring the long-term funding and ongoing compliance with all provisions of the WSP including, vegetation planting, fuel modification of the perimeter areas, vegetation management on all common areas including roadsides, and open space areas under their control. The Project HOA shall be responsible for the implementation of the annual FMZ maintenance subject to ongoing enforcement by County Fire. The HOA or and County Fire would enforce the vegetation management requirements detailed in the WSP and such requirements would be made a part of deed encumbrances and CC&Rs for each lot, as appropriate. Documentation, as part of the inspection report per Recommended Measure -4, on maintenance activities detailing the FMZS, maintenance operation, and consistency with current County brush clearance requirements shall be submitted to County Fire Bush Clearance Program.
13	**Landscape Plan.** As required by LA County Fire code 4906.3, the Project Applicant/Developer shall develop a Landscaping Plan for review and approval by the County Biologist for each tentative map application submittal.
14	**Confirmation of Code Compliance.** At the building permit and site plan review stage of Project development, the County will confirm that all building plans comply with all applicable codes. The Project shall comply with applicable portions of Title 30, 32, and 33 of the Los Angeles County Code at the time of building permit and site plan review. The Project would also be subject to the provisions of Section 4291 of the Public Resources Code regarding brush clearance standards around structures and the Los Angeles County Fire Department guidelines for Fuel Modification Plans. The Project is required to comply with all future code updates as development proceeds. Code compliance shall also be confirmed by County building inspectors prior to issuance of certificates of occupancy.

Climate Resolve Settlement Agreement Requirements

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
1	**HOA Wildfire Education Program.** The Project residents and occupants shall be provided with ongoing education regarding wildfire, the WSP, and the Wildfire Evacuation Plan. The education program would support fire safety, evacuation practices, and fire safety features designed for the community. The Centennial Wildfire Education Program would provide target outreach to residents and occupants living in a fire risk area and would be a layered approach to maintaining high wildfire risk awareness that includes active and passive features. Contents of the educational program would be reviewed and approved by County Fire before printing and distribution. The Project HOA or similar entity shall be responsible for the ongoing funding and maintenance of the wildfire education program. The educational program shall consist of the following: 1. **Bi-annual email and mailers:** Residents and occupants will be provided with bi-annual emails and mailers in May and in August. Mailers would be sent to each property address and property owners would receive digital copies. Property owners would be highly encouraged to share this information with tenants should they choose to rent their property. The mailers and emails would include information such as reminders about annual defensible space inspections, maintaining the Ember Resistant Zone (ERZ), how to prepare for wildfire season, evacuation information, and how to prevent wildfires. There would also be links to various resources on where to get trusted information such as County Fire, 211 LA County, and Ready LA County. 2. **Website:** There shall be a dedicated community website with more detailed information and resources about wildfire awareness and prevention. The website would serve as a centralized resource for the fire education program and include information from the WSP. The website will also have fire watch and red flag warning alerts, as well as information	During Operation	HOA	Centennial Monitoring Group

Climate Resolve Settlement Agreement Requirements

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
	on restrictions during fire weather conditions. Residents will also be able to use the website to sign up for an annual residential defensible space inspection from the HOA Fire Committee. 3. **Community workshops and webinars:** Two times a year there shall be either in-person or virtual community workshops. The goal of the workshops would be to cover various fire topics more in-depth. For example, this could include having a County Fire representative come to meet the community, a workshop on how to make a go-bag, a workshop on how to make a residential evacuation plan, or how to maintain the home ignition zone. 4. **New resident packet:** All residents and new residents in the future shall also be presented with wildfire awareness and safety package upon purchase or rental of a home. This would also be given to businesses as part of their employee training program. Within the package will be a memory stick with the evacuation plan, a list of fire protection features, information on the regional fire hazard, prohibited activities in fire risk areas, how to build a go-bag, and a list of agencies and resources for receiving trusted information. 5. **Emergency alert campaign:** Residents and businesses would be encouraged to sign up for Alert LA County. Alert LA County is the mass notification system for emergency alerts, weather alerts, health notifications, building alerts, and other updates from County, State, and Federal agencies. The campaign shall occur annually and encourage residents to sign up for Alert La County. Reminders would also be sent out in the bi-annual mailers and emails, on the community website, in the workshops, and in the new resident package. 6. **Fire watch groups:** Within the community, there shall also be volunteer fire watch groups. These would be residents or businesses who volunteer to participate in a fire watch group			

Climate Resolve Settlement Agreement Requirements

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
	for the community. During red flag warning days, this group would be responsible for reminding businesses and residents of fire-safe practices and restrictions. During red flag warning days, the fire watch group would also maintain vigilance of potential fires and would be trained on procedures for alerting County Fire in the event of a fire. 7. **HOA fire safety committee:** The fire safety committee shall be responsible for overseeing the maintenance of community-wide fire protection features. Residents would be able to report fire hazards or hazardous fuel conditions to the HOA committee for remediation. The committee will be responsible for the coordination of the 3rd party Fuel Modification Zone (FMZ) inspections and the volunteer residential defensible space inspections. The committee shall also be responsible for organizing and coordinating an annual education workshop on how to maintain the ERZ. The committee shall also be responsible for the creation and distribution of the educational program for the Project. The committee would serve as a communication link between County Fire and the community.			
2	**Enhanced Wildfire Prevention and Protection Measures.** In addition to commitments that ensure Centennial will be a Net Zero GHG Project, Climate Resolve and Centennial have mutually agreed to make certain additional commitments to fund wildfire prevention, protection, and response activities within the Project, and to fund grants to improve wildfire prevention, protection, and response activities in nearby communities. See Section 7.7 of the WSP for a complete description of the requirements outlined in the settlement agreement.	During Operation	Applicant	Centennial Monitoring Group
3	**Master HOA Enforcement of CC&Rs Through Monetary Penalties.** To promote enforcement of the CC&Rs, the governing documents of the Master HOA shall vest the governing board of the Master HOA with authority to impose fines on any homeowner who violates any provision of the CC&R related to Fire Safety Requirements, and	Project Operations	HOA	Centennial Monitoring Group

Climate Resolve Settlement Agreement Requirements

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
	shall establish a schedule of reasonable monetary penalties to be assessed by the Master HOA against any homeowner that violates any provision of the CC&Rs related to Fire Safety Requirements. The required schedule of monetary penalties shall also be included as part of a general CC&R enforcement policy to be adopted and administered by the governing board of the Master HOA, which policy shall describe in detail the steps to be followed in enforcing the Master HOA governing documents and CC&Rs. As provided in California Civil Code Section 5855, no fine shall be assessed against a homeowner for violating a provision of the CC&Rs related to Fire Safety Requirements unless and until the Master HOA first conducts a hearing on the alleged violation. At least ten days' advance notice must be provided to the relevant homeowner of the date and time of the hearing, the general nature of the allegation of rules violation against such homeowner and informing such homeowner that they have the right to attend such hearing and to address the governing board.			
4	**Master HOA Ongoing Maintenance.** The governing documents of the Master HOA shall provide that the Master HOA is responsible for the long-term funding and ongoing maintenance of private roads and fire protection systems, including fire sprinklers and private fire hydrants. The Master HOA governing documents shall also provide that the Master HOA is responsible for the long-term funding and implementation of all fuel modification vegetation management in Project common areas, including but not limited to roadsides (including a minimum of 20 feet clearance on each side of roads within the Project development footprint adjacent to open space areas), open space and landscape areas, and fuel modification zones. In addition, the Master HOA shall establish a reverse 9-1-1 system capable of contacting every listed telephone number in the community by computer at a rate of at least 250 calls per minute.	Project Operations	HOA	Centennial Monitoring Group

Climate Resolve Settlement Agreement Requirements

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
5	**Fire Protections Education Committee.** The governing documents of the Master HOA shall establish a Fire Protection Education Committee (FEPC) The purpose of the FEPC shall be to (i) promote education programs and tools that provide information to Project homeowners about the Project's overall Fire Safety Requirements and about each homeowner's individual obligations thereunder; (ii) promote education programs and tools that provide information about wildland fire ecology, management, protection, and prevention; and (iii) coordinate with the LACoFD and other stakeholders to identify opportunities for improvement in all areas of wildland fire communication, education, protection, and prevention. See Section 7.23 for a complete description of this measure.	Project Operations	HOA	Centennial Monitoring Group
6	**Third-Party Compliance Inspectors.** To confirm that the Project's fuel management zones and landscape areas are being maintained according to the Fire Safety Requirements and the LACoFD's fuel modification guidelines, the Master HOA shall obtain a fuel management zone inspection and report from a qualified LACoFD-approved third-party inspector in May/June of each year certifying that vegetation management activities throughout the Project site have been timely and properly performed. If the third-party inspector determines that a fuel management zone or landscape area is not compliant with all applicable fire-safety standards, the Master HOA shall have a specified period, not to exceed sixty days, to correct any noted issues so that a re-inspection can occur and certification can be achieved. Annual inspection fees may be subject to the current Fire Department Fee Schedule.	Project Operations	HOA	Centennial Monitoring Group

Wildfire Risk Reduction Mitigation Measures

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
MM 3-7 (2019 EIR)	**Emergency Response Plan.** The Project Applicant/Developer shall prepare an Emergency Response Plan for the Project, which shall be updated as needed for each Tentative Map and shall be submitted to the County for review and approval. The Project Applicant/Developer shall be responsible for distributing the current Emergency Response Plan to each purchaser or tenant of each property within Centennial and shall distribute the Plan to all landowners through the Transportation Management Agency (TMA).	Tentative Map Stage	Applicant	County Fire and County Sherrif
MM 3-8 (2019 EIR)	**Traffic Control Plan.** The Project Applicant/Developer shall prepare a Traffic Control Plan in accordance with the California Manual on Uniform Traffic Control Devices (MUTCD). The Traffic Control Plan shall be reviewed and approved by the California Department of Transportation (Caltrans), and all construction activities in the public right-of-way shall comply with the approved Traffic Control Plan to the satisfaction of Caltrans. Documentation of Caltrans approval shall be provided to the County for any Tentative Map involving construction within SR-138 right-of-way.	Construction Permits	Applicant	Caltrans
MM 7-13 (2019 EIR)	**Landscape Plan.** The Project Applicant/Developer shall develop a Landscaping Plan for review and approval by the County Biologist. The Landscaping Plan shall be (1) prepared by a qualified biologist, (2) submitted to the County for approval with each tentative map, (3) provided to builders, (4) provided to future project occupants as described in the Specific Plan, and (5) include a plant palette composed of non-invasive species that are adapted to the conditions found on the Project site and do not require high irrigation rates. The Landscaping Plan will also include a list of invasive plant species prohibited from being planted on the Project site. In addition, retail sales of these invasive plant species will be prohibited at any businesses (nurseries) located within the Project site. Landscape plans shall encourage planting of local natives typical of native vegetation within ten miles of the Project site.	Construction Permit and During Operations	Applicant and HOA	County Department of Regional Planning

Wildfire Risk Reduction Mitigation Measures

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
MM 7-21 (2019 EIR)	**Implementation Plan.** In order to ensure that no direct impacts to Significant Ecological Area (SEA) 17 occur, brush clearance zones shall be contained within the current Project impact boundary and no overlap with the adjacent SEA 17 shall occur. Vegetation management for fire abatement purposes is not authorized in SEA areas. An Implementation Plan, including fire risk abatement measures (including but not limited to vegetation management) required to comply with State and County fire prevention and response legal requirements, shall be submitted as part of the tentative tract map for portions of the Project site that border an SEA or mitigation preserve area. The Plan shall include: (a) a summary of applicable State and County fire risk abatement requirements; (b) a prohibition on the use of vegetation clearance within SEA 17 or mitigation preserve areas. The Plan shall be submitted to the County for approval with the first tentative map, and shall be updated to include new or modified State or County fire risk abatement requirements as part of each subsequent tentative tract map submittal.	Tentative Map Stage	Applicant	County Department of Regional Planning
MM 10-5 (2019 EIR)	**Construction Traffic Control Plan.** The Project Applicant/Developer shall submit Traffic Management Plans to the County for review and approval. The Traffic Management Plans shall describe traffic-control measures that shall be implemented to maintain traffic flow in all directions, including where utilities and other improvements are being implemented in existing roadways. The Traffic Management Plans shall identify the following: construction haul routes; duration and location of lane closures; location of parking for the public and construction workers during construction phases; use of flag persons; and any pedestrian-related impacts to sidewalks and intersection crossings. The Traffic Management Plan shall be implemented during all stages of Project construction that generate traffic impacts.	Construction Permits	Applicant	County Department of Public Works

Wildfire Risk Reduction Mitigation Measures

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
MM 11-3 (2019 EIR)	**Ban on Wood Burning Fireplaces.** The Project's plans and specifications shall prohibit wood-burning fireplaces as required by SCAQMD Rule 445 in single-family residences throughout the entire Project site, including residences that are 3,000 or more feet about mean sea level at which the SCAQMD prohibition would otherwise not apply. Natural gas fireplaces shall be limited to a total of 13,954. These requirements shall be posted on the community intranet and shall be clearly described and distributed to home buyers through their home purchase contracts and CC&Rs.	Construction Permits	Applicant	County Department of Regional Planning And/or County Department of Public Works Building Inspectors
MM 16-2 (2019 EIR)	**Developer Fees.** The Project Applicant/Developer shall pay developer fees in effect at the time of construction permit approval, in accordance with the LACFD Developer Fee Program until such time the Project Applicant/Developer has conveyed an approved, operational fire station to the LACFD. As an alternative to fee payment, the Developer Fee Program allows the LACFD and the Project Applicant/Developer to agree on a program whereby the Project Applicant/Developer would provide land and would construct and equip the fire stations required for the Project in exchange for a credit towards the Project's fee payments.	Construction Permits	Applicant	County Fire
MM 16-3 (2019 EIR)	**Construct and Equip Fire Stations.** The Project Applicant/Developer shall provide, convey title, and shall construct and equip to the specifications and requirements of LACFD, for up to four new Fire Stations to the LACFD. The approved final plans and specifications for the Project shall identify location of the fire stations. The timing for the construction of the on-site fire stations shall be established by the LACFD dependent upon the phasing of development, with the first on-site fire station operational no later than the time the 1,000th dwelling unit is built on site.	Final Map Stage	Applicant	County Fire
MM 16-4 (2019 EIR)	**Law Enforcement Facilities Mitigation Fee.** The Project Applicant/Developer shall pay Law Enforcement Facilities Mitigation Fee (LEFMF) to the Los Angeles County Sheriff's Department (LASD) pursuant to the requirements established in County Ordinance No. 2008-0033. The amount of fees to be paid would be determined	Construction Permits; Certificate of Occupancy; Completion of First	Applicant	County Sheriff

Wildfire Risk Reduction Mitigation Measures

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
	based on the established fee in Section 22.74.030 of the County Code. The Project incorporates a temporary "store front" sub-station, followed by construction of a permanent LASD Station included on the Project site, in lieu of a portion of the LEFMF, as allowed under Section 22.74.090 (Consideration in Lieu of Fee) of the County Code. Costs associated with the construction of the temporary "store front" sub-station and permanent LASD Station would be credited against the LEFMF. Prior to completion of the permanent LASD Station, the "store front" sub-station may be located on site in Village 1 on the north side of the SR-138. This temporary sub-station shall be properly outfitted in accordance with applicable occupancy requirements of the LASD for such "store front" facilities and shall be operational prior to the approval of the first certificate of occupancy for the first phase of Project development. The Centennial Land Use Plan identifies a conceptual location for one LASD Station in the Business Park area on the Project site north of the SR-138. The permanent LASD Station shall be constructed immediately following completion of the first phase of development. The LASD shall have final approval over the temporary sub-station and permanent LASD Station site locations.	Development Phase		
WILD-1 (RPDEIR)	**Construction Fire Prevention Plan.** Prior to the issuance of grading or building permits, the project proponent/operator shall develop and implement a Construction Fire Prevention Plan for use during construction. The project proponent/operator shall submit the plan, along with maps of the project site and access roads, to the Los Angeles County Fire Department for review and approval. A copy of the approved Construction Fire Prevention Plan shall be submitted to the Department of Regional Planning. The Construction Fire Prevention Plan shall provide standard protocols and approaches for reducing the potential of ignitions for typical construction site activities, including, but not limited to, the following:	Construction Permits	Applicant	County Fire; County Department of Regional Planning

Wildfire Risk Reduction Mitigation Measures

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
	A. Emergency notification and evacuation procedures. B. Designation of a Site Safety Officer whole shall understand the CFPP and its mandates for fire prevention, fire suppression, and evacuation and shall have authority to stop project work activities that pose a fire hazard or are not in compliance with the approved CFPP. C. Vehicles shall be equipped with specified fire prevention equipment. D. All internal combustion engines, both stationary and mobile, shall be equipped with spark arresters. E. Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials. F. Red Flag Warning Weather and Hot Work restrictions. G. Fire rules shall be posted on the project bulletin board at the contractor's field office and areas visible to employees. H. Procedures shall be established for minimizing potential ignition, including, but not limited to, vegetation clearing and management, parking requirements/restrictions, idling restrictions, smoking restrictions, and proper use of gas-powered equipment. I. Personnel shall be trained in the practices of the CFPP relevant to their duties. Construction and maintenance personnel shall be trained and equipped to extinguish small fires to prevent them from growing into more serious threats. J. The project proponent/operator shall restrict the use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to days when the Los Angeles County Fire Department Daily Fire Danger Rating is low. When the above tools are used, water tanks equipped with hoses, fire rakes, and axes shall be easily accessible to personnel.			

Wildfire Risk Reduction Mitigation Measures

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
WILD-2 (RPDEIR; Superseded 2019 EIR MM 3-9)	**Fuel Modification Plan.** The Project Applicant/Developer shall prepare a Fuel Modification Plan demonstrating compliance with the County Fire Code Title 32 and shall provide all new residents and business owners with recorded Covenants, Conditions, and Restrictions (CC&Rs) or disclosure statements that identify the responsibilities for maintaining the fuel modification zone(s) on their property, as defined in the approved Fuel Modification Plan. The CC&Rs or disclosure statements prepared by the Project Applicant/Developer shall be submitted to the County to confirm that new property owners would be informed of their responsibilities for maintaining the fuel modification zone(s) on their property.	Tentative Map Stage	Applicant	County Fire; County Department of Regional Planning
WILD-3 (RPDEIR)	**Fire-Safe Landscaping.** Consistent with the Specific Plan's Green Development Program and Hillside Design Guidelines, the Project shall implement fire-safe landscaping techniques consistent with the Specific Plan's plant palette to reduce fire risks to biological resources and human safety in fuel modification zones. The Project shall include landscaping in the Open Space Zone dominated by native and/or drought tolerant trees, shrubs and ground cover, taking into consideration fuel modification requirements, such as using plants that are fire resistant and avoid plants with characteristics that make them more readily combustible such as plants with oils, wax or resin content, plants that accumulate dead material or shed bark, and/or plants that grow rapidly. Plants selected will be consistent with LACFD Planting Guideline regarding prohibited species and appropriate plant spacing with respect to zone location.	Tentative Map Stage	Applicant	County Department of Regional Planning

Wildfire Risk Reduction Mitigation Measures

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
WILD-4 (RDEIR)	**Ban on Outdoor Fire Pits and Fireplaces.** The Project's plans and specifications shall prohibit outdoor fire pits and outdoor freestanding fireplaces throughout the Project site. This requirement will be enforced at the time of building permit issuance and site plan review. Compliance with this Fire Safety Requirement shall also be confirmed by County building inspectors prior to issuance of certificates of occupancy for each single-family home.	Construction Permits	Applicant	County Department of Public Works Building and Safety
WILD-5 (RPDEIR)	**Operational Emergency Response Enforcement.** The Project Applicant/Developer shall submit the Emergency Response Plan required by MM 3-7 to the Fire Department and/or County Sheriff's Department and California Department of Forestry and Fire for review and approval. The Emergency Response Plan shall utilize existing information from Los Angeles County Office of Emergency Management, coordinate with County emergency planners, and provide site specific procedures for various emergency situations including wildfire. The Property CC&Rs shall require future residential and commercial property owners associations to develop and implement an emergency preparation and response plan, including shelter-in-place and evacuation plans as well as first aid and emergency electric power supplies	Tentative Map Stage	Applicant	County Fire; County Sheriff; County Department of Regional Planning; CalFIRE

Specific Plan Wildfire Risk Reduction Requirements				
14	**Fire-safe Sign Requirements.** As required by the Specific Plan, no sign shall be installed, relocated, or maintained so as to prevent free ingress to or egress from any door, window, or fire escape. In addition, no sign of any kind shall be attached to a standpipe or fire escape, except those signs required by other applicable codes or ordinances. This requirement will be enforced at the time of building permit issuance and site plan review. Compliance with this Fire Safety Requirement shall also be confirmed by County building inspectors prior to issuance of certificates of occupancy for each single-family home. During project operation, this Fire Safety Requirement shall be enforced by the Master HOA.	Building Permit Stage of Site Plan Review	HOA	Centennial Monitoring Group
15	**Master HOA Formation and CC&R Recordation.** Per the Specific Plan, a non-profit Master HOA shall be formed, and the Master HOA's declaration of conditions, covenants, and restrictions (CC&Rs) will be recorded after the recordation of the Project's first final subdivision map consisting of one or more residential lots and prior to the date of the first transfer of any residential lot to a person other than the subdivider. As additional final maps are approved and recorded, the Project area covered by those maps will be annexed by the Master HOA to ensure that control of development and implementation of the CC&Rs can be maintained. Per the Specific Plan and the MMRP, the applicant for a final map shall submit to the Department of Regional Planning the form of CC&Rs so that it may confirm that new homeowners will be informed about their responsibilities under the Fire Safety Requirements. Per Title 32 of the County Code, a copy of the recorded CC&Rs describing the fuel modification requirements must be provided to the LACoFD's Forestry Division. See Section 7.20 for a complete description of this measure.	Project Operations	Applicant	Centennial Monitoring Group
16	**Community Forester.** In accordance with the Specific Plan, the Master HOA shall hire a Community Forester who is trained in urban forestry, arboriculture, horticulture, or landscape architecture to undertake tree management responsibilities. The Community Forester will also coordinate FMZs 3rd party inspections on the Project site. The Community Forester is required to developing a policy for managing public trees on the Project site and educating Project residents about the importance of trees in	Project Operations	HOA	Centennial Monitoring Group

Specific Plan Wildfire Risk Reduction Requirements				
	the community and is responsible for implementing the Project's fire-resistant landscape plan. The Specific Plan further requires the Community Forester to develop programs that involve community organizations and residents in tree preservation, planting and tree care so as to ensure that community trees are, among other things, maintained in accordance with all Fire Code access requirements. Per the Specific Plan, the Community Forester must also prepare an annual tree management plan and implement programs to improve the communities tree canopy in a manner that complies with all Fire Code and LAFCD requirements. In addition, the Specific Plan requires the Community Forester to maintain the Project's fire-resistant plant palette and to consult with the County's staff biologist regarding proposed revisions to the community plant palette described in the Specific Plan. However, the LAFCD shall have final approval over the final plant palette for fuel modification zones and modifications thereto.			
Additional Requirements				
23	**Community Wildfire Evacuation Plan:** The Project shall formally adopt, practice, and implement a "Ready!, Set!, Go!" approach to evacuation through the creation of a Wildland Fire Evacuation Plan (WFEP) for the Project. The WFEP would be based on standard evacuation planning used by the Los Angeles County Office of Emergency Services and provide residents and occupants with potential egress route information and procedures. The WFEP would be provided to the Centennial residents and commercial tenants and posted on the community website. The WFEP would be reviewed by residents at least annually through organized meetings and educational outreach by the HOA, Community Services District, or other means. Every ten years the WFEP will be reviewed and updated by the HOA or similar entity based on current land use, evacuation polies, and regulations. The WFEP will be available for review and input from County Fire and County sheriff.	Project Operations	HOA	HOA

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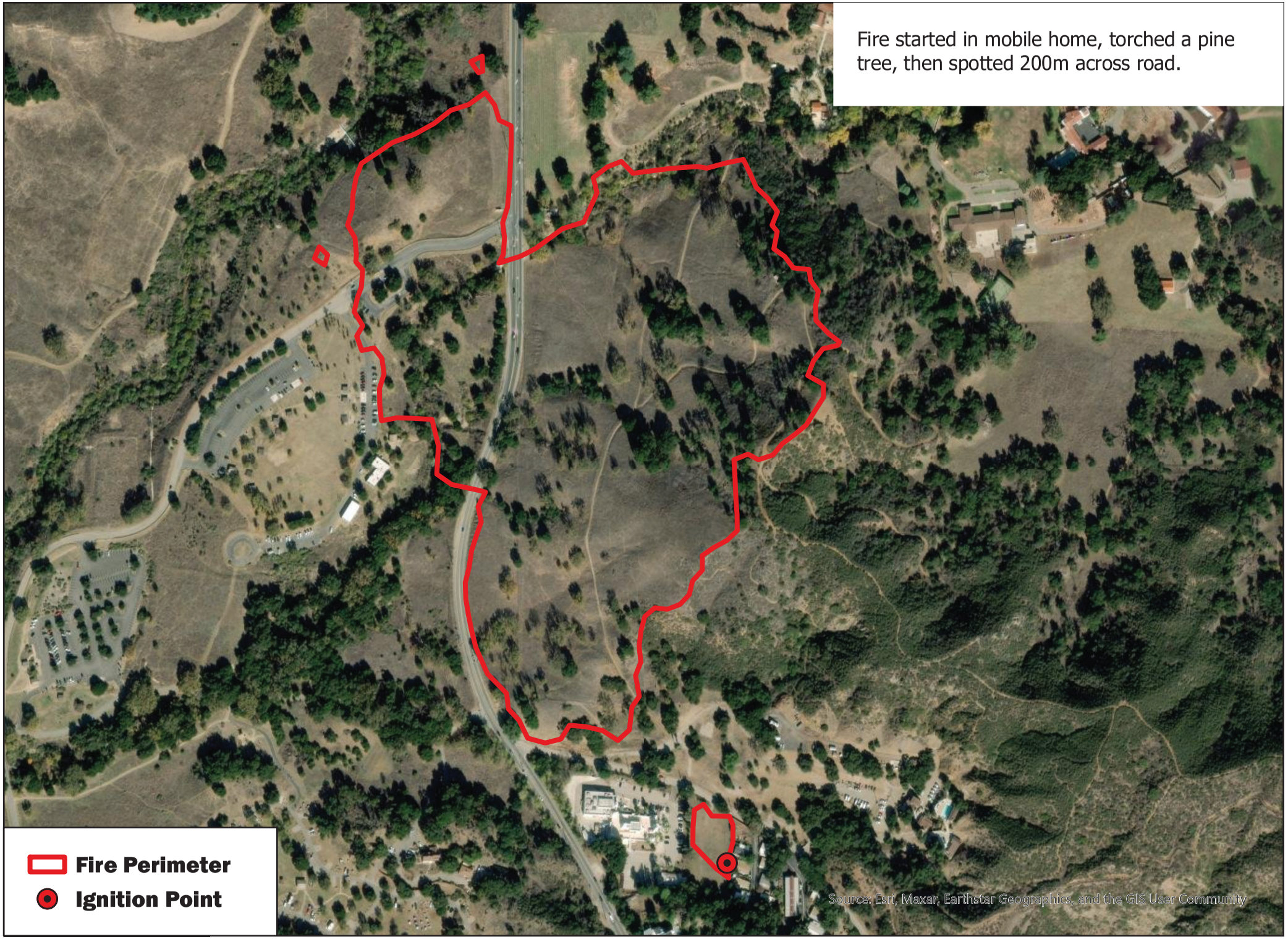
Appendix E

Examples of Historic Wildfires Caused by Structure Fires



DUDEK

Source: CAL FIRE FRAP, 2022

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Source: CAL FIRE FRAP, 2022

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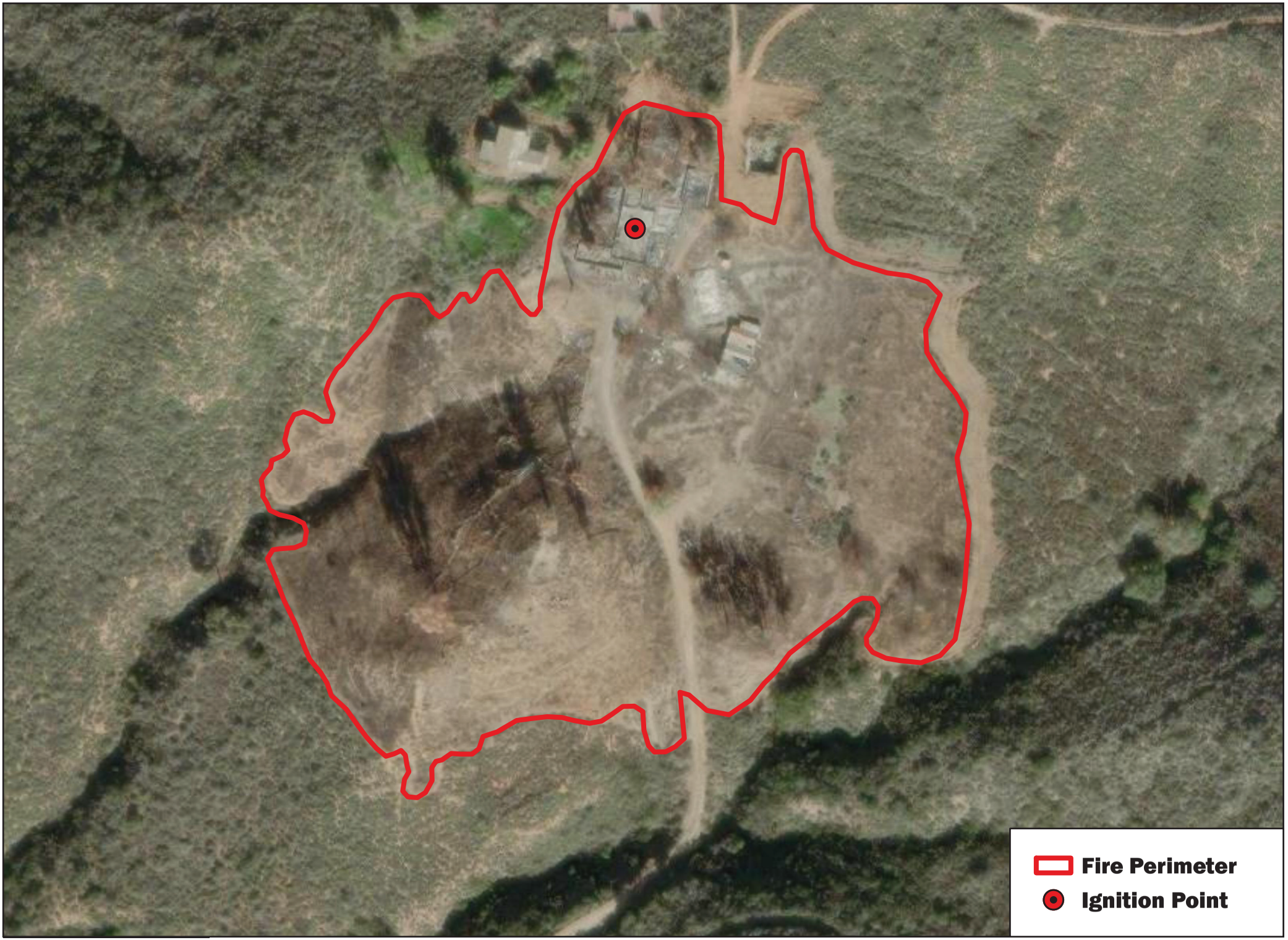
Source: CAL FIRE FRAP, 2022



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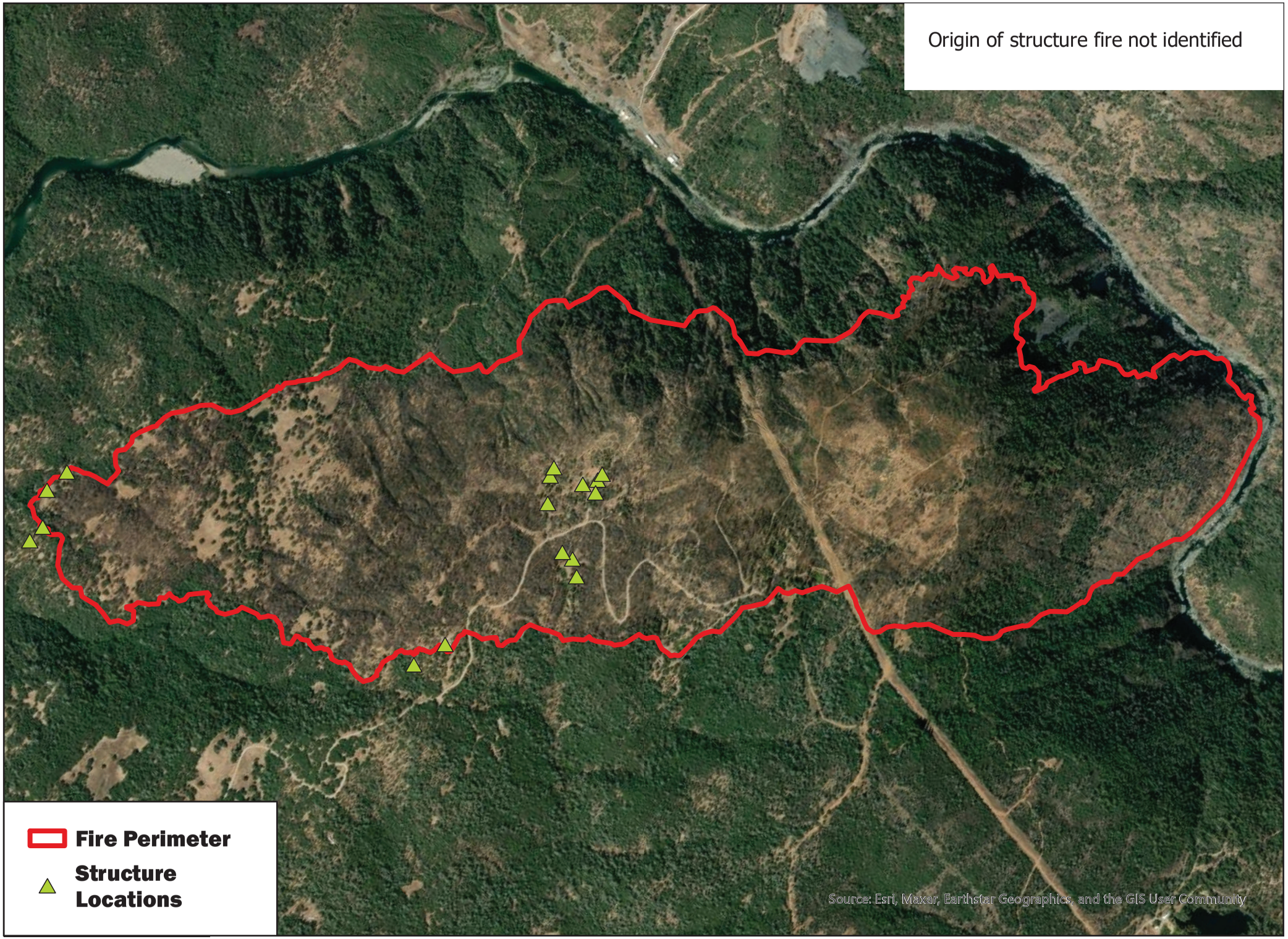
Source: CAL FIRE FRAP, 2022



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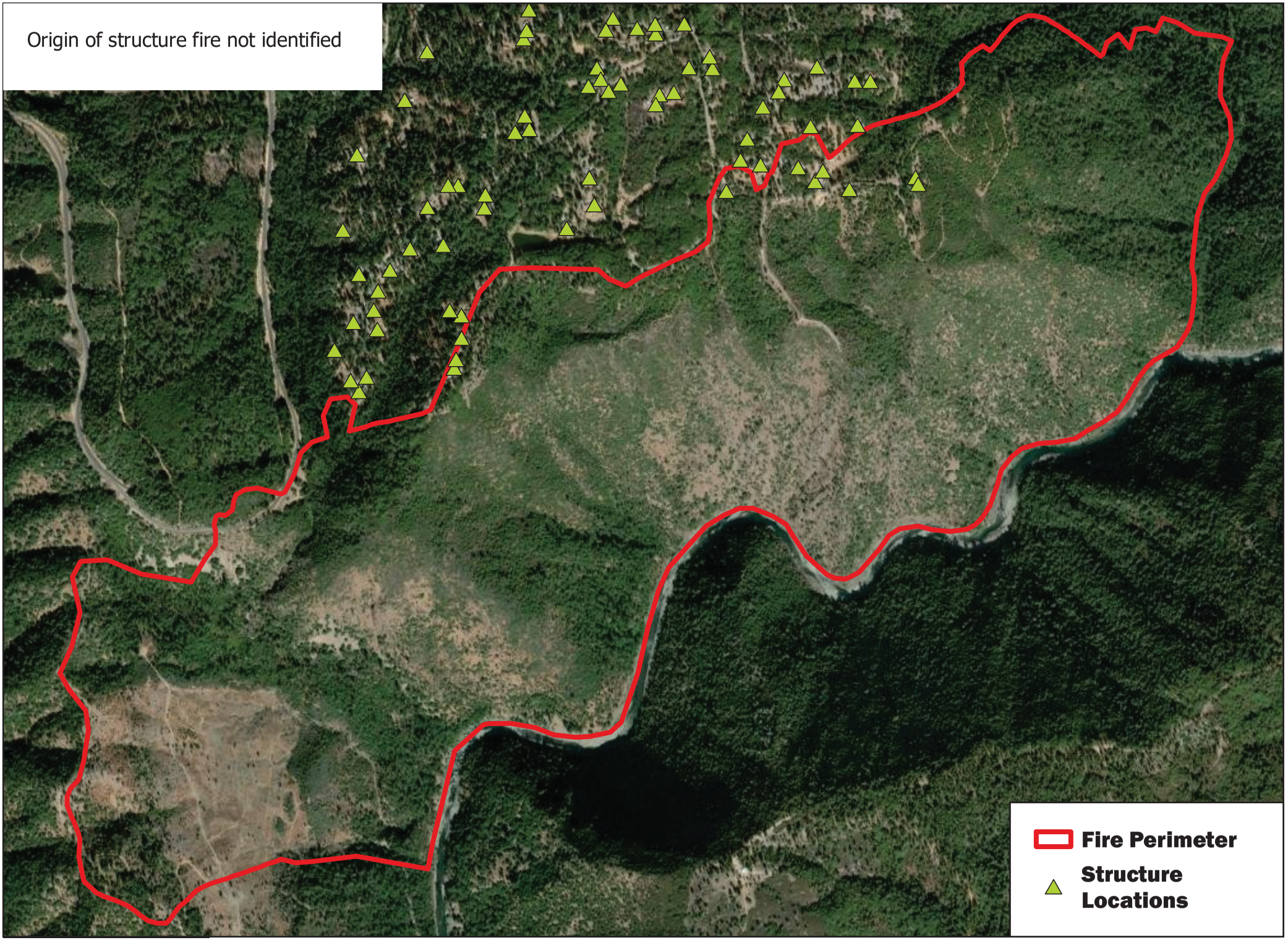

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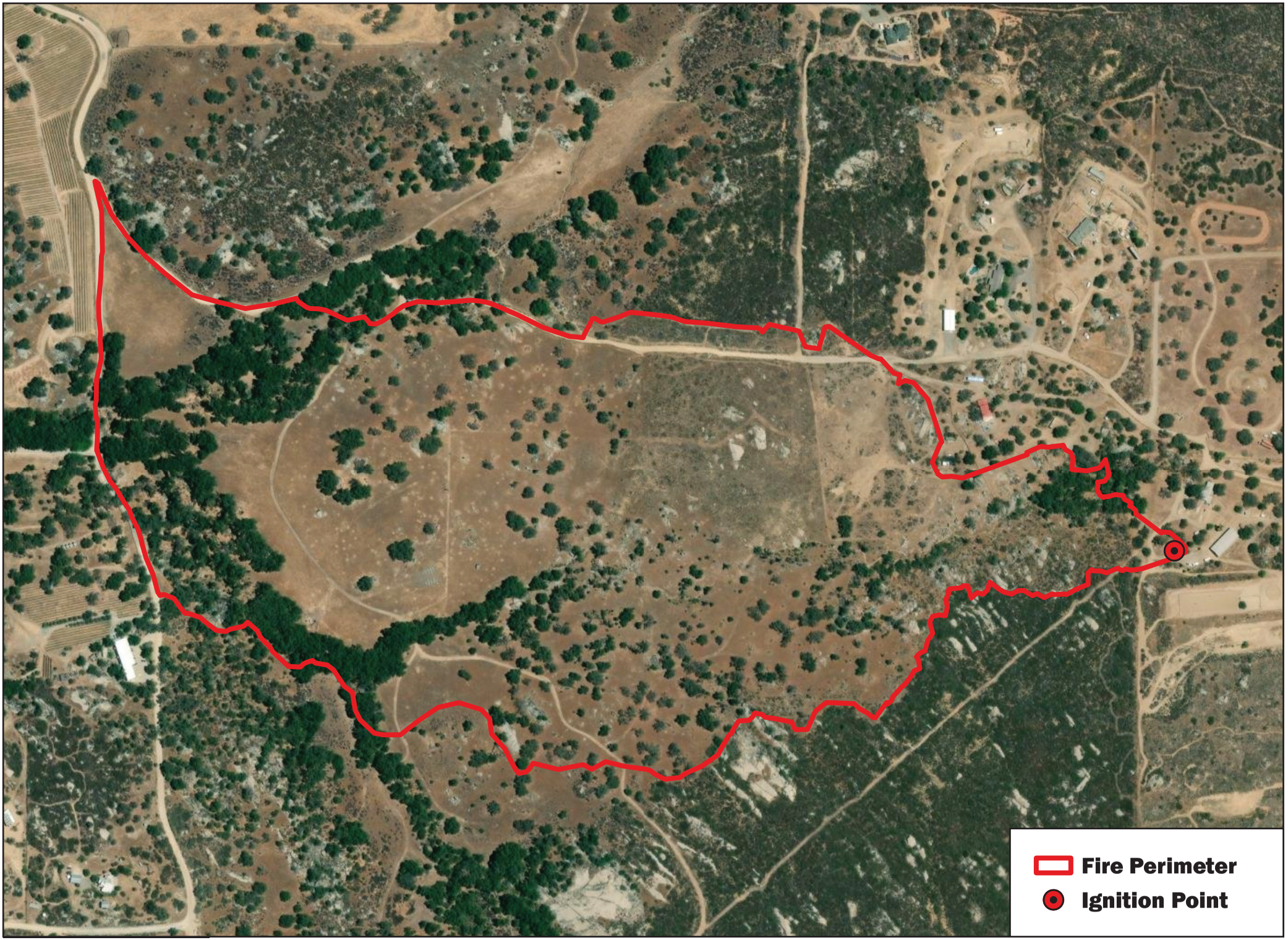

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Source: CAL FIRE FRAP, 2022

Appendix H

Centennial Wildfire Evacuation Technical Report

Wildfire Evacuation Technical Report

Centennial Project

MAY 2026

Prepared for:

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C Evacuation Travel Time Technical Analysis

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
CAL FIRE	California Department of Forestry and Fire Protection
CBC	California Building Code
CEQA	California Environmental Quality Act
CERT	Community Emergency Response Team
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
FMZ	Fuel Modification Zone
FPP	Fire Protection Plan
HFHSZ	High Fire Hazard Severity Zone
HOA	Homeowner's Association
IC	Incident Command
IFC	International Fire Code
I-5	Interstate 5
LACDACC	Los Angeles County Department of Animal Care and Control
LACDCFS	Los Angeles County Department of Children and Family Services
LACCSS	Los Angeles County Department of Community and Senior Services
LACDHS	Los Angeles County Department of Health Services
LACDMH	Los Angeles County Department of Mental Health
LACDPH	Los Angeles County Department of Public Health
LACDPSS	Los Angeles County Department of Public Social Services
LACDPR	Los Angeles County Department of Parks and Recreation
LACDPW	Los Angeles County Department of Public Works
LACoFD	Los Angeles County Fire Department
LACSD	Los Angeles County Sheriff Department
MFHSZ	Moderate Fire Hazard Severity Zone
OA	Operations Area
OEM	Office of Emergency Management
Project	Centennial Project
TEP	Temporary Evacuation Point
TRA	Temporary Refuge Areas
WETR	Wildfire Evacuation Technical Report
WUI	Wildland Urban Interface
VHFHSZ	Very High Fire Hazard Severity Zone

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1 Purpose

This Wildfire Evacuation Technical Report (WETR) has three primary purposes. First, this WETR provides future Centennial populations with an evacuation resource that provides wildfire preparedness information and details procedures they may be asked to follow. Second, this WETR provides information that supports the Recirculated Partial Draft Environmental Impact Report (RPDEIR), providing an overview of evacuation procedures and protocols that are utilized by emergency management agencies during evacuation events. Finally, this WETR provides a Project-specific scenario evacuation time and potential impact modeling analysis to address California Environmental Quality Act (CEQA) and California Attorney General's Office Guidance.

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2 Wildfire Preparedness

The Centennial Quick Reference Guide provides helpful tips and educational resources, so on-site populations are prepared in the event of a wildland fire evacuation.

Figure 1 illustrates the emergency evacuation routes potentially available to future developments of the Centennial Project. Figure 2 displays the Project vicinity and Figure 3 is the Project's site plan. In most wildfire evacuations, routes and destinations will be provided through emergency notifications. Occupants should know available routes, stay informed, and follow directions provided by law enforcement or fire agencies, news media and other credible sources. Occupants should not rely on navigation apps that may inadvertently lead persons toward the approaching wildfire.

2.1 Nearest Medical Facilities

At the time this plan was written the facilities listed below are the nearest medical facilities to project, however the Project has included a land incentive for a hospital as well as plans for clinics and urgent care centers.

Henry Mayo Newhall (35 miles)

23845 McBean Parkway,
Valencia, California 91355

Directions from Project:

- Start west on CA-138
- Merge onto I-5 South
- Take exit 168 for McBean Parkway
- Turn left onto McBean Parkway
- Hospital is on the left

Antelope Valley Medical Center (39 miles)

1600 West Avenue J
Lancaster, California 93534

Directions from Project:

- East on CA-138 East toward 300th Street West
- Turn right to merge onto CA-138 East / CA-14 South toward Los Angeles / Lancaster / San Bernardino
- Take exit 45 for Avenue H toward Antelope Valley / Fairgrounds
- Turn left onto West Avenue H
- Turn right onto 15th Street West
- Turn right into medical center
- Hospital on right

Olive View UCLA Medical Center (44 miles)

14445 Olive View Drive,
Sylmar, California 91342

Directions from Project:

- Start west on CA-138
- Use the left two lanes to merge onto the I-5 South
- Take exit 161A toward I-210 East toward Pasadena
- Take exit 2 toward Roxford Street
- Turn left onto Roxford Street
- Continue onto Olive View Drive
- Turn left onto Kennedy Road
- Hospital will be on the right.

Palmdale Regional Medical Center (45.2 miles)

38600 Medical Center Drive
Palmdale, California 93551

Directions from Project:

- East on CA-138 East toward 300th Street West
- Turn right to merge onto CA-138 East / CA-14 South toward Los Angeles / Lancaster / San Bernardino
- Take exit 37 for 10th Street West
- Turn right onto 10th Street West
- Continue onto Tierra Subida Avenue
- Hospital on left

See also local Urgent Care facilities:

Concentra Urgent Care

25733 Rye Canyon Road
Valencia, California 91355

AFC Urgent Care Valencia

27550 Newhall Ranch Road
Valencia, California 91355

High Desert Medical Group

43839 15th Street West
Lancaster, California 93534

2.2 Register to Receive Emergency Alerts

The County of Los Angeles uses a free mass notification system for residents and businesses called Alert LA County. The County's Office of Emergency Management (OEM) uses the system for notification of an emergency or disaster in communities. The system sends important emergency messages including evacuation instructions. It has accessibility features for people with disabilities and others with access and functional needs including the option to select one's preferred language for notifications.

In the event of a wildfire or similar emergency within the proximity of the Project site, the Incident Commander[1] (IC) will contact the Los Angeles County Sheriff Department (LACSD) and other law enforcement agencies that may be needed to support an emergency situation (i.e., California Highway Patrol). The LACSD and/or LACoFD coordinate with OEM to activate the Alert LA County system and release an emergency notification to the affected population. Because Alert LA County uses the 911 database, only land-line numbers are automatically included in the system. Therefore, the Project's occupants should register mobile phone numbers, and email addresses with the Alert LA system (https://lacounty.gov/emergency/alert-la/) in order to receive emergency evacuation instructions.

Contact Los Angeles County Office of Emergency Management Department at AlertLACountySupport@ceooem.lacounty.gov or dial 323.980.2260.

The Project area is part of the greater Los Angeles 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. Commercial media broadcasts emergency information via nine radio stations: KHTS AM 1220, KFI AM 640, KNX AM 1070, KABC AM 790, KCBS FM 93.1, KFWB AM 980, KROQ FM 106.7, KRLA AM 870, KAVL AM 610. Television news outlets include:

- **KABC 7 News:** abc7.com
- **KCBS 2 / KCAL 9 News:** losangeles.cbslocal.com
- **KNBC 4 News:** nbclosangeles.com
- **KTLA 5 News:** ktla.com
- **KTTV Fox 11 News:** foxla.com

Social Media provides another outlet for news:

- County of Los Angeles
  - **Facebook:** https://www.facebook.com/countyofla
  - **Twitter:** https://twitter.com/CountyofLA/
- Los Angeles County Fire Department
  - **Facebook:** https://www.facebook.com/LACoFD/
  - **Twitter:** https://twitter.com/LACoFDPIO
- Los Angeles County Sheriff's Department
  - **Facebook:** https://www.facebook.com/LosAngelesCountySheriffsDepartment/
  - **Twitter:** https://twitter.com/LASDHQ

2.3 Get Involved in Community Readiness

Each of the Project's future developments is encouraged to form a volunteer Community Emergency Response Team (CERT) through the LACoFD CERT program. LACoFD offers free, FEMA-approved 20-hour CERT training to the communities within its jurisdiction. Classes are taught by trained emergency personnel, including firefighters and Emergency Medical Services (EMS) personnel. Through this training, participants learn about hazards that may impact their area as well as basic disaster response skills, such as fire safety, light search and rescue, team organization,

[1] The individual responsible for the command of all function at the field response level, as defined by the Los Angeles County EOP.

and disaster medical operations. Upon completion of the course, CERT members can assist others in their neighborhood or workplace following an event when professional responders are not immediately available to help. Additional program information is available at https://fire.lacounty.gov/community-emergency-response-team/.

Additionally, the Project's HOA will organize annual evacuation public outreach, engage directly with organizations such as the California Fire Safe Council, and maintain a fire safe page on all websites for future developments of the Centennial Project, which will include this Wildfire Evacuation Technical Report (WETR) as well as links to important citizen preparedness information.

This WETR 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. Ultimately, this WETR will be used by the Project's community and HOA to educate occupants on their evacuation approach during wildfires and other similar emergencies. It is critical for Project occupants 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 study. Some actions Project occupants can complete in advance include:

- Follow the "Ready, Set, Go!" model developed for wildfire evacuations (Appendix A). "Ready, Set, Go!" is a program providing residents with the pre-planning needed to facilitate a fast and efficient evacuation.
- Become familiar with potential evacuation routes out of the area, as shown in Figure 1. Familiarity with evacuation routes will facilitate evacuation when messaging is provided regarding where to go and which routes to take.
- 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 personal property by locking all doors and windows, and unplugging electrical equipment, such as appliances and electronics.

Sample emergency preparedness resources available to occupants are provided in Appendix A (Los Angeles County Fire Department Emergency Survival Guide and "Ready, Set, Go!" Wildland Fire Action Guide) and Appendices B-1 and B-2 (Family Disaster Plan and Checklists). In addition, Project occupants are encouraged to become familiar with the concepts detailed at the following websites:

- **LACoFD Emergency Preparedness Guide:** https://fire.lacounty.gov/emergency-disaster-preparedness-safety-tips/
- **"Ready, Set, Go!" Wildland Fire Action Guide:** https://www.fire.lacounty.gov/rsg/
- **Family Communication Plan:** https://www.ready.gov/sites/default/files/2020-03/family-emergency-communication-planning-document.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
- **Hazardous Materials Emergency Preparedness:** https://www.ready.gov/hazardous-materials-incidents
- **Making a Plan Checklist:** https://www.ready.gov/make-a-plan

2.4 Evacuation Analysis Limitations

Wildfires and other emergencies are often fluid events and the need for evacuations are typically determined by on-scene first responders or by a collaboration between first responders and designated emergency response teams, including OEM and the IC established for larger emergency events. As such, and consistent with all emergency evacuation plans, this WETR is to be considered a tool that supports existing pre-plans and provides for occupants, who are familiar with the evacuation protocol, but is subservient to emergency event-specific directives provided by agencies managing the event.

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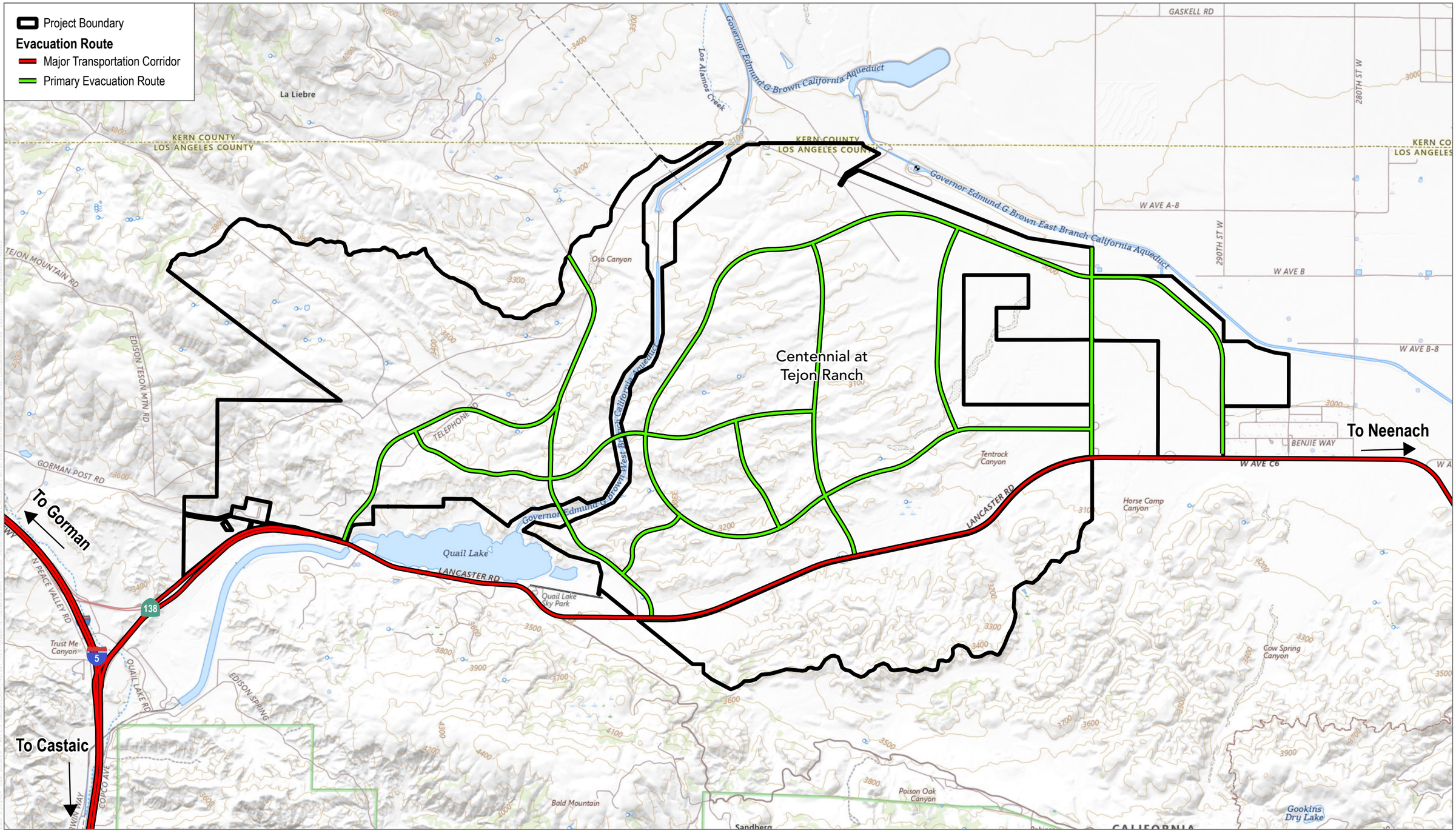

SOURCE: USGS National Map 2024

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0 1,500 3,000 Feet

FIGURE 1

Evacuation Routes

Wildfire Evacuation Study for the Centennial Project

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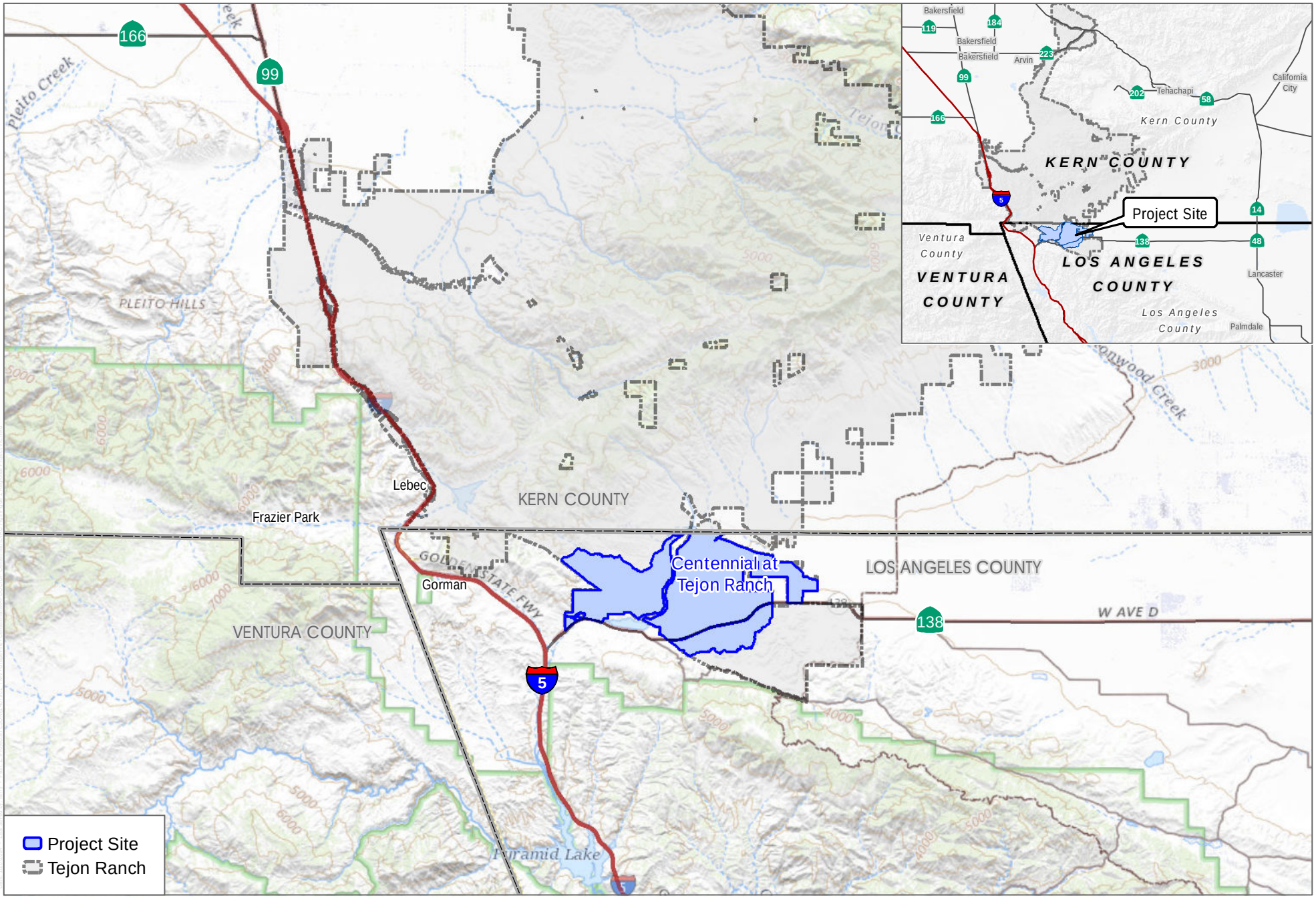

SOURCE: AERIAL-NAIP 2020

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0 55,000 110,000 Feet

FIGURE 2

Regional Project Vicinity

Wildfire Evacuation Study for the Centennial Project

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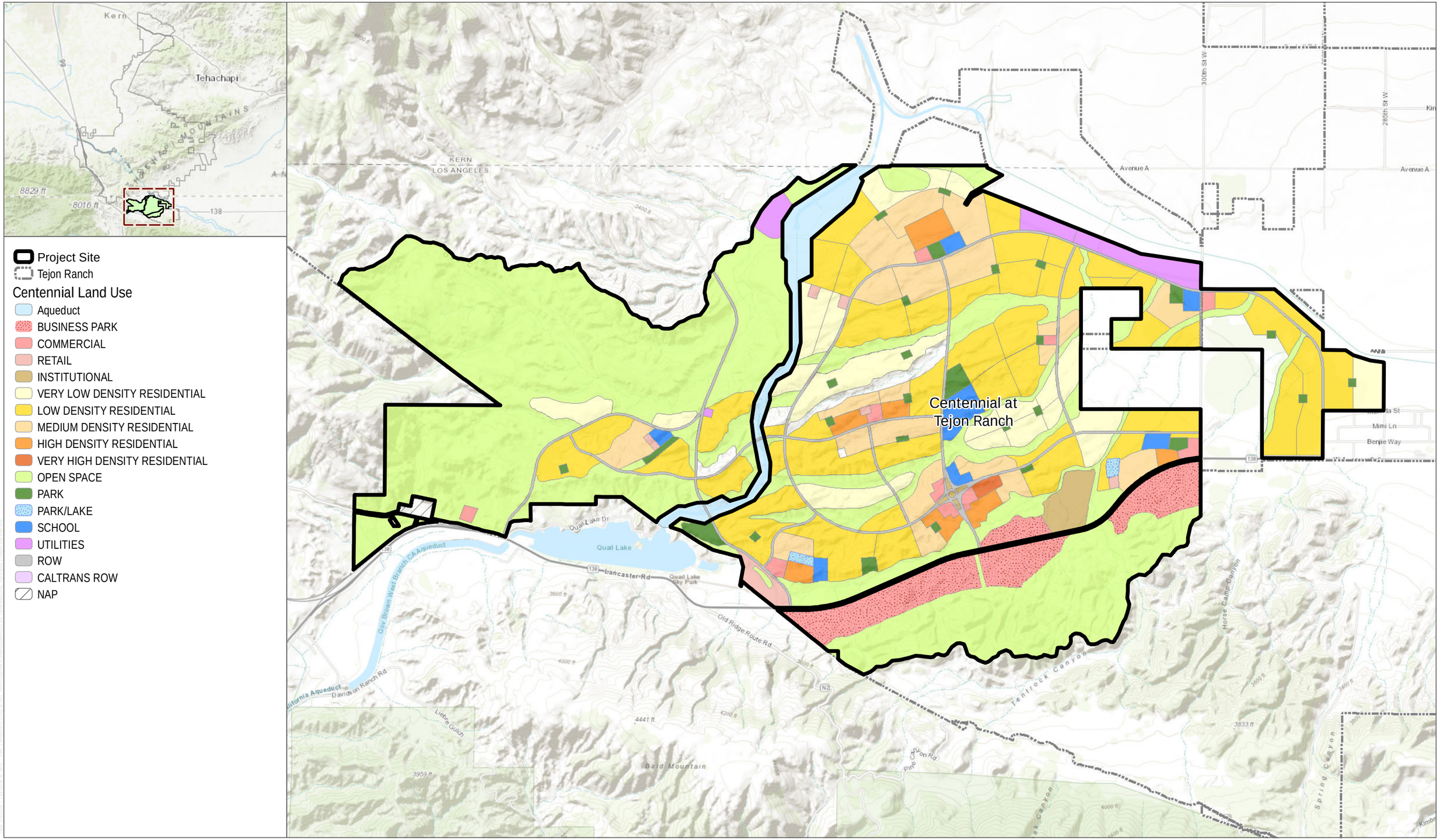

SOURCE: BASEMAP-ESRI MAPPING SERVICE 2023; LAND USE-TEJON RANCH 2023

DUDEK 0 1,950 3,900 Feet

FIGURE 3

Centennial Project Site Plan

Wildfire Evacuation Study for the Centennial Project

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3 Introduction

This Wildfire Evacuation Technical Report (WETR) was prepared based on the County of Los Angeles Operational Area Emergency Operations Plan (2023). The format and content of this report is consistent with the recommendations of the County's EOP. A complete copy of the County's EOP can be downloaded here:

County EOP:

https://ceo.lacounty.gov/wp-content/uploads/2023/11/County-of-Los-Angeles-OAEOP-2023-Final-for-Website.pdf

Evacuation is a process by which people are moved from a place where there is immediate or anticipated danger, to a place of safety, and offered appropriate temporary shelter facilities. When the threat to safety is gone, evacuees are able to return to their normal activities, or to make suitable alternative arrangements. The overarching goal of evacuation planning is to maximize the preservation of life while reducing the number of people that must evacuate and the distance they must travel to seek safe refuge.

This WETR for the Centennial Project will outline strategies, procedures, recommendations, and organizational structures that can be used to implement a coordinated evacuation effort in the case of a wildfire or similar emergencies that require movement of people out of the area or temporary sheltering in place in protected structures.

3.1 Project Description

The Centennial Specific Plan is a large-scale master-planned community, resulting in roughly 54% of the site converted to urbanized uses while approximately 46% of the site is either left undisturbed or will be active recreation open areas. The Project would develop many on-site infrastructure and utility improvements to support the various housing, business, and institutional uses. In summary, the proposed 12,323-acre Project area would include the following land uses at build out

- Up to 19,333 residential units
- 1,034,550 square feet of commercial
- 7,363,818 square feet business park
- 1,568,160 square feet institutional/Civic uses on 110 acres
- 146 acres for schools
- 75 acres of commercial recreation
- 163 acres of parks
- 5,624 acres of open space
- 327 acres for streets
- 191 acres for utilities

As described in the Recirculated Partial Draft EIR, two minor changes are proposed to the Specific Plan. First, the Project would add local microgrid electrical distribution systems as a permitted land use to serve the Specific Plan

Area with renewable energy generated on-site in support of the Project's "Net Zero" GHG program. Second, the Project proposes to dedicate a majority of the Cement Road Realignment as a public road to improve fire resiliency..

With regard to wildfire risk on the Project site, an important component is the planned wildland urban interface nature of this community. Planned development resembles a clustered design with continuous edges between development areas and undeveloped vegetation. Large expanses of open space in the extreme northwest and southeast as well as in the far western portions of the project include wildland fuels. These open space areas represent potential exposed interfaces to the wildland with the remainder of the interior project areas represented by built and maintained landscape. In addition to these perimeter open space areas, minor and major greenways are planned for integration within the Centennial communities. In most cases, these interior greenways will be fully disturbed and graded during construction and then reseeded and will include managed landscapes presenting minimal wildfire hazard. Nonetheless, the structures planned adjacent to these areas are providing fuel modification, interior sprinklers and ignition resistant construction that is appropriate for the types of wildfires that may occur in these areas. Other large expanses of open space in the extreme northwest and southeast as well as in the far western portions of the project include wildland fuels. These open space areas represent potential exposed interfaces to the wildland with the remainder of the interior project areas represented by built and maintained landscape.

The proposed land use improvements previously described will be completed according to the then current California Fire Code and Building Codes (as adopted by the County, per Title 32) as well as the 2021 International Fire Code. At the time of this report, the current California Fire and Building Codes require that land use improvements include ignition-resistive construction, interior sprinklers, structure set-backs, and required fire flow, along with a designated fuel modification area which varies throughout the Project based on modeled fire intensity and site features such as vegetation and topography (Dudek 2024). The following descriptions provide additional detail regarding the proposed land uses.

Residential

Residential units will be provided within land use categories ranging from very low to very high residential. As such, densities will range from as low as 2 dwelling units per acre to as high as 50 dwelling units per acre. There will be detached as well as attached units.

Public Uses

The Centennial Specific Plan Project public uses include recreation areas, parks, golf courses, library, and hospital, amongst others.

Schools

Seven public school sites will be constructed within the project. Five of the school sites will be designated K–8, one K- 5 and there will be one high school.

Public Safety Sites

The Centennial Specific Plan Project also includes proposed public facilities locations including three fire stations, with an option for a fourth if determined necessary by LACoFD, and a temporary sheriff sub-station open day one of the Project that will be upgraded to a full sheriff station as the community builds out. Details related to final location,

funding, phasing, specific fire station facility components, equipment, and staffing will be determined with LACoFD direction.

Project Open Space

The largest component of open space in the overall Centennial Specific Plan Project area is comprised of the areas outside the individual residential lots. The development concept is described in detail in the Centennial Specific Plan.

Additionally, proposed off-site improvements include:

- Widening SR-138, one of the primary access roads to the Project site
- Undergrounding an existing off-site powerline
- Providing connections to existing off-site utility systems

3.2 Applicable Emergency Evacuation Regulations, Standards and Planning Tools

3.2.1 Federal

3.2.1.1 Disaster Mitigation Act

The Disaster Mitigation Act of 2000 requires that a state mitigation plan, as a condition of disaster assistance, add incentives for increased coordination and integration of mitigation activities at the state level through the establishment of requirements for two different levels of state plans: "Standard" and "Enhanced." States that develop an approved Enhanced State Plan can increase the amount of funding available through the Hazard Mitigation Grant Program. The Disaster Mitigation Act also established a new requirement for jurisdictions to prepare local mitigation plans.

3.2.1.2 National Incident Management System (NIMS)

The NIMS guides all levels of government, nongovernmental organizations and the private sector to work together to prevent, protect against, mitigate, respond to and recover from incidents. NIMS provides community members with a shared vocabulary, systems and processes to successfully deliver the capabilities described in the National Preparedness System. The National Preparedness System is a Presidential Policy Directive establishing a common goal to create a secure and resilient nation associated with prevention, protection, mitigation, response and recovery to address the greatest risks to the nation. One core area is fire management and suppression.

NIMS defines operational systems that guide how personnel work together during incidents.

3.2.2 State

3.2.2.1 Fire Hazard Severity Zones

To assist each fire agency in addressing its responsibility area, California Department of Forestry and Fire (CAL FIRE) uses a severity classification system to identify areas or zones of severity for fire hazards within the state. CAL FIRE is required to map these zones for State Responsibility Areas and identify Very High Fire Hazard Severity Zones (VHFHSZ) for Local Responsibility Areas. The Specific Plan is located within a Moderate Fire Hazard Severity Zone (MFHSZ), High Fire Hazard Severity Zone (HFHSZ), and Very High Fire Hazard Severity Zone (VHFHSZ).

3.2.2.2 California Wildland-Urban Interface Code

On September 20, 2005, the California Building Standards Commission approved the Office of the State Fire Marshal's emergency regulations amending the California Building Code (CBC) (California Code of Regulations [CCR] Title 24, Part 2). Section 701A of the CBC includes regulations addressing materials and construction methods for exterior wildfire exposure and applies to new buildings located in State Responsibility Areas or Very High Fire Hazard Severity Zones in Local Response Areas.

With the adoption of the 2025 codes on January 1, 2026, all wildfire protection and safety related requirements formerly located in the CBC, CFC, and CRC have been consolidated into the CWUIC, specifically:

- **Chapter 3:** Wildland-Urban Interface Areas, which includes provisions from the Public Resources Code and Government Code.
- **Chapter 4:** Wildland-Urban Interface Area Requirements, which includes provisions from Title 14, State Minimum Fire Safe Regulations.
- **Chapter 5:** Special Building Construction Regulations, which includes the Materials and Construction Methods for Exterior Wildfire Exposure from CBC Chapter 7A.
- **Chapter 6:** Fire Protection Requirements, which includes the Requirements for Wildland-Urban Interface Areas from CFC Chapter 49.

These requirements apply as adopted and amended by Los Angeles County at the time of construction. Additionally, LACoFD references the National Fire Protection Association (NFPA) and California Public Resources Code (PRC) for clarification and interpretation of applicable fire protection requirements.

3.2.2.3 California Fire Code

The California Fire Code (CCR Title 24, Part 9) as adopted by Los Angeles County establishes regulations to safeguard against the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The Fire Code also establishes requirements intended to provide safety for and assistance to firefighters and emergency responders during emergency operations. The provisions of the Fire Code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure throughout California. The Fire Code includes regulations regarding fire-resistance-rated construction, fire protection systems such as alarm and sprinkler systems, fire services features such as fire apparatus access roads, means of egress, fire safety during construction

and demolition, and wildland-urban interface areas. The County has adopted the California Fire Code as Chapter 15.56, as amended, including appendices addressing fire-flow requirements for buildings.

Note: The Project will be compliant with the then-current California Fire and Building Codes. This WETR is written to include current code standards including Chapter 5 of the CWUIC which incorporates Chapter 7A of the California Building Code (CBC) and the California Residential Code, Section 327 as adopted by the County. The Project would currently also be subject to the provisions of Section 4291 of the Public Resources Code, California Emergency Services Act, Los Angeles County Code of Ordinances Titles 30, 32, and 32, California Code of Regulations Title 24, California Government Code Sections 51175 through 51189, and referenced and adopted standards of the National Fire Protection Association (NFPA).

The California Emergency Services Act (California Government Code §8550, et seq.), provides for the creation of an Office of Emergency Services, assign and coordinate functions and duties to be performed during an emergency, facilitate mutual aid, and assign resources (including manpower and facilities) throughout the state for dealing with any emergency that may occur.

3.2.2.4 California Office of Emergency Services

The California Office of Emergency Services (OES) is responsible for the coordination of overall state agency response to disasters. Assuring the state's readiness to respond to, recover from all hazards and assisting local governments in their emergency preparedness, response, recovery and mitigation.

3.2.2.4.1 Standardized Emergency Management System (SEMS)

SEMS is the cornerstone of California's emergency response system and the fundamental structure for the response phase of emergency management. The system unifies all elements of California's emergency management community into a single integrated system and standardizes key elements. SEMS incorporates:

- **Incident Command System (ICS)** - A field-level emergency response system based on management by objectives
- **Multi/ Inter-agency coordination** - Affected agencies working together to coordinate allocations of resources and emergency response activities
- **Mutual Aid** - A system for obtaining additional emergency resources from non-affected jurisdictions.
- **Operational Area Concept** - County and its sub-divisions to coordinate damage information, resource requests and emergency response.

3.2.2.5 Attorney General Guidance

The California Office of the Attorney General issued (October 2022) guidance (Guidance) outlining best practices for analyzing and mitigating wildfire impacts of development projects under the California Environmental Quality Act (CEQA). The Guidance is intended to help local governments' evaluation and approval considerations for development projects in fire-prone areas, and to help project design in a way that minimizes wildfire ignition and incorporates emergency access and evacuation measures. Importantly, the Guidance does not impose additional legal requirements on local governments, nor does it alter any applicable laws or regulations.

The Guidance states that evacuation modeling and planning should be required for all projects located in HFHSZ/ VHFHSZ that present an increased risk of ignition and/or evacuation impacts. It further states that local jurisdictions should require evacuation modeling and planning to be developed prior to project approval to provide maximum flexibility in design modifications necessary to address wildfire risks and impacts. The Project is in an area partially within an area designated as high and very high fire hazard severity zone and adjacent to open space areas, which is why this WETR was prepared for the Project and includes the analysis of several scenarios, including existing and with Project conditions. The Project would provide important road network improvements including widening SR 138. These improvements assist Project access as well as provide a public benefit for existing occupants of adjacent developed areas.

The Guidance further states that evacuation modeling and analysis must augment existing information when necessary to include adequate analysis of the following:

- Evaluation of the capacity of roadways to accommodate project and community evacuation and simultaneous emergency access. Existing and future roadway capacities are analyzed in Section 4 of this Emergency WETR.
- Assessment of the timing for evacuation. Analysis of evacuation timing is detailed in Section 4.3.
- Identification of alternative plans for evacuation. Alternative plans for evacuation would be feasible due to the designated on-site sheltering in the Institute Building as well as other buildings.
- Evaluation of the Project's impacts on existing evacuation plans. Published and publicly available existing evacuation plans were not available to Dudek during the preparation of this plan. The Project would utilize primary evacuation routes that would be available to other evacuees, but with improved capacities, new connections and better flexibility and options. This Evacuation Study is based on the County's EOP.

Consideration of the adequacy of emergency access, including the project's proximity to existing fire services and the capacity of existing services. Emergency access is provided that is consistent with the fire code requirements. As further discussed in the Project's Fire Protection Plan (Dudek 2024), per LACOFD response targets the first responding engine should be within 1.5 miles of the Project Site and the first due truck company should be within 2 miles. Based on these criteria, the Project is out of compliance with the LACOFD response target due to the distance from the closest fire station. However, the Project plans to build a minimum of three fire stations on site, which will result in compliance with response time standards and a potential forth is response time is not met.

- Traffic modeling to quantify travel times under various likely scenarios. The Emergency Wildfire Evacuation Travel Time Technical Analysis (Appendix C) utilizes VISSIM, a microscopic, multimodal traffic flow modeling software used to simulate different traffic conditions under several different scenarios including Existing, Existing + Project, Existing + Cumulative, and Existing + Cumulative + Project.

3.2.3 Local

3.2.3.1 Los Angeles County Multi-Jurisdictional Local Hazard Mitigation Plan

The purpose of the County's Multi-Jurisdictional Hazard Mitigation Plan (2025) is to identify the County's hazards, review and assess past disaster occurrences, estimate the probability of future occurrences, and set goals to mitigate potential risks to reduce or eliminate long-term risk to people and property from natural and human-made hazards.

3.2.3.2 Los Angeles County Operational Area Emergency Response Plan

The 2023 Los Angeles County Operational Area Emergency Response Plan describes a comprehensive emergency management system that provides for a planned response to disaster situations associated with natural disasters, technological incidents, terrorism, and nuclear-related incidents within the County of Los Angeles. These plans delineate operational concepts relating to various emergency situations, identify components of the Emergency Management Organization, and describe the overall responsibilities for protecting life and property and providing for the overall well-being of the population. The plan also identifies the sources of outside support that might be provided (through mutual aid and specific statutory authorities) by other jurisdictions, state and federal agencies, and the private sector.

3.2.3.3 County of Los Angeles Fire Code

The County of Los Angles Fire Code adopts the California Fire Code with additions, deletions and amendments. Provisions of the California Fire Code are described under State Regulations, above.

3.2.3.4 County of Los Angeles Building Code

The County Building Code is intended to regulate the construction of applicable facilities and encompasses (and formally adopts) associated elements of the California Building Code. Specifically, this includes regulating the erection, construction, enlargement, alteration, repair, moving, removal, demolition, conversion, occupancy, use, height, area and maintenance of all structures and certain equipment therein.

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4 Los Angeles County Evacuation Procedures - Background

This WETR has been prepared based on the Los Angeles County Office of Emergency Management's Operations Area (OA) Emergency Operations Plan (EOP).

To establish a framework for implementing well-coordinated evacuations, the OEM addresses evacuations as part of the County's OA EOP. Large-scale evacuations are complex, which often require multi-departmental and/or multi-jurisdictional efforts, and involve coordination between many departments, agencies, and organizations. Emergency services and other public safety organizations play key roles in ensuring that an evacuation is effective, efficient, and safe. OEM is charged with emergency management and is responsible for maintaining situational awareness of threats that may necessitate a citizen evacuation.

Evacuation is a process by which people are moved from a place where there is immediate or anticipated danger, to a safer place, and offered temporary shelter facilities. When the threat passes, evacuees are able to return to their normal activities, or to make suitable alternative arrangements.

Evacuation during a wildfire is not necessarily directed by the fire agency, except in specific areas where fire personnel may enact evacuations on scene. The Los Angeles County Sheriff's Department has primary responsibility for evacuations and, when necessary, will be supported by LACoFD, Los Angeles Department of Public Works, and other cooperating departments and law enforcement agencies. LACSD, OEM and responding fire department personnel work closely within the Unified Incident Command System to assess fire behavior and spread, which ultimately guides evacuation decisions. During an evacuation effort, if necessary, the LACSD will be assisted by other law enforcement and support agencies. As described in Section 2 above, a number of County departments will support evacuation efforts. Procurement, regulation, and allocation of resources will be accomplished by those designated in the County's EOP.

For mass evacuations several Los Angeles County departments have primary agency responsibility and authority for providing services. These departments include OEM, LACoFD, LACSD, Department of Public Works (LACDPW), Department of Children and Family Services (LACDCFS), Community and Senior Services (LACCSS), Health Services (LACDHS), Mental Health (LACDMH), Public Health (LACDPH), Public Social Services (LACDPSS), Department of Animal Care & Control (DACC) and County Department of Parks and Recreation (LACDPR). A description of each of these department's area of responsibility is provided below, and a full list of responsibilities by County Department can be found in Section 5 of the OA EOP – Roles and Responsibilities.

- **OEM:** Will activate the OA Emergency Operations Center (EOC) to support larger-scale evacuations, coordinates the Specific Needs Awareness Planning (SNAP) program, and coordinates requests for resources through SEMS.
- **LACoFD:** The Fire Department's mission is to "proudly protect lives and property and the environment providing prompt, skillful, cost-effective protection and life safety services." This includes response to emergencies of all types: fires, floods, earthquakes, wildland fires, hazardous materials incidents, civil disturbances, emergency medical rescues, Urban Search and Rescue incidents and ocean lifeguard rescues.

  The County of Los Angeles Fire Chief is designated as the Region I Coordinator and is primarily responsible for the overall coordination of mutual aid fire and rescue resources during major emergencies.

- **LACSD:** During an emergency where the OA EOC is activated, the Sheriff is the Director of Emergency Operations. The supportive law enforcement departments are: Superior and Municipal Courts, District Attorney, Public Defender, Alternate Public Defender and Probation.
- **LACDPW:** The Department of Public Works is the lead County department in conducting Damage Assessment and Construction and Engineering Recovery activities and has a lead role in responding to major emergencies. DPW is responsible for maintenance and repair of infrastructure, including the road network, flood control system, general aviation airports administered by the department, sewer and waterworks districts and building and safety functions.
- **LACDCFS:** The primary concern of the Department of Children and Family Services is the safety and well-being of the children in its care, and children, otherwise known as "unaccompanied minors", who may be left unsupervised as a result of a disaster. In a major disaster, DCFS is a support for DPSS and provides a variety of services for displaced children and offer various programs, including: 1) deployment of DCS staff to designated Red Cross shelters to process the initial intake and registration of unaccompanied minors, including follow-up action to reunite them with their parents/guardians or to provide appropriate placement; 2) support the DPSS, on request, in the provision of emergency welfare services, including assigning staff to emergency shelters or relief programs to assist in interviewing victims, processing requests for disaster assistance and other related tasks; and 3) continuing commitment to provide services to children under DCFS care, including the placement of children affected by a disaster.
- **LACCSS:** The Department of Community and Senior Services is designated as a support department to DPSS for disaster-response efforts. CSS will provide liaison through a human services community-based network of contractors through the operational units (Aging and Adult Services, Employment and Training, Community Services Block Grant) at Senior Centers, Community Centers, Senior Congregate and Home-Delivered Meals, Food Pantries and shelters throughout the County. CSS also manages Adult Protective Services (APS) for high-risk individuals aged 18 and over, who are a danger to themselves and others. APS social workers will conduct health and safety checks on high-risk individuals, in coordination with DPSS In Home Supportive Services (IHSS) social workers immediately following a disaster, to determine their status and need for assistance.
- **LACDHS:** The mission of the Department of Health Services during disaster response is to provide for the medical and health needs of the population of the OA by organizing, mobilizing, coordinating and directing public and private medical and health resources. The Director of Health Services, as the OA Coordinator, is responsible for the countywide management and allocation of medical and health resources, both public and private.
- DHS is unique in that a majority of its medical response capability is provided by private sector health facilities. These facilities include hospitals, clinics and skilled nursing facilities that may also be designated as Field Treatment Sites to handle mass casualties.
- **LACDMH:** The mission of the Department of Mental Health during a disaster is to coordinate and provide mental health services to the community, emergency responders and maintain continuity of care to existing consumers. The department is responsible for the countywide management and allocation of mental health resources to the community.
- **LACDPH:** This Department of Public Health directs and coordinates public health actions and services during disaster response conditions. Public health actions may include:
  - Management and command of disease control operations
  - Activation of mass dispensing operations
  - Activation of quarantine and isolation options

  - Issuance of Health Officer Orders
  - Activation of seizure orders in support of health operations
  - Activation of radiological response plans and management of radiation incident operations
- Public Health services may include:
  - Managing of radioactive sources
  - Coordinating inspection of health hazards in damaged buildings
  - Inspecting foodstuffs and issuance of disposal orders
  - Inspecting potable water delivery systems
  - Inspecting and certifying medications
  - Providing vector control
  - Inspecting emergency sheltering and feeding operations
  - Detecting and identifying possible sources of contamination dangerous to the general physical and mental health of the community
- **LACDPSS:** The Department of Public Social Services is the OA coordinator for care and shelter. DPSS is the OA liaison with private, not-for-profit human services agencies, including Community Based Organizations. DPSS is also the OA liaison with the grocery industry. DPSS manages the CalFresh (formerly the Emergency Food Stamp program) program when activation is requested by the County and approved by the USDA. DPSS In-Home Supportive Services Social Workers conduct health and welfare checks on high risk IHSS consumers immediately following a disaster.
- **LACDACC:** During emergencies, the Department of Animal Care and Control responds to disaster areas to rescue domestic animals, and provides support for the placement of exotic animals, birds, reptiles displaced by catastrophic events and provides support to fire and law enforcement agencies responding to the crisis. Additionally, the Department offers emergency animal housing at its shelters. Depending on the circumstances, the Department may also set up temporary emergency animal shelters to assist persons who have taken their pets from evacuated areas. This department also acts as a support department to the Sheriff as needed.
- **LACDPR:** In the event of a disaster, the Department of Parks and Recreation will make its parks and facilities available to relief and disaster agencies to provide care and shelter for disaster victims. Park Rangers will act as the primary security resource at these facilities.

  In a widespread disaster, the Department of Public Social Services and Parks and Recreation personnel may be used to assist staff from the relief agencies. Parks and Recreation are a support for DPSS during an emergency.

Every evacuation scenario will include some level of unique challenges, constraints, and fluid conditions that require interpretation, fast decision making, and alternatives. For example, one roadway incident that results in blockage of evacuating vehicles may require short-term or long- term changes to the evacuation process. Risk is considered high when evacuees are evacuating late, and fire encroachment is imminent. This hypothetical scenario highlights the importance of continuing to train responding agencies, model various scenarios, educate the public, and take a conservative approach to evacuation decision timelines (evacuate early) while providing contingency plans.

Equally important, the evacuation procedures should be regularly updated with lessons learned from actual evacuation events, as new technologies become available that would aid in the evacuation process, and as changing landscapes and development patterns occur adjacent to the Project area that may impact how evacuation

is accomplished. This WETR is consistent with the County's evacuation planning standards and will remain current through regular updates to the Project's Emergency Response Plan.

As demonstrated during evacuations throughout Los Angeles County over the last several years, an important component to successful evacuation is early assessment of the situation and early notification via managed evacuation declarations. Los Angeles County utilizes early warning and informational programs to help meet these important needs. Among the methods available to citizens for emergency information are Alert LA County, radio, television, social media/internet, neighborhood patrol car, and public address notifications.

4.1 Evacuation Response Operations

An evacuation of any area requires considerable coordination among numerous public, private, and community/non-profit organizations. Wildfire evacuations will typically allow time for responders to conduct evacuation notification in advance of an immediate threat to life safety; giving occupants time to gather belongings and make arrangements for evacuation. On the other hand, other threats, including wildfires igniting nearby, may occur with little or no notice and certain evacuation response operations will not be feasible. Evacuation assistance of specific segments of the population may also not be feasible.

4.1.1 Evacuation Points and Shelters

When the LACSD or IC implements an evacuation order, each would coordinate with Los Angeles Department of Public Social Services, the OA EOC, and others to decide on a location to use as a Temporary Evacuation Point (TEP) or shelter. The Office of Emergency Management will utilize the Alert LA County system and will notify local television and radio stations; the County will also use social media (e.g., Facebook, Twitter) and will direct evacuees to the established TEPs or shelters, which may include schools or other facilities. TEPs will provide basic needs such as food, water, and restrooms. In addition to designated shelters, other points of temporary refuge may include large, well-known sites such as shopping centers and libraries.

Subject to field decisions by LACSD, possible shelters that could provide short-term refuge for evacuated occupants of the Project might include:

- Hungry Valley State Vehicular Recreation Area North Kiosk & Visitor Center, 5301 Ralphs Ranch Rd, Gorman, California 93243 (10.2 miles)
- Outlets at Tejon, 5701 Outlets at Tejon Pkwy, Arvin, California 93203 (25.9 miles)
- Del Sur School, 9023 W Avenue H, Lancaster, California 93536 (28.8 miles)
- Diamond Jim's Casino, 118 20th St W, Rosamond, California 93560 (34.9 miles)

Potential evacuation shelters and assembly areas that could provide a longer stay for refuge are:

- AV Fair & Event Center, 2551 W Avenue H, Lancaster, California 93536 (36.1 miles)
- Palmdale Regional Airport, 41000 20 St E, Palmdale, California 93550 (49.1 miles)

These potential shelters and assembly areas are what currently exist around the proposed Project area. The areas that may ultimately serve as evacuation shelters will likely be built as part of the Project.

If there are occupants unable to evacuate and need transportation assistance to get to a TEP or shelter, the LACSD or IC may establish transportation points to collect and transport people without transportation resources to evacuation points. Transportation should be accessible to all populations, including people with disabilities and other access and functional needs.

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5 Standard Evacuation Procedures

5.1 Relocation/Evacuation

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 may be limited to controlling some intersections 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, LACoFD, LACSD, and/or OEM) 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 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). The second type of evacuation is a short-notice evacuation, which from a public safety perspective is highly undesirable. This type of evacuation occurs when fire ignites close to vulnerable communities. 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 within future development of the Project. 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.

Indications from past fires and related evacuations in Los Angeles County and throughout Southern California, which have experienced large wildfires, are that evacuations are largely successful—even with a generally unprepared populace. It then stands to reason that an informed and prepared populace would minimize the potential evacuation issues and related risk to levels considered acceptable from a community perspective.

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 OEM would jointly enact evacuations based on fire behavior.

5.2 Evacuation Baseline

For purposes of this WETR, the first and most logical choice for all occupants within the boundaries of the Project is to adhere to the principals and practices of the "READY! SET! GO!" Program previously mentioned in this document. As part of this program, each household should develop a plan that is clearly understood by all individuals, as well as participating in the educational and training programs sponsored by OEM, and LACoFD. In addition, the "READY! SET! GO!" information should be reviewed on a routine basis along with the accompanying maps illustrating evacuation routes, temporary evacuation points, and pre-identified safety zones. It must be kept in mind that conditions may arise that will dictate a different evacuation route than the roads used on a daily basis.

Occupants are urged to follow the directions of emergency notices and personnel and to evacuate as soon as they are notified to do so or earlier, if they feel uncomfortable. Directions on evacuation routes will be provided in most cases but, when not provided, occupants will proceed according to known available routes away from the encroaching fire as detailed in Section 1 of this plan. Occupants are cautioned not to rely on navigation apps which may inadvertently lead them toward an oncoming fire.

5.3 Civilian and Firefighter Evacuation Contingency

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 all future developments of 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.

It is recommended that LACSD and LACoFD 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.

5.3.1 Safety Zones

The International Fire Service Training Association (Fundamentals of Wildland Fire Fighting, 3rd Edition) defines Safety Zones as areas mostly devoid of fuel, and which are large enough to assure that flames and/or dangerous levels of radiant heat will not reach the personnel occupying them. Areas of bare ground, burned over areas, paved areas, and bodies of water can all be used as safety zones. The size of the area needed for a safety zone is determined by fuel types, its location on slopes and its relation to topographic features (chutes and saddles) as well as observed fire behavior. Safety zones should never be located in topographic saddles, chutes or gullies. High winds, steep slopes or heavy fuel loads may increase the area needed for a Safety Zone.

The National Wildfire Coordinating Groups, Glossary of Wildland Fire Terminology provides the following definitions for Safety Zone and Escape routes:

> **Safety Zone.** An area cleared of flammable materials used by trained firefighters for escape in the event the line is outflanked or in case a spot fire causes fuels outside the control line to render the line unsafe. In firing operations, crews progress so as to maintain a safety zone close at hand allowing the fuels inside the control line to be consumed before going ahead. Safety zones may also be constructed as integral parts of fuel breaks; they are greatly enlarged areas which can be used with relative safety by firefighters and their equipment in the event of blowup in the vicinity.
>
> **Escape Route.** A preplanned and understood route firefighters take to move to a safety zone or other low-risk area. When escape routes deviate from a defined physical path, they should be clearly marked (flagged).

According to NWCG, Safety Zone(s):

- Must be survivable without a fire shelter
- Can include moving back into a clean burn
- May take advantage of natural features (rock areas, water, meadows)
- Can include Constructed sites (clear-cuts, roads, helispots)
- Are scouted for size and hazards
- Consider the topographic location (larger if upslope)
- Should be larger if downwind
- Should not include heavy fuels
- May need to be adjusted based on site specific fire behavior

The definition for a safety zone includes provisions for separation distance between the firefighter and the flames of at least four times the maximum continuous flame height. Distance separation is the radius from the center of the safety zone to the nearest fuels. As described in the Project's Wildfire Safety Plan, a 200-foot Fuel Modification Zone provides the necessary separation from fuel beds. Additionally, all future developments of the Project will provide areas of temporary refuge on-site.

The ignition resistant and maintained landscaping within each of the Project's future developments, along with the adjacent fuel modification zones, and Chapter 7A of California Building Code compliant structures provide an inherent level of protection by design. The Project's future developments would provide Safety Zones available to responding firefighters, such as interior roads, large parking lots, Quail Lake, and structures. The Safety Zones associated with each of the Project's future developments can be part of the County's pre-planning efforts, although during a fire, the identified safety zones may not be feasible due to distance, location, fire behavior, etc.

Identification of potential safety zones will require additional focused study by LACoFD and other fire and law enforcement agencies when responding to an event.

5.3.2 Temporary Firefighter Refuge Areas

Firescope California (Firefighting Resources of Southern California Organized for Potential Emergencies) was formed by legislative action to form a partnership between all facets of local, rural, and metropolitan fire departments, California Department of Forestry and Fire Protection (CAL FIRE), and federal fire agencies. Firescope defines a contingency plan when it is not possible to retreat to a safety zone. This contingency includes establishment of firefighter Temporary Refuge Areas (TRA), which are defined as:

> A preplanned area where firefighters can immediately take refuge for temporary shelter and short-term relief without using a fire shelter (fire resistant tent) in the event that emergency egress to an established Safety Zone is compromised.

Examples of a TRA may include the lee side of a structure, inside of a structure, large lawn or parking areas, or cab of fire engine, amongst others. Differences between a TRA and a Safety Zone is that TRA's are closer to the immediate firefighting area, are considered a contingency to being able to get to a Safety Zone, do not include a requirement for a large area set back four times the flame lengths of adjacent fuels, and cannot be feasibly pre-planned until firefighters arrive on scene and size up the situation.

Firescope appropriately notes that although Safety Zones and viable Escape Routes shall always be identified in the WUI environment, they may not be immediately available should the fire behavior increase unexpectedly. Often a TRA is more accessible in the WUI environment. A TRA will provide temporary shelter and short-term relief from an approaching fire without the use of a fire shelter and allow the responders to develop an alternate plan to safely survive the increase in fire behavior.

TRAs are pre-planned areas (planned shortly after firefighters arrive on scene) where firefighters may take refuge and temporary shelter for short-term thermal relief, without using a fire shelter in the event that escape routes to an established safety zone are compromised. The major difference between a TRA and a safety zone is that a TRA requires another planned tactical action, i.e., TRAs cannot be considered the final action, but must include self-defense and a move out of the area when the fire threat subsides. A TRA should be available and identified on site at a defended structure. TRAs are NOT a substitute for a Safety Zone. TRA pre-planning is difficult, at best because they are very site and fire behavior specific. For future developments of the Project, TRAs would likely include navigating to the interior roadways of neighborhoods where 200-foot-wide fuel modification zones provide defensible space and maintained landscapes are provided, along with ignition resistant structures that offer numerous opportunities for TRA.

The developed portions of the Project site, but especially the interior areas of neighborhoods are considered TRAs. This is an important concept because it offers last-resort, temporary refuge of firefighters and, in a worst-case condition, occupants. This approach would be consistent with Firescope California (2013) which indicates that firefighters must determine if a safe evacuation is appropriate and if not, to identify safe refuge for those who cannot be evacuated, including civilians.

The Project's residential and commercial structures and areas can be considered for TRA because they include the following features:

- Ignition Resistant Construction
- Annual landscape inspections

- Wide roadways with fire hydrants
- Maintained landscapes and roadside fuel modification
- Ember resistant vents
- Interior fire sprinklers

Because there is the possibility that evacuation of the project may be less safe than temporarily refuging on site, such as during a fast-moving, wind or slope driven fire, including temporary refuge within structures or elsewhere on site is considered a contingency plan for the Project. This concept is considered a component of the "Ready, Set, Go!" model as it provides a broader level of "readiness" should the ability to execute an early evacuation be negated by fire, road congestion, or other unforeseen issues. This approach would be considered a last-resort contingency during wildfire with the primary focus being on early evacuation. The decision for evacuation or temporarily refuging onsite will be made by responding law enforcement and/or fire personnel.

5.4 Social Aspects of Wildfire Evacuation

Orderly movement of people is the result of planning, training, education, and awareness, all of which are promoted in Los Angeles County. Evacuation has been the standard term used for emergency movement of people and implies imminent or threatening danger. The term in this WETR, and under the "Ready, Set, Go!" concept, indicates that there is a perceived threat to persons and movement out of the area is necessary, but will occur according to a pre-planned and practiced protocol, reducing the potential for panic.

Citizen reactions may vary during an evacuation event, although several studies indicate that orderly movement during wildfire and other emergencies is not typically unmanageable. Evacuation can be made even less problematic through diligent public education and emergency personnel training and familiarity. Social science research literature indicates that reactions to warnings follow certain behavior patterns that are defined by people's perceptions (Aguirre 1994, Drabek 1991, Fitzpatrick and Mileti 1994, Gordon 2006, Collins 2004) and are not unpredictable. In summary, warnings received from credible sources by people who are aware (or have been made aware) of the potential risk, have the effect of an orderly decision process that typically results in successful evacuation. This success is heightened when evacuations are not foreign to residents (Quarantelli and Dynes 1977; Lindell and Perry 2004) as will occur within the Project. Further, in all but the rarest circumstances, evacuees will be receiving information from credible sources during an evacuation. Further, it would be anticipated that law enforcement and/or fire personnel would be onsite to help direct traffic and would be viewed by evacuees as knowledgeable and credible. The importance of training of law enforcement and fire personnel cannot be understated and annual education and training regarding fire safety and evacuation events will be essential for successful future evacuations.

5.4.1 Evacuation of Special Populations

Vogt (1990 and 1991) defines special populations as those groups of people who, because of their special situations or needs, require different planning strategies from those of the general population. Special needs populations include those in institutions or special facilities, those with disabilities in homes, those who need care, children, elderly and others who cannot provide for their own evacuation if necessitated. The special needs population is concentrated in facilities but is also widespread in terms of facility locations and those who live in residences. Special needs populations for the Project include the hearing or visually impaired, foreign speaking,

visitors passing through the area, and temporary visitors (e.g., day workers), and the non-ambulatory confined to residences either temporarily or permanently.

Temporary occupants may not have knowledge of the area's fire hazard, they may not know how to react in a fire emergency, and they may not understand what they are being told to do. Conversely, this segment of the population would typically be easier to evacuate quickly as they have no possession or pets that they would need to prepare. They can get in their cars and be directed out of the area.

The reasons why special needs populations may fail to respond to warnings to take protective actions is that they may require special transportation while others require different types of warnings or technologies to receive a warning. Some groups must rely on caregivers to hear the warning and respond.

Senior citizens face unique challenges during wildfire evacuations. Mobility problems and chronic health conditions are more likely to impact older individuals. Further, care providers and support services may be temporarily unavailable during a wildfire emergency. Evacuation concerns are exacerbated through the presence of vision and hearing problems and cognitive impairment, all of which are more likely to impact senior citizens and limit the ability to understand and respond to emergency evacuations.

Project Approach:

The Fire Safety Coordinator(s) for each of the future developments should provide information to occupants regarding how to notify the County OEM and Health and Human Services of special needs residents so that accommodations for their notification (Accessible Alert LA County, CERT programs, or other), transportation or other special requirements can be provided during an emergency evacuation. Occupants will be advised of their options during an emergency by law enforcement or fire officials.

5.4.2 Animal Evacuations

Animal evacuations present a host of challenges that may affect the overall successful movement of people and their possessions out of harm's way. For example, livestock owners do not always have the means to load and trailer their livestock out of the area. Further, most wildfire evacuation relief shelters or commercial lodging facilities do not allow people to bring in pets or other animals. Sorensen and Vogt (2006) indicate that an issue receiving increasing attention is what evacuees do with pets or other animals such as livestock when they leave their homes and whether having pets or animals impacts their decision to evacuate. The Pets Evacuation and Transportation Standards Act of 2006 amends the Stafford Act, and requires evacuation plans to take into account the needs of individuals with household pets and service animals prior to, during, and following a major disaster or emergency. Although evacuation planning attempts to include the needs of pets and animals, the primary responsibility of public agencies is the protection of human life and prevention of loss or damage to property. Primary responsibility for basic care and sheltering of pets and small animals, including exotic animals, during a major disaster or emergency is that of the pet owner.

The LADACC supports all animal evacuation, sheltering, and care. Under Section 5 – Roles and Responsibilities of the OA EOP, Animal Care and Control, plans are in place to transport and shelter pets in a disaster. Animal Control Officers, trained volunteers, the Humane Society, and private animal care shelters will assist in the rescue, transport, and sheltering of small and large animals. In addition, potential volunteer resources and private groups

should be identified and tracked. Service animals will be evacuated with their owners. Animal Services is available to assist with the evacuation of service animals if requested by the owner.

In the event temporary emergency small animal shelters need to be activated, the Animal Care & Health Unit Leader will identify potential shelter locations. A Public Information Officer will coordinate with LADACC and media outlets to broadcast information regarding the location of these shelters.

The Project would not accommodate livestock; however, household pets would be a common occurrence.

Project Approach:

Develop a strong outreach program for pet owners so they understand their responsibilities and the fact that they will not likely be allowed re-entry once evacuated.

Develop a registration for owners of animals who cannot evacuate them without assistance so that volunteer organizations or individuals can provide resources.

5.4.3 Re-Entry Procedures

An important component of evacuations is the occupant re-entry process. Re-entry will be initiated by the Incident Commander/Unified Command of the Incident Management Team, with the support of the Director of the Office of Emergency Management, the OA EOC Director, and the Operations Section Chief at the OA EOC. In most cases, the OA EOC will remain activated until full re-entry is complete. In the event the OA EOC has been deactivated, the Incident Commander will initiate re-entry procedures.

Incident Commander/Unified Command of the Incident Management Team, with the support of the Director of the Emergency Management Department, the OA EOC Director, and the Operations Section Chief at the OA EOC is responsible for coordinating the re-entry procedures with all involved agencies and ensuring effective communication. Priorities for re-entry include:

- The impacted areas must be thoroughly investigated to ensure it is safe for residents to return and normal operations have been restored. This assessment will verify:
  - The public will be notified of the re-entry status through the notification measures previously mentioned in this annex, including https://lacounty.gov/emergency/alert-la/, emergency broadcast radio, television, press releases, informational phone-lines such as 3-1-1, community briefings, and informational updates at shelters.

Once evacuees are permitted to return, it is important that procedures are established to properly identify residents and critical support personnel, as well as ensure the legitimacy of contractors, insurance adjustors, and other personnel. Re-entry points should be staffed by law enforcement personnel.

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6 Centennial Evacuation Scenario Modeling Analysis

This section provides a summary of an evacuation scenario modeling analysis completed by Chen Ryan Associates (CRA) and Dudek for the Centennial Project. The complete analysis is provided in Appendix C. The purpose of the analysis was to determine evacuation times for the Project's population at phased construction completion milestones and whether there would be impacts on the surrounding communities' population evacuation times. This analysis was performed in accordance with the requirements of the County of Los Angeles Operational Area Emergency Operations Plan November 2023 for the calculation of evacuation times.

Phased Evacuation

Although mass evacuation events have become less common as wildfire evacuation technology and capabilities have improved dramatically in the last 15 years, it can still serve as a conservative scenario under which to analyze evacuation impacts. The roadway network and vehicle input assumptions also have been selected to simulate a "worst-case" evacuation scenario that would occur during a weekend day (Saturday) when the Project's residents are home, and nearby homes are likely to be fully occupied. While evaluation of the "worst-case" scenario is not required by law, out of an abundance of caution, the Project has opted to consider this scenario. The assumption that an evacuation would occur when the Project is in operation at full buildout and all residents in the surrounding community are at home when the evacuation order is provided represents an extreme, worst-case condition. In an actual wildfire event, it is most likely that phased evacuation orders would be given to provide for a more orderly evacuation. It is also likely that fewer residents would be present nearby if the evacuation happened during a time that the Project was not at full occupancy such as a weekday afternoon. Phased Evacuation, by targeting the area in immediate danger allows for better evacuation operations, reduces gridlock, and reserves sufficient travel way for emergency vehicles. Under this approach, first responders or law enforcement personnel will direct traffic at all major intersections during the evacuation process.

Based on the review of the County of Los Angeles OA EOP, the County All-Hazards Mitigation Plan (2025), recent wildfire evacuation efforts, and other relevant information, the current evacuation practices are led by the local incident commander or the incident command post (ICP). These practices involve collaboration between fire departments and various law enforcement agencies. Depending on the nature of the emergency, multiple departments may work together during the evacuation process. The responsibilities of these departments are detailed in the County OA EOP and summarized below:

Fire Department Responsibilities

- Establish command of the Incident
- Conduct a situation assessment and evaluate the need for evacuations
- Establish an Incident Command Post (ICP) with sufficient room for representatives from other assisting agencies and announce its location
- Request Agency Representative from Law Enforcement to respond to the ICP.

Law Enforcement Responsibilities

- Assign supervisor of the rank of Sergeant or above to the Incident Command Post and request a Deputy to locate with Operations Section Chief
- Maintain ingress and egress routes for emergency vehicles
- Establish perimeter control, keeping unauthorized vehicles and pedestrians out of the involved area. Conduct evaluations, if required, at the direction of the Incident Commander
- Establish anti-looting security patrols, when safe to do so, for evacuated areas within the perimeter
- Maintain a Unit log

Joint Fire and Law Enforcement Responsibilities

- Evaluate and determine whether Law Enforcement role will be as an Agency Representative or Unified Incident Commander, depending on the scope of the Incident
- Assign a Law Enforcement supervisor to work closely with the Operations Section Chief or Incident Commander, whomever is determining the areas to be evacuated
- Assess and validate the need for an Evacuation Warning, Evacuation Order, and/or Shelter in Place — Determine the location, potential size, and direction of Incident travel or spread
- Unified Commanders determine potential for Incident spread and request the appropriate resources to complete the evacuation and mitigate the Incident concurrently

Methodical and strategic evacuation orders ensure that resources are deployed where needed and ensure a manageable traffic flow out of the area under threat. This approach is demonstrated through several recent wildfires where evacuation orders were issued. One example is the Border Fire 32, which was detected at 2:15 p.m. on August 31, 2022. At 2:57 PM, the San Diego County Sheriff's Department shut down SR-94 within the vicinity of the fire and issuing an evacuation order at 3:28 p.m. Systematic approaches such as those taken for the Border Fire 32 allow for a more orderly evacuation and prioritize those in higher risk area, while maintain clear pathways for law enforcement, first responders, and firefighting equipment.

Another example is the Lilac Fire, which was detected at 11:15 a.m. on December 7, 2017, by applying strategic evacuation and closed down crucial roadway to non-essential traffic, San Diego County law enforcement and fire fighters was able to evacuate more than 14 different areas within San Diego County via 14 separate evacuation campaigns (notifications sent to affected areas) – sequencing of evacuation areas occurring between 12/7/2017 at 1:52 pm to 12/7/2017 10:17 pm. Thanks to the orderly evacuation, efforts from law enforcement and fire fighters, there was zero reported fatality during the Lilac Fire.

Another example of a systematic approach and strategic evacuation order can be observed during the Thomas Fire in 2017 in Ventura County. Selective evacuation orders were issued only for areas in immediate danger. Law enforcement first issued evacuation orders near the Carpinteria area, emphasizing that the order was specific to this region to minimize the number of evacuees on the road. Similarly, the timeline of significant events for the Woolsey Fire, as documented in the Woolsey Fire After Action Report, demonstrates the same strategic evacuation approach. In some instances, the Incident Command Post (ICP) issued voluntary evacuation notices instead of orders for areas deemed to be at higher risk.

The Department of Homeland Security (2019) provides supporting data for why jurisdictions have moved to the targeted evacuation approach that leverages the power of situational awareness to support decision making. According to their Planning Considerations: Evacuation and Shelter in Place document, they indicate that delineated zones provide benefits to the agencies and community members. Evacuation and shelter-in-place zones promote phased, zone-based evacuation targeted to the most vulnerable areas, which allows jurisdictions to prioritize evacuation orders to the most vulnerable zones first and limit the need to evacuate large areas not under the threat. Zones help:

- Jurisdictions to understand transportation network throughput and capacity, critical transportation and resource needs, estimated evacuation clearance times, and shelter demand.
- Planners to develop planning factors and assumptions to inform goals and objectives.
- Community members to understand protective actions to take during an emergency.
- Shelters to limit traffic congestion and select locations suitable for the evacuated population.

Additionally, targeted evacuation order/warning aims to ensure proper traffic flow and reduce stress at evacuation sites, some people may still choose to evacuate even if they are not facing an immediate threat. These individuals are known as shadow evacuees, and they increase the demand on the roadway network. The number of shadow evacuees varies from incident to incident, depending on their proximity to the actual fire, though it can be assumed that approximately 30% of evacuees fall into this category.

While the amount of time needed to evacuate the Project would vary by the type of incident, the number of evacuation routes utilized, the amount of mobilization time taken by occupants, actual areas at risk, and other factors, the targeted approach would minimize the size of the area being evacuated and use a phased approach, which would likely reduce evacuation time below the above evacuation time estimates. Accordingly, roadway capacity would remain adequate to undertake safe and effective evacuations with development of the Project and would not expose people or structures to a significant risk of loss, injury or death.

Shelter In Place as a Contingency Plan

Sheltering-in-place is the practice of going or remaining indoors during or following an emergency event. This procedure is recommended if there is little time for the public to react to an incident and it is safer for the public to stay indoors for a short time rather than travel outdoors. Sheltering-in-place also has many advantages because it can be implemented immediately, allowing people to remain in their familiar surroundings, and providing individuals with everyday necessities such as telephone, radio, television, and food. However, the amount of time people can stay sheltered-in-place is dependent upon availability of food, water, medical care, utilities, and access to accurate and reliable information.

The decision on whether to evacuate or shelter-in-place is carefully considered with the timing and nature of the incident. Sheltering-in-place is the preferred method of protection for people that are not directly impacted or in the direct path of a hazard. This will reduce congestion and transportation demand on the major transportation routes for those that have been directed to evacuate by police or fire personnel. Like all new master planned communities that incorporate ignition-resistant construction and provide defensibility throughout, responding fire and law enforcement personnel have the option to direct existing residents to temporarily refuge in Project structures.

Options when evacuation is not considered feasible or when occupants are not in direct threat that may be available to responding fire and law enforcement personnel may include temporary refuge/sheltering on site where residents

are instructed to remain in their homes while firefighters perform their structure protection function if it is considered unsafe to evacuate. Given the scale of the Project, fire environment, and ignition resistant construction, it is likely that only populations along the perimeter of the Project site would be required to evacuate, while remaining populations would be directed to remain onsite.

6.1 Evacuation Modeling Methodology, Assumptions, and Scenarios

The following provides a summary of the methodology, assumptions and scenarios considered in the evacuation time analysis presented herein.

Worst-Case Evacuation Scenario- Saturday Afternoon Evacuation; Full Project Operation

The Project at buildout will be an urban area with residential, commercial and open spaces. Accordingly, to evaluate a "worst-case" scenario, the model assumes that the evacuation would transpire on a Saturday afternoon, a time when commercial uses on the Project would likely still be in operation and residents from the villages are home, meaning all residential vehicles would be required to evacuate. In an actual evacuation scenario, the total number of vehicles needing to evacuate may actually be less. The IC would prioritize evacuation of land uses located closest to the area with immediate risk, depending on the location of the fire. However, by assuming a "worst case scenario," the modeling accounts for any other vehicles that may be on the road and/or voluntarily evacuating from other areas. For example, shadow evacuees may leave regardless of a threat to their location. The model accounts for this by assuming that all populations are on-site and would be evacuating.

Primary Evacuation Routes and Capacity

CRA assumed that traffic evacuating from both the Project and nearby communities/land uses would use the closest evacuation routes to leave the area. Evacuation routes were selected based upon review of the project site, available evacuation routes, and the quickest way to leave the at-risk areas.

The number of evacuation roadways accessible to each village depends on the development phase of the specific plan. Appendix C outlines the evacuation roadways by development phases, and shows all available roadways at the full buildout of the specific plan.

No contraflow lanes[2] were assumed to provide access for first responders and law enforcement. Two-way travel was assumed, with evacuating vehicles traveling outbound to the designated Safe Zone. It is assumed that first responders or law enforcement will direct traffic at all major intersections during the evacuation process. Should evacuation managers determine whether contraflow is preferred or necessary, evacuation capacity would increase while evacuation times would decrease.

The Centennial Specific Plan Traffic Study conducted by Stantec in May 2017 and the Centennial Specific Plan Supplemental Traffic Study, both collectively referred to as 2017 Traffic Studies, assumed that the Project would improve SR-138 to a four-lane expressway from I-5 to 240th Street West and to a limited access conventional four-lane highway from 240th Street West to 190th Street West, with right-of-way reserved for a six-lane expressway

[2] Contraflow or lane reversal involves directing traffic to use lanes coming from the source of a hazard to move people away from the hazard. Such a strategy can be used to eliminate bottlenecks in communities with road geometries that prevent efficient evacuations or to facilitate traffic flow out of a major urban area. Among the considerations in planning emergency contraflow are whether sufficient traffic control officers are available, potential negative impact on responding fire apparatus, access management, merging, exiting, safety concerns, and labor requirements. Contraflow configurations must be carefully planned based on on-site factors and should not be implemented in an *ad-hoc* fashion. Dudek July 2014. "Wildland Fire Evacuation Procedures Analysis" for City of Santa Barbara, California, page 65.

between Gorman Post Road and 300th Street West, or comparable improvements consistent with the Northwest 138 Corridor. However, due to uncertainty regarding the timing of the improvements it is assumed that SR-138 would remain as a two-lane highway for all analysis scenarios.

The study assumed that evacuees would use the proposed roads, as well as SR-138 to head towards the I-5 or other developed communities such as the Neenach community. It is likely to assume Project occupants would utilize the major transportation arteries to evacuate. It is likely that a wildfire would ignite to the north of the Project site, so it is unlikely that Project occupants would evacuate to the north.

No contraflow lanes were assumed so that access would be fully maintained for first responders and law enforcement. Two-way travel was assumed, with evacuating vehicles traveling outbound to the Safe Zone and first responders and law enforcement provided the opportunity to travel inbound to the fire. Should evacuation managers determine that contraflow is preferred or necessary in a wildfire evacuation scenario, evacuation capacity would increase while evacuation times would decrease.

Control of Downstream Intersections

As part of evacuations operations, as demonstrated in Border Fire #32, first responders or law enforcement will direct traffic at all major downstream intersections out of the area during the evacuation process. As possible, intersection traffic signals may be managed at appropriately equipped signals to assist in the movement of traffic from areas of higher potential exposure to areas of lower exposure.

Safe Zone

Based on Dudek's review of the area's fire history, fires have halted along areas adjacent to wildland fuels and have not historically progressed into the more densely urbanized, irrigated, and hardscaped areas. Specifically, none of the historical fires encroached beyond the periphery areas within the wildland urban interface area of the Los Angeles County. Recent fires such as the Jerry Fire (2019), Merwin Fire (2015), Lago Fire (2011), Max Fire (2024) were all stopped prior to reaching the urbanized area. Thus, it is assumed that during the earlier phases of the specific plan, evacuees are considered "safe" once their vehicles reach an area outside the evacuation order zone. For scenarios 1 through 3, this would be when the vehicles arrive at either the SR-138/I-5 interchange to the west or the community of Neenach to the east. In the later scenarios, evacuees are considered "safe" once they arrive at the respective villages or evacuation point indicated in Table 1.

Evacuation Scenarios

A total of fifteen evacuation scenarios were analyzed, which are shown in Table 1 below and graphically represented in Figures 1-15 of Attachment C in Appendix C.

Targeted Evacuation

Current evacuation practice typically targets the scope of the evacuation only to the area in immediate danger and placing a larger area on standby for evacuation. This practice allows for better evacuation operations, reduces gridlock, and reserves sufficient travel way for emergency vehicles. The Project evacuation model utilizes a worst-case simultaneous evacuation of all existing uses/occupants within the modeled area. However, the likelihood of each of these populations being evacuated at the same time is low. In an actual evacuation scenario, the IC would prioritize evacuation of land uses located closest to the area with immediate risk, depending on the location of the fire, which may result in reduced evacuation timeframes compared to this modeling.

Table 1. Evacuation Travel Time Analysis Scenarios and Evacuating Vehicles Calculation

Scenario	Phases	Build Land Use	Fire Approach Direction	Evacuation Direction/Routes	Area Under Evacuation	Evacuating Vehicles
1	Phase 1-2	Village 1 & Village 3	South/Southeast	75% via SR-138 westbound toward I-5	Village 1	3,783
				25% via internal road toward I-5	Village 3	3,878
				—	Existing	200
2	Phase 1-2	Village 1 & Village 3	North/Northeast	25% via SR-138 westbound toward I-5	Village 1	3,783
				25% via internal road toward I-5	Village 3	3,878
				25% via internal road toward Lancaster	Existing	200
				25% via SR-138 eastbound toward Lancaster	—	—
3	Phase 1-2	Village 1 & Village 3	West/Northwest	75% via SR-138 eastbound toward Lancaster	Village 1	3,783
				25% via internal road toward Lancaster	Village 3	3,878
				—	Existing	200
4	Phase 1-4	Village 1, Village 3, Village 7, Business Park West, Institutional & Civic	South/Southeast	50% via SR-138 westbound toward I-5	50% of Village 7	1,490
				50% via internal roadway toward Village 1	Business Park West	1,875
				—	Institutional & Civic	2,958
5	Phase 1-4	Village 1, Village 3, Village 7, Business Park West, Institutional & Civic	North/Northeast	25% via SR-138 westbound toward I-5	50% of Village 3	2,085
				50% via internal roadway toward Village 1	Village 7	2,979
				25% via SR-138 eastbound toward Lancaster	Existing	200
6	Phase 1-4	Village 1, Village 3, Village 7, Business Park West, Institutional & Civic	West/Northwest	50% via internal roadway toward Village 7 and the Institutional/Civic land use	Village 1	3,783
				50% via SR-138 eastbound toward Lancaster	30% of Village 3	1,251
				—	Business Park West	1,875
				—	Existing	200
7	Phase 1-6	Village 1, Village 3, Village 6, Village 7, Village 9 West,	South/Southeast	25% via SR-138 westbound toward I-5	50% of Village 7	1,490
				25% via internal roadway toward Village 1	Business Park West	1,875

Table 1. Evacuation Travel Time Analysis Scenarios and Evacuating Vehicles Calculation

Scenario	Phases	Build Land Use	Fire Approach Direction	Evacuation Direction/Routes	Area Under Evacuation	Evacuating Vehicles
		Business Park West, Business Park Central, Institutional & Civic		25% via internal roadway toward Village 3	Business Park Central	1,250
				25% via internal roadway toward Village 6	Institutional & Civic	2,958
8	Phase 1-6	Village 1, Village 3, Village 6, Village 7, Village 9 West, Business Park West, Business Park Central, Institutional & Civic	North/Northeast	25% via SR-138 westbound toward I-5	Village 6	3,488
				50% via internal roadway toward Village 1 and Village 3	Village 7	2,979
				25% via SR-138 eastbound toward Lancaster	—	—
9	Phase 1-6	Village 1, Village 3, Village 6, Village 7, Village 9 West, Business Park West, Business Park Central, Institutional & Civic	West/Northwest	50% via internal roadway toward Village 7 and the Institutional & Civic	Village 1	3,783
				50% via SR-138 eastbound toward Lancaster	Village 9 West	2,218
				—	Existing	200
10	Phase 1-8	Village 1, 3, 7 E & West, Village 9 West, Village 6, Village 9 East, Village 8 West, Village 2, Village 4 South	South/Southeast	25% via SR-138 westbound toward I-5	50% of Village 7	1,490
				25% via internal roadway toward Village 1	Business Park West	1,875
				25% via internal roadway toward Village 3	Business Park Central	1,250
				25% via internal roadway toward Village 6	Business Park East	1,186
				—	30% of the Institutional & Civic	887
11	Phase 1-8	Village 1, Village 2, Village 3, Village 6, Village 7, Village 9, Village 8 West,	North/Northeast	25% via internal roadway toward Village 1	30% of Village 2	738
				25% via internal roadway toward Village 3	Village 4 South	2,269

Table 1. Evacuation Travel Time Analysis Scenarios and Evacuating Vehicles Calculation

Scenario	Phases	Build Land Use	Fire Approach Direction	Evacuation Direction/Routes	Area Under Evacuation	Evacuating Vehicles
		Village 4 South, Business Park West, Business Park Central, Business Park East, Institutional & Civic		25% via internal roadway toward Village 7	50% of Village 6	1,744
				25% via internal roadway toward Institutional & Civic	Village 8 West	1,922
				—	30% of Village 9	979
12	Phase 1-8	Village 1, Village 2, Village 3, Village 6, Village 7, Village 9, Village 8 West, Village 4 South, Business Park West, Business Park Central, Business Park East, Institutional & Civic	West/Northwest	25% via internal roadway toward Village 3	30% of Village 1	1,135
				25% via internal roadway toward Village 7	30% of Village 2	738
				25% via internal roadway toward Business Park	Village 4 South	2,269
				25% via internal roadway toward Institutional & Civic	Village 9	3,264
13	Phase 1-10	Buildout	South/Southeast	25% via SR-138 westbound toward I-5	Business Park West	1,875
				25% via internal roadway toward Village 1	Business Park Central	1,250
				25% via internal roadway toward Village 3	Business Park East	1,186
				25% via internal roadway toward Village 6/Village 5	30% of the Institutional & Civic	887
				—	50% of Village 7	1,490
				—	Village 8 East	3,678
14	Phase 1-10	Buildout	North/Northeast	25% via internal roadway toward Village 1/ Village 2	30% of Village 4	1,284
				25% via internal roadway toward Village 3	Village 5	10,333
				25% via internal roadway toward Village 7/Institutional & Civic	30% of Village 6	1,046

Table 1. Evacuation Travel Time Analysis Scenarios and Evacuating Vehicles Calculation

Scenario	Phases	Build Land Use	Fire Approach Direction	Evacuation Direction/Routes	Area Under Evacuation	Evacuating Vehicles
				25% via SR-138 Westbound toward Business Park	Village 8 West	1,922
				—	Village 8 East	3,678
15	Phase 1-10	Buildout	West/Northwest	25% via internal roadway toward Village 3	30% of Village 2	738
				25% via internal roadway toward Village 7	50% of Village 4	2,140
				25% via internal roadway toward Business Park	50% of Village 5	5,167
				25% via internal roadway toward Institutional & Civic	Village 9	3,264

Sources: CR Associates 2024, US Census Bureau 2023, Google Maps 2023

Evacuating Vehicles

The projected number of vehicles evacuating from the study area is based on a combination of various data sources: Parcel Quest's parcel map data for land use, vehicle ownership averages from the US Census Bureau, aerial imagery from Nearmap, and relevant environmental documents. Breakdown of the calculations for evacuating vehicles is as follows:

Existing Residential: This is obtained by multiplying the total number of households (from Parcel Quest parcel map data) with the average vehicle ownership, which stands at 2.07 vehicles per household as per the US Census Bureau.

For this analysis, it is assumed that during the earlier phases of the Project, existing land use to the east of the Project site will evacuate in the same direction as the Project's traffic. Once the Project is developed, the Project site can serve as an evacuation zone for existing land use that need to evacuate westward toward the Project site. Therefore, the evacuation times for existing land uses are only included in scenarios where the Project's traffic would potentially share the same evacuation roadway as the existing land uses.

Proposed Project: This is calculated by multiplying the quantities of land use by the following sources:

- **Residential Land Use:** Total number of dwelling units x average vehicle ownership.
- **Nonresidential Land Uses:** Total square footage x parking rate derived from the Institute of Transportation Engineer (ITE) Parking Generation Manual.

Land use quantities were obtained from Stantec and Appendix E of the Centennial Specific Plan Traffic Study (November 2017).

Shadow Evacuees: These are individuals who choose to evacuate out of an abundance of caution, even without an official evacuation order. The "Review of California Wildfire Evacuations from 2017 to 2019" report found that approximately 30% of evacuees fall into this category.

For a reasonable analysis, these scenarios assumed that two percent (2%)[3] of the evacuating vehicles are heavy vehicles (trucks with trailers). Two percent is the nationally acceptable ratio of heavy vehicles to all vehicles.

Average vehicle ownership, residential units, and evacuating vehicles calculations are provided in Appendix C. Table 1 displays the number of vehicles evacuating under each scenario. Figure 4 demonstrates phasing of the Project, and Figure 5 shows the proposed villages.

Under emergency evacuation conditions and consistent with the OEP and practices employed during prior emergency evacuation events in the County, traffic signals would revert to special timing plans and/or traffic personnel will be deployed at key intersections to help regulate traffic flow for primary evacuation approaches.

[3] https://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_599.pdf (p.5).

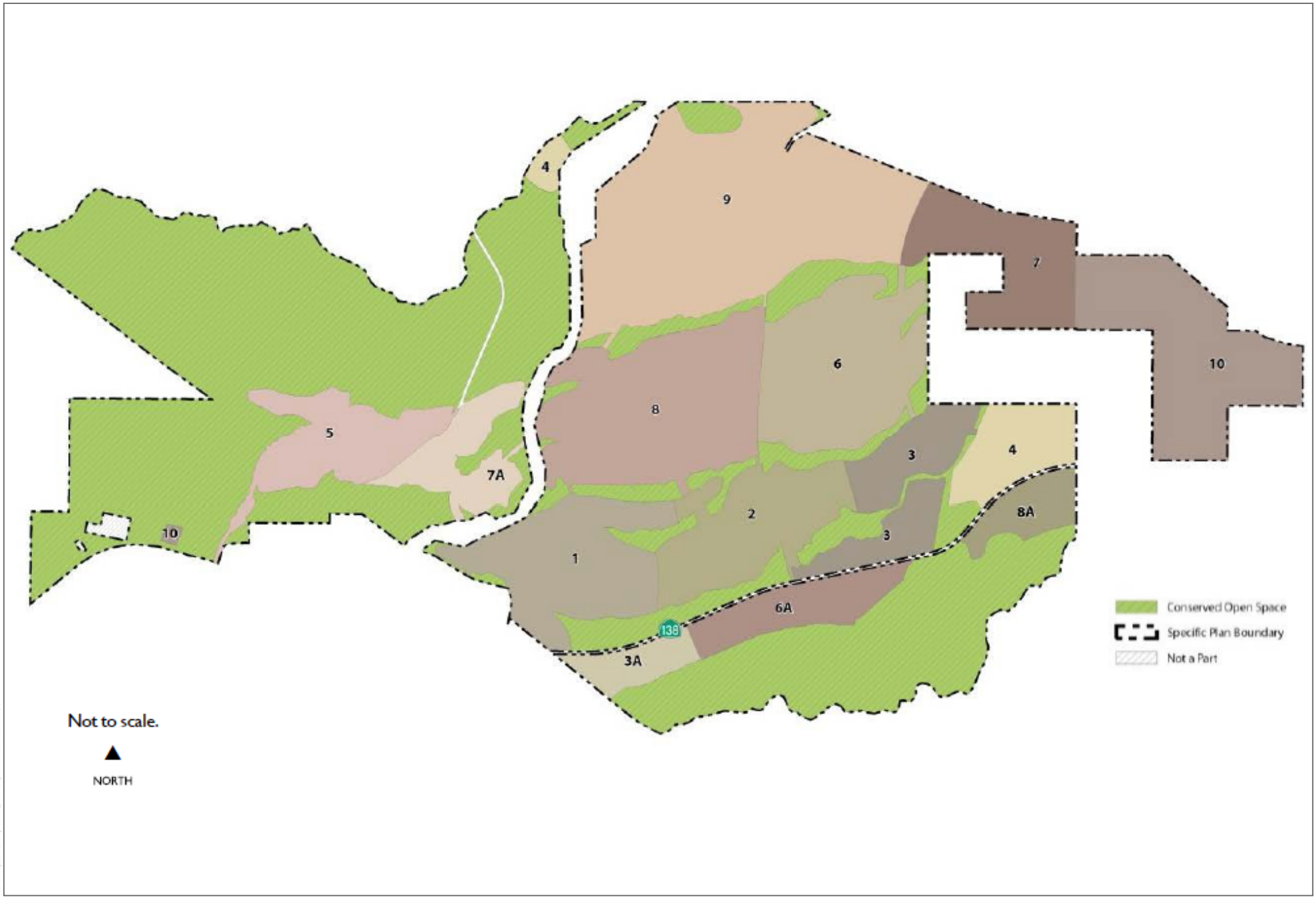

FIGURE 4

Conceptual Project Phasing Plan

Centennial Wildfire Evacuation Study

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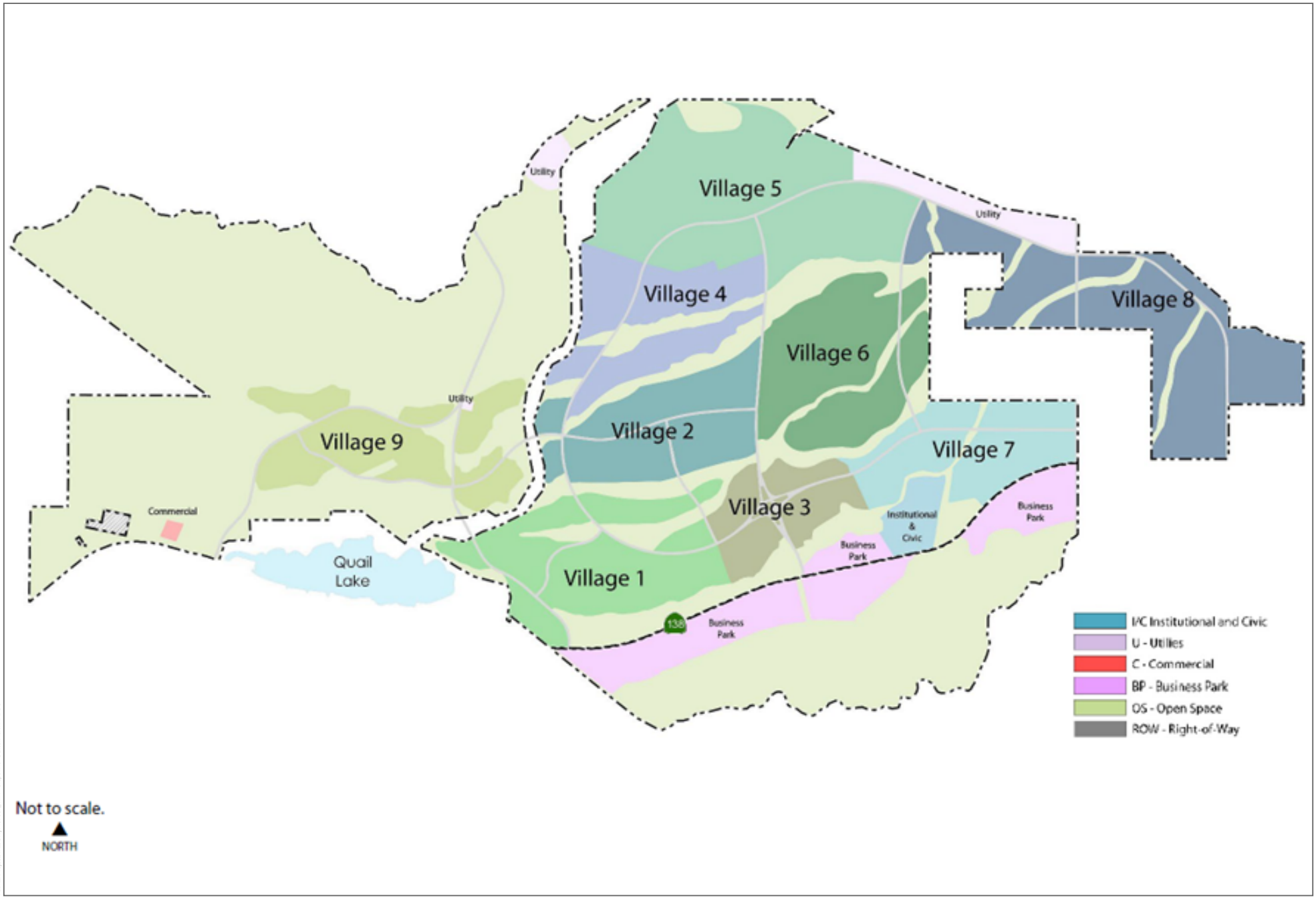

FIGURE 5

Proposed Villages

Centennial Wildfire Evacuation Study

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6.2 Potential for Project Evacuation Impact

Based on the analysis methodology described in the previous section, Table 2 summarizes the evacuation time for each analysis scenario. The evacuation time does not depict the evacuation time for each individual person within an evacuation area, but rather the total amount of time needed to evacuate all populations modeled from an area. Populations located in closer proximity to the IC designated safe zone will safely evacuate sooner than the total calculated evacuation time identified in Table 2. Detailed evacuation travel time analysis information is provided in Appendix C.

Table 2. Evacuation Time Summary

Scenario	Phases	Build Land Use	Fire Approach Direction	Evacuation Direction/ Routes	Area Under Evacuation	Evacuating Vehicles	Evacuating Time (Hr:Min)
1	Phase 1-2	Village 1 & Village 3	South/ Southeast	75% via SR-138 westbound toward I-5	Village 1	3,783	2:04
				25% via internal road toward I-5	Village 3	3,878	3:37
				—	Existing	200	0:42
2	Phase 1-2	Village 1 & Village 3	North/Northeast	25% via SR-138 westbound toward I-5	Village 1	3,783	1:33
				25% via internal road toward I-5	Village 3	3,878	1:34
				25% via internal road toward Lancaster	Existing	200	0:17
				25% via SR-138 eastbound toward Lancaster	—	—	—
3	Phase 1-2	Village 1 & Village 3	West/Northwest	75% via SR-138 eastbound toward Lancaster	Village 1	3,783	2:03
				25% via internal road toward Lancaster	Village 3	3,878	1:36
				—	Existing	200	0:17
4	Phase 1-4	Village 1, Village 3, Village 7, Business Park West, Institutional & Civic	South/ Southeast	50% via SR-138 westbound toward I-5	50% of Village 7	1,490	1:00
				50% via internal roadway toward Village 1	Business Park West	1,875	1:54
				—	Institutional & Civic	2,958	1:46
5	Phase 1-4	Village 1, Village 3, Village 7, Business Park West, Institutional & Civic	North/Northeast	25% via SR-138 westbound toward I-5	50% of Village 3	2,085	1:07
				50% via internal roadway toward Village 1	Village 7	2,979	1:23
				25% via SR-138 eastbound toward Lancaster	Existing	200	0:17

Table 2. Evacuation Time Summary

Scenario	Phases	Build Land Use	Fire Approach Direction	Evacuation Direction/ Routes	Area Under Evacuation	Evacuating Vehicles	Evacuating Time (Hr:Min)
6	Phase 1-4	Village 1, Village 3, Village 7, Business Park West, Institutional & Civic	West/Northwest	50% via internal roadway toward Village 7 and the Institutional/Civic land use	Village 1	3,783	2:26
				50% via SR-138 eastbound toward Lancaster	30% of Village 3	1,251	0:41
				—	Business Park West	1,875	2:21
				—	Existing	200	0:17
7	Phase 1-6	Village 1, Village 3, Village 6, Village 7, Village 9 West, Business Park West, Business Park Central, Institutional & Civic	South/ Southeast	25% via SR-138 westbound toward I-5	50% of Village 7	1,490	0:39
				25% via internal roadway toward Village 1	Business Park West	1,875	0:50
				25% via internal roadway toward Village 3	Business Park Central	1,250	1:07
				25% via internal roadway toward Village 6	Institutional & Civic	2,958	1:20
8	Phase 1-6	Village 1, Village 3, Village 6, Village 7, Village 9 West, Business Park West, Business Park Central, Institutional & Civic	North/Northeast	25% via SR-138 westbound toward I-5	Village 6	3,488	3:27
				50% via internal roadway toward Village 1 and Village 3	Village 7	2,979	1:49
				25% via SR-138 eastbound toward Lancaster	—	—	—
9	Phase 1-6	Village 1, Village 3, Village 6, Village 7, Village 9 West, Business Park West, Business Park Central, Institutional & Civic	West/Northwest	50% via internal roadway toward Village 7 and the Institutional & Civic	Village 1	3,783	1:22
				50% via SR-138 eastbound toward Lancaster	Village 9 West	2,218	1:11
				—	Existing	200	0:17

Table 2. Evacuation Time Summary

Scenario	Phases	Build Land Use	Fire Approach Direction	Evacuation Direction/ Routes	Area Under Evacuation	Evacuating Vehicles	Evacuating Time (Hr:Min)
10	Phase 1-8	Village 1, 3, 7 E & West, Village 9 West, Village 6, Village 9 East, Village 8 West, Village 2, Village 4 South	South/ Southeast	25% via SR-138 westbound toward I-5	50% of Village 7	1,490	1:21
				25% via internal roadway toward Village 1	Business Park West	1,875	1:07
				25% via internal roadway toward Village 3	Business Park Central	1,250	0:47
				25% via internal roadway toward Village 6	Business Park East	1,186	1:19
				—	30% of the Institutional & Civic	887	0:26
11	Phase 1-8	Village 1, Village 2, Village 3, Village 6, Village 7, Village 9, Village 8 West, Village 4 South, Business Park West, Business Park Central, Business Park East, Institutional & Civic	North/Northeast	25% via internal roadway toward Village 1	30% of Village 2	738	0:53
				25% via internal roadway toward Village 3	Village 4 South	2,269	0:53
				25% via internal roadway toward Village 7	50% of Village 6	1,744	0:53
				25% via internal roadway toward Institutional & Civic	Village 8 West	1,922	1:02
				—	30% of Village 9	979	0:49
12	Phase 1-8	Village 1, Village 2, Village 3, Village 6, Village 7, Village 9, Village 8 West, Village 4 South, Business Park West, Business Park Central, Business Park East, Institutional & Civic	West/Northwest	25% via internal roadway toward Village 3	30% of Village 1	1,135	0:52
				25% via internal roadway toward Village 7	30% of Village 2	738	0:57
				25% via internal roadway toward Business Park	Village 4 South	2,269	0:48
				25% via internal roadway toward Institutional & Civic	Village 9	3,264	2:58

Table 2. Evacuation Time Summary

Scenario	Phases	Build Land Use	Fire Approach Direction	Evacuation Direction/ Routes	Area Under Evacuation	Evacuating Vehicles	Evacuating Time (Hr:Min)
13	Phase 1-10	Buildout	South/ Southeast	25% via SR-138 westbound toward I-5	Business Park West	1,875	1:07
				25% via internal roadway toward Village 1	Business Park Central	1,250	0:55
				25% via internal roadway toward Village 3	Business Park East	1,186	1:32
				25% via internal roadway toward Village 6/Village 5	30% of the Institutional & Civic	887	0:26
				—	50% of Village 7	1,490	1:32
				—	Village 8 East	3,678	2:20
14	Phase 1-10	Buildout	North/Northeast	25% via internal roadway toward Village 1/Village 2	30% of Village 4	1,284	0:51
				25% via internal roadway toward Village 3	Village 5	10,333	6:41
				25% via internal roadway toward Village 7/Institutional & Civic	30% of Village 6	1,046	0:34
				25% via SR-138 Westbound toward Business Park	Village 8 West	1,922	4:32
				—	Village 8 East	3,678	3:06
15	Phase 1-10	Buildout	West/Northwest	25% via internal roadway toward Village 3	30% of Village 2	738	1:11
				25% via internal roadway toward Village 7	50% of Village 4	2,140	1:08
				25% via internal roadway toward Business Park	50% of Village 5	5,167	2:37
				25% via internal roadway toward Institutional & Civic	Village 9	3,264	1:53

In any populated area, safely undertaking large-scale evacuations may take several hours or more and require moving people long distances to designated areas. Further, evacuations are fluid and timeframes may vary widely depending on numerous factors, including, among other things, the number of vehicles evacuating, the road capacity to accommodate those vehicles, residents' awareness and preparedness, evacuation messaging and direction, and on-site law enforcement control. The "Best Practices for Analyzing and Mitigating Wildfire Impacts of Development Projects Under the California Environmental Quality Act" guidance from the California Office of the Attorney General suggests that jurisdictions set benchmarks of significance based on past successful evacuations or on those from communities in similar situations. Safely undertaking large-scale evacuations is a complicated process that involves many factors that cannot necessarily be determined in advance. A large scale evacuation may take several hours or more and require moving people long distances to designated areas. Further, evacuations are fluid and timeframes may vary widely depending on numerous factors, including, among other things, the number of vehicles evacuating, the road capacity to accommodate those vehicles, occupants' awareness and preparedness, evacuation messaging and direction, and on-site law enforcement control.

Technological advancements and improved evacuation strategies learned from prior wildfire evacuation events have resulted in a system, reflected in the EOPs and the experience of the people tasked with coordinating events, that is many times more capable of managing evacuations. With the technology in use today in the City and County, evacuations are more strategic and surgical than in the past, evacuating smaller areas at highest risk and phasing evacuation traffic so that it flows more evenly and minimizes the surges that may slow an evacuation. Mass evacuation scenarios where large populations are all directed to leave simultaneously, resulting in traffic delays, are thereby avoided, and those populations most at risk safely evacuate.

Due to its location, the Project would also provide the responding emergency managers (e.g., incident commander, Los Angeles County Sheriff) the alternative option of recommending that all or a portion of the onsite population shelter in place. This on-site sheltering option is a contingency plan, but an important option in the scenario when evacuation is considered infeasible or the less safe option. This would provide emergency managers with a safer alternative to risking a late evacuation.

Overall, as presented in this WETR, safe evacuation of the Project and surrounding community is possible in all modeled scenarios and would not be expected to expose people or structures to a significant risk of loss, injury or death. Also, because the Project site is a large area of ignition resistant, urbanized landscapes, it is not anticipated that the entire community would be relocated off-site during a wildfire event in the grasslands that are adjacent to the Project's protective fuel modification zones. Further, like any new, large community or larger, urbanized area, Centennial will provide numerous opportunities throughout the site for on-site relocation and sheltering in place as a contingency option to evacuation off-site.

In support of this WETR's analysis that sheltering in place is a viable contingency option during most wildfire events anticipated to be experienced at the Centennial site, the following section provides an overview of how master planned communities built to the ignition resistant standards required for Centennial have performed during wildfires. These results indicate a lack of significant fire impacts within these communities.

7 Wildfire Safety of Master Planned Communities

7.1 History of Master Planned Communities

Master-planned communities are large developments, often in rural or remote areas, made of multiple residential and building use types. The residential buildings may include single family or multi-family homes, that are all built to meet a similar aesthetic standard. These communities also often include amenities such as restaurants, parks, pools, recreation areas, office space and retail shops within walking distance of the residential areas. The Centennial master-planned community at Tejon Ranch will include amenities zones such as business parks, commercial, retail, institutional, open spaces, parks, lakes, and schools.

Almost 50% of the master planned community is designated as a preserved open space area, that will be regularly grazed and maintained through brush removal. The open space that surrounds the proposed development, as seen in Figure 3- Project Site Plan, allows for proper defensible space regulations, fuel modification zones (FMZ), to be met for the protection of homes and other buildings in the community.

A FMZ is a strip of land where combustible vegetation has been removed and/or modified and partially or totally replaced with more adequately spaced, drought tolerant, fire-resistant plants, in order to provide a reasonable level of protection to structures from wildland fire. FMZs are designated to provide vegetation buffers that gradually reduce fire intensity and flame lengths from advancing fire by strategically placing thinning zones, restricted vegetation zones, and irrigated zones adjacent to each other on the perimeter of the WUI exposed structures. New Fire and Building Codes

Newly developed master-planned communities will follow all new housing laws, building codes and fire codes to ensure the safety of occupants in the event of a wildfire or hazard. As stated above, many master-planned communities are developed in rural areas, new housing laws and legislature do not preclude the development of these communities in high or very high fire hazard severity zones, instead they abide by the stringent regulations that now apply to modern development.

Being in the Wildland Urban Interface (WUI) places these communities at a higher risk for facing the threat of a nearby wildfire encroaching on homes. Stringent building regulations aid in the process of making homes ‘ignition-resistant’, the process is also commonly known as ‘home hardening’. In the event a wildfire does burn near these communities, the homes are more likely to withstand flames, extreme heat, or potential ember-cast. Following these regulations also allows for residents to shelter in place, in the event of an emergency in which they are not able to evacuate.

The following is a list of current applicable codes and regulations to the Project; however the Project will be required to comply with the code edition in effect at the time of the building permit submittal.

California Wildland-Urban Interface Code

With the adoption of the 2025 codes on January 1, 2026, all wildfire protection and safety related requirements formerly located in the CBC, CFC, and CRC have been consolidated into the CWUIC, specifically:

- **Chapter 3:** Wildland-Urban Interface Areas, which includes provisions from the Public Resources Code and Government Code.
- **Chapter 4:** Wildland-Urban Interface Area Requirements, which includes provisions from Title 14, State Minimum Fire Safe Regulations.
- **Chapter 5:** Special Building Construction Regulations, which includes the Materials and Construction Methods for Exterior Wildfire Exposure from CBC Chapter 7A.
- **Chapter 6:** Fire Protection Requirements, which includes the Requirements for Wildland-Urban Interface Areas from CFC Chapter 49.

These requirements apply as adopted and amended by Los Angeles County at the time of construction. Additionally, LACoFD references the National Fire Protection Association (NFPA) and California Public Resources Code (PRC) for clarification and interpretation of applicable fire protection requirements.

California Building Code

Title 24, Part 2, Chapter 7A includes regulations addressing the acceptable materials and construction methods for exterior wildfire exposure and applies to new buildings located in a State Responsibility Area in any Fire Hazard Severity Zone or any Wildland Urban Interface area. Chapter 7A details regulations for required Fire Protection Plans, fire resistant vegetation, ignition resistant construction, and requirements on buildings size and distance from buildings of accessory buildings and miscellaneous structures.

California Fire Code

Title 24, Part 9 establishes regulations to safeguard against the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The Fire Code also establishes requirements intended to provide safety for and assistance to firefighters and emergency responders during emergency operations. The provisions of the Fire Code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure throughout California. The Fire Code includes regulations regarding fire-resistance-rated construction, fire protection systems such as alarm and sprinkler systems, fire services features such as fire apparatus access roads, means of egress, fire safety during construction and demolition, and wildland-urban interface areas.

California Public Resources Code

CPRC Section 4291 addresses requirements for the ownership, operation and/or maintenance of buildings in, upon or adjoining to a mountainous, forested, brush or grass covered land, or land that contains flammable material areas, specifically the on and off-site vegetation to prevent wildfire damage. Section 4291 discusses the regulations of defensible space, fuel modification

zones, clearance beyond the property line, insurance company requirements for vegetation clearance away from homes, and chimney and stovepipe safety.

California Code of Regulations

Title 14, Division 1.5, Chapter 7, Subsection 2, Articles 1-5 detail fire safe regulations for building, construction and development in a Cal Fire State Responsibility Area. Specifically, these articles discuss the classification of private lands, fire extinguisher test standards and procedures, fire prevention standards for multi-position small engines, fire prevention standards for electric utilities, and standards for cooperative fire protection contracts during the non-fire season.

Title 14, Division 1.5, Chapter 7, Subsection 3, Section 1299 discusses the regulations of fire hazard reduction around buildings and structures, specifically defensible space requirements, additional clearance, and alternative methods that may be acceptable if minimum defensible space requirements cannot be met.

Title 19, Division 1, Chapter 7, Subchapter 1, Section 3.07 discusses the regulations for clearances around buildings regarding safe storage of combustible materials. The regulation states that no combustible material shall be places or stored within 10 feet of any building, and all buildings and structures must have a defensible space around them.

California Government Code

Title 5, Division 1, Part 1, Chapter 6.8, Sections 51175-51182 discuss the process of determining how Very High Fire Hazard Severity Zones are designated, as well as regulations for building and maintaining defensible space in areas designated by Cal Fire as a Very High Fire Hazard Severity Zone.

California Residential Code

Section 327 addresses aging in place design. This code addresses the regulations for newly constructed dwellings stating they must be designed and constructed with aging-in-place considerations such as reinforcement for grab bars in bathrooms, and spacing requirements for individual units within a structure must be separated by at least 3 feet. The code also details compliance with fire safety measures.

Assembly Bill 2011, Extension of Senate Bill 35

Assembly Bill 2011, the primary housing production bill of the 2022 legislative session, creates a ministerial, California Environmental Quality Act (CEQA)-exempt, time-limited approval process for multifamily housing developments on commercially zoned property. AB 2011 is an extension of Senate Bill 35. AB 2011 allows SB 35 to continue facilitating new housing beyond the initial time frame of until 2025.

7.1.1 Fire Resilience and Evacuation Preparedness in Centennial

Built in accordance with the CFC and CBC stated above, the Centennial master-planned community will be built to the highest standards of safety, with fire protection and evacuation readiness at the forefront of their building goals. As detailed in the Centennial Specific Plan, a minimum of 5,620 acres of preserved open space at Centennial will be actively and professionally managed using grazing and brush clearance techniques with the goal of preventing fires.

Modern construction and infrastructure practices will meet the most recent standards of the CBC and CFC. All planned onsite utility lines will be buried undergrounded, and the Highway 138 road improvements will be built and maintained to help further reduce fire risk and provide better emergency egress, while also serving as a fuel break and hardened defensible space for the community nearby.

A fuel modification plan will be prepared and coordinated with Los Angeles County Fire Department to incorporate Fuel Modification Zones and buffer zones of between 100-200' wide, for wildfire prevention. Landscaping throughout the Project is recommended to be native, drought tolerant species, optimally fire-resistant plants, and have specific requirements for maintenance and irrigation. Landscaping shall not use plants listed in the Southern California Undesirable Plants List (Appendix D). Fuel modification zones will be implemented and maintained by the HOA(s) of the Project, following guidance provided by the Los Angeles Fire Department.

Furthermore, Centennial plans to construct a minimum of three and up to four fire stations in the community, that would be available to assist in the event a wildfire began. These new fire stations would have the capability to deploy a rapid initial attack and decrease the probability of wildfire spread into the community.

7.1.2 Shelter in Place Capabilities

Although evacuation is typically advised as the first response to an emergency, it is not always the safest. If evacuating would lead evacuees into the path of the fire, or if people needing to evacuate did not have ample time to do so safely, sheltering in place may become the next best option to staying safe during a wildfire. Shelter-in-Place is the use of a structure to temporarily separate individuals from a hazard or threat. Sheltering in place should only occur when the first responders, emergency management team, or incident command inform occupants that it is the safest option.

In order for entire communities to be considered for Shelter-in-Place, they must abide by certain regulations. The entire community must be designed and built to have ignition-resistant design qualities including, but not limited to:

- A well-maintained, irrigated, fire department approved landscape
- Adequate roadway and driveway widths, designed to accommodate two-way traffic and large firefighting apparatus
- Adequate water supply and water flow for firefighting efforts
- Fuel modification zones surrounding the community and individual homes

In addition, each home should be built with the following ignition resistant features:

- Ignition resistant exterior walls. Any wood siding must be treated.
- Eaves must be boxed or constructed of heavy timber and all vents must be screened to prevent fire embers from entering the inside of your home
- Windows must be dual pane, tempered glass
- Chimneys must have spark arrestors
- Roofs must be comprised of Class A, non- combustible materials like tile, slate, cement, asphalt or metal. Wood shingles are unacceptable materials for roofing.
- Wood fences must be at least 5 feet from the house
- Trellises, patio covers and other auxiliary structures must be made with non-combustible materials. Structures covering must remain at least 50% open or a Class A roof
- Decks must be non-combustible or constructed of heavy timber or fire retardant wood
- Landscape must be well maintained, irrigated and fire resistant
- A minimum requirement of 100 feet of defensible space around the home, following the Cal Fire protocol for defensible space zones.

In addition, residents should be directed as follows:

- If it is impossible to evacuate and the situation requires a shelter in place order, the following list details suggestions by SafeHome (SafeHome 2024) on how to do so safely.
- Turn off the house's propane and/or natural gas
- If possible, wet the yard and roof with a sprinkler. Fill sinks and bathtubs with water
- Close all inside doors to slow the spread of fire in the house
- Turn off devices that circulate air through the house (i.e., fans)
- Have a cellphone, fire extinguisher, bottled water, battery powered radio, and flashlight with extra batteries on-hand
- Shelter in a hallway or room in the middle of the home- avoid the homes perimeter walls

7.2 CBIA Fire Safety Analysis

In January 2022, the Coalition of California Home Builders and Businesses, along with former State Fire Marshall and CalFire Director, Ruben Grijalva, commented on the Board of Forestry's Fire Safe Regulations (Grijalva 2022). Their efforts were aimed at achieving the following modifications to the current Fire Safe Regulations:

1. Approved master-planned communities that address fire safety and protection should be grandfathered to avoid a regulatory do-loop that would severely harm the production of much needed housing.
2. The regulations must account for (and take advantage of) the differences and fire safety benefits associated with master-planned communities.
3. The regulations must provide flexibility and a right to seek exceptions to avoid unintended consequences, the risk of which is high given the substantial expansion in regulatory scope from the State Responsibility Area (SRA) to the Local Responsibility Area (LRA).

To support these comments, an analysis was conducted to determine how new homes built following new WUI regulations (conservatively, after January 1, 2010) fared in the 10 worst property-loss fires compared to homes built prior to 2010 (Grijalva 2022a). Data was obtained from the State Fire Marshall (SFM). Regulatory standards for new construction include the SFM's fire hardening building standards, defensible space mandates and Cal Fire's Fire Safe Development Standards. The analysis proved that on average, for the 9 worst property loss fires dating back to 2017, only ~1% of the homes and apartments destroyed, damaged, or affected were new dwellings. Additionally, it was commonly found, aside from one instance, that new homes built next to each other were not both destroyed. This analysis shows that new homes are fire protective individually, but also help resist the spread of fire within residential areas.

Case studies were also provided in support of their comments (Grijalva 2022b). The case studies show aerial "before and after the fire" images of the communities at risk by the Silverado Fire (2020), Freeway Complex Fire (2008), and the Simi Fire (2003). The communities at risk survived the fire with no homes lost or damaged. The case study accredited: the Fire Protection Plans role in the development, Fuel Modification Zones including perimeter orchards, perimeter roads, and fire-resistant homes with non-combustible roofs as the reason the homes survived these fires. Other relevant articles were cited with excerpts pulled from the texts stating that wildfire preparedness at the forefront of building initiatives have proven to be extremely useful in protecting homes during a wildfire event.

8 Wildfire/Evacuation Awareness

The Project should be active in its outreach to all occupants regarding fire safety and general evacuation procedures. There are aspects of fire safety and evacuation that require a significant level of awareness by all occupants 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 Project will engage occupants and coordinate with local fire agencies for fire safety awareness through a variety of methods.

The Project will implement an Emergency Response Plan informing residents, employees and visitors of potential emergency response scenarios that would typically occur during large wildfire events, including on and off-site evacuation procedures and other information included in this WETR. The Project is recommended to conduct an annual fire relocation and evacuation drill to train staff and fire personnel, and the procedures will be enforced through pre-drill public relations and post-drill information dissemination. Homeowners will receive ongoing outreach from the HOA along with coordination with LACoFD for fire safety awareness from the Firewise Committee/Board.

The focus of the "Ready, Set, Go!" program is on public awareness and preparedness, especially for those living in the wildland-urban interface (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 that residents are ready when a wildfire occurs. Occupants will create defensible space by clearing brush away from buildings as detailed in the Project's FPP (Dudek 2024). Additionally, occupants will use only fire-resistant landscaping and maintain the ignition resistance of buildings onsite. Residents should assemble emergency supplies and belongings in a safe spot, confirm registration with the County's Alert LA County system, and the HOA should provide awareness of the evacuation study for all individuals residing within the Project and guests.
- **"SET" – Situational Awareness When a Fire Starts:** If a wildfire occurs and there is potential for it to threaten the Centennial community, pack vehicles with emergency items. Stay aware of the latest news from local media, County of Los Angeles and LACSD for updated information on the fire. If uncomfortable, one should leave the area.
- **"GO!" – Leave Early!** Following an evacuation plan provides one with knowledge of the situation and how to approach evacuation. Leaving early—well before a wildfire is threatening the community—provides one with the least delay and results in a situation where, if a majority of individuals 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 the community) is dangerous and exacerbates an already confusing situation. This WETR provides key information that can be integrated into the evacuation plans, including the best available routes for them to use in the event of an emergency evacuation.

Situational awareness requires a reliable information source. One of the most effective public notification methods is Reverse 9-1-1. The Los Angeles County OEM operates the notification system that provides a recorded message over landline telephone systems relating to evacuation notices. In addition, the OEM operates a program known as Alert LA County that has the capability to send emergency notifications over both landlines as well as to cell phones and via text messages. The Project's Fire Safety Coordinators will encourage residents to register cell phone numbers and email addresses with Alert LA County annually. The registration of cell phones can be done online at https://lacounty.gov/emergency/alert-la/.

As part of the Project, this WETR will be accessible on the website (e.g. HOA or Property Management) for all future developments. It is also recommended that all future HOAs or Property Management Companies identify a Fire Safety Coordinator(s) that is responsible for:

1. Preparing and distributing the annual reminder notice that shall be provided to each occupant encouraging them to review this WETR and be familiar with community evacuation protocols.
2. Coordination with local fire agencies to hold an annual fire safety and evacuation preparedness informational meeting for occupants. The meeting should be attended by representatives of appropriate fire agencies and important fire and evacuation information should be reviewed.
3. Maintaining fire safety information on the development's website, including the WETR and materials from the "Ready, Set, Go!" Program.

For non-residential uses, Fire Safety Coordinators should also be responsible for:

1. Coordinating an annual fire evacuation drill/fire exercise to confirm proper safety measures have been implemented, facility awareness and preparation of a community-wide "Ready, Set, Go!" plan. The Fire Safety Coordinators will also organize employee training and awareness through various practices:
    a. New hire fire awareness and evacuation training
    b. Ongoing staff training
    c. Strategically placed fire safety and evacuation/sheltering protocol information, as determined by the Fire Safety Coordinators.

9 Project Funded Evacuation Outreach

1. All Project implementing developments will include a proactive wildfire education program utilizing a multi-pronged approach to fire safety following the "**Ready, Set, Go!**" approach to wildfire evacuation, to include, but not limited to:
    a. Annual wildfire and evacuation safety awareness meeting in coordination with local fire agencies.
    b. Annual reminder notices will be provided to each occupant encouraging them to review this WETR and be familiar with evacuation protocols.
    c. The development's website will host a webpage dedicated to wildfire and evacuation education and awareness, which should include a copy of this WETR and the resources provided herein.
2. All HOAs and Property Managers for developments within the Project will designate a Fire Safety Coordinator(s) to oversee implementation of the wildfire education program. The Fire Safety Coordinator(s) will:
    a. Prepare and distribute the annual reminder notice that shall be provided to each occupant encouraging them to review this WETR and be familiar with community evacuation protocols.
    b. Coordinate with local fire agencies to hold an annual fire safety and evacuation preparedness informational meeting for occupants. The meeting should be attended by representatives of appropriate fire agencies and important fire and evacuation information should be reviewed.
    c. Maintaining fire safety information on the development's website, including the WETR and materials from the "Ready, Set, Go!" Program.

For non-residential uses (e.g., commercial, institutional) Fire Safety Coordinator(s) will also:

    d. Coordinate an annual fire evacuation drill/fire exercise to ensure proper safety measures have been implemented, facility awareness and preparation of a community-wide "Ready, Set, Go!" plan. The Fire Safety Coordinator(s) will also organize employee training and awareness through various practices:
        i. New hire fire awareness and evacuation training
        ii. Ongoing staff training
    e. Strategically place fire safety and evacuation/sheltering protocol information
3. The Project includes a contingency plan for the rare occurrence that evacuation is not safe that includes occupants sheltering in place within onsite structures.

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10 Limitations

Wildfire Evacuation Technical Report ("WETR")

This section details basic evacuation information that will familiarize Project occupants with alternate bodily and property options that may be available to them during an emergency; mindful, however, that real-time law enforcement and fire personnel/agencies' decision-making and direction during an emergency requiring evacuation is of utmost importance and must be adhered to.

This WETR analyzes the existing community's evacuation times currently, and assuming the construction of the Project as it relates to wildfires; however, the components of the plan may also be useful in similar situations, as noted above. The estimated evacuation times are based on several assumptions detailed further below in this WETR. However, actual evacuation times may be faster or slower than the estimates, depending on the type of emergency, the extent of the evacuation, its gravity, the time of day, and other factors. A collective, community–wide evacuation of existing populations and the proposed population from the Project would include congested roads in its existing condition that are improved, but still congested with the Project. Congested roads are normal in any urban setting when a large evacuation is declared unless it is managed appropriately (*e.g.*, evacuation areas are staggered to reduce the potential traffic surges that can significantly impact evacuations), and thus potentially could be counterproductive. Therefore, there would still be the potential for congestion and delays.

This WETR promotes the "Ready, Set, Go!" model, adopted by County of Los Angeles, CAL FIRE, and many fire agencies statewide. The goal is to raise agency and citizen awareness of potential evacuation issues and get a majority of the public "Ready" by taking a proactive stance on preparedness, training drills, and resident education, and evacuation planning efforts.

The Project populace will be "Set" by closely monitoring the situation whenever fire weather occurs and/or when wildfire occurs and elevating pre-planned protocol activities and situational awareness.

Lastly, fire or law enforcement officials will mandate that populations "Go" by executing pre-planned evacuation procedures. The preferred alternative, initially, may well be early evacuation. However, there may be instances when evacuation is not possible, is not considered safe, or is not an option based on changing conditions, or other factors.

The Project also is designed specifically to maintain an enhanced resistance to wildfire ignition and perform as a fire adapted Project, offering fire and law officials with additional options for safety to the populace compared to those options available to less thought-through projects.

As noted, this WETR does not and cannot provide a guarantee that all persons and property will be unaffected because of the considerations presented herein for further development and refinement, including, as noted, in-place versus evacuation protocols, suggested roadway enhancements, increased effectiveness of traffic measures, ignition resistance measures, public outreach, program maintenance and updates by local authorities in conjunction with owner, occupant, and worker input and participation, with an overall goal of instilling a heightened sense of awareness and preparedness in the event of an incident. Fire is a dynamic and unpredictable occurrence, and it is important for those in a high fire severity zone to educate themselves on practices that will improve safety and that will be able to be implemented at the individual level rapidly and effectively, albeit in combination with protocols and "in-the-field" decision making of emergency responders.

Summary – Vehicle Travel Time Scenarios

This WETR presents a reasonable vehicle travel time estimate based on professional judgments made by CRA, taking into consideration input from Dudek and other resources. Changing any number of these assumptions can lengthen or shorten the average vehicle travel time. For instance, a situation could arise in which professionals *may* choose to utilize additional roadways for evacuation not utilized in the Dudek/CRA analysis and *may also* choose to send more vehicle trips to certain evacuation routes and *may also* choose to guide vehicle trips to more or different route permutations relative to what has been modeled in this the Dudek/CRA analysis. The net result of changing the variables selected could yield an average evacuation travel time shorter or longer than the results detailed in the Dudek/CRA analysis.

Many factors can shorten or lengthen the vehicle time from the results shown herein. For example:

Changing the possible evacuation routes selected would affect the results. For instance, utilizing roads for ingress and/or egress that are not utilized in this analysis could shorten vehicle travel times relative to the results shown herein.

Increasing or decreasing the number of path permutations and percentage of the population utilizing each route that leads out of the immediate area could shorten or lengthen vehicle travel time relative to the results shown herein.

Emergency professionals electing to reserve certain road lanes for emergency vehicle ingress for portions of time could affect the travel time relative to the results shown herein.

Assuming evacuees utilize fewer or more vehicles to evacuate from the Project or surrounding communities relative to the Vehicle Utilization Rate selected in the analysis would shorten or lengthen vehicle travel time relative to the results shown herein.

Changing the mix of vehicle trips allocated to each evacuation route could shorten or lengthen vehicle travel time relative to the results shown herein.

Assuming a different road capacity adjustment factor could shorten or lengthen the vehicle travel time relative to the results shown herein.

Assuming fewer people are at home when the evacuation notice is given would reduce the number of vehicle trips and shorten vehicle travel time relative to the results shown herein. For instance, an evacuation during daytime hours would typically result in fewer outbound trips than assumed in this analysis.

Assuming some portion of vehicle trips are made in advance of the evacuation notice would reduce the number of vehicle trips relative to the results shown herein.

Assuming some homeowners and their families are not in the Study Area when evacuation notice is given (most likely in a daytime evacuation event), could reduce the number for vehicle trips relative to the results shown herein.

Limitation On Reliance or Dependence Upon Report

Any person or entity furnished with this report and/or who reviews it agrees that the advance written consent of Dudek be sought and furnished to such person or entity prior to the review, reliance or authorization as to any

matters that are the subject of the reports by any person or entity (whether through act or omission as set forth in the report), other than Dudek's direct client. In such case, obtaining Dudek's consent shall not be subject to any fee or charge (other than reasonable copy costs, where applicable).

Dudek expressly disavows, does not assume any responsibility for, nor will be liable for any claims, losses, or damages associated with any matters that are the subject of this or other reports it prepares or contributes to respecting this project, however characterized (including without limitation as sounding in tort, breach of contract, misrepresentation by act or omission, failure to adhere to applicable standards of professionalism, statutory liability, etc.), whether in law or equity, whether known or unknown, and whether actual or contingent, excepting only Dudek's direct client, as to which the limitation of liability provisions in the contract between Dudek and its client shall govern.

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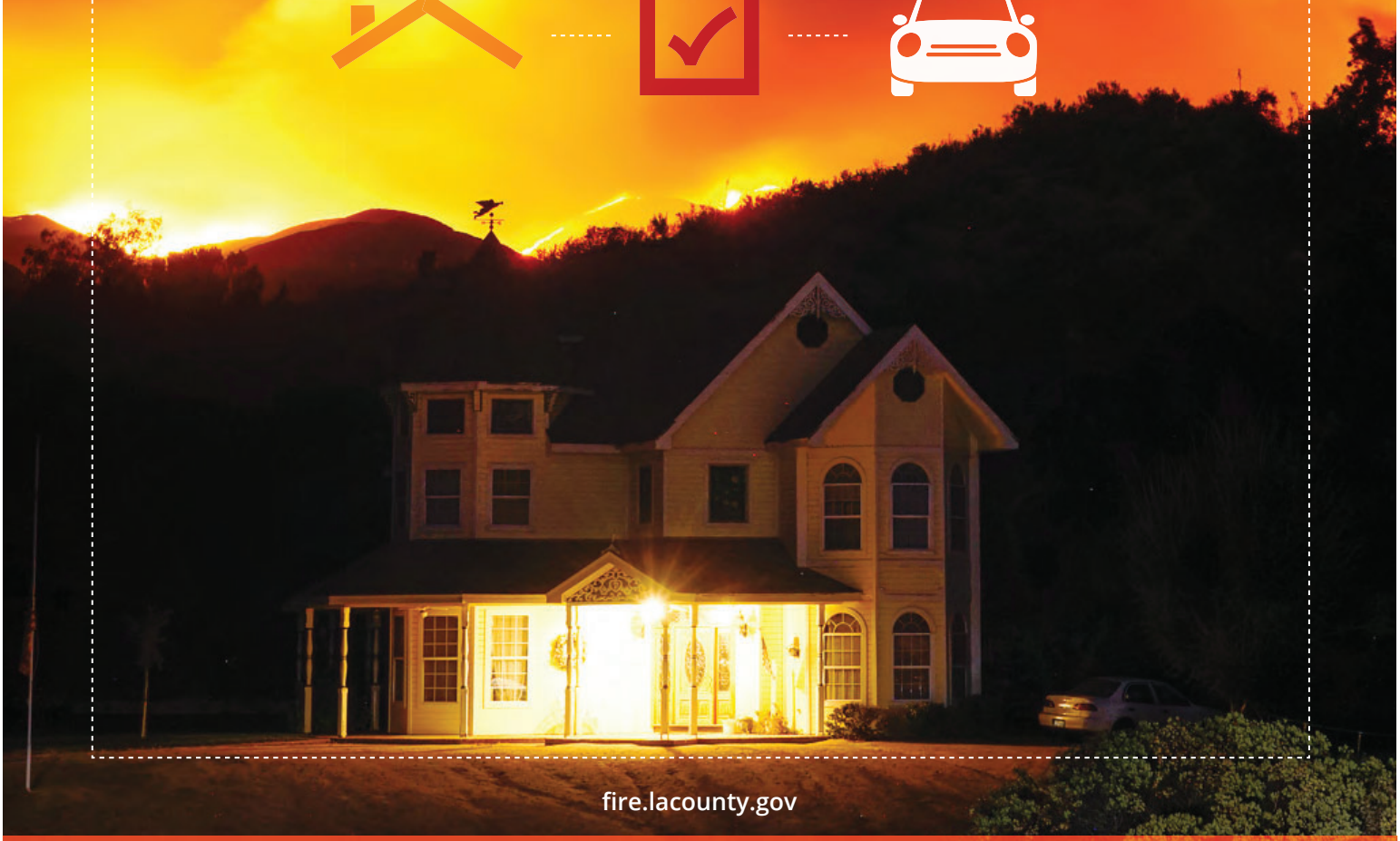
Appendix A

LACoFD Emergency Preparedness Guide
"Ready, Set, Go!" Wildfire Action Guide

READY! SET! GO!

YOUR PERSONAL WILDFIRE ACTION PLAN



fire.lacounty.gov

MESSAGE FROM FIRE CHIEF DARYL L. OSBY

Dear Residents,

Los Angeles County is one of the most beautiful places to live, but for those living in "wildland urban interface areas," it does not come without risks. Climate change has made fire season year-round and increased our ever-growing number of wildfires. Firefighters and residents alike are now constantly on heightened alert for the threat of wildfires.

The Los Angeles County Fire Department, along with our partnering agencies, stand ready to quickly respond to contain wildfires, utilizing our firefighting resources from the air and ground to help protect you and your property from wildfire.

But, we can't do this without your cooperation. Preparation and prevention go hand-in-hand. This *Ready! Set! Go!* brochure was designed to provide you with critical information on creating defensible space around your home, retrofitting your home with fire-resistant materials, and preparing you to safely evacuate well ahead of a wildfire. Please protect yourself, your family, and your property from a devastating wildfire by taking the time to learn about *Ready! Set! Go!*

In Los Angeles County, wildfires will continue to be fueled by a build-up of seasonal dry vegetation and driven by dry conditions and locally strong winds, making them extremely dangerous and challenging for firefighters to control. Yet, many homeowners don't consider how a wildfire could affect them, and very few residents have properly prepared for evacuation until it is too late.

You play the most important role in protecting yourself, family, and property. Through planning and preparation, we can all be ready for the next wildfire. I hope you find the information in this brochure helpful as you prepare your home and family for a wildfire.

As always, if you need additional information about preparing for a wildfire or any other natural disaster, please contact your nearest fire station or visit us at fire.lacounty.gov.

Daryl L. Osby
Los Angeles County Fire Chief

INSIDE

READY!

Wildland Urban Interface

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The *Ready!Set!Go!* program is supported by the following partner agencies:

READY!

Living in the Wildland Urban Interface

Ready! Set! Go! begins with a house that firefighters can defend.

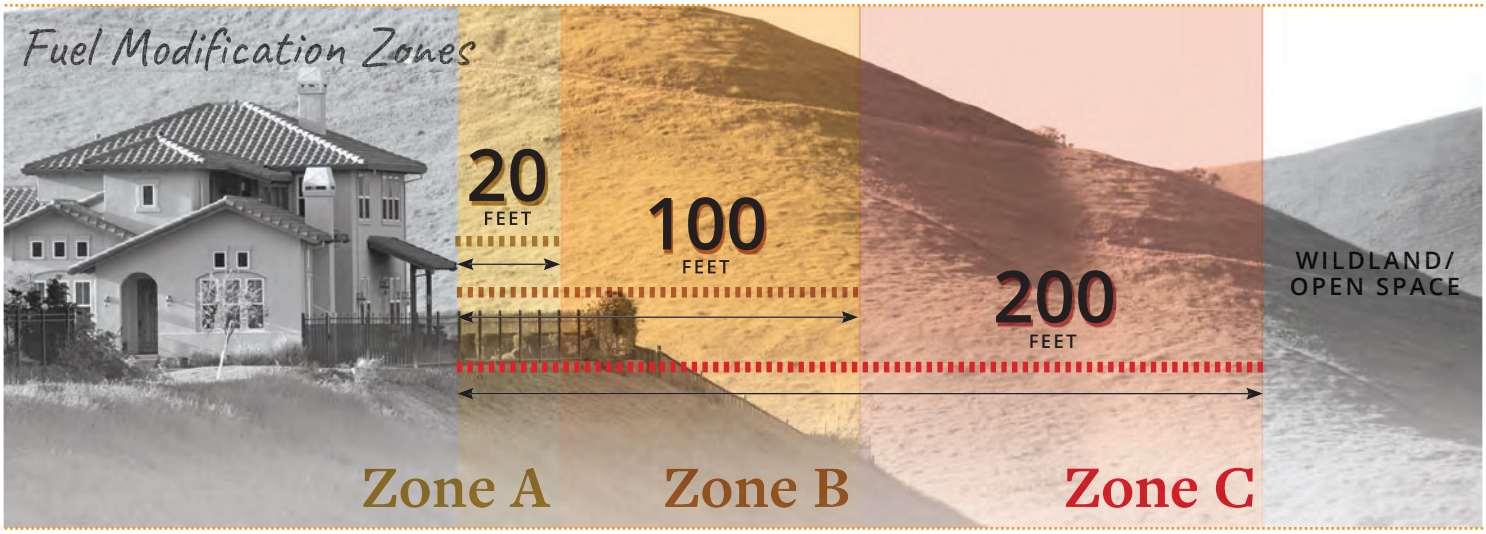
Create a Defensible Home

A defensible home is a home that has the greatest potential for surviving a wildfire. Defensible homes are those that are in compliance with the Los Angeles County Fire Department's Defensible Space requirements or have been through the Fire Department's Fuel Modification Plan Review Program, and have been constructed in accordance with the latest building standards for the fire zones.

What Is Fuel Modification?

The Fuel Modification Plan Review Program affects new structures and developments built in the fire hazard severity zones. A Fuel Modification Plan, submitted by applicants, reviews landscaping plans and identifies areas of defensible space within all fuel modification zones around structures.

For further information please visit: bit.ly/fuelmod



Zone A — EXTENDS 20 FEET FROM STRUCTURE

- Vines and climbing plants shall not be allowed on any combustible structure.
- Irrigated area consisting of low-growing, small herbaceous plants with high-moisture content immediately around structures.
- Occasional accents of woody shrubs or an occasional small patio tree ten feet from structure, if widely spaced and zone appropriate as well as eliminating annual grasses and leaf litter help prevent direct-flame impingement on the structure.

Zone B — EXTENDS UP TO 100 FEET FROM STRUCTURE

- Also irrigated with an approved slightly dense planting avoiding woody plant species larger than 3 feet at maturity beneath any tree canopy.
- Introducing shade trees that are zone appropriate with adequate spacing by eliminating continuous canopy coverage and continuous fuels to minimize fire transmission.
- Screen plantings can be used; however, continuous hedging is discouraged as it promotes the accumulation of dead litter inside the live hedge.

Zone C — EXTENDS FROM ZONE B OUTER EDGE UP TO 200 FEET FROM STRUCTURE

- Thinned to remove dead vegetation and prevent overgrowth.
- Designed to slow the fire's progress and reduce its intensity by decreasing the availability of continuous fuels.
- Native vegetation thinned 30 to 50 percent in Zone C.

Ideal Fuel Modification Landscape:

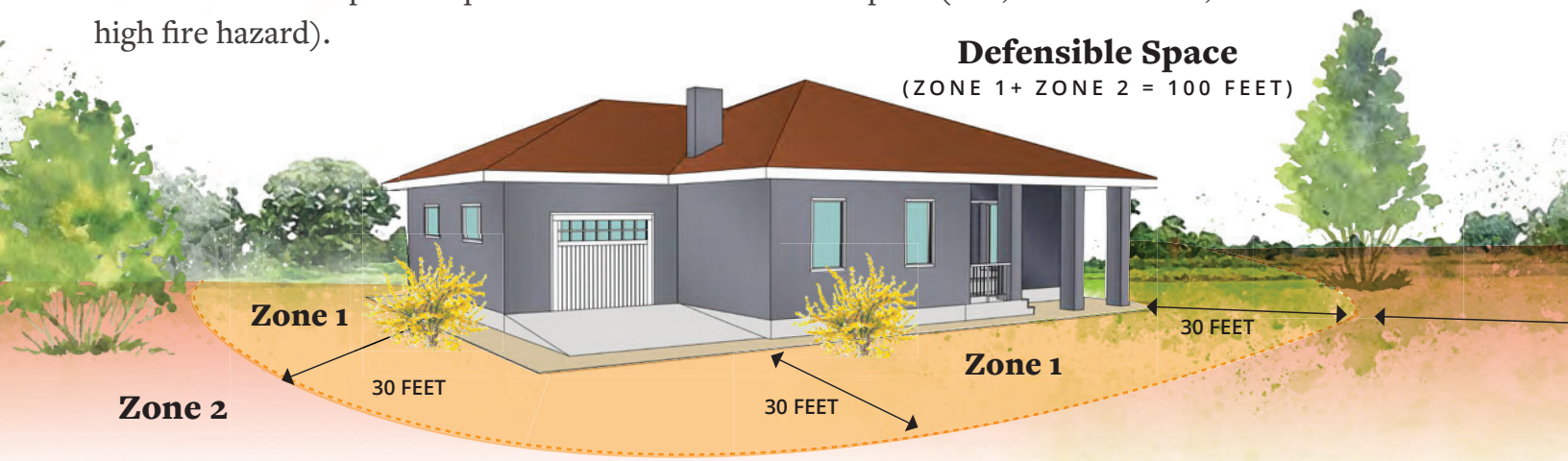
Limited woody plant material, high moisture content, adequate spacing and inorganic mulch thoughout Zone A.

READY!

Defensible Space

Creating and maintaining defensible space are 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. The defensible space for each structure varies, depending on the type of vegetation and topography.

Two zones make up the required 100 feet of defensible space (and, in some cases, 200 feet due to high fire hazard).



Zone 1

Extends 30 feet out from buildings, structures, decks, etc.

- Remove all dead or dying vegetation.
- Remove dead or dry leaves and pine needles from your yard, roof, and rain gutters.
- Trim trees regularly to keep branches a minimum of 10 feet from other trees.
- Remove dead branches that hang over your roof. And, keep branches 10 feet away from your chimney.
- Relocate exposed woodpiles outside of Zone 1 unless they are completely covered in a fire-resistant material.
- Remove vines and climbing plants from combustible structures (e.g. bougainvillea, wisteria)
- Remove or prune vegetation near windows.
- Remove vegetation and items that could catch fire from around and under decks.
- 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.

(Note: The inspecting officer may require an additional 100 feet of thinning or removal, for a total of 200 feet due to high-fire hazard.)

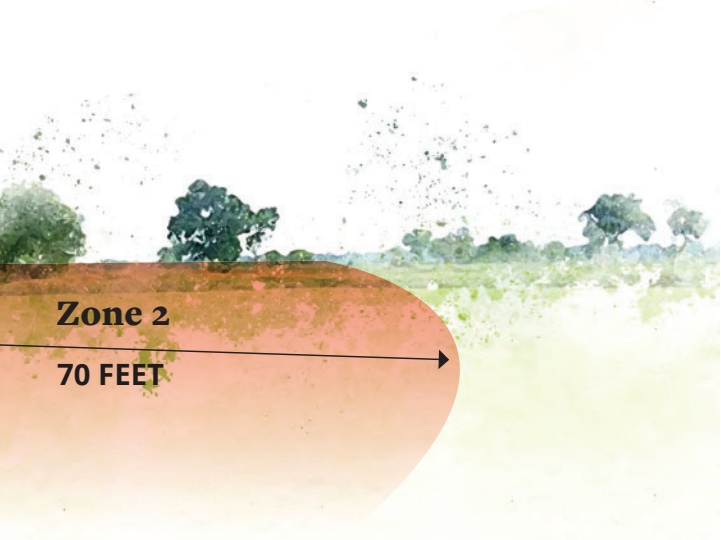
- Cut or move annual grass down to a maximum height of four inches.
- Create horizontal spacing between shrubs and trees.
- Create vertical spacing between grass, shrubs, and trees.
- Remove fallen leaves, needles, twigs, bark, cones, and small branches. However, they may be permitted to a depth of 4 inches if erosion control is an issue.

  Note: Special attention should be given to the use and maintenance of ornamental plants known or thought to be high-hazard plants when used in close proximity to structures. Examples include Acacia, Cedar, Cypress, Eucalyptus, Italian Cypress, Juniper, Palms (remove all dead fronds), Pine (removal within 20' of structures) and, pampas grass. These plantings should be properly maintained and not allowed to be in mass plantings that could transmit fire from the native growth to any structure.

READY!

HAZARDOUS
ORNAMENTAL LANDSCAPE

Preventing conditions where fire can travel from adjacent fuels, through an ornamental landscape to your structure, is the key to creating defensible space. Fire spreads through convection, conduction, radiation, or embers. Proper maintenance of ornamental vegetation reduces ember production, fire propagation, intensity, and duration of the approaching flames.



HIGH-HAZARD PLANTS

Acacia (Shrub)

Eucalyptus

Juniper

Palm

Pine

Pampas Grass

This home provides a good example of defensible space.

Firefighters in defensible space during a wildfire.

READY!

Safeguard or "Harden" Your Home

The ability of your home to survive a wildfire depends on its construction materials and the quality of the "defensible space" surrounding it. Windblown embers from a wildfire will find the weak link in your home's fire protection scheme and gain the upper hand because of a small, overlooked or seemingly inconsequential factor. However, there are measures you can take to safeguard your home from wildfire. While you may not be able to accomplish all of the measures listed below, each will increase your home's - and possibly your family's - safety and survival.

Tour a Wildfire-Ready Home

Address 1

- Make sure your address is clearly visible from the road.

Chimney 2

- Cover your chimney and stovepipe outlets with a non-flammable screen of ¼-inch wire mesh or smaller to prevent embers from escaping and igniting a fire.
- Make sure that your chimney is at least 10 feet away from any tree branches.

Deck/Patio Cover 3

- Use heavy timber or non-flammable construction material for decks and patio covers.
- Enclose the underside of balconies and decks with fire-resistant materials to prevent embers from blowing underneath.
- Keep your deck clear of combustible items, such as baskets, dried flower arrangements, and other debris.
- The decking surface must be ignition-resistant if it's within 10 feet of the home.

Driveways and Access Roads 4

- Driveways should be designed to allow fire and emergency vehicles and equipment to reach your home.
- Access roads should have a minimum 10-foot clearance on either side of the traveled section of the roadway and should allow for two-way traffic.
- Ensure that all gates open inward and are wide enough to accommodate emergency equipment.
- Trim trees and shrubs overhanging the road to a minimum of 13-½ (or 13.5) feet to allow emergency vehicles to pass.

Garage 5

- Have a fire extinguisher and tools, such as a shovel, rake, bucket, and hoe, available for fire emergencies.
- Install a solid door with self-closing hinges between living areas and the garage. Install weather stripping around and under the doors to prevent ember intrusion.
- Store all combustibles and flammable liquids away from ignition sources.

Home Site and Yard 6

- Ensure you have at least a 100-foot radius of defensible space (cleared vegetation) around your home. This means looking past what you own to determine the impact a common slope or neighbor's yard will have on your property during a wildfire.
- Cut dry weeds and grass before noon when temperatures are cooler to reduce the chance of sparking a fire.
- Landscape with fire-resistant plants that are low-growing with high-moisture content.
- Keep woodpiles, propane tanks, and combustible materials away from your home and other structures, such as garages, barns, and sheds.
- Ensure trees are far away from power lines.

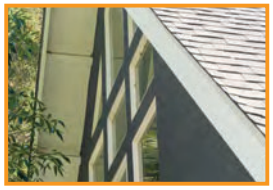
READY!

Inside

- Keep working fire extinguishers on hand and train your family how to use them (check expiration dates regularly).

- Install smoke alarms on each level of your home and near bedrooms. Test them monthly and change the batteries twice a year.

Non-Combustible Boxed-In (Soffit) Eaves



- Box-in eaves with non-combustible materials to prevent accumulation of embers.

Non-Combustible Fencing 7

- Make sure to use non-combustible fencing to protect your home during a wildfire.

Rain Gutters

- Screen or enclose rain gutters to prevent accumulation of plant debris.

Roof 8

- Your roof is the most vulnerable part of your home because it can easily catch fire from windblown embers.
- Homes with wood shake or shingle roofs are at a higher risk of being destroyed during a wildfire.
- Build your roof or re-roof with fire-resistant materials that include composition, metal, or tile.
- Block any spaces between roof decking and covering to prevent ember intrusion.
- Clear pine needles, leaves, and other debris from your roof and gutters.
- Cut any tree branches within 10 feet of your roof.

Vents

- Vents on homes are particularly vulnerable to flying embers.
- All vent openings should be covered with ⅛-inch or smaller metal mesh. Do not use fiberglass or plastic mesh because they can melt and burn.
- Attic vents in eaves or cornices should be baffled or otherwise prevent ember intrusion (mesh is not enough).

Walls 9

- 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 with fire-resistant building materials, such as brick, cement, masonry, or stucco.
- Be sure to extend materials from foundation to roof.

Water Supply 10

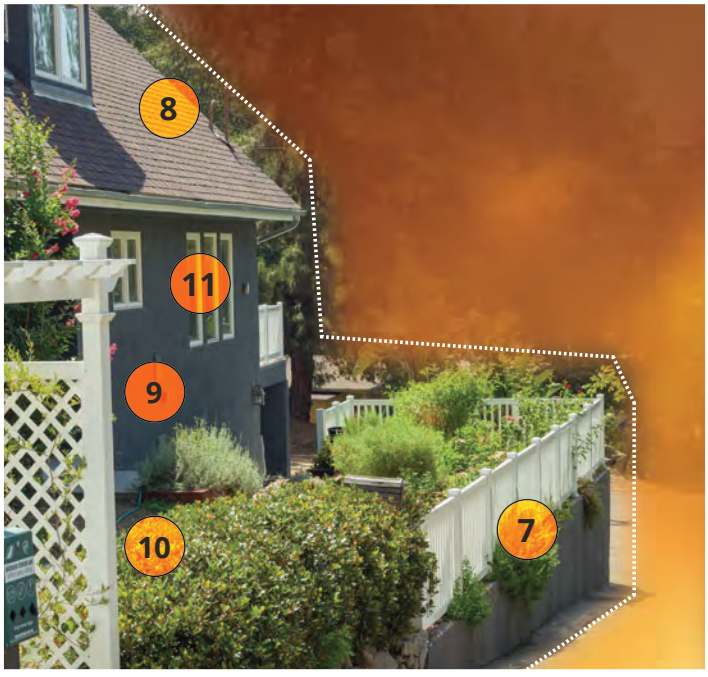
- Have multiple garden hoses that are long enough to reach any area of your home and other structures on your property.
- If you have a pool or well, consider a pump.

Windows 11

- Heat from a wildfire can cause windows to break even before the home ignites. This allows burning embers to enter and start internal fires. Single-paned and large windows are particularly vulnerable.
- Install dual-paned windows with an exterior pane of tempered glass to reduce the chance of breakage in a fire.
- Limit the size and number of windows in your home that face large areas of vegetation.

Utilities

- Ensure that your family knows where your gas, electric, and water main shut-off controls are and how to safely shut them down in an emergency.



☑ SET!

Create Your Own Wildfire Action Plan

Now that you have done everything you can to protect your home, it's time to prepare your family. **Your Wildfire Action Plan must be prepared with all members of your household well in advance of a wildfire.** Each family's plan will be different, depending on their situation. Once you finish your plan, practice it regularly with your family, and post in a safe and accessible place for quick implementation.

1 Important Phone Numbers

- ☐ 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.
- ☐ Maintain a list of emergency contact numbers posted near your phone and in your Emergency Supply Kit.

2 What to Take

- ☐ Assemble an Emergency Supply Kit (see page 10 in this guide).
- ☐ Keep an extra Emergency Supply Kit in your car in case you can't get to your home because of fire.
- ☐ Have a portable radio or scanner, so that you can stay updated on the fire.

3 Prepare to Evacuate

- ☐ Designate an emergency meeting location, outside the fire or hazard area. It 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.
- ☐ Necessities and boarding options for your pets and large animals, such as horse and other livestock.

Your Personal
WILDFIRE ACTION PLAN

During High Fire Danger days in your area, monitor your local media for information on wildfires and be ready to implement your plan. Hot, dry, and windy conditions create the perfect environment for a wildfire.

1 IMPORTANT PHONE NUMBERS

EMERGENCY CONTACTS

Name

( ) Phone

Name

( ) Phone

SCHOOLS

Name

( ) Phone

Name

( ) Phone

FAMILY & FRIENDS

Name

( ) Phone

Name

( ) Phone

2 WHAT TO TAKE

- ○ Insurance Papers
- ○ Photos
- ○ Emergency Supply Kit
- ○ Prescriptions
- ○ Important Documents
- ○ _____

3 EVACUATION

WHEN TO GO

WHERE TO GO

HOW TO GET THERE

DESTINATION

WHO TO TELL (BEFORE AND AFTER)

ANIMAL SHELTER

Name

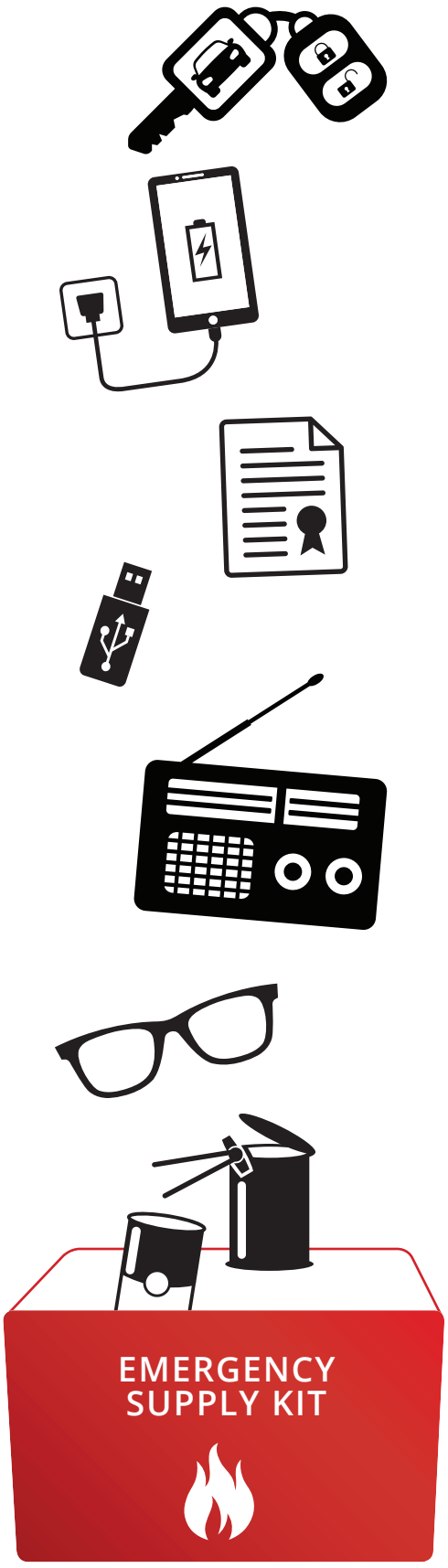
( ) Phone

LOS ANGELES COUNTY FIRE DEPARTMENT

IF YOU HAVE AN EMERGENCY, CALL 9-1-1

Public Information Office: (323) 881-2411
fire.lacounty.gov

☑ SET!



Assemble Your 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 for food and water) and are easy to grab. Storing food and water in a tub or chest on wheels will make it easier to transport. Keep it light to be able to easily lift it into your car.

Essential Supplies

- ☐ 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
- ☐ Closed-toe shoes
- ☐ Extra eyeglasses or contact lenses
- ☐ An extra set of car keys, credit cards, cash, or travelers checks
- ☐ First aid kit
- ☐ Flashlight
- ☐ Battery-powered radio and extra batteries
- ☐ Sanitation supplies
- ☐ Copies of important documents (e.g., birth certificates, passports, etc.)
- ☐ Don't forget pet food and water!

If Time Allows

- ☐ Easy-to-carry valuables
- ☐ Family photos and other irreplaceable items
- ☐ Personal computer information on hard drives and flash drives
- ☐ Chargers for cell phones, laptops, etc.

SET!

Pre-Evacuation Preparation Steps

When an evacuation is anticipated and if time permits, follow these checklists to give your home the best chance of surviving a wildfire:

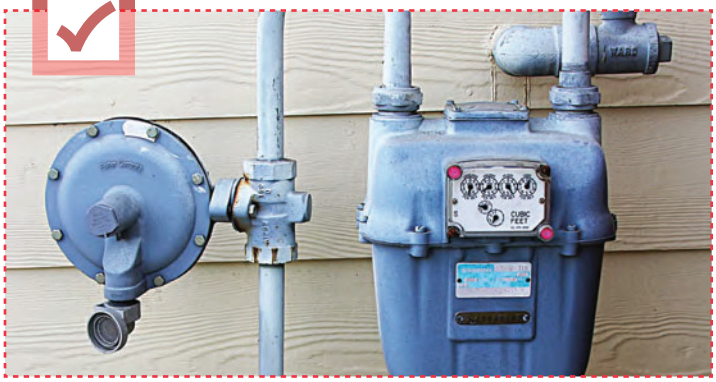
Animals

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

Inside

- ☐ Shut all windows and doors, leaving them unlocked.
- ☐ Remove flammable window shades, lightweight curtains, and close metal shutters.
- ☐ Move flammable furniture to the center of the room, away from windows and doors.
- ☐ Leave your lights on so firefighters can see your home under smoky conditions.
- ☐ Shut off the air conditioning.
- ☐ Shut off the gas meter. Turn off pilot lights.

Outside



- ☐ Gather up flammable items from the exterior of the house and bring them inside (e.g., patio furniture, children's toys, doormats, etc.) or place them in your pool.
- ☐ Turn off propane tanks. Move propane BBQ appliances away from structures.
- ☐ Connect garden hoses to outside water valves or spigots for use by firefighters. Fill water buckets and place them around the house.
- ☐ Don't leave sprinklers on or water running. They can affect critical water pressure.
- ☐ Leave exterior lights on.
- ☐ Put your emergency supply kit in your vehicle.
- ☐ Back your loaded vehicle into the driveway with all doors and windows closed. Carry your car keys with you.
- ☐ Have a ladder available.
- ☐ Seal attic and ground vents with pre-cut plywood or commercial seals, if time permits.
- ☐ Monitor your property and the wildfire situation. **Don't wait for an evacuation order, if you feel threatened and need to leave.**
- ☐ Check on neighbors and make sure they are preparing to leave.

Remember the Six P's

People and pets

Papers, phone numbers, and important documents

P

Prescriptions, vitamins, and eyeglasses

Pictures and irreplaceable memorabilia

Plastic
(e.g., credit cards, ATM cards)
and cash

Personal computer hard drives and flash drives

GO!

TAKE ACTION IMMEDIATELY WHEN WILDFIRE STRIKES

Go Early

By leaving early, you will give your family the best chance of surviving a wildfire. You also help firefighters by keeping roads clear of congestion, enabling them to move more freely and do their job.

When to Evacuate

Leave as soon as evacuation is recommended by emergency personnel to avoid being caught in fire, smoke, or road congestion. Don't wait to be ordered by authorities to leave. In an intense wildfire, they may not have time to knock on every door. If you are advised to leave, don't hesitate! Go!

- Emergency personnel will determine the areas to be evacuated and escape routes to use, depending upon the fire's location, behavior, winds, terrain, etc.
- Emergency personnel make every effort to advise you of potential evacuations as early as possible. You must take the initiative to stay informed and aware. Monitor social media and listen to your local radio/TV for announcements from law enforcement and other 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 emergency personnel should be followed immediately for your safety.

Where to Go

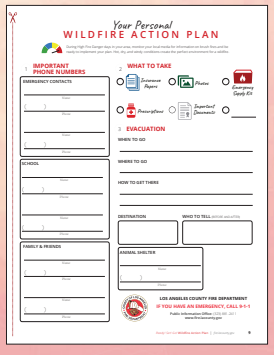
Leave for a pre-determined location. It should be a low-risk area, such as a well-prepared neighbor or relative's house, a Red Cross shelter or evacuation center, Motel, etc.

How to Get There

Have several travel routes in case one route is blocked by the fire or by emergency vehicles and equipment. Choose an escape route away from the fire.

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

- **Review your Wildfire Action Plan evacuation checklist.**



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

GO!

Survival Tips if You Become Trapped

In Your Home

- ☐ Stay calm and keep your family together.
- ☐ Call 9-1-1 and inform authorities of your location.
- ☐ Fill sinks and tubs with cold water.
- ☐ Keep doors and windows closed, but unlocked.
- ☐ Stay inside your home.
- ☐ Stay away from outside walls.

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 the vehicle floor.
- ☐ Use your cell phone and call 9-1-1 to inform authorities of your location.

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 and call 9-1-1 to inform authorities of your location.

Returning Home After a Wildfire

Do not return home until emergency officials determine it is safe. You will receive proper notification to do so as soon as it is 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.

Preparing for a wildfire starts with three simple steps:

READY! SET! GO!

Please keep this plan on hand as a quick reference for helping your family and property be safe in the event of a wildfire.

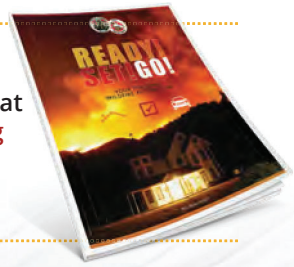
OFFICIAL

- facebook.com/LACoFD
- twitter.com/LACoFD
- instagram.com/lacountyfd
- youtube.com/user/LosAngelesCountyFD
- vimeo.com/user4029934

PUBLIC INFORMATION OFFICE

- twitter.com/lacofdpio
- twitter.com/lacofdespanol

Download the *Ready! Set! Go!* Wildfire Action Plan at fire.lacounty.gov/rsg or by scanning this QR code with your smart phone.



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Produced by the Communications Section of the Executive Support Division. Revised September 25, 2018.

Appendix B1 through B4

Family Disaster Plan and Personal Survival Guide

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!℠

Access Alerts and Warnings

Test Communication Plans

Assemble or Update Supplies

Drill or Practice Emergency Response

Participate in a Class, Training, or Discussion

Plan with Neighbors

Conduct an Exercise

Make Property Safer

Document and Insure Property

Safeguard Documents

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: .....

American Red Cross

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

Evacuation Travel Time Technical Analysis

TO:	Nathan Keith, Sr. Vice President, Tejon Ranch Company
FROM:	Phuong Nguyen, PE; CR Associates (CRA)
DATE:	August 22, 2024
RE:	Tejon Ranch Centennial Fire Evacuation Travel Time Technical Analysis – Technical Memorandum

The purpose of this technical memorandum is to assess the time required for emergency evacuation under several scenarios, assuming a wind-driven fire that results in an evacuation affecting the Tejon Ranch Centennial Project ("Project") and surrounding communities.[1] The following discussion of evacuation traffic simulations is not intended to be an Evacuation Plan, nor include elements typically found in an Evacuation Plan. The sole purpose of the traffic simulations is to focus on the vehicle travel times in simulated evacuation events.

Background and Purpose

This memorandum provides a summary of the traffic simulations conducted for evacuation of the Project and surrounding community due to a wildfire. The simulations have been conducted for a variety of evacuation scenarios described below. Modeling potential evacuation traffic impacts requires that numerous assumptions be made to address many variables that will impact a real-life evacuation scenario, including the number of existing vehicles in the community, the number of Project vehicles that will need to evacuate, the roadway capacities and whether enhancements are provided (e.g., extra lanes, lane widening, signaling intersections), the total number of intersections and how they will be operating, the final destination, the targeted evacuation area, the total mobilization time, vegetation communities, weather and wind, fire spread rates, humidity, topography, risk to homes, locations of ignitions and new fire starts, and lead time needed, etc. There are many hundreds or thousands of potential model scenarios, and every fire scenario poses variations that regularly change and are reassessed "real-time" during a wildfire. Agencies involved in implementing an evacuation order would not rely on a project-specific evacuation plan, but on situational awareness and agency created wildfire pre-plans, which act as operational tools to provide high-level fire assessments, identify critical infrastructure and assets, identify preferred evacuation approaches, and provide key safety information to inform evacuation decision-making.

The following evacuation travel time technical analysis is intended to present representative evacuation scenarios using available information, conservative assumptions, and an industry-based modeling technology. In an actual emergency, Unified Command[2] will take into account numerous factors including fire location and spread rates, wind speeds and direction, humidity, topography, fuel loading, emergency access routes, evacuation routes, shelter-in-place options, time needed to evacuate, and other variables, and, after taking into account such factors and variables, will issue specific evacuation or shelter-in-place directives

[1] This memorandum was prepared with technical fire behavior input from Dudek's Urban Forestry + Fire Protection team.
[2] As defined in the FEMA Glossary, for incidents involving multiple jurisdictions, a single jurisdiction with multiagency involvement, or multiple jurisdictions with multiagency involvement, unified command allows agencies with different legal, geographic, and functional authorities and responsibilities to work together effectively without affecting individual agency authority, responsibility, or accountability.

consistent with the process and protocols outlined in the Los Angeles County Emergency Operations Plans. During a wildfire, nearby residents and the Project's residents should comply with those directives from authorities and first responders conducting the evacuation or emergency response. The evacuation traffic model used herein is appropriate for planning and comparison purposes but will likely not be relied on by first responders and should not be relied on by Incident Commander in time of an emergency. However, it provides useful information that will be provided to agencies and emergency managers and may inform strategic response plans in terms of evacuation timeframes and contingency options.

The roadway network and vehicle input assumptions have been selected to simulate targeted evacuations scenarios, based on potential fire location and direction as well as at different stages of Project implementation, as detailed in Table 2. Additionally, each of these scenarios assumes evacuation scenario that would occur during a weekend day (Saturday) when the Project's residents are home, and nearby homes are likely to be fully occupied. As it is most likely that phased evacuation orders would be given to provide for a more orderly evacuation. It is also likely that fewer residents would be present nearby if the evacuation happened during a time that the Project was not at full occupancy (e.g., a weekday afternoon); and, therefore less potential for evacuation traffic, a Saturday afternoon evacuation represents a reasonably conservative assumption for evacuation traffic conditions from the Project and surrounding areas.

The wildfire evacuation scenarios selected for this evacuation travel time technical analysis were based on a comprehensive approach that included review of fire history, review of recent fires (e.g., 2014 Pine Fire, 2020 Ridge Fire, 2024 Max Fire[3], 2024 Post Fire[4]), fire behavior science, area topography, fuel types and the evolved approach to evacuations which have become increasingly more surgical instead of large, area-wide evacuations. Accordingly, given the highest probability wildfire scenarios that would result in evacuation, it is anticipated that specific neighborhoods and communities would be evacuated in a phased approach. The construction of the Project will adhere to the most recent building and fire code standards, which includes a number of fire safety precautions for properties situated within a Fire Hazard Severity Zone. Once the Project has been fully implemented and the Project site has become increasingly hardened with a singular WUI interface, the structures in the internal neighborhoods would no longer be considered part of the WUI; however, these structures will have been constructed to CBC and CFC standards for development in Very High Fire Hazard Severity Zones (e.g., Chapter 7A).

During a wildfire, a targeted portion of the Project site's population would likely be evacuated as a precautionary measure. This may be combined with targeted evacuations within the existing community of Neenach and surrounding residence. This type of evacuation is consistent with management of recent wildfires throughout southern California and Los Angeles County, where the phased evacuation practice has been implemented with great success and continues to be refined through real-time application. The phased evacuation approach was utilized in the recent fires including the 2024 Apache Fire in Ventura, CA, 2024

[3] https://ktla.com/news/local-news/max-fire-fire-raging-in-lancaster-threatening-hundreds-of-homes/
[4] https://twitter.com/search?q=(%23PostFire)%20(from%3ALACoFDPIO)&src=typed_query&f=top

Post Fire in Gorman, California, 2023 Rabbit Fire in Riverside, CA, all of which included early evacuation warnings issued for vulnerable areas.

Project Description

Centennial Specific Plan is a planned new town located east of the I-5 Freeway and adjacent to SR-138 in northwest unincorporated Los Angeles County. Comprising approximately 12,323 acres, the Specific Plan proposes development of both residential and nonresidential uses. Proposed are a maximum of 19,333 dwelling units, ranging from multi-family attached homes to low-density, single family detached units. The nonresidential component includes 10,097,208 total square feet of nonresidential commercial and business park development. By design, it includes a wide range of transportation demand management (TDM) features as an integral part of the Project. The northern boundary of the project area extends to the Los Angeles/Kern county line and the southern boundary extends to just south of SR-138. The western boundary begins approximately one mile east of I-5 and the eastern boundary is just east of 300th Street West.

Analysis Methodology

The evacuation travel time technical analysis conducted for the Project was based on review of best practices research as well as the State of California Attorney General "Best Practices for Analyzing and Mitigating Wildfire Impacts of Development Projects Under the California Environmental Quality Act (AG Guideline)" report. Section IV.C. of the AG Guidance report provides recommendations on Analyzing and Mitigating Wildfire Risk Impacts Under CEQA – including recommendations on analyzing a project's impact on evacuation and emergency access.

Per the AG Guidance, the addition of new developments in high wildfire risk areas can impact the evacuation of both new residents and the existing population, as well as hinder emergency responders' firefighting access. The report suggests that this impact could increase the risk and extent of large-scale fire spread and affect community safety. The report also suggests that Environmental Impact Reports (EIRs) should evaluate these impacts during construction and over the project's lifetime, with a higher level of analysis for low-density developments in wildland-urban interfaces compared to higher density infill projects in developed areas. Further, the report recommends that Projects in high wildfire risk areas should include evacuation modeling and planning at the review and approval stage, taking into account roadway capacity, evacuation timing, alternative plans, impacts on existing evacuation plans, emergency access adequacy, and traffic modeling. This would ensure that proposed developments facilitate emergency access and ease evacuation constraints and allow for design modifications that address wildfire risk.

Consistent with the AG Guidelines, the evacuation travel time technical analysis presented herein accounts for roadway capacity and congestion that may occur during an evacuation, existing emergency response plan, potential evacuation scenarios, and evaluated modeled travel times for occupants (e.g., residents, employees, visitors, etc.) of the Project and the occupants surrounding communities to evacuate to nearby urban areas/freeway access in case of a fire emergency.

Existing Evacuation Plan and Practices

Current evacuation practice typically targets the scope of the evacuation only to the area in immediate danger (evacuation order area) and placing a larger area on standby for evacuation (evacuation warning or alert area). This practice allows for better evacuation operations, reduces gridlock, and reserves sufficient travel way for emergency vehicles. The practice of evacuating areas most at risk first has become standard during evacuations. The most recent Office of the State Fire Marshal (OSFM) Incident Update for the 2024 Post Fire, referenced above, lists evacuation orders for at-risk areas that are the priority, as well as listing areas that have restricted access to the public, in the event they would need to be evacuated. Further, the evacuation warning platform Genasys Protect, assigns each designated evacuation zone with a level of evacuation anticipation. If an evacuation zone has received an evacuation order, the status will state 'EVACUATION ORDER' and the zone will be shaded red on the map. The zones that are anticipated to evacuate soon will have an 'EVACUATION WARNING' status, and the zone will be shaded yellow.

Methodical Approach

The County of Los Angeles Emergency Operation Plan describes an organized and systematic process of relocating people from an area or location that is at risk or threatened by an imminent hazard or disaster. Los Angeles County utilizes two levels of evacuation terminology:

1. Evacuation Warning: Potential threat to life and/or property. Those who require additional time to evacuate, and those with pets and livestock should leave now.
2. Evacuation Order: Immediate threat to life. This is a lawful order to leave now. The area is lawfully closed to public access.

Evacuations in Los Angeles County are managed in a consistent manner as evacuations in most other California jurisdictions (see wildfire evacuation summaries on following page). As evacuation methods, approaches, and technologies have been developed, tested, and adopted, they tend to be implemented widely throughout California emergency management agencies. Based on the review of the County of Los Angeles Operational Area Emergency Operation Plan (November 2023), the County of Los Angeles All-Hazards Mitigation Plan (2020), recent wildfire evacuation efforts, daily briefings[5], and other relevant information, the current evacuation practices are led by the local incident commander. These practices involve collaboration between fire departments and various law enforcement agencies. Depending on the nature of the emergency, multiple departments may work together during the evacuation process. The responsibilities of these departments are detailed in the County of Los Angeles Operational Area Emergency Operation Plan and summarized below:

Fire Department Responsibilities

The Fire Department is responsible for establishing command of the incident, conducting situation assessments to evaluate the need for evacuations, setting up an Incident Command Post (ICP) with sufficient space for representatives from assisting agencies, and announcing its location. Additionally, the Fire Department must request a law enforcement agency representative to respond to the ICP to ensure coordinated efforts during the evacuation process.

[5] https://twitter.com/search?q=(%23PostFire)%20(from%3ALACoFDPIO)&src=typed_query&f=top

Law Enforcement Responsibilities

Law enforcement's responsibilities include sending a supervisor of the rank of Sergeant or above to the ICP and requesting a Deputy to work with the Operations Section Chief. They mobilize field resources to maintain ingress and egress routes for emergency vehicles, establish perimeter control to keep unauthorized vehicles and pedestrians out of the involved area, conduct evaluations as directed by the Incident Commander, establish anti-looting security patrols when safe to do so, and maintain a Unit log to document their activities during the incident.

Joint Fire and Law Enforcement Responsibilities

Fire and law enforcement agencies collaborate to evaluate and determine whether the law enforcement role will be as an Agency Representative or Unified Incident Commander, depending on the scope of the incident. They assign a law enforcement supervisor to work closely with the Operations Section Chief or Incident Commander to determine evacuation areas. Together, they assess and validate the need for an Evacuation Warning, Evacuation Order, and/or Shelter in Place, determine the location, potential size, and direction of the incident's travel or spread. Unified Commanders also assess the potential for incident spread and request appropriate resources to complete the evacuation and concurrently mitigate the incident.

On-the-ground conditions combined with ICP staff experience determine which areas need to be evacuated and which roadways may be closed to prioritize evacuating traffic. The ICP may issue evacuation orders out of an abundance of caution. For example, during the Post Fire, the ICP issued an evacuation order to all campers in the vicinity of the fire due to prevailing wind conditions[6]. Some of these evacuation orders were downgraded to evacuation warnings over the next few days as weather conditions changed. Once the ICP determines the need to issue an evacuation order or warning, the order/warning is communicated to the public in the affected area via various communication mediums. Given the diverse needs of the community, the County employs a variety of alert and warning tools to ensure effective communication during emergencies, including the National Emergency Alert System, Wireless Emergency Alerts, Non-Weather Emergency Messages, Alert LA County, websites, social media, traditional media, and field notifications.

The approach summarized above is similar to most other California jurisdictions, including the San Diego County Operational Area Evacuation and Repopulation Policy #8-B[7] which provides the following procedures when an evacuation is needed:

Fire Department Responsibilities

- Establish command of the Incident
- Conduct a situation assessment and evaluate the need for evacuations
- Establish an Incident Command Post (ICP) with sufficient room for representatives from other assisting agencies and announce its location
- Request Agency Representative from Law Enforcement to respond to the ICP.

Law Enforcement Responsibilities

[6] https://www.youtube.com/watch?v=_sdQ7NCtff4
[7] https://sdoparea.org/wp-content/uploads/documents/8B%20Evacuation%20and%20Repopulation.pdf

- Assign supervisor of the rank of Sergeant or above to the Incident Command Post and request a Deputy to locate with Operations Section Chief
- Maintain ingress and egress routes for emergency vehicles
- Establish perimeter control, keeping unauthorized vehicles and pedestrians out of the involved area. Conduct evaluations, if required, at the direction of the Incident Commander
- Establish anti-looting security patrols, when safe to do so, for evacuated areas within the perimeter
- Maintain a Unit log

Joint Fire and Law Enforcement Responsibilities

- Evaluate and determine whether Law Enforcement role will be as an Agency Representative or Unified Incident Commander, depending on the scope of the Incident
- Assign a Law Enforcement supervisor to work closely with the Operations Section Chief or Incident Commander, whomever is determining the areas to be evacuated
- Assess and validate the need for an Evacuation Warning, Evacuation Order, and/or Shelter in Place — Determine the location, potential size, and direction of Incident travel or spread
- Unified Commanders determine potential for Incident spread and request the appropriate resources to complete the evacuation and mitigate the Incident concurrently

Based on the San Diego County Operational Area Evacuation and Repopulation procedure, an evacuation order requires the movement of community members out of a defined area due to an immediate threat to life and property from an emergency incident. An evacuation order issued when there is a potential for or an actual threat to civilian life, within 1 to 2 hours of such determination or when the IC deems it necessary to protect civilians. The purpose of an evacuation warning, in comparison, is to alert community members in a defined area of a potential threat to life and property from an emergency incident. An evacuation warning may be issued when the potential or actual threat to civilian life is more than 2 hours away. The timing of an evacuation order can vary widely between different fires, depending on factors such as fire conditions, fuel availability, wind speed, and other variables. The IC, composed of firefighting experts, will determine the evacuation area and timeline.

Examples of Strategic Evacuation

Methodical and strategic evacuation orders ensure that resources are deployed where needed and support a manageable traffic flow out of the area under threat. This approach is demonstrated through several recent wildfires where evacuation orders were issued to target populations, several examples of recent evacuations are provided below:

Border Fire 32, San Diego County

During the Border Fire 32 in August 2022[8] for example, on August 31st, the San Diego County Sheriff's Department shut down SR-94 at 2:57 p.m. before issuing an

[8] https://x.com/SDSheriff/status/1565096377494818817

evacuation order at 3:28 p.m.[9]. Such road closures are typically implemented to ensure that evacuating traffic has priority and to maintain clear pathways for law enforcement, first responders, and firefighting equipment.

Lilac Fire December 2017, San Diego County[10]

Early in the fire, Sheriff's deputies and firefighters focused on evacuating and rescuing residents in immediate danger. County and local agencies implemented a phased evacuation of potentially affected areas with 14 separate evacuation campaigns (notifications sent to affected areas) – sequencing of evacuation areas occurring between 12/7/2017 at 1:52 pm to 12/7/2017 10:17 pm. The Oceanside Police Department utilized 3 separate notification campaigns as the fire moved toward and into their jurisdiction between 5:49 pm and 9:19 pm 12/7/2017.

The Sheriff's Department deployed a platoon of 50 deputies, including four sergeants and a lieutenant, 24 hours a day for the first several days of the incident. Sheriff's deputies prepare for wildfires with mandatory annual training, which includes fire behavior, evacuations, and emergency operations

Thomas Fire 2017, Ventura County

During the Thomas Fire, a targeted evacuation order was issued only to areas in immediate danger. Law enforcement first targeted communities in the Carpinteria area with specific emphasis that the evacuation order is only for the identified communities in order to reduce the number of evacuees on roadways being utilized for evacuation. Evacuation orders continued to change throughout the duration of the fire, focused only on the highest risk populations. This approach has been confirmed by numerous fire and law enforcement agencies at project meetings, public hearings, and interviews with Dudek personnel.

Given that the Project's Specific Plan is a comprehensive plan for the long-term development of a new master planned community and all residential and commercial structures within the Project site would be required to adhere to the latest Building Code and Fire Code, paired with the nature of the current phased evacuation approach, it is unlikely that all of the Project would need to evacuate simultaneously during a wildfire scenario. The Otay Ranch General Development Plan (GDP) within the City of Chula Vista, located in San Diego County, exemplifies this scenario. Historical incidents such as the 2007 Harris Fire[11], and the 2023 Border Fire[12] predominantly affected the open spaces, but their progression was largely halted at the fringes of urbanized areas. Notably, during these fire events, evacuation orders were confined to the peripheral areas of the Otay Ranch GDP. Similarly, during the 2024 Max Fire, firefighters concentrated on protecting existing structures, which resulted in the fire being contained at the outskirts of the City of Lancaster[13].

Furthermore, as a Specific Plan, the Project presents enhanced defensibility relative to smaller-scale developments and could potentially serve as a strategic evacuation hub and safety zone for adjacent areas more susceptible to wildfire, such as the Neenach community

[9] https://x.com/SDSheriff/status/1565104232688074752
[10] Lilac Fire After Action Report. County of San Diego 107 pp.
[11] https://www.sandiegocounty.gov/oes/docs/2007_SanDiego_Fire_AAR_Main_Document_FINAL.pdf
[12] https://www.sandiegouniontribune.com/news/public-safety/story/2023-07-28/forward-progress-stopped-on-border-fire-in-east-county-evacuation-warning-lifted
[13] https://ktla.com/news/local-news/max-fire-fire-raging-in-lancaster-threatening-hundreds-of-homes/

to the east of the Project site. For instance, in a scenario where a wildfire endangers the Neenach community, Neenach residents could reach the Project site in approximately 10 minutes. Evacuating to the Project site would provide for a significantly shorter evacuation compared to the 30 minutes required to reach developed areas to the east such as Antelope Acres or the City of Lancaster.

Evacuation Model Methods and Assumptions

The methodology for fire evacuation travel time technical analysis is evolving as new data and best practices become available. Before conducting the evacuation analysis, a thorough historical review of fire evacuation behavior and practices was undertaken to ensure the analysis accurately reflects local conditions. The analysis conducted was based on extensive review of best practice research at the time of the analysis. These foundational best practices informed the evacuation analysis, and a selection of the most relevant and recent research is included in **Attachment A**.

According to the research, wildfire evacuation travel time technical analysis is not a one-size-fits-all approach; certain tools and practices are better suited for jurisdiction-wide analysis, including transportation modeling, roadway capacity-based analysis, GIS analysis, and custom tools. Notably, "A Review of Traffic Models for Wildland-Urban Interface Wildfire Evacuation" (Bergstedt, 2017) identified 12 tools for evacuation analysis, a number that continues to grow as more data and computing power become available.

Vissim, although not the sole tool available for fire evacuation travel time technical analysis, was chosen for its capability to simulate driver behaviors, particularly undesirable behaviors such as competing for the right-of-way during evacuations. This capability is endorsed by the Bergstedt research paper and is utilized by various agencies, including the Utah Department of Transportation and the Florida Department of Transportation for hurricane evacuation analysis (Bergstedt 2017). Vissim's popularity and widespread use in evacuation travel time technical analysis are evidenced by its citation in over 700 research papers, reflecting its effectiveness in mirroring human behavior. Despite the availability of other tools, Vissim was deemed the most suitable for this project's evacuation travel time technical analysis.

In Vissim simulations, roadway capacity is accounted for through multiple model inputs. The model incorporates roadway features and driver behaviors that impact the actual flow of traffic on a road segment. For instance, it includes elements like posted speed limits and reduced speed zones, which are typically found on curvy road sections and at all points where turns are made. These features cause vehicles to slow down or maintain an appropriate speed in these areas. Reduced speed zones simulate the need for vehicles to decelerate to navigate turns, and when combined with driver behavior, they effectively replicate real-world conditions. For example, when a driver slows down while navigating a curve, the following vehicles must also brake, creating a domino effect typical of evacuation traffic characterized by frequent stop-and-go patterns. A comparison between the theoretical roadway capacity obtained from the Centennial Specific Plan Traffic Study conducted by Stantec in May 2017, and the actual roadway processing capacity during an evacuation measured from Vissim is provided in **Attachment B.**

Primary Evacuation Routes

It is assumed that traffic evacuating from both the Project and nearby communities/land uses would use the closest available evacuation routes for leaving the area. Evacuation routes were selected based upon review of the Project site, available evacuation routes, and the quickest

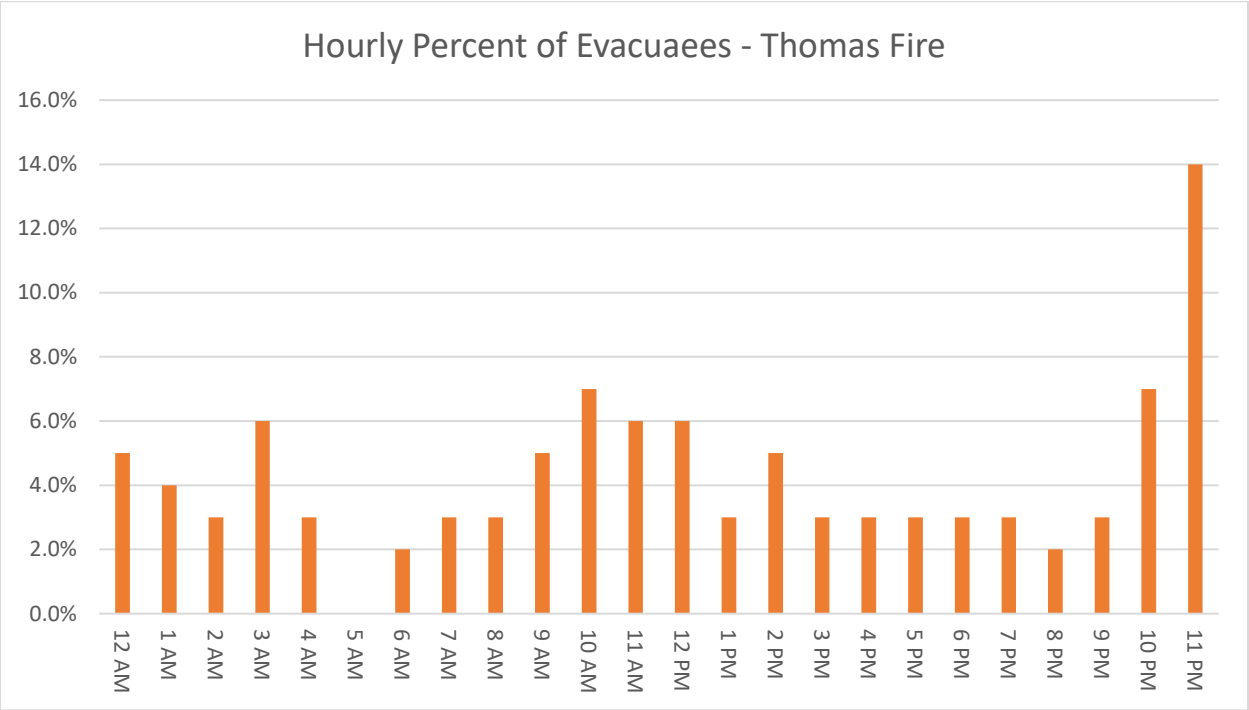
way to leave the at-risk areas. The number of evacuation roadways accessible to each village depends on the development phase of the specific plan. **Attachment C** outlines the evacuation roadways by development phases, while Figure 3 in the attachment shows available backbone roadways at the full buildout of the specific plan.
No contraflow lanes[14] were assumed, and access for first responders and law enforcement would be via inbound roadways. Two-way travel was assumed, with evacuating vehicles traveling outbound to the designated Safe Zone. It is assumed that first responders, law enforcement or other coordinating agency personnel will conduct traffic control (e.g., direct traffic at identified intersections and on/off ramps) during the evacuation process, as detailed in the County of Los Angeles Operational Area Emergency Operation Plan[15]. Should evacuation managers determine whether contraflow is preferred or necessary, evacuation capacity would increase while evacuation times would decrease.

The Centennial Specific Plan Traffic Study conducted by Stantec in May 2017 and the Centennial Specific Plan Supplemental Traffic Study, both collectively referred to as 2017 Traffic Studies, assumed that the Project would improve SR-138 to a four-lane expressway from I-5 to 240th Street West and to a limited access conventional four-lane highway from 240th Street West to 190th Street West, with right-of-way reserved for a six-lane expressway between Gorman Post Road and 300th Street West, or comparable improvements consistent with the Northwest 138 Corridor. However, to be conservative, it is assumed that SR-138 would remain as a two-lane highway for all evacuation travel time technical analysis scenarios.
Evacuation Time
Fire evacuation orders, like most evacuation events, can be issued at any time, day or night, depending on a wildfire's location and movement, making it unpredictable when an evacuation order might actually occur. According to the "Review of California Wildfire Evacuations from 2017 to 2019[16]" report, the timing of evacuations for the Thomas Fire varied, with a significant portion occurring at night (between 9PM and 4 AM), followed by the morning, 10 AM to noon. **Figure 1** below, Hourly Percent of Evacuees – Thomas Fire, summarizes the evacuation timings for the Thomas Fire.

Considering that the Project is a Specific Plan, a conservative analysis assumes the evacuation order would be issued during a weekend noontime period when residents are home and commercial centers are operational. It is assumed that schools are not in session, and that supporting land uses such as parks and recreation areas are primarily utilized by the Project's residents, therefore not generating additional vehicles. In a real evacuation, it is unlikely that all land uses would be at full capacity. This is an extremely conservative approach but is consistent with best practices to understand expected worst-case evacuation scenario timelines.

[14] Contraflow or lane reversal involves directing traffic to use lanes coming from the source of a hazard to move people away from the hazard. Such a strategy can be used to eliminate bottlenecks in communities with road geometries that prevent efficient evacuations or to facilitate traffic flow out of a major urban area. Among the considerations in planning emergency contraflow are whether sufficient traffic control officers are available, potential negative impact on responding fire apparatus, access management, merging, exiting, safety concerns, and labor requirements. Contraflow configurations must be carefully planned based on on-site factors and should not be implemented in an *ad-hoc* fashion. Dudek July 2014. "Wildland Fire Evacuation Procedures Analysis" for City of Santa Barbara, California, page 65.
[15] County of Los Angeles Emergency Operation Plan page 97 stated that the sheriff department responsibilities broad range of tasks, including search and rescue operations, evacuation coordination, traffic control, and ensuring order in affected areas. Deputies are deployed to disaster sites to provide immediate assistance, assess the situation, and support relief efforts. Additionally, they establish a law enforcement command and collaborate with emergency management to establish vital communication channels for disseminating critical information to the public.
[16] https://escholarship.org/uc/item/5w85z07g

Figure 1 – Thomas Fire Evacuation Percentage by Time of Day



Study Area

The selection of the study area was guided by several factors, including each community's or area's access to the evacuation roadway network, proximity to the Wildland Urban Interface (WUI), and distance to SR-138. The study area was divided into 11 evacuation zones, all of which are within the Project's footprint (each representing individual villages within the project), while one zone encompasses the existing land uses to the east of the Project's site.

The use of these evacuation zones aligns with the County of Los Angeles' Genasys Protect Evacuation[17] notification system, an evacuation software that segments the county into different evacuation areas based on development patterns, roadway networks, land uses, and other factors. **Table 1** displays the proposed land use by village, **Figure 2** displays the conceptual phasing plan, and **Figure 3** displays the proposed villages. The zones established for this evaluation are the consultant team's collective professional opinion and are meant to mimic or be similar to how the County may create zones using Genasys. Regardless of the final zone delineations and differences between this study and the final zones, the evacuation scenarios are anticipated to be managed in a similar method.

As shown, the Project consists of 9 villages, institutional/civic land use, business park that will be develop over 10 phases, which consist of the following assumptions:

[17] https://finance.yahoo.com/news/los-angeles-county-awards-5-130000497.html?

- **Phase 1 -** Includes Village 1: 1,825 residential dwelling units, 141,570 SF of commercial, 15 acres school, 38 acres of park, and 87,120 SF of recreation.
- **Phase 2 -** Includes Village 3: 1,872 residential dwelling units, 294,030 SF of commercial, 15 acres school, and a 3 acre park.
- **Phase 3 -** Western portion of Village 7 (Village 7 West), western portion of the Business Park (Business Park West), and buildout of the Institutional and Civic land use: Approximately 723 residential dwelling units, approximately 2,881,000 SF of business park, and approximately 1,568,160 SF of institutional land use.
- **Phase 4 -** Eastern portion of Village 7 (Village 7 East): Approximately 723 residential dwelling units.
- **Phase 5 -** Western portion of Village 9 (Village 9 West): Approximately 787 residential dwelling units.
- **Phase 6 -** Village 6 and central portion of the Business Park (Business Park Central): 1,645 residential dwelling units and approximately 1,920,000 SF of business park.
- **Phase 7A -** Eastern portion of Village 9 (Village 9 East): Approximately 787 residential dwelling units, 10 acres school, and 13 acres of park.
- **Phase 7 -** Western portion of Village 8 (Village 8 West): Approximately 1,421 residential dwelling units
- **Phase 8A –** Eastern portion of the Business Park (Business Park East): approximately 1,822,000 SF of business park.
- **Phase 8 -** Village 2 & southern portion of Village 4 (Village 4 South): Approximately 2,768 residential dwelling units, 98,010 SF of commercial, and 12 acres of park.
- **Phase 9 -** Village 5 and northern portion of Village 4 (Village 4 North): Approximately 5,360 residential dwelling units, 87,120 SF of commercial, 15 acres school, and 31 acres of park.
- **Phase 10 -** Eastern portion of Village 8 (Village 8 East): Approximately 1,422 residential dwelling units, 108,900 SF of commercial, 15 acres school, and 19 acres of park.

Table 1 – Land Use by Village

Village	Land Use	Residential (DU)	Commercial (SF)	Business Park (SF)	Institutional (SF)	School (Acres)	Park (Acres)	Recreation/ Entertainment (SF)
1	VLDR	126						
	LDR	1,210						
	MDR	234						
	HDR	255						
	Total	**1,825**	**141,570**		-	**15**	**38**	**87,120**
2	LDR	930						
	MDR	873						
	HDR	480						
	Total	**2,283**	**98,010**		-	-	**12**	**6,970**
3	MDR	972						
	HDR	600						
	VHDR	300						
	Total	**1,872**	**294,030**		-	**15**	**3**	**0**
4	VLDR	410						
	LDR	560						
	Total	**970**	-		-	-	**9**	**17,424**
5	VLDR	116						
	LDR	1495						
	MDR	2,709						
	HDR	555						
	Total	**4,875**	**87,120**		-	**15**	**22**	-
6	VLDR	286						
	LDR	1,080						
	MDR	279						
	Total	**1,645**	**54,450**		-	**60**	**34**	-
7	VLDR	112						
	LDR	845						
	MDR	324						
	HDR	165						
	Total	**1,446**	**163,350**		-	**15**	**13**	**8,712**
8	VLDR	96						
	LDR	2,450						
	MDR	297						
	Total	**2,843**	**108,900**		-	**15**	**19**	-
9	VLDR	124						
	LDR	1,090						
	MDR	360						
	Total	**1,574**	-		-	**10**	**13**	**10,454**
No Village				**7,363,818**	**1,568,160**			

Figure 2 – Conceptual Phasing Plan

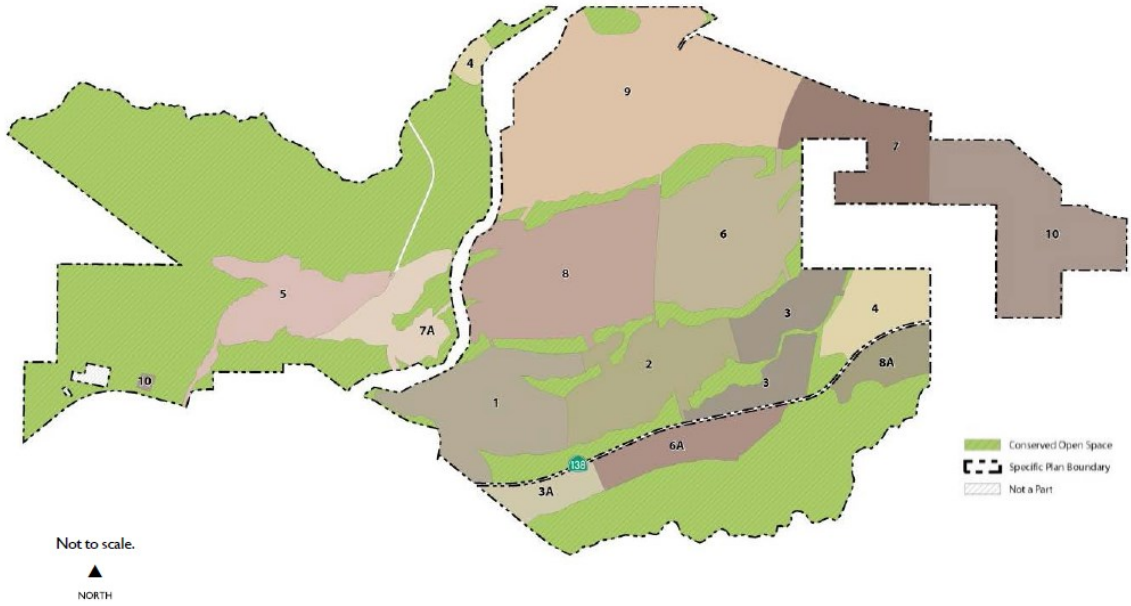
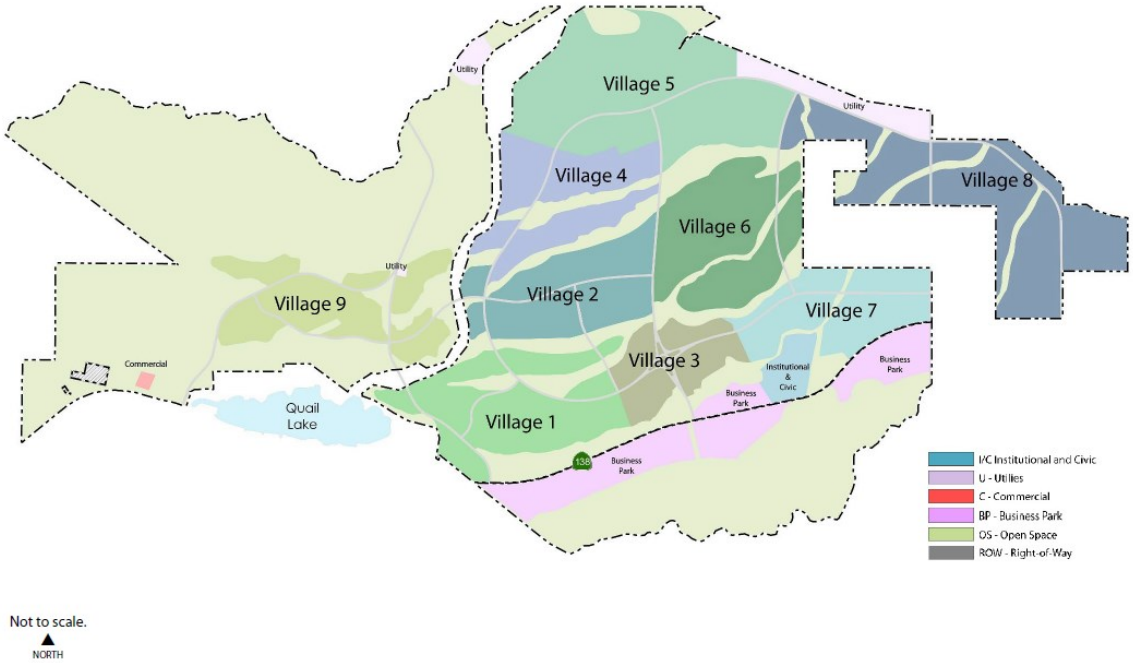


Figure 3 – Proposed Villages



Not to scale.

NORTH

Study Scenarios

As previously discussed, fire evacuation is not a one size fit all approach, and even though mass evacuation provides a conservative analysis, current evacuation practice indicates that this approach is not desirable due to the potential of creating high level of congestion and prevent those in at risk area from evacuating safety. Thus, the evacuation travel time technical analysis presented in this report follow current fire evacuation approaches, which assume that ICP staff and law enforcement would issue targeted evacuation warnings and orders to areas that are at risk instead of a full evacuation of the specific plan.

As the Project would be constructed over multiple years, the development phases were grouped together in order to analyze the different potential evacuation scenarios that may occur as the project is developed over time. The phases are grouped together in set of every two phases, resulting in a total of five different land use scenarios.

Based on a review of historical fire conditions and fire modeling conducted by Dudek, landscapes around the Project site could potentially support wildfire that, in the most likely scenarios, would approach the Project site from the south/southeast, north/northeast, or west/northwest, depending on the fire's point of origination. Therefore, for each of the land use scenarios, an analysis was conducted for each potential direction of fire approach, resulting in a total of 15 different scenarios. These scenarios are summarized in Table 2 below.

Safe Zone

Based on Dudek's review of the area's fire history, fires have halted along developed areas adjacent to wildland fuels and have not historically progressed into the more densely urbanized, irrigated, and hardscaped areas. Specifically, none of the historical fires encroached beyond the periphery areas within the wildland urban interface area of the Los Angeles County. Recent fires such as the Max Fire (2024), Post Fire (2024), Jerry Fire (2019), Merwin Fire (2015), and Lago Fire (2011) were all stopped at or prior to reaching the urbanized area or I-5. Thus, it is assumed that during the earlier phases of the specific plan, evacuees are considered "safe" once their vehicles reach an area outside the evacuation order zone. For scenarios 1 through 3, which would occur early in the project's buildout process, evacuees are considered "safe" when their vehicles arrive at either the I-5/SR-138 interchange to the west, or the community of Neenach to the east. In the later scenarios,which would occur later in the project's buildout process, it is assumed that some evacuees will be directed to other villages or developed areas (e.g., Institutional & Civic) within the project site that are not at risk of fire and/or to offsite locations, In such later scenarios, evacuees are considered "safe" once they arrive at the respective receiving villages or at the onsite or offsite evacuation point otherwise indicated in Table 2.

Evacuating Vehicles

The projected number of vehicles evacuating from or within the study area is based on a combination of various data sources: Parcel Quest's parcel map data for land use, vehicle ownership averages from the US Census Bureau, aerial imagery from Nearmap, and relevant environmental documents. Breakdown of the calculations for evacuating vehicles is as follows:

Existing Residential: This is obtained by multiplying the total number of households (from Parcel Quest parcel map data) with the average vehicle ownership, which stands at 2.07 vehicles per household as per the US Census Bureau.

For this evacuation travel time technical analysis, it is assumed that during the earlier phases of the Project, existing land use to the east of the Project site will evacuate in the same direction as the Project's traffic. Once the Project is developed, the Project site can serve as an evacuation zone for existing land uses that need to evacuate westward toward the Project site. Therefore, the evacuation times for existing land uses are only included in scenarios where the Project's traffic would potentially share the same evacuation roadway as the existing land uses.

Proposed Project: This is calculated by multiplying the quantities of land use by the following sources:

Residential Land Use: Total number of dwelling units x average vehicle ownership.

Nonresidential Land Uses: Total square footage x parking rate derived from the Institute of Transportation Engineer (ITE) Parking Generation Manual.

Land use quantities were obtained from Stantec and Appendix E of the Centennial Specific Plan Traffic Study (November 2017).

Shadow Evacuees: These are individuals who choose to evacuate out of an abundance of caution, even without an official evacuation order. The "Review of California Wildfire Evacuations from 2017 to 2019" report found that approximately 30% of evacuees fall into this category.

For a reasonable evacuation travel time technical analysis, these scenarios assumed that two percent (2%)[18] of the evacuating vehicles are heavy vehicles (trucks with trailers). Two percent is the nationally acceptable ratio of heavy vehicles to all vehicles.

Average vehicle ownership, residential units, and evacuating vehicles calculations are provided in **Attachment D**. **Table 2** displays the number of vehicles evacuating under each scenario.

[18] https://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_599.pdf (p.5).

Table 2 – Study Scenarios and Evacuating Vehicles Calculation

Scenario	Phases	Build Land Use	Fire Approach Direction	Evacuation Direction/Routes	Area Under Evacuation	Evacuating Vehicles
1	Phase 1-2	Village 1 & Village 3	South/Southeast	75% via SR-138 westbound toward I-5 25% via internal road toward I-5	Village 1 Village 3 Existing	4,026 4,330 200
2	Phase 1-2	Village 1 & Village 3	North/Northeast	25% via SR-138 westbound toward I-5 25% via internal road toward I-5 25% via internal road toward Lancaster 25% via SR-138 eastbound toward Lancaster	Village 1 Village 3 Existing	4,026 4,330 200
3	Phase 1-2	Village 1 & Village 3	West/Northwest	75% via SR-138 eastbound toward Lancaster 25% via internal road toward Lancaster	Village 1 Village 3 Existing	4,026 4,330 200
4	Phase 1-4	Village 1, Village 3, Village 7, Business Park West, Institutional & Civic	South/Southeast	50% via SR-138 westbound toward I-5 50% via internal roadway toward Village 1	50% of Village 7 Business Park West Institutional & Civic	1,578 981 1,796
5	Phase 1-4	Village 1, Village 3, Village 7, Business Park West, Institutional & Civic	North/Northeast	25% via SR-138 westbound toward I-5 50% via internal roadway toward Village 1 25% via SR-138 eastbound toward Lancaster	50% of Village 3 Village 7 Existing	2,165 3,156 200
6	Phase 1-4	Village 1, Village 3, Village 7, Business Park West, Institutional & Civic	West/Northwest	50% via internal roadway toward Village 7 and the Institutional/Civic land use 50% via SR-138 eastbound toward Lancaster	Village 1 30% of Village 3 Business Park West Existing	4,026 1,299 981 200
7	Phase 1-6	Village 1, Village 3, Village 6, Village 7, Village 9 West, Business Park West, Business Park Central, Institutional & Civic	South/Southeast	25% via SR-138 westbound toward I-5 25% via internal roadway toward Village 1 25% via internal roadway toward Village 3 25% via internal roadway toward Village 6	50% of Village 7 Business Park West Business Park Central Institutional & Civic	1,578 981 654 1,796

Table 2 – Study Scenarios and Evacuating Vehicles Calculation

Scenario	Phases	Build Land Use	Fire Approach Direction	Evacuation Direction/Routes	Area Under Evacuation	Evacuating Vehicles
8	Phase 1-6	Village 1, Village 3, Village 6, Village 7, Village 9 West, Business Park West, Business Park Central, Institutional & Civic	North/Northeast	25% via SR-138 westbound toward I-5 50% via internal roadway toward Village 1 and Village 3 25% via SR-138 eastbound toward Lancaster	Village 6 Village 7	3,556 3,156
9	Phase 1-6	Village 1, Village 3, Village 6, Village 7, Village 9 West, Business Park West, Business Park Central, Institutional & Civic	West/Northwest	50% via internal roadway toward Village 7 and the Institutional & Civic 50% via SR-138 eastbound toward Lancaster	Village 1 Village 9 West Existing	4,026 2,321 200
10	Phase 1-8	Village 1, 3, 7 E & West, Village 9 West, Village 6, Village 9 East, Village 8 West, Village 2, Village 4 South	South/Southeast	25% via SR-138 westbound toward I-5 25% via internal roadway toward Village 1 25% via internal roadway toward Village 3 25% via internal roadway toward Village 6	50% of Village 7 Business Park West Business Park Central Business Park East 30% of the Institutional z& Civic	1,578 981 654 621 539
11	Phase 1-8	Village 1, Village 2, Village 3, Village 6, Village 7, Village 9, Village 8 West, Village 4 South, Business Park West, Business Park Central, Business Park East, Institutional & Civic	North/Northeast	25% via internal roadway toward Village 1 25% via internal roadway toward Village 3 25% via internal roadway toward Village 7 25% via internal roadway toward Institutional & Civic	30% of Village 2 Village 4 South 50% of Village 6 Village 8 West 30% of Village 9	740 2,380 1,778 2,035 1,025
12	Phase 1-8	Village 1, Village 2, Village 3, Village 6, Village 7, Village 9, Village 8 West, Village 4 South, Business Park West, Business Park Central, Business Park East, Institutional & Civic	West/Northwest	25% via internal roadway toward Village 3 25% via internal roadway toward Village 7 25% via internal roadway toward Business Park 25% via internal roadway toward Institutional & Civic	30% of Village 1 30% of Village 2 Village 4 South Village 9	1,208 740 2,380 3,415

Table 2 – Study Scenarios and Evacuating Vehicles Calculation

Scenario	Phases	Build Land Use	Fire Approach Direction	Evacuation Direction/Routes	Area Under Evacuation	Evacuating Vehicles
13	Phase 1-10	Buildout	South/Southeast	25% via SR-138 westbound toward I-5	Business Park West	981
				25% via internal roadway toward Village 1	Business Park Central	654
				25% via internal roadway toward Village 3	Business Park East	621
				25% via internal roadway toward Village 6/Village 5	30% of the Institutional & Civic	539
					50% of Village 7	1,578
					Village 8 East	3,843
14	Phase 1-10	Buildout	North/Northeast	25% via internal roadway toward Village 1/Village 2	30% of Village 4	1,318
				25% via internal roadway toward Village 3	Village 5	10,451
				25% via internal roadway toward Village 7/Institutional & Civic	30% of Village 6	1,067
				25% via SR-138 Westbound toward Business Park	Village 8 West	2,035
					Village 8 East	3,843
15	Phase 1-10	Buildout	West/Northwest	25% via internal roadway toward Village 3	30% of Village 2	740
				25% via internal roadway toward Village 7	50% of Village 4	2,197
				25% via internal roadway toward Business Park	50% of Village 5	5,226
				25% via internal roadway toward Institutional & Civic	Village 9	3,415

Source: CR Associates (2024), US Census Bureau (2023), Google Maps (2023).

Extreme Wildfire Event

The evacuation travel time technical analysis set forth below assumes wildfire scenarios where a fire is approaching the Centennial site from the north, northwest, southeast, and west. Fire is not anticipated to the east due to landscape disturbance and lack of a continuous fuel bed. This fire condition is the one most likely to require a large-scale evacuation, and the one that creates the most risk to property and humans.

In California, wildfire-related large-scale evacuations are almost exclusively associated with wildfires that occur on extreme fire weather days, also known as "Red Flag Warning" days. These days occur when relative humidity drops to low levels and strong winds from the north/northeast are sustained. With climate change, periods in which such wildfires occur may increase. During Red Flag Warning days, vegetation is more likely to ignite and fire spread is more difficult to control. In the greater Los Angeles region, these extreme weather days typically occur during limited periods in the late summer, fall and, occasionally, in the spring, but may occur at other times on a less frequent basis. Currently, it is not common to experience more than 10 to 15 Red Flag Warning days in a typical year. Wildfires that occur during these periods of extreme weather are driven by winds – referred to as "Santa Ana" winds – that come from the north or east and blow toward the south or west. Fires driven by these winds move very quickly, making them difficult to control. In response to such fires, emergency managers typically activate pre-planned evacuation triggers that provide warnings for down-wind communities to sequentially be notified of potential evacuation and movement to nearby urbanized areas prior to the fire's encroachment.

Wildfires that occur on non-extreme weather days typically behave in a much less aggressive manner and pose fewer dangers to life and property because they include less aggressive fire behavior and are easier to control. Terrain and fuel are typically the wildfire drivers during these conditions. During these non-extreme weather days, vegetation is much more difficult to ignite and does not spread fire as rapidly. In these situations, firefighters have a very high success rate of controlling fires and keeping them under 10 acres. CALFIRE estimates that 90% of all vegetation fires occur during normal, onshore weather conditions and that such fires account for only 10% of the land area burned. Conversely, the 10% of wildfires that occur during extreme fire weather account for 90% of the land area burned. This data highlights that the most dangerous fire conditions are those related to a fire that moves rapidly due to high winds and low humidity, whereas under normal conditions fires are likely to be controlled with no evacuation or possibly limited extent, focused evacuations.

While it is possible that a fire driven by onshore wind (i.e., from the west) could require evacuation of the Project, such an event would be unusual. Moreover, due to the reduced fire behavior during normal weather periods, the evacuation would not be expected to be a large-scale evacuation of large areas.

Approach

To analyze the evacuation events, CRA conducted simulations using *Vissim*, a microscopic, multimodal traffic flow modeling software used to simulate different traffic conditions. In *Vissim* simulations, roadway capacity is accounted for and each vehicle in the traffic system is individually tracked through the model and comprehensive measures of effectiveness, such as average vehicle speed and queueing, are collected on every vehicle during each 0.1-second

of the simulation. This software enables drivers' behaviors during an evacuation to be replicated. A total of 20 simulations were conducted to yield a reasonable sample size to determine the performance of the study area roadways and impacts during evacuation scenarios. To be conservative, CRA assumed a worst-case traffic condition, in which all vehicles belonging to study area households ordered to evacuate would be used in the evacuation, instead of the necessary number of vehicles needed to evacuate the impacted population. Detailed evacuation travel time technical analysis information is provided in Attachment E.

Evacuation Analysis & Results

Based on the evacuation travel time technical analysis methodology described above, Table 3 reflects evacuation times for each scenario. A summary of the evacuation time for each scenario is provided below:

Table 3 – Evacuation Time

Scenario	Phases	Build Land Use	Fire Approach Direction	Evacuation Direction/Routes	Area Under Evacuation	Evacuating Vehicles	Evacuating Time (Hours: Minutes)
1	Phase 1-2	Village 1 & Village 3	South/Southeast	75% via SR-138 westbound toward I-5 25% via internal road toward I-5	Village 1 Village 3 Existing	4,026 4,330 200	2:04 3:37 0:42
2	Phase 1-2	Village 1 & Village 3	North/Northeast	25% via SR-138 westbound toward I-5 25% via internal road toward I-5 25% via internal road toward Lancaster 25% via SR-138 eastbound toward Lancaster	Village 1 Village 3 Existing	4,026 4,330 200	1:33 1:34 0:17
3	Phase 1-2	Village 1 & Village 3	West/Northwest	75% via SR-138 eastbound toward Lancaster 25% via internal road toward Lancaster	Village 1 Village 3 Existing	4,026 4,330 200	2:03 1:36 0:17
4	Phase 1-4	Village 1, Village 3, Village 7, Business Park West, Institutional & Civic	South/Southeast	50% via SR-138 westbound toward I-5 50% via internal roadway toward Village 1	50% of Village 7 Business Park West Institutional & Civic	1,578 981 1,796	1:00 1:54 1:46
5	Phase 1-4	Village 1, Village 3, Village 7, Business Park West, Institutional & Civic	North/Northeast	25% via SR-138 westbound toward I-5 50% via internal roadway toward Village 1 25% via SR-138 eastbound toward Lancaster	50% of Village 3 Village 7 Existing	2,165 3,156 200	1:07 1:23 0:17
6	Phase 1-4	Village 1, Village 3, Village 7, Business Park West, Institutional & Civic	West/Northwest	50% via internal roadway toward Village 7 and the Institutional/Civic land use 50% via SR-138 eastbound toward Lancaster	Village 1 30% of Village 3 Business Park West Existing	4,026 1,299 981 200	2:26 0:41 2:21 0:17
7	Phase 1-6	Village 1, Village 3, Village 6, Village 7, Village 9 West, Business Park West, Business Park Central, Institutional & Civic	South/Southeast	25% via SR-138 westbound toward I-5 25% via internal roadway toward Village 1 25% via internal roadway toward Village 3 25% via internal roadway toward Village 6	50% of Village 7 Business Park West Business Park Central Institutional & Civic	1,578 981 654 1,796	0:39 0:50 1:07 1:20
8	Phase 1-6	Village 1, Village 3, Village 6, Village 7, Village 9 West, Business Park West, Business Park Central, Institutional & Civic	North/Northeast	25% via SR-138 westbound toward I-5 50% via internal roadway toward Village 1 and Village 3 25% via SR-138 eastbound toward Lancaster	Village 6 Village 7	3,556 3,156	3:27 1:49
9	Phase 1-6	Village 1, Village 3, Village 6, Village 7, Village 9 West, Business Park West, Business Park Central, Institutional & Civic	West/Northwest	50% via internal roadway toward Village 7 and the Institutional & Civic 50% via SR-138 eastbound toward Lancaster	Village 1 Village 9 West Existing	4,026 2,321 200	1:22 1:11 0:17
10	Phase 1-8	Village 1, 3, 7 E & West, Village 9 West, Village 6, Village 9 East, Village 8 West, Village 2, Village 4 South	South/Southeast	25% via SR-138 westbound toward I-5 25% via internal roadway toward Village 1 25% via internal roadway toward Village 3 25% via internal roadway toward Village 6	50% of Village 7 Business Park West Business Park Central Business Park East 30% of the Institutional & Civic	1,578 981 654 621 539	1:21 1:07 0:47 1:19 0:26

Table 3 – Evacuation Time

Scenario	Phases	Build Land Use	Fire Approach Direction	Evacuation Direction/Routes	Area Under Evacuation	Evacuating Vehicles	Evacuating Time (Hours: Minutes)
11	Phase 1-8	Village 1, Village 2, Village 3, Village 6, Village 7, Village 9, Village 8 West, Village 4 South, Business Park West, Business Park Central, Business Park East, Institutional & Civic	North/Northeast	25% via internal roadway toward Village 1	30% of Village 2	740	0:53
				25% via internal roadway toward Village 3	Village 4 South	2,380	0:53
				25% via internal roadway toward Village 7	50% of Village 6	1,778	0:53
				25% via internal roadway toward Institutional & Civic	Village 8 West	2,035	1:02
					30% of Village 9	1,025	0:49
12	Phase 1-8	Village 1, Village 2, Village 3, Village 6, Village 7, Village 9, Village 8 West, Village 4 South, Business Park West, Business Park Central, Business Park East, Institutional & Civic	West/Northwest	25% via internal roadway toward Village 3	30% of Village 1	1,208	0:52
				25% via internal roadway toward Village 7	30% of Village 2	740	0:57
				25% via internal roadway toward Business Park	Village 4 South	2,380	0:48
				25% via internal roadway toward Institutional & Civic	Village 9	3,415	2:58
13	Phase 1-10	Buildout	South/Southeast	25% via SR-138 westbound toward I-5	Business Park West	981	1:07
				25% via internal roadway toward Village 1	Business Park Central	654	0:55
				25% via internal roadway toward Village 3	Business Park East	621	1:32
				25% via internal roadway toward Village 6/Village 5	30% of the Institutional & Civic	539	0:26
					50% of Village 7	1,578	1:32
					Village 8 East	3,843	2:20
14	Phase 1-10	Buildout	North/Northeast	25% via internal roadway toward Village 1/Village 2	30% of Village 4	1,318	0:51
				25% via internal roadway toward Village 3	Village 5	10,451	6:41
				25% via internal roadway toward Village 7/Institutional & Civic	30% of Village 6	1,067	0:34
				25% via SR-138 Westbound toward Business Park	Village 8 West	2,035	4:32
					Village 8 East	3,843	3:06
15	Phase 1-10	Buildout	West/Northwest	25% via internal roadway toward Village 3	30% of Village 2	740	1:11
				25% via internal roadway toward Village 7	50% of Village 4	2,197	1:08
				25% via internal roadway toward Business Park	50% of Village 5	5,226	2:37
				25% via internal roadway toward Institutional & Civic	Village 9	3,415	1:53

Analysis and Conclusion

Study of evacuation timeframes and potential increases in evacuation time with a proposed project are relatively new CEQA focus areas. Public safety, not time, is generally the guiding consideration for evaluating impacts related to emergency evacuation. Consistent with CEQA Guidelines Appendix G, a Project's impact on evacuation is significant if the Project will significantly impair or physically interfere with implementation of an adopted emergency response or evacuation plan.

In any populated area, safely undertaking large-scale evacuations may take several hours or more and require moving people long distances to designated safety areas. Further, evacuations are fluid and timeframes may vary widely depending on numerous factors, including, among other things, the number of vehicles evacuating, the road capacity to accommodate those vehicles, residents' awareness and preparedness, evacuation messaging and direction, and on-site law enforcement control.

A recent study titled "Review of California Wildfire Evacuation from 2017 to 2019[19]" provides more insights on the topic. This research involved interviews with 553 individuals (297 evacuees affected by various fires) including the Creek Fire, Rye Fire, Skirball Fire, and Thomas Fire. The study aimed to understand the decision-making processes of these individuals during the fires, such as whether to evacuate or stay, when to leave, the paths taken, chosen shelters, destinations, and modes of transportation. According to this research, the time it took for evacuations ranged from under 30 minutes to over 10 hours. From this dataset[20], the average evacuation time for the Creek Fire was found to be 3 hours and 40 minutes, involving 115,000 people[21]. For the Thomas Fire, the average time was 4 hours and 25 minutes, impacting 104,607 individuals. Per the FEIR, the estimated population for the proposed Project would be 55,000 people, significantly less than the population that was evacuated during the Creek Fire.

California fire and law enforcement agencies have integrated training, experience, and technology to assist in successful evacuations, which focus on moving persons at risk to safer areas before a wildfire encroaches on a populated area. Timeframes for moving people vary by site specifics, population, road capacities and other factors and there is no one threshold that would be appropriate to all locations. There are no established thresholds for evacuation times for this Project or at the time of this plan's preparation, for any California community, to the knowledge of the authors. This is primarily because every location and fire scenario are unique. While it may take one community 20 minutes to evacuate safely, it is not a valid assumption to consider a 3-hour evacuation for another community as unsafe. The 3-hour evacuation can be very safe while the 20-minute evacuation may be unsafe due to the conditions and exposures along the evacuation routes.

Notwithstanding evacuation challenges and variables, both the City of Los Angeles and Los Angeles County have had great success in safely managing both mass evacuations and targeted evacuations. For example, the 2020 Lake Fire resulted in evacuation of several

[19] https://escholarship.org/uc/item/5w85z07g
[20] https://zenodo.org/record/4408243
[21] https://abc7.com/sylmar-brush-fire-creek-kagel-canyon/2740550/

neighborhood[22] with zero fatalities[23]. It should be noted that other variables can impact the number of fatalities during an evacuation. For Instance, some individuals may choose to stay behind to defend their property or adopt a wait-and-see approach[24]. Such individual decisions could delay evacuation to a point where it becomes too late for that individual to leave safely[25].

Best practices learned from previous wildfire events have resulted in a system that is many times more capable of managing evacuations. With the best practices in use today, evacuations are more strategic and surgical than in the past, evacuating smaller areas at highest risk and phasing evacuation traffic so that it flows more evenly and minimizes the surges that may slow an evacuation. Mass evacuation scenarios where large populations are all directed to leave simultaneously, resulting in traffic delays, are thereby avoided, and those populations most at risk are able to safely evacuate.

Due to its location, the Project would also provide the responding emergency managers (e.g., incident commander, Los Angeles County Sheriff) the alternative option of recommending that all or a portion of the onsite population shelter in place. This on-site sheltering option is a contingency plan, but an important option in the scenario when evacuation is considered infeasible or the less safe option. This would provide emergency managers with a safer alternative to risking a late evacuation.

This information will be provided to law enforcement and fire agencies for use in pre-planning scenarios to better inform in the field decisions made pursuant to adopted Emergency Response Plans. Emergency personnel who issue an evacuation order may consider these time estimates in determining when and where to issue evacuation orders. In a real evacuation scenario, emergency managers may use alternative actions/options to further expedite evacuation. Such actions may include providing additional lead time in issuing evacuation orders, prioritizing area at higher risks, providing alternative signal control at downstream intersections, utilizing additional off-site routes or directing traffic to roadways with additional capacity, implementing contra-flow lanes, issuing "shelter-in-place" orders when determined to be safer than evacuation, or considering the possibility of a delayed evacuation where parts of the population could be directed to remain on-site until the fire burns through the fuels around the evacuation route. These options require "in the field" determinations of when evacuations are needed and how they are phased to maximize efficiency. Overall, safe evacuation of the Project and surrounding community is possible in all modeled scenarios.

Limitations

In coordination with fire professionals at Dudek, CRA has presented a conservative analysis simulating evacuation during an extreme wildfire event. However, as discussed above, wildfires are variable events. The underlying planning principle for fire preparedness, given the dynamic nature of a fire, is to demonstrate the availability of multiple route alternatives

[22] https://www.latimes.com/california/story/2020-08-14/additional-evacuations-ordered-in-explosive-lake-fire
[23] https://web.archive.org/web/20200922095200/https://inciweb.nwcg.gov/incident/6953/
[24] Preparing for wildfire evacuation and alternatives: Exploring influences on residents' intended evacuation behaviors and mitigations (https://doi.org/10.1016/j.ijdrr.2021.102177) Table 2 indicates that the majority of the surveyed individuals strongly agree with the stay and defend statements.
[25] National Institute of Standards and Technology – Department of Commerce – WUI Fire Evacuation and Sheltering Consideration Assessment, Planning, and Execution (August 2023) – Evacuation Alternatives

and response strategies to permit emergency professionals to manage their response according to the specific circumstances. The Project area provides ample route and response alternatives that were not considered in this model. Emergency responders will coordinate the safest possible evacuation based on the dynamic circumstances of the actual event, including the appropriate phasing of the evacuation, and utilization of the most appropriate ingress and egress routes for area residents and emergency responders.

The breadth of route alternatives and response strategies available to emergency professionals to manage a potential fire in the City/County cannot and should not be evaluated using this evacuation travel time technical analysis alone. A comprehensive view of Project fire safety is gained by understanding this memorandum, the Project's Wildfire Evacuation Study (Dudek 2023), along with the standard protocols and "in-the-field" decision making of emergency responders as detailed in the County[26] and nearby cities Emergency Response Plans documents.

This evacuation travel time technical analysis presents a reasonable vehicle travel time estimate based on professional judgment made by CRA, Dudek, and fire operations experts with experience participating in evacuations in Southern California. Changing any number of these assumptions can lengthen or shorten the average vehicle travel time.

For Instance, a situation could arise in which professionals *may* choose to utilize additional roadways for evacuation not utilized in the analyses and *may also* choose to guide vehicle trips to more or different route permutations relative to what has been modeled in this evacuation travel time technical analysis. A phased evacuation is also likely to be implemented, which improves the orderly flow of traffic in an evacuation scenario.

The net result of changing the variables selected could yield an average evacuation travel time shorter or longer than the results detailed in the evacuation travel time technical analysis. Many factors can shorten or lengthen the vehicle time from the results shown herein. For example:

1. Changing the evacuation area affected by the evacuation order would affect the results. For Instance, emergency managers could order an early evacuation of land uses located in higher risks area, such as the Southern Oaks community. Thus, by the time an evacuation order is established for the proposed Project, there would be less vehicles on the road.
2. Increasing or decreasing the number of path permutations and percentage of the population utilizing each route that leads out of the immediate area could shorten or lengthen vehicle travel time relative to the results shown herein.
3. Emergency professionals electing to reserve certain travel lanes for emergency vehicle ingress for periods of time could affect the travel time relative to the results shown herein.
4. Assuming evacuees utilize fewer or more vehicles to evacuate from their homes relative to the vehicle utilization rate selected in the evacuation travel time

[26] County of Los Angeles Emergency Operation Plan: http://Los Angelescountyca.iqm2.com/Citizens/Detail_LegiFile.aspx?Frame=&MeetingID=2048&MediaPosition=3715.315&ID=10490&CssClass= County of Los Angeles Emergency Management Plan: chrome- https://rivcoready.org/sites/g/files/aldnop181/files/EMD%202022-2025%20Strategic%20Plan.pdf

technical analysis would shorten or lengthen vehicle travel time relative to the results shown herein.

5. Changing the mix of vehicle trips allocated to each evacuation route could shorten or lengthen vehicle travel time relative to the results shown herein.
6. Assuming different road condition adjustment factors could shorten or lengthen the vehicle travel time relative to the results shown herein.
7. Assuming fewer people are at home when the evacuation notice is given would reduce the number of vehicle trips and shorten vehicle travel time relative to the results shown herein. For instance, an evacuation during daytime hours could result in fewer outbound trips than assumed in this evacuation travel time technical analysis
8. Assuming some portion of vehicle trips are made in advance of the evacuation notice would reduce the number of vehicle trips relative to the results shown herein.
9. Assuming emergency professionals elect to implement contraflow on certain roadways to open up additional lanes for emergency evacuation egress could reduce the travel time results shown herein.

This evacuation travel time time analysis is necessarily limited in scope given the numerous and unpredictable variables inherent in a wildfire and evacuation event. Because of this unpredictability, modeling evacuation behaviors and times is inherently speculative, though this report represents a reasonable forecast of multiple evacuation scenarios based on fire modeling results. However, as discussed above, it is not anticipated that the Project will significantly impact the safe evacuation of the proposed or existing surrounding communities based on evacuation times and other qualitative considerations.

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Attachment A
Best Practices Research

Reference & Analysis Tool Selection

CRA has compiled an extensive list of research and findings on best practices for both wildfire and standard evacuation analyses. These foundational best practices informed our evacuation travel time technical analysis assumption and approaches. A list of the relevant and recent research is included at the end this section.

Local Guidelines References

County of Los Angeles Operational Area Emergency Operations Plan, November 2023
2020 County of Los Angeles All-Hazards Mitigation Plan, 2020
LA County Climate Vulnerability Assessment,October 2021
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Attachment B
Roadway Capacity Calculation

This section offers a comparison between the normal roadway capacity, as utilized in the Centennial Specific Plan Traffic Study by Stantec (2017), and the roadway evacuation capacity measured using the Vissim microsimulation model. The roadway capacity utilized for the traffic study is based on a stable traffic flow under non-evacuation conditions. According to Tables 1-3 and 2-1 of the Traffic Study, the service flow rate for SR-138, between Gorman Post Road and 300th Street West, is 1,904 vehicles per hour per lane or 476 vehicles every 15 minutes. An excerpt from the traffic study is provided below:

SR-138									
60	Btw. Jct I-5 & Gorman Post Rd	2M	2,100	n/a	21%	1.5	0.91	1.00	1,904
61	Btw. Gorman Post Rd & Old Ridge Route Rd	1M	2,100	n/a	21%	1.5	0.91	1.00	1,904
62	Btw. Old Ridge Route Rd & 300th St W	1M	2,100	n/a	21%	1.5	0.91	1.00	1,904
63	Btw. 300th St W & Three Pts Rd	1M	2,100	n/a	21%	1.5	0.91	1.00	1,904
64	Btw. Three Pts Rd & 245th St (Ave F)	1M	2,100	n/a	21%	1.5	0.91	1.00	1,904
65	Btw. 245th St W & 170th St W	1M	2,100	n/a	21%	1.5	0.91	1.00	1,904
66	Btw. 170th St W & 110th St W	1M	2,100	n/a	14%	1.5	0.93	1.00	1,962
67	Btw. 110th St W & 60th W	1M	2,100	n/a	14%	1.5	0.93	1.00	1,962
68	Btw. 60th W & Jct Rte 14 North	1M	2,100	n/a	14%	1.5	0.93	1.00	1,962

(Continued)

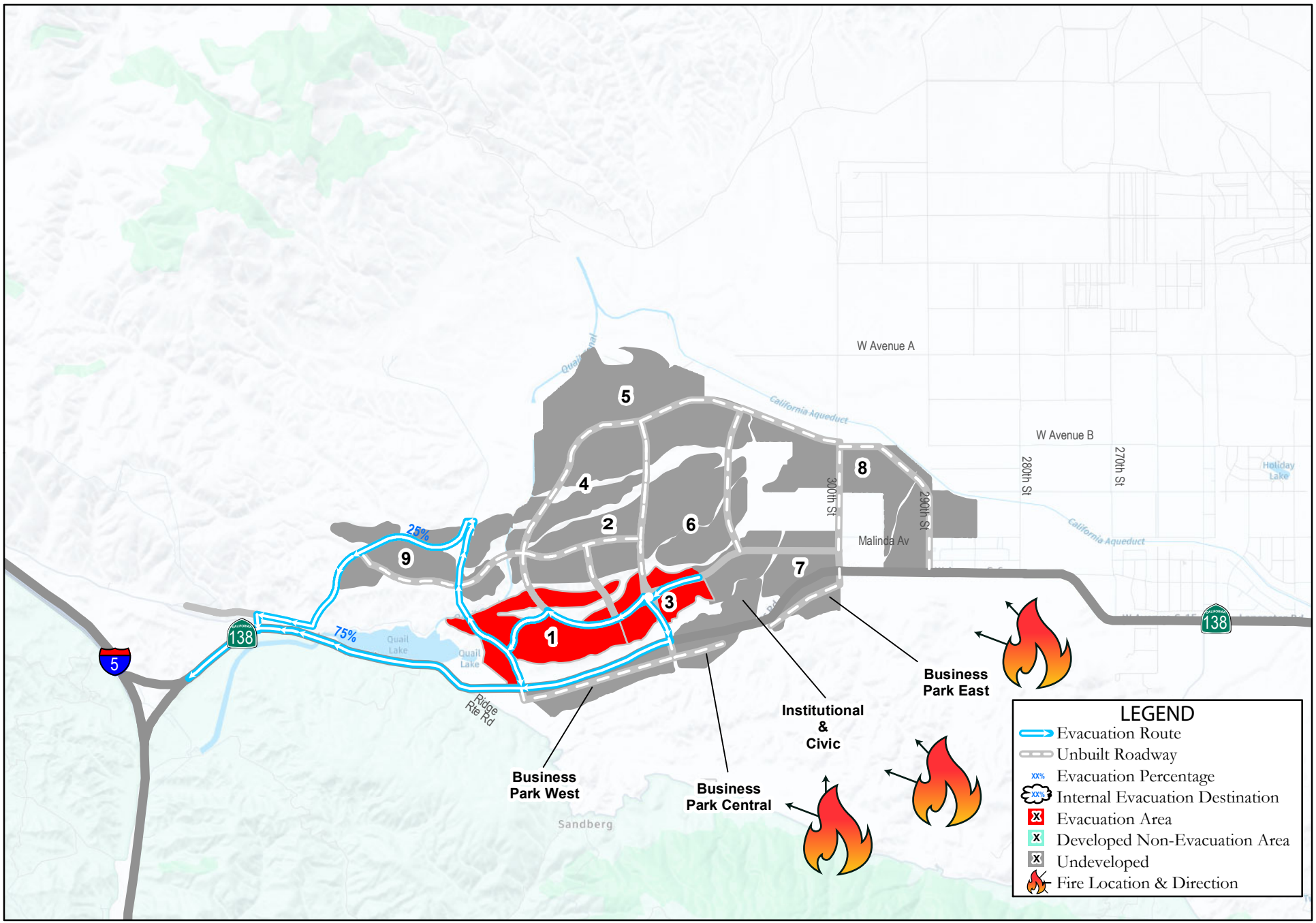
The evacuation capacity of each roadway varies due to factors such as stop-and-go traffic, yielding behavior, downstream or upstream congestion, and other driver behaviors that influence the actual number of vehicles passing through a specific roadway segment. The table below compares the capacity of SR-138 under non-evacuation conditions to that during evacuation scenarios, with the evacuation capacity directly measured from the Vissim microsimulation model.

SR-138 Segment	Function Classification	Number of Evacuating Lane	Traffic Study Roadway Capacity per 15 minutes	Evacuating Vehicles every 15 minutes (900 seconds)[27]					
				1800	2700	3600	4500	5400	6300
Gorman Post Road and Central Access	2-Ln Roadway	1	450	192	129	131	133	137	358
Central Access and 300th Street West	2-Ln Roadway	1	450	362	367	381	372	379	354

As shown, the evacuation roadway processing capacity is lower than the stable flow conditions due to the reasons mentioned above.

[27] Traffic volumes measured at each roadway segment every 900 seconds or 15 minutes

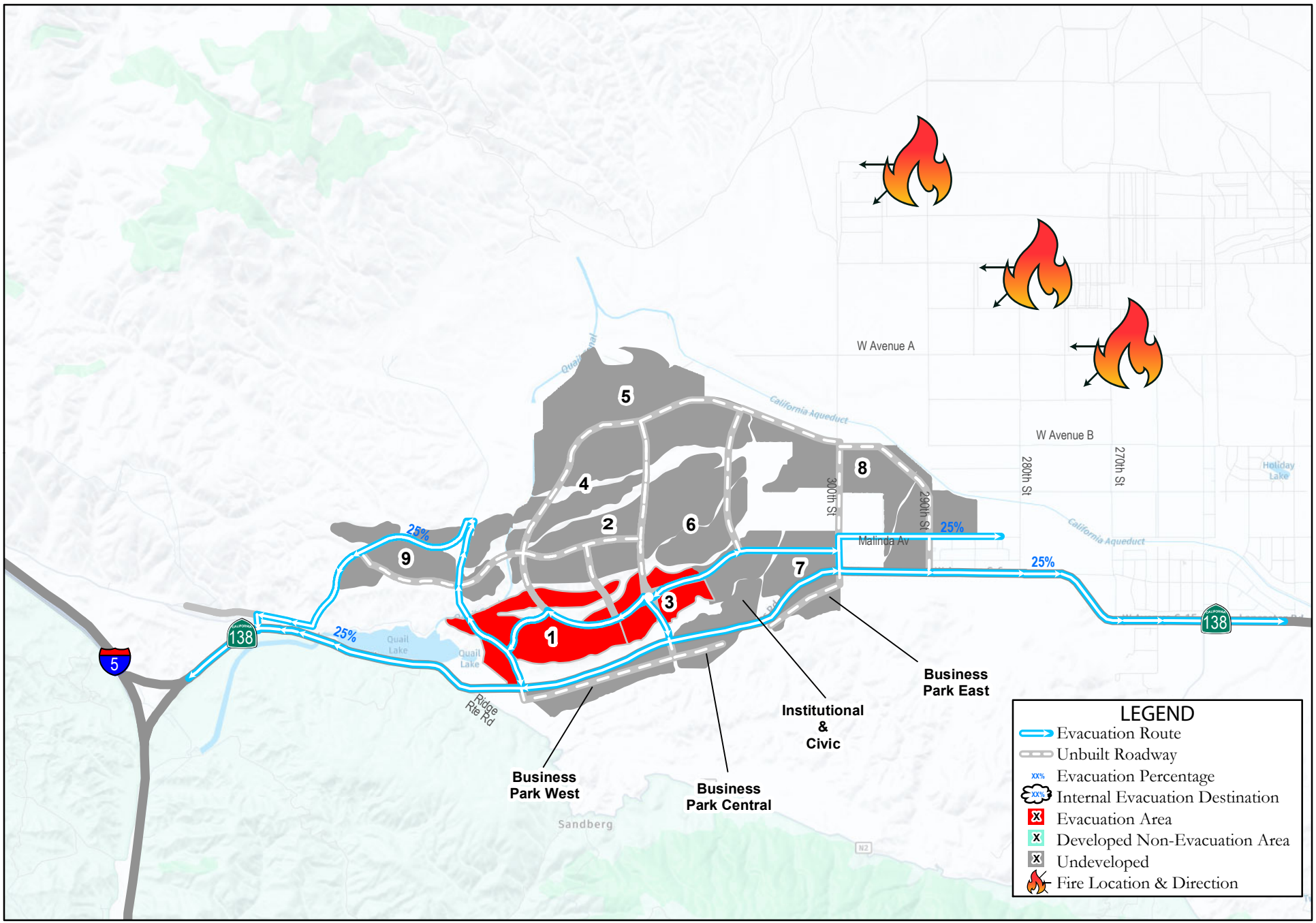
Attachment C
Project Phasing and Evacuation Area



Tejon Ranch Evacuation Technical Memorandum

C+R

Evacuation Areas and Routes
Scenario 1



Tejon Ranch Evacuation Technical Memorandum

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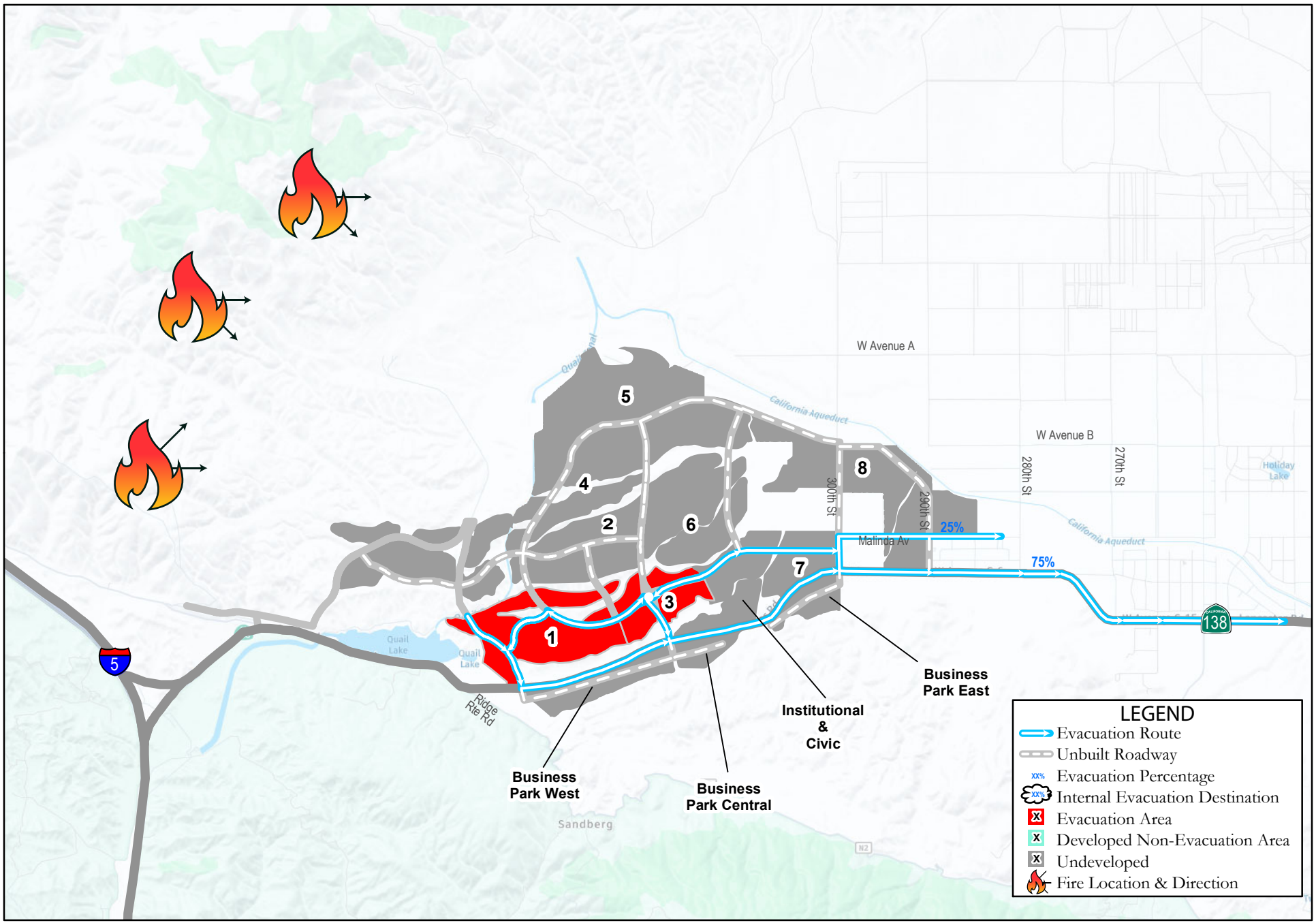
Evacuation Areas and Routes
Scenario 2



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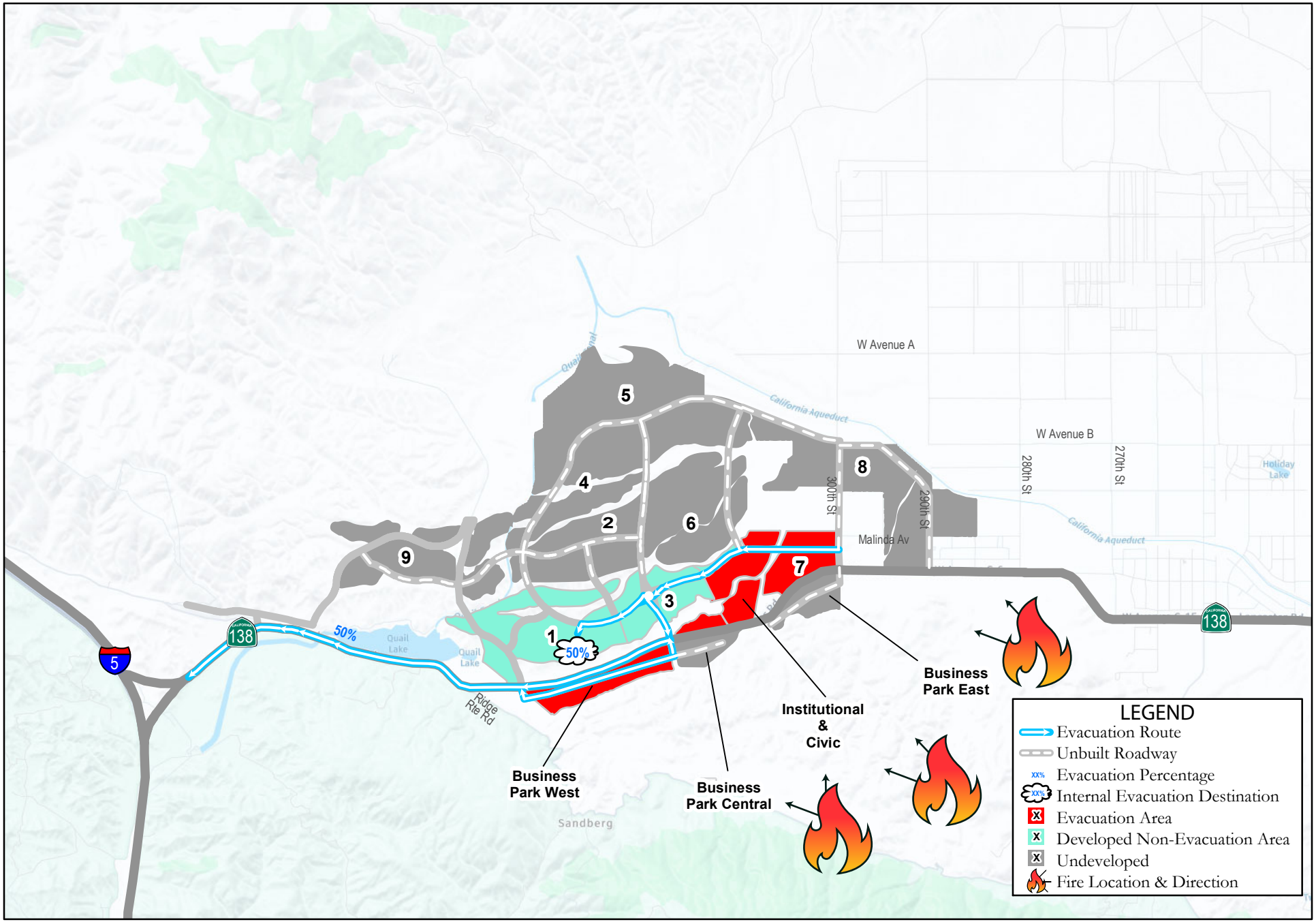
Evacuation Areas and Routes
Scenario 3



Tejon Ranch Evacuation Technical Memorandum

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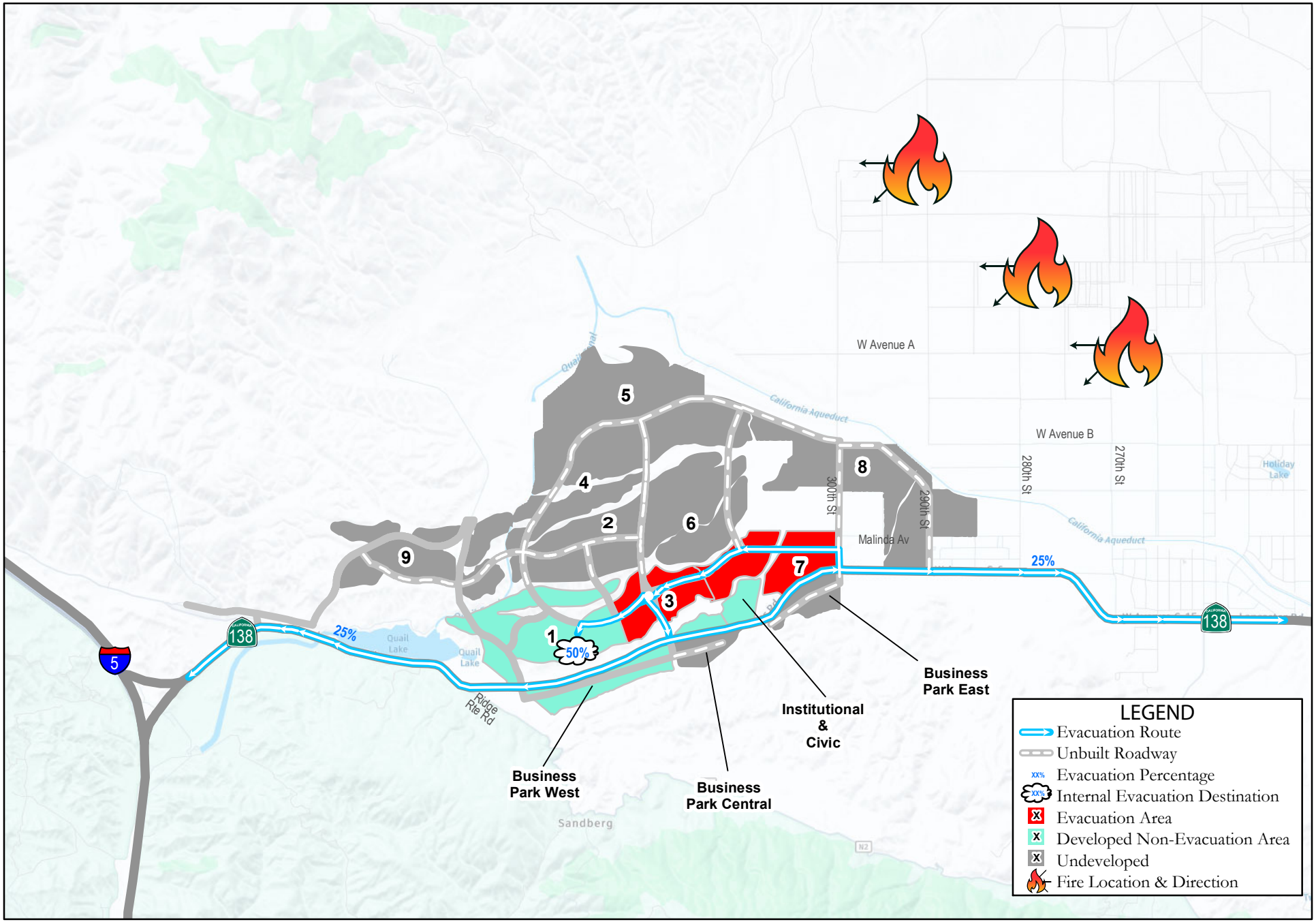
Evacuation Areas and Routes
Scenario 4



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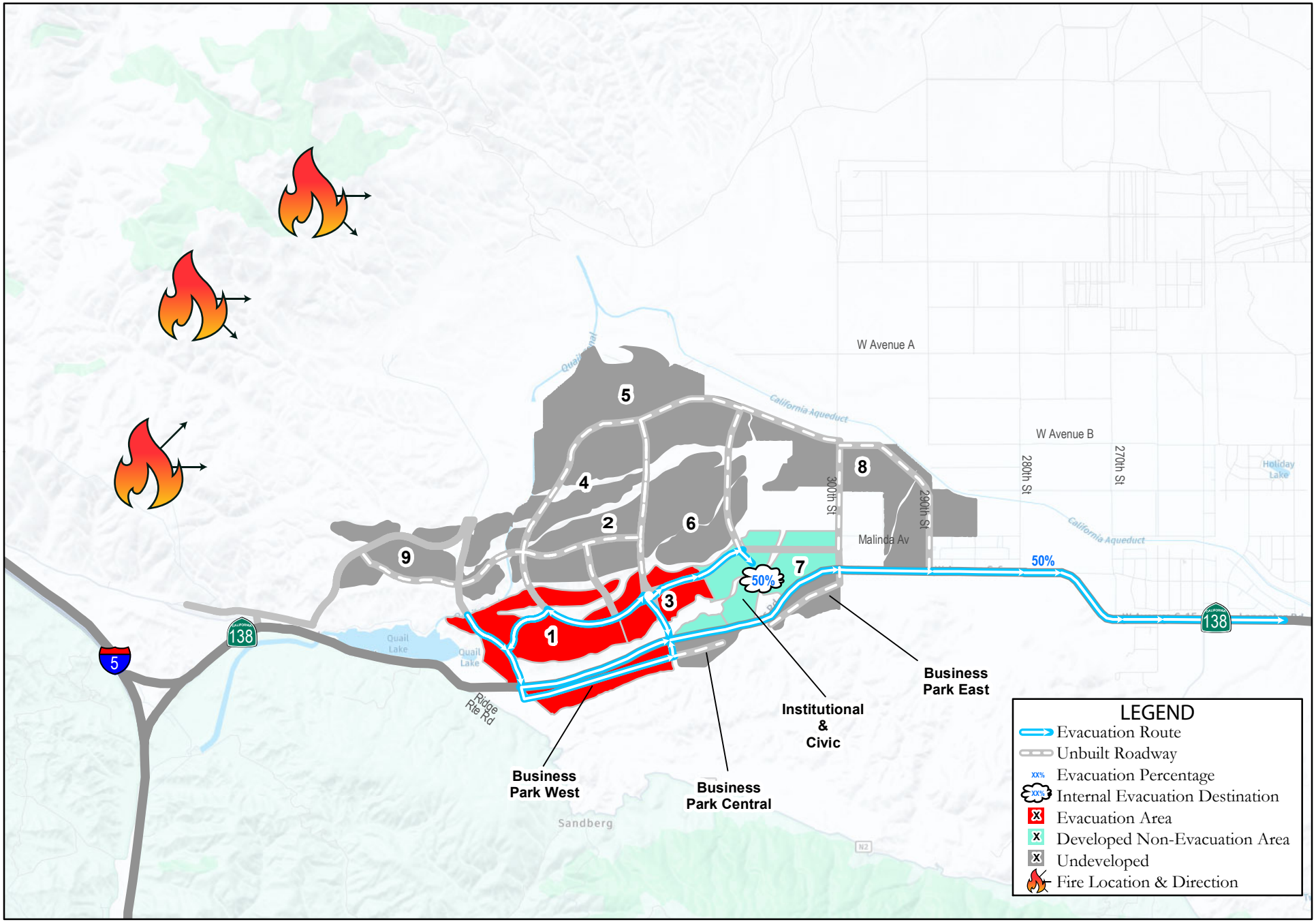
Evacuation Areas and Routes
Scenario 5



Tejon Ranch Evacuation Technical Memorandum

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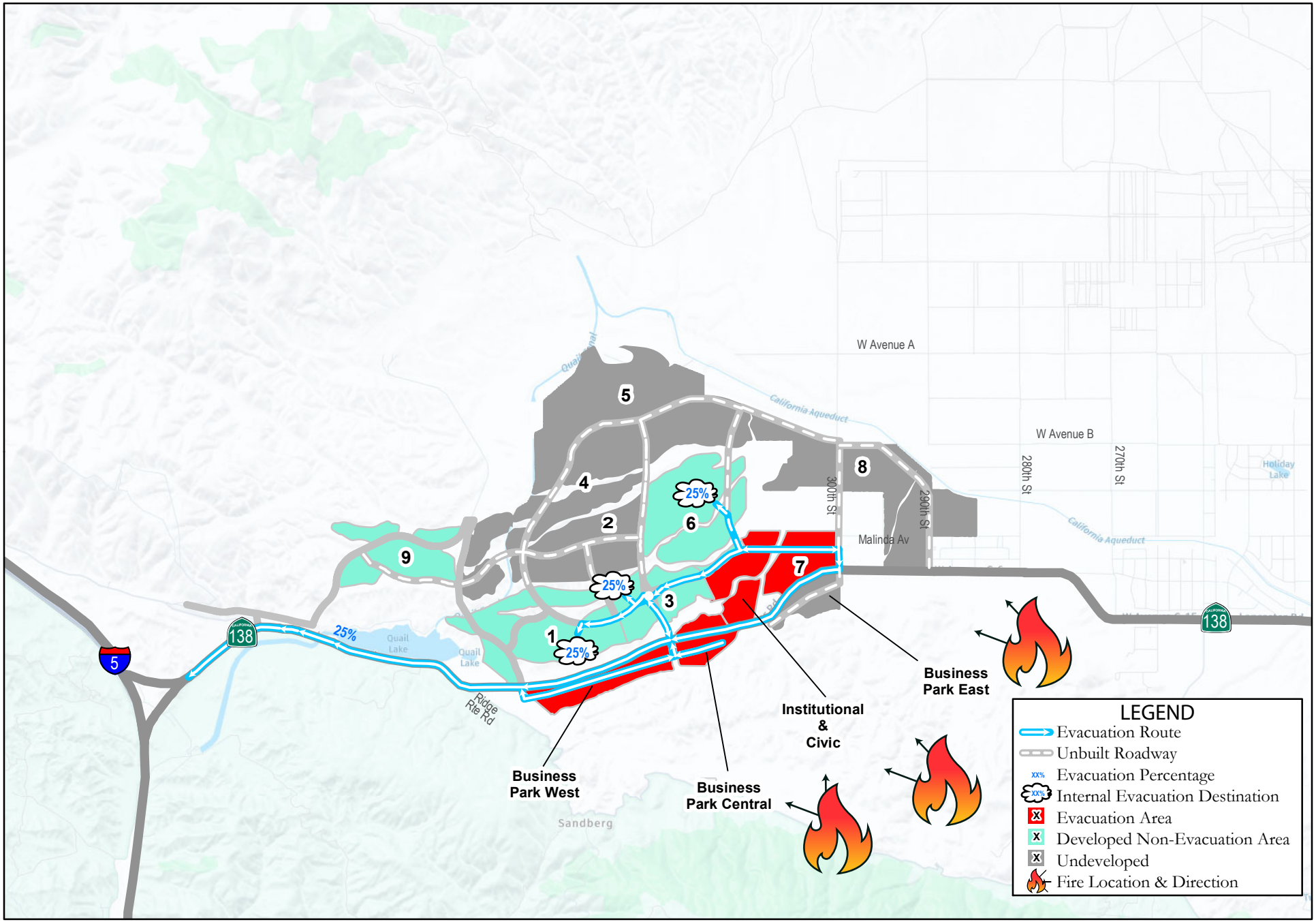
Evacuation Areas and Routes
Scenario 6



Tejon Ranch Evacuation Technical Memorandum

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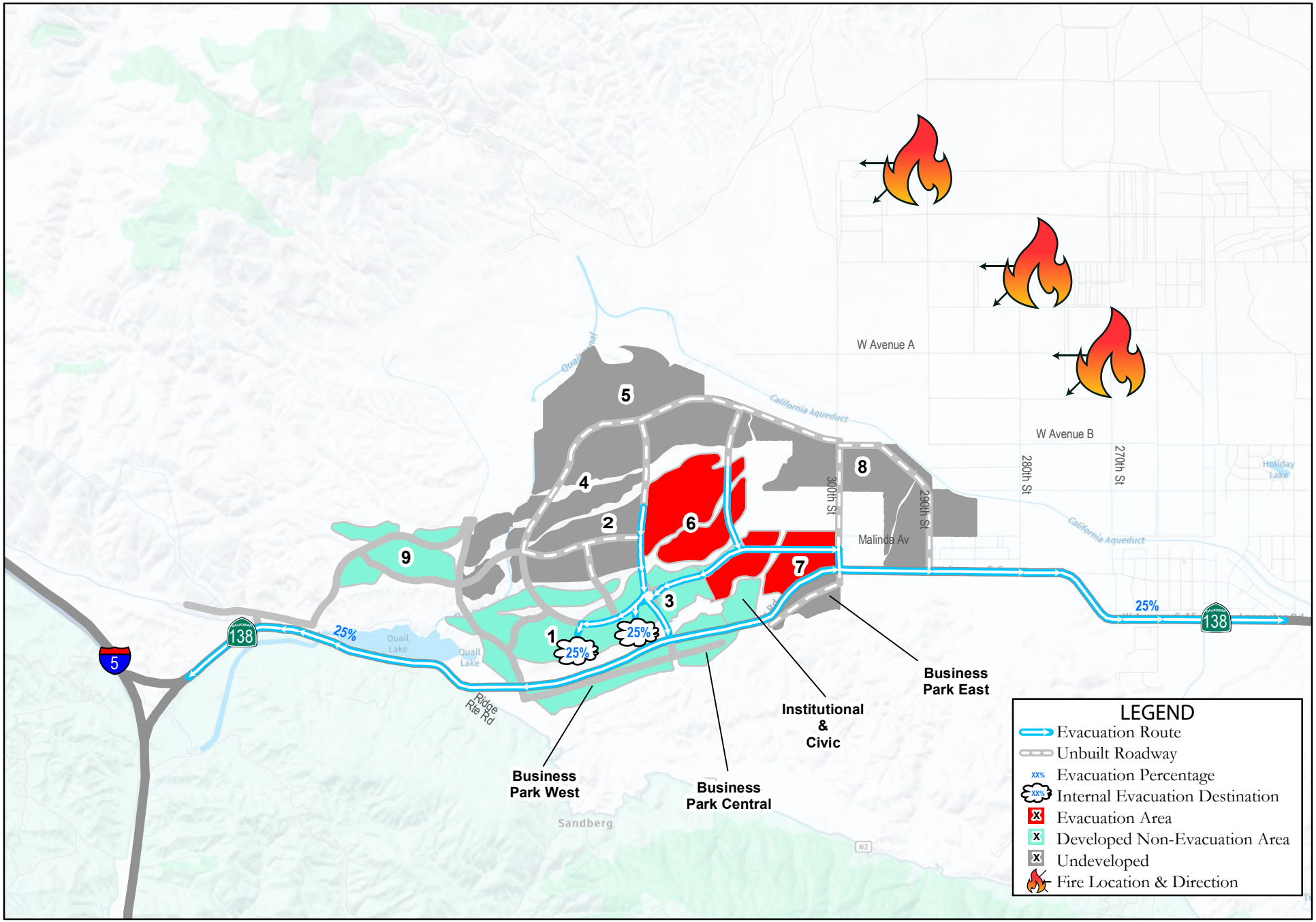
Evacuation Areas and Routes
Scenario 7



Tejon Ranch Evacuation Technical Memorandum

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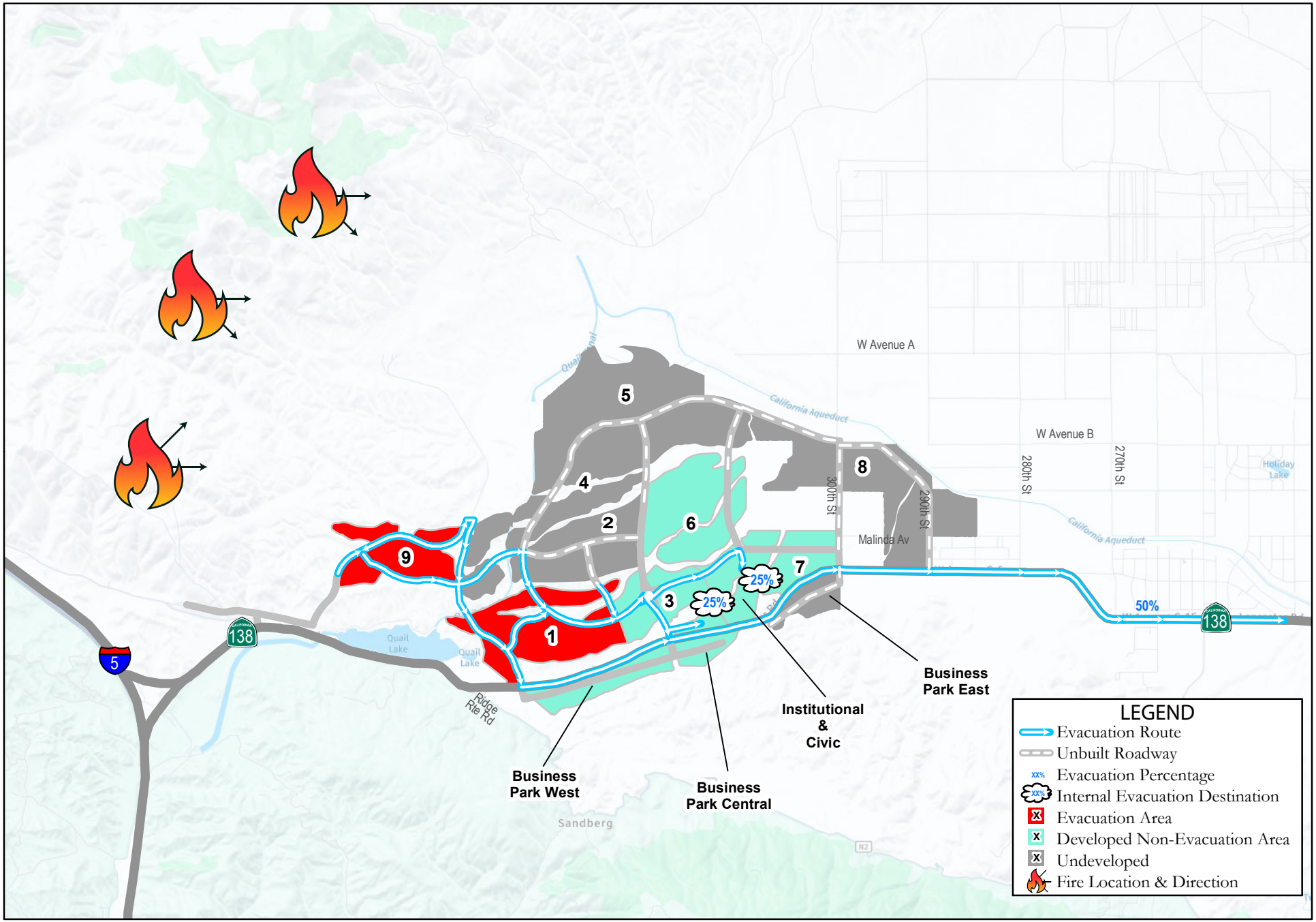
Evacuation Areas and Routes
Scenario 8



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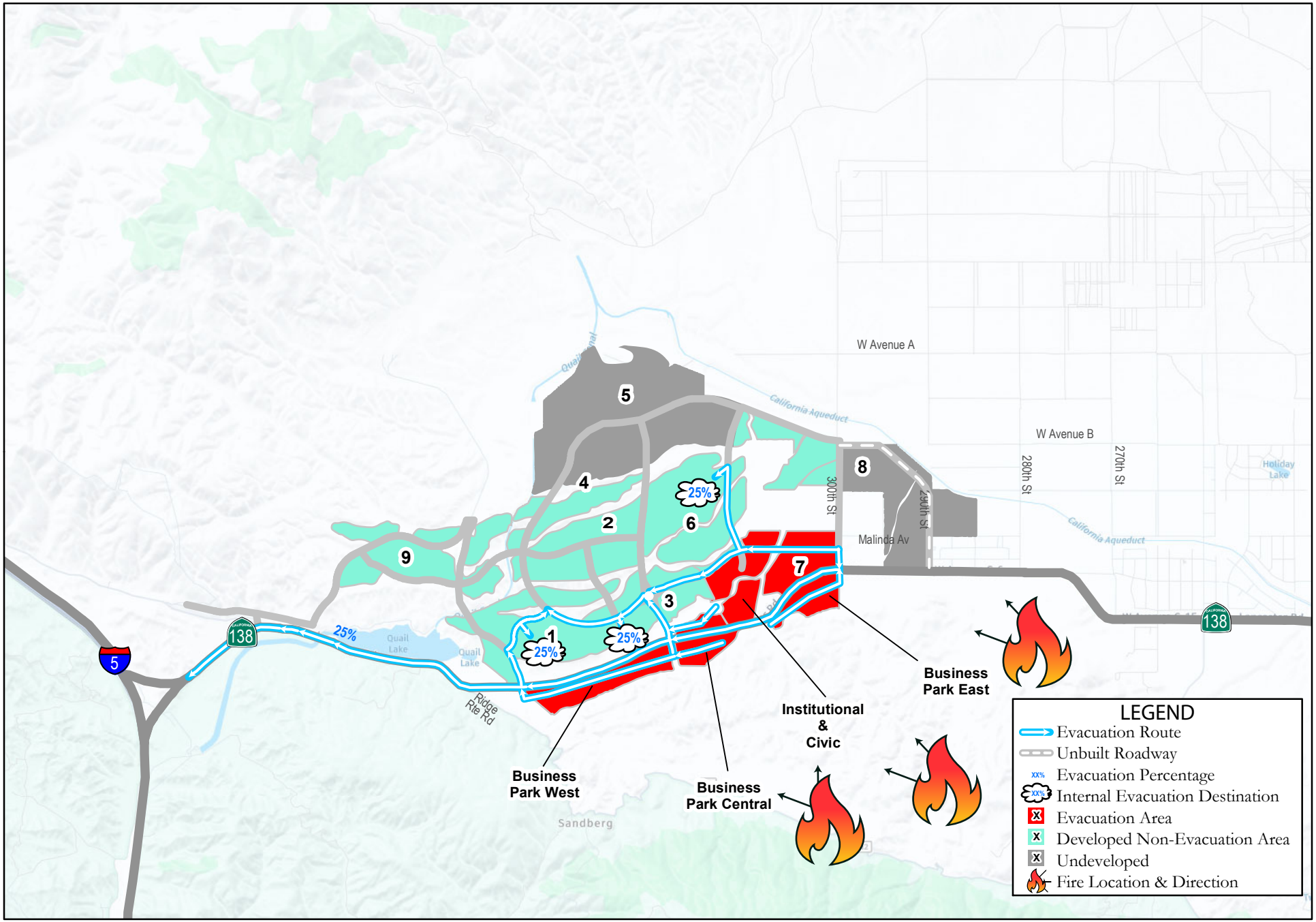
Evacuation Areas and Routes
Scenario 9



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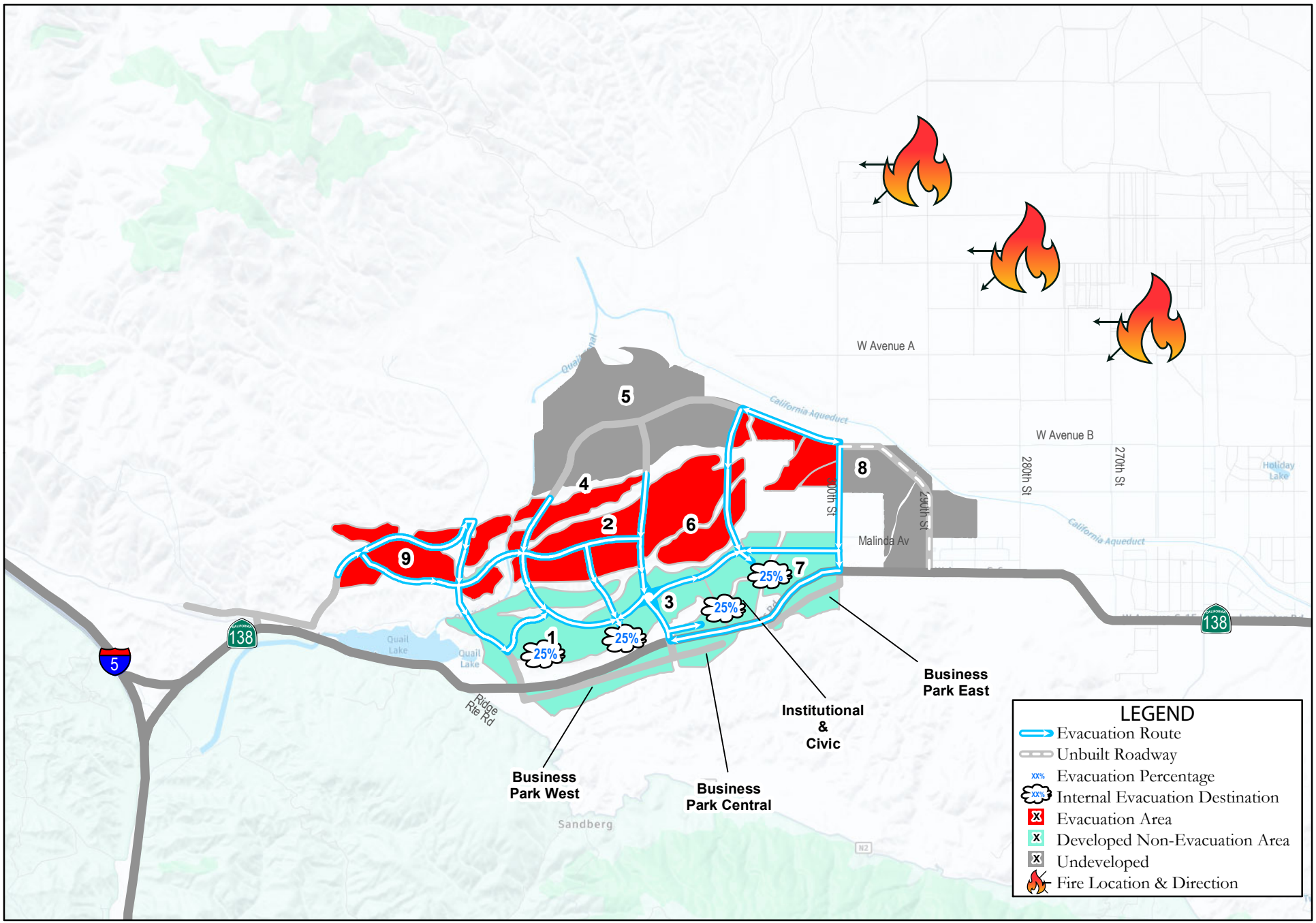
Evacuation Areas and Routes
Scenario 10



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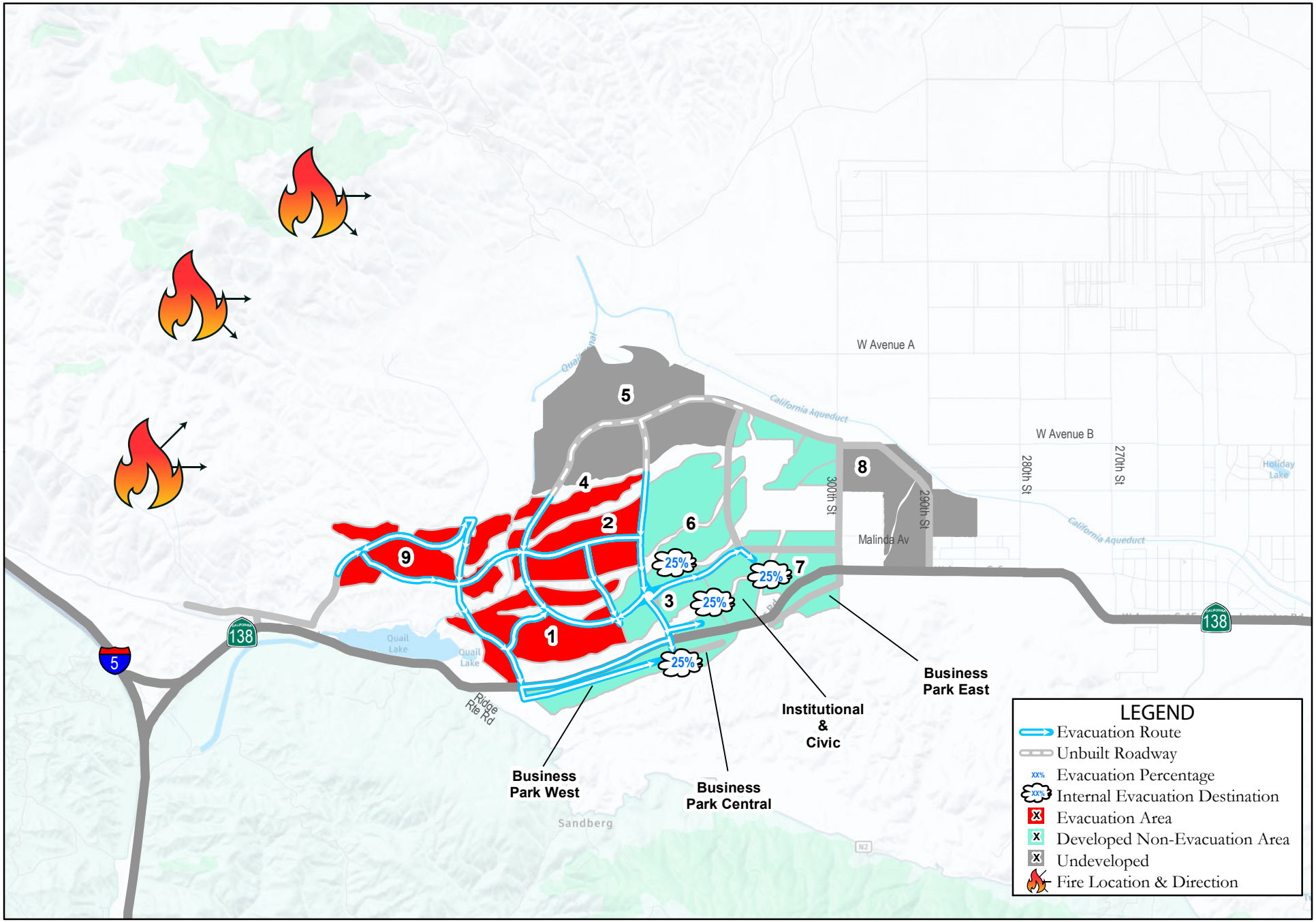
Evacuation Areas and Routes
Scenario 11



Tejon Ranch Evacuation Technical Memorandum

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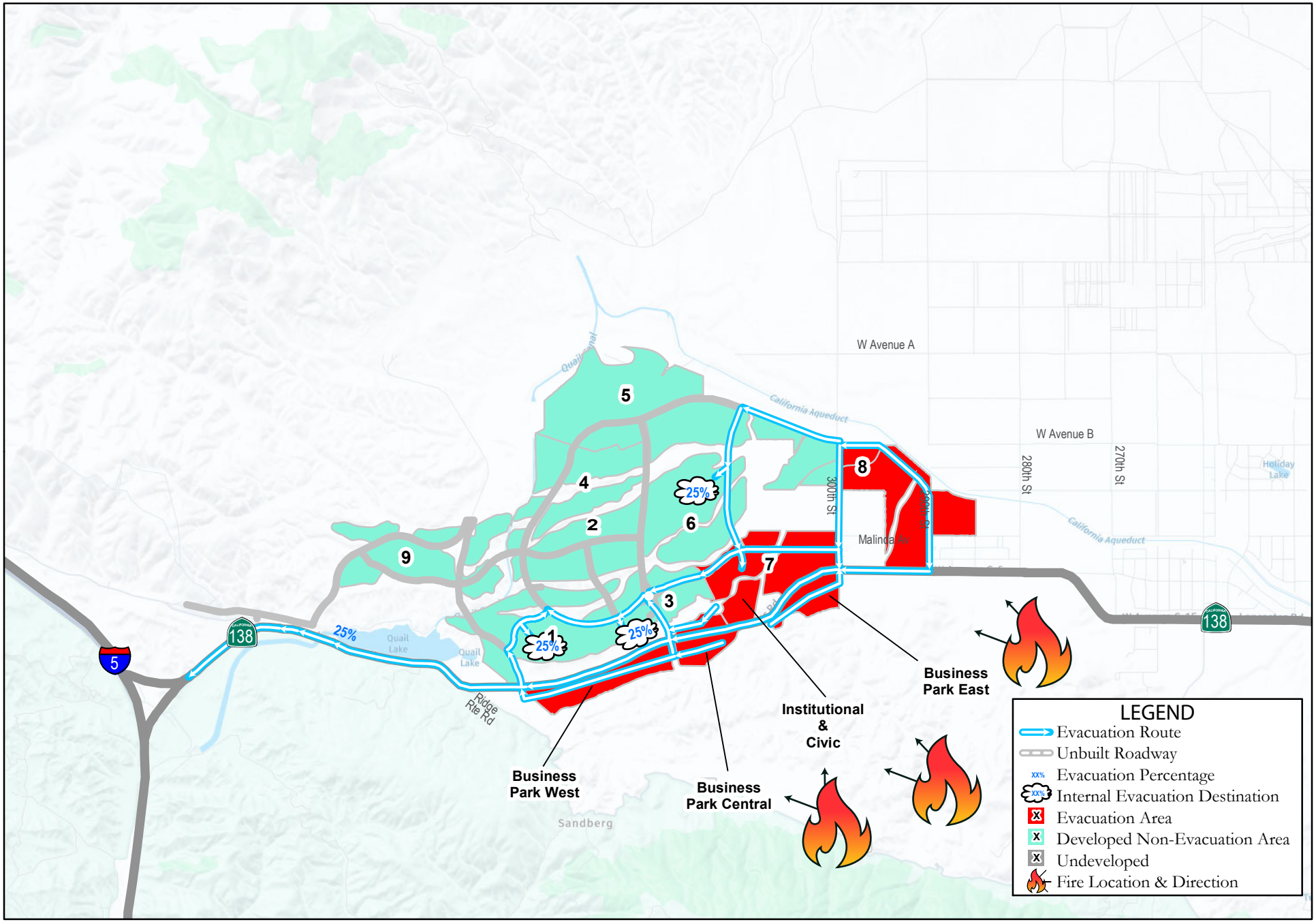
Evacuation Areas and Routes
Scenario 12



Tejon Ranch Evacuation Technical Memorandum

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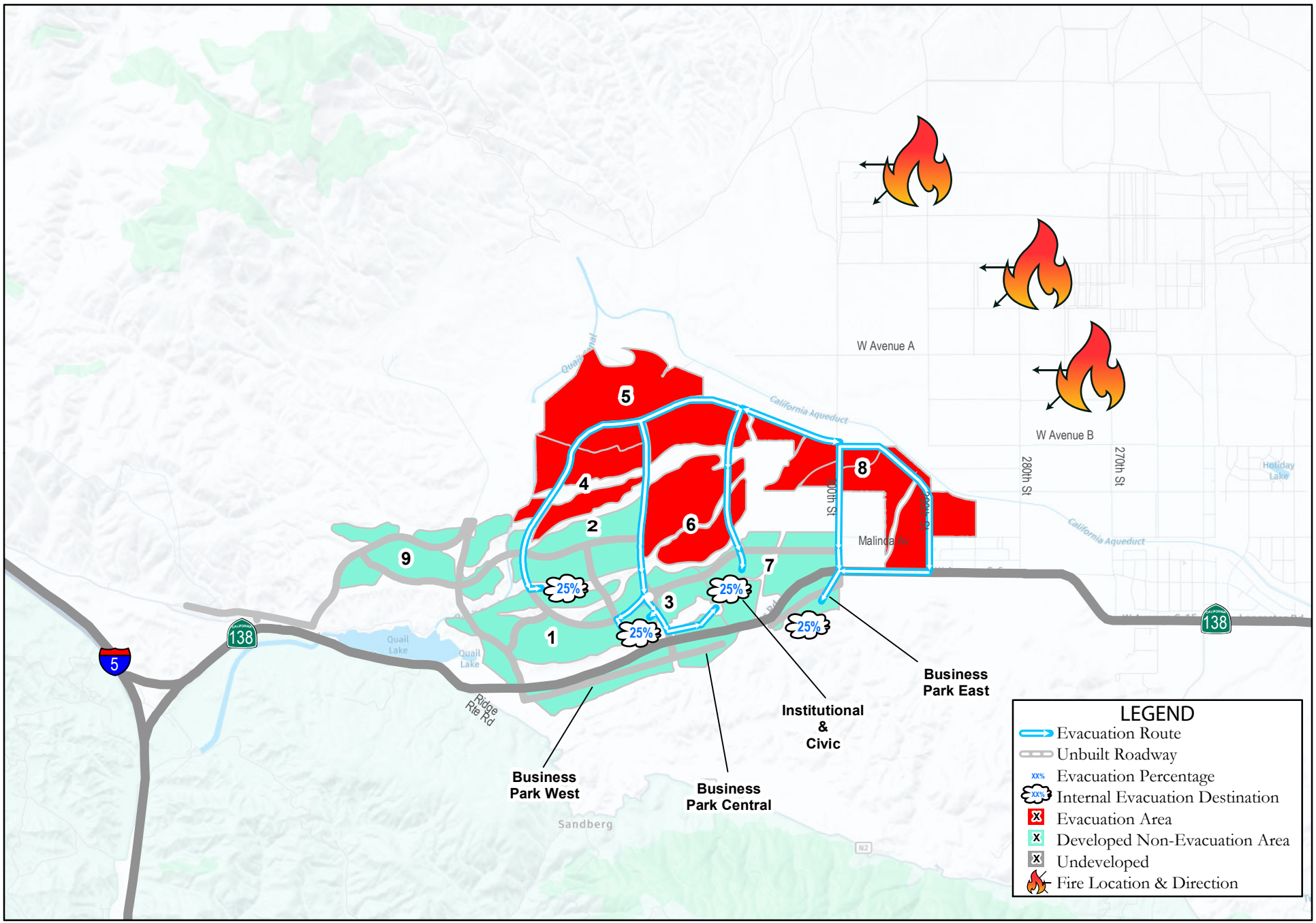
Evacuation Areas and Routes
Scenario 13



Tejon Ranch Evacuation Technical Memorandum

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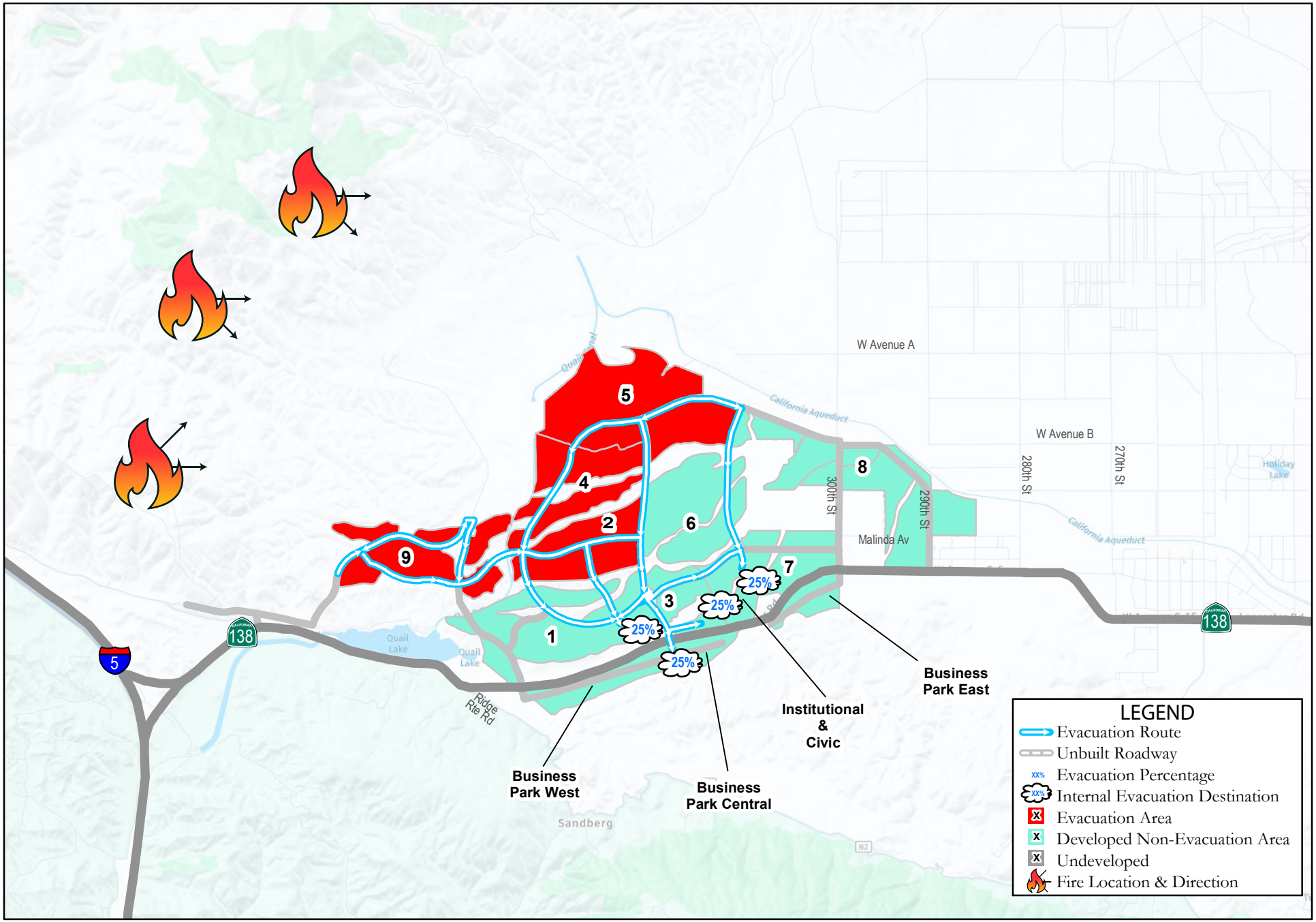
Evacuation Areas and Routes
Scenario 14



Tejon Ranch Evacuation Technical Memorandum

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Evacuation Areas and Routes
Scenario 15

Attachment D
Average vehicle ownership, residential units, and evacuating vehicles calculations

Average Vehicle Ownership Calculation

The average vehicle ownership rate was sourced from the US Census American Community Survey for the City of Lancaster, the nearest developed area to the Project site. It is assumed that residents of the Project will have a similar vehicle ownership rate to that of Lancaster.

TABLE ID:	B25044
SURVEY/PROGRAM:	American Community Survey
VINTAGE:	2022
DATASET:	ACSDT1Y2022
PRODUCT:	ACS 1-Year Estimates Detailed Tables
UNIVERSE:	Occupied housing units
MLA:	U.S. Census Bureau. "Tenure by Vehicles Available." American Community Survey, ACS 1-Year Estimates Detailed Tables, Table B25044, 2022, . Accessed on November 11, 2023.
FTP URL:	None
API URL:	https://api.census.gov/data/2022/acs/acs1

USER SELECTIONS

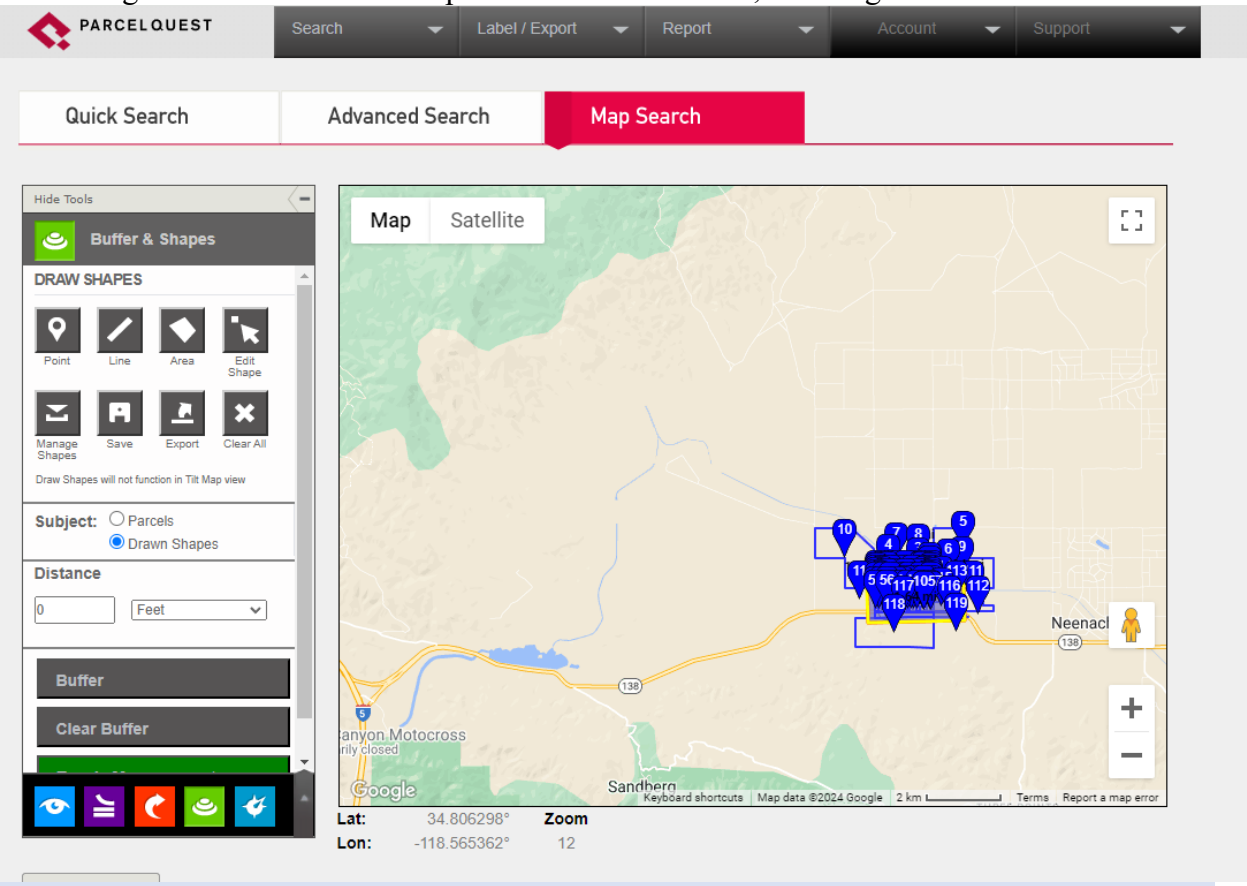
TOPICS	Owner/Renter (Tenure)
GEOS	Lancaster city, California

Vehicle Ownership by Household Type (Owner vs. Renter)	Number of Households	Total Vehicles
Owner occupied:	32,020	
No vehicle available	609	-
1 vehicle available	6,734	6,734
2 vehicles available	13,414	26,828
3 vehicles available	6,430	19,290
4 vehicles available	2,887	11,548
5 or more vehicles available	1,946	9,730
Renter occupied:	19,648	
No vehicle available	1,392	-
1 vehicle available	8,506	8,506
2 vehicles available	6,756	13,512
3 vehicles available	1,962	5,886
4 vehicles available	423	1,692
5 or more vehicles available	609	3,045
Total	51,668	106,771
Veh per Household	2.07	

Evacuation Vehicles Calculation

Evacuating Vehicles from Existing Land Use

The image and table below present the area, number of dwelling units, acreage, and building area for the existing land use located east of the Tejon Ranch Project. As indicated, there are 64 residential dwelling units in total, which, when multiplied by the average vehicle ownership of 2.07, would amount to 133 vehicles. However, based on an aerial image review, some properties have more than two vehicles on-site. Therefore, as a conservative estimate, the total number of evacuating vehicles was rounded up to the nearest hundred, resulting in 200 vehicles.



Land Use Type	Dwelling Units	Acres	Building Area
AGRICULTURAL	1	2.496	1128
MISCELLANEOUS		23.518	
OFFICE	1	6.351	1440
RESID. MOBILE/MANUFACTURED HOMES	26	89.824	43719
RESID. SINGLE FAMILY	38	121.369	67283
RETAIL SALES	1	0.459	900
VACANT		1988.155	
Grand Total	**67**	**2232.172**	**114470**

Evacuating Vehicles from the Proposed Project

This section summarizes the estimated number of vehicles to be evacuated under different scenarios. The number of evacuating vehicles was determined by multiplying the amount of land

use by either the average vehicle ownership rate for residential areas or the parking rate from the Institute of Transportation Engineers Parking Generation Manual for non-residential areas. The table below shows the average vehicle ownership or parking rate for various land uses.

Short Name	ID	Amount type[28]	Description	ITE Category	Vehicle Generation Rate	Modified Vehicle Generation Rate[29]
VLDR	1	DU	1. VLDR - Very Low Density Residential	N/A	2.07	2.07
LDR	2	DU	2. LDR - Low Density Residential	N/A	2.07	2.07
MDR	3	DU	3. MDR - Medium Density Residential	N/A	2.07	2.07
HDR	4	DU	4. HDR - High Density Residential	N/A	2.07	2.07
VHDR	5	DU	5. VHDR - Very High Density Residential	N/A	2.07	2.07
C	6	TSF	6. C-Commercial	Shopping Center	1.95	1.01
R/E	7	TSF	7. CR - Commercial Recreation	Shopping Center	1.95	1.01
BP	8	TSF	8. BP - Business Park	General Light Industrial	0.65	0.34
PF	9	ACRE	9. PF - Public Facilities	Recreational Community Center	2.07	1.08
I/C	10	TSF	10. CI - Civic	Recreational Community Center	2.07	1.08
K-8 SCHOOL	11	-	11. K-8 School	N/A	Assume not in operation	0
HIGH SCHOOL	12	-	12. High School	N/A	Assume not in operation	0
PARK	13	ACRE	13. Park	Public Park	0.47	0.24

It's important to note that the parking generation rates for non-residential land uses were adjusted to account for the internal trip generation rate provided in the traffic study. Since the traffic study indicated that approximately 48% of the total trips would be internal, it is assumed that the parking generation rate would reflect a similar proportion of internal capture. For example, if a resident drives to a commercial shopping center within the development, that vehicle would not be at home during an evacuation order. Therefore, the parking generation rate was adjusted with the internal capture rate to avoid double-counting evacuating vehicles. Excerpts from the Institute of Transportation Engineers Parking Generation Manual for relevant land uses are provided below.

[28] DU = Dwelling Unit, TSF = Thousand Square Feet
[29] 52% of the full rate, based on the internal capture percentage derived from the traffic study.

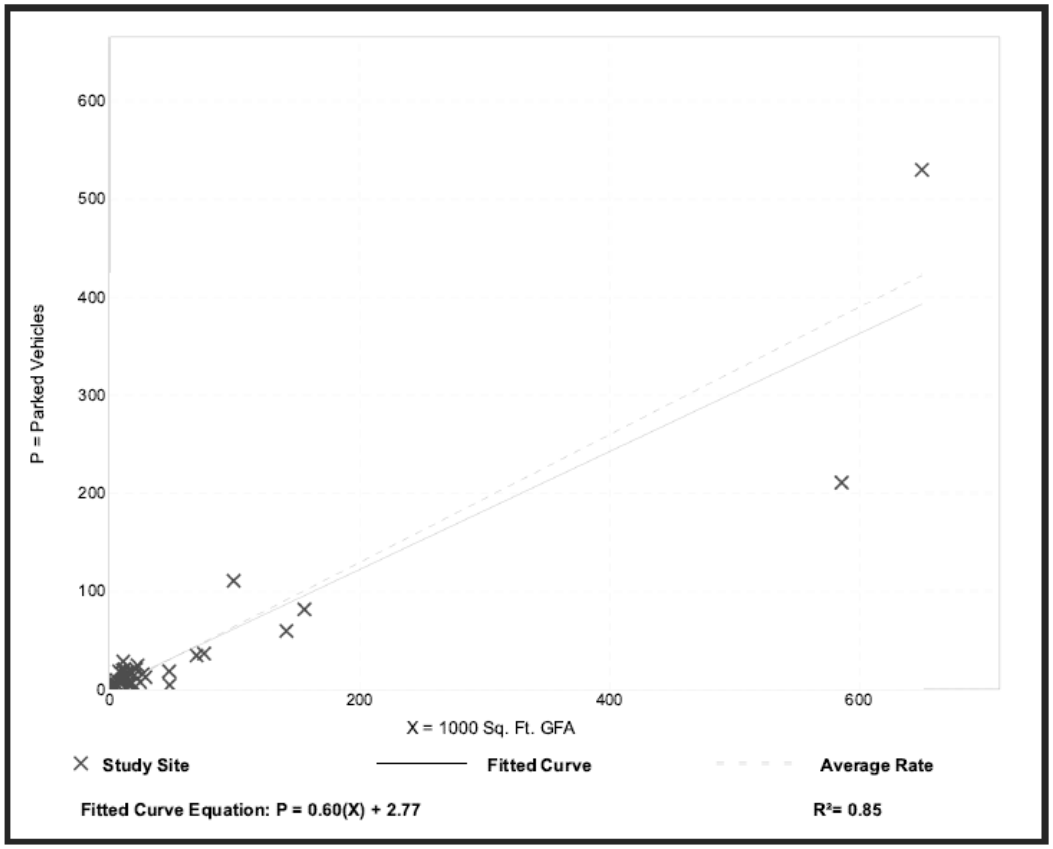
General Light Industrial
(110)

Peak Period Parking Demand vs: **1000 Sq. Ft. GFA**
On a: **Weekday (Monday - Friday)**
Setting/Location: **General Urban/Suburban**
Number of Studies: 40
Avg. 1000 Sq. Ft. GFA: 56

Peak Period Parking Demand per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
0.65	0.11 - 7.89	0.58 / 1.94	0.52 - 0.78	0.41 (63%)

Data Plot and Equation



Parking Generation Manual, 6th Edition • Institute of Transportation Engineers

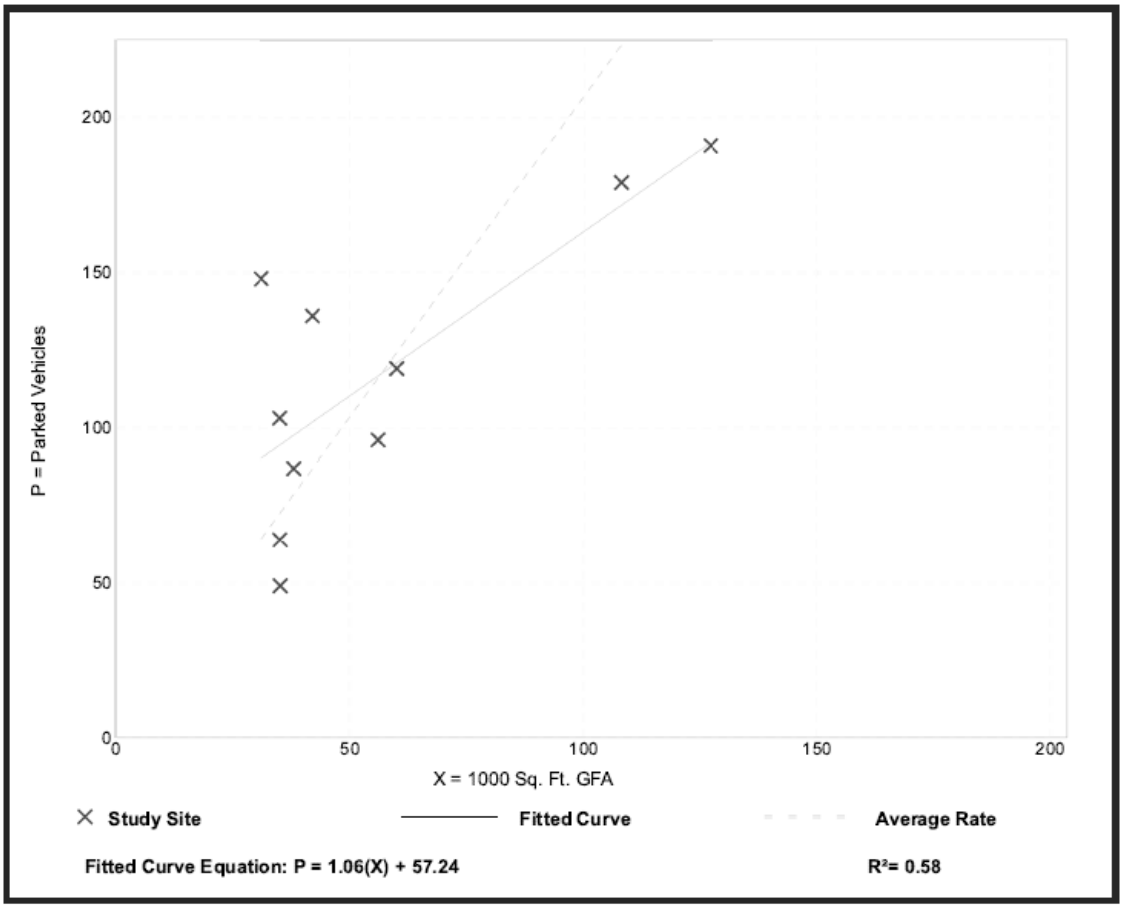
Recreational Community Center
(495)

Peak Period Parking Demand vs: **1000 Sq. Ft. GFA**
On a: **Weekday (Monday - Friday)**
Setting/Location: **General Urban/Suburban**
Number of Studies: 10
Avg. 1000 Sq. Ft. GFA: 57

Peak Period Parking Demand per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
2.07	1.40 - 4.77	1.69 / 3.78	***	0.88 (43%)

Data Plot and Equation



Parking Generation Manual, 6th Edition ● Institute of Transportation Engineers

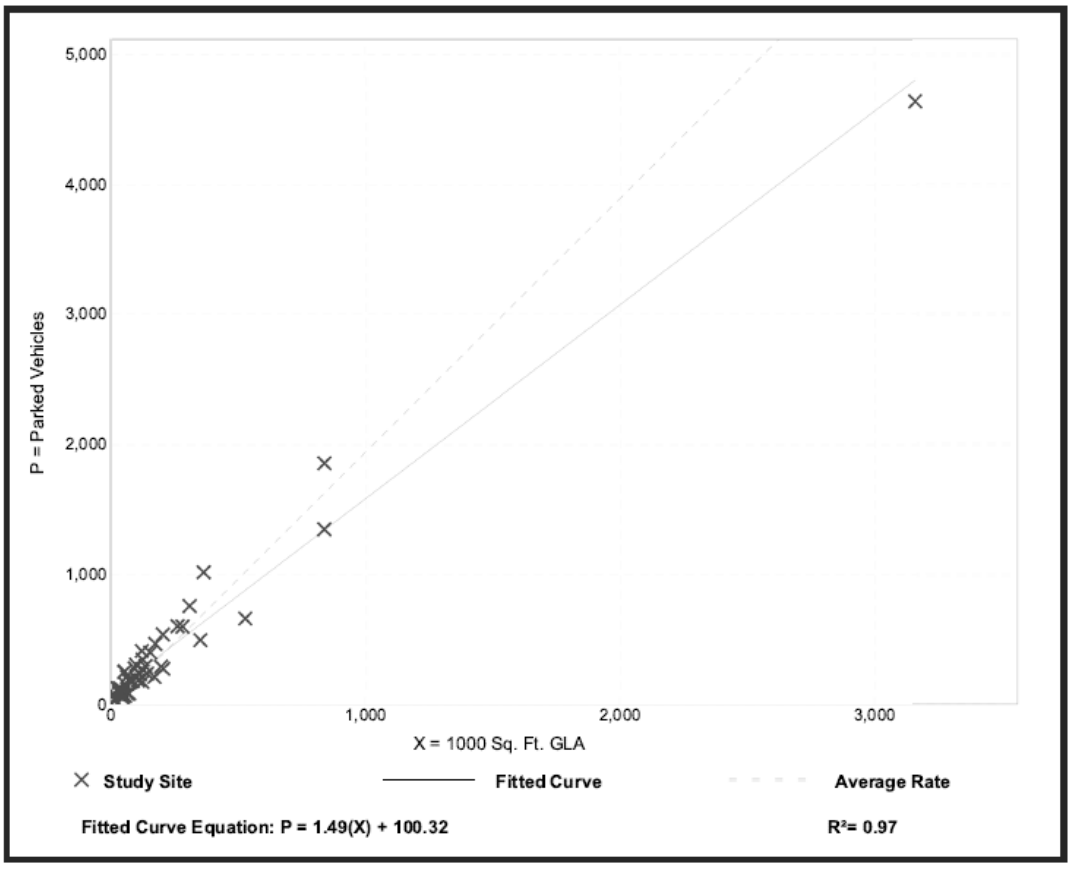
Shopping Center - Non-December
(820)

Peak Period Parking Demand vs: **1000 Sq. Ft. GLA**
On a: **Weekday (Monday - Thursday)**
Setting/Location: **General Urban/Suburban**
Number of Studies: 46
Avg. 1000 Sq. Ft. GLA: 218

Peak Period Parking Demand per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
1.95	1.27 - 7.98	1.99 / 3.68	1.73 - 2.17	0.75 (38%)

Data Plot and Equation



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Project Evacuation Vehicle Generation Rate

TAZ No.	Village	Amount	Unit	LU Name	Modified Vehicle Generation Rate	Total Vehicles
1	9W	87.12	TSF	6. C-Commercial	1.01	88
2	9W	240	DU	2. LDR - Low Density Residential	2.07	497
2	9W	5	ACRE	13. Park	0.24	2
3	9W	360	DU	3. MDR - Medium Density Residential	2.07	746
4	9W	205	DU	2. LDR - Low Density Residential	2.07	425
5	9W	10.454	TSF	7. CR - Commercial Recreation	1.01	11
6	9W	8	ACRE	13. Park	0.24	2
7	9W	500	STU	11. K-8 School	0	0
9	9W	175	DU	2. LDR - Low Density Residential	2.07	363
11	9	180	DU	2. LDR - Low Density Residential	2.07	373
12	9	70	DU	2. LDR - Low Density Residential	2.07	145
13	9	255	DU	2. LDR - Low Density Residential	2.07	528
14	9W	90	DU	1. VLDR - Very Low Density Residential	2.07	187
20	9	44	ACRE	9. PF - Public Facilities	1.08	48
31	1	25	ACRE	13. Park	0.24	6
32	1	46	DU	2. LDR - Low Density Residential	2.07	96
33	1	46	DU	2. LDR - Low Density Residential	2.07	96
34	1	368	DU	2. LDR - Low Density Residential	2.07	762
34	1	5	ACRE	13. Park	0.24	2
35	1	87.12	TSF	7. CR - Commercial Recreation	1.01	88
36	1	141.57	TSF	6. C-Commercial	1.01	143
37	1	255	DU	4. HDR - High Density Residential	2.07	528
37	1	8	ACRE	13. Park	0.24	2
38	1	234	DU	3. MDR - Medium Density Residential	2.07	485
39	1	435	DU	2. LDR - Low Density Residential	2.07	901
40	1	95	DU	1. VLDR - Very Low Density Residential	2.07	197

TAZ No.	Village	Amount	Unit	LU Name	Modified Vehicle Generation Rate	Total Vehicles
41	1	110	DU	2. LDR - Low Density Residential	2.07	228
42	1	31	DU	1. VLDR - Very Low Density Residential	2.07	65
43	1	1500	STU	11. K-8 School	0	0
43	1	8	ACRE	13. Park	0.24	2
44	1	205	DU	2. LDR - Low Density Residential	2.07	425
51	3	2	ACRE	13. Park	0.24	1
52	3	34.848	TSF	10. CI - Civic	1.08	38
53	3	34.848	TSF	10. CI - Civic	1.08	38
54	3	34.848	TSF	10. CI - Civic	1.08	38
55	3	34.848	TSF	10. CI - Civic	1.08	38
56	3	98.01	TSF	6. C-Commercial	1.01	99
57	3	98.01	TSF	6. C-Commercial	1.01	99
58	3	98.01	TSF	6. C-Commercial	1.01	99
59	3	1500	STU	11. K-8 School	0	0
60	3	285	DU	4. HDR - High Density Residential	2.07	590
60	3	5	ACRE	13. Park	0.24	2
61	3	315	DU	4. HDR - High Density Residential	2.07	653
62	3	300	DU	5. VHDR - Very High Density Residential	2.07	621
63	3	243	DU	3. MDR - Medium Density Residential	2.07	504
64	3	198	DU	3. MDR - Medium Density Residential	2.07	410
65	3	333	DU	3. MDR - Medium Density Residential	2.07	690
66	3	198	DU	3. MDR - Medium Density Residential	2.07	410
71	2	1500	STU	11. K-8 School	0	0
72	2	9	ACRE	13. Park	0.24	3
73	2	65	DU	2. LDR - Low Density Residential	2.07	135
74	4S	90	DU	2. LDR - Low Density Residential	2.07	187
74	4S	99	DU	3. MDR - Medium Density Residential	2.07	205
74	4S	5	ACRE	13. Park	0.24	2

TAZ No.	Village	Amount	Unit	LU Name	Modified Vehicle Generation Rate	Total Vehicles
75	2	282	DU	2. LDR - Low Density Residential	2.07	584
76	2	189	DU	3. MDR - Medium Density Residential	2.07	392
76	2	5	ACRE	13. Park	0.24	2
77	4S	270	DU	4. HDR - High Density Residential	2.07	559
78	2	283	DU	2. LDR - Low Density Residential	2.07	586
79	2	369	DU	3. MDR - Medium Density Residential	2.07	764
79	2	5	ACRE	13. Park	0.24	2
80	4S	99	DU	3. MDR - Medium Density Residential	2.07	205
80	4S	98.01	TSF	6. C-Commercial	1.01	99
80	4S	6.97	TSF	7. CR - Commercial Recreation	1.01	8
81	4S	117	DU	3. MDR - Medium Density Residential	2.07	243
81	4S	210	DU	4. HDR - High Density Residential	2.07	435
81	4S	2	ACRE	13. Park	0.24	1
82	4S	210	DU	2. LDR - Low Density Residential	2.07	435
82	4S	3	ACRE	13. Park	0.24	1
91	4	48	DU	1. VLDR - Very Low Density Residential	2.07	100
92	4	208	DU	1. VLDR - Very Low Density Residential	2.07	431
92	4	10	ACRE	13. Park	0.24	3
93	4	94	DU	1. VLDR - Very Low Density Residential	2.07	195
94	4	60	DU	1. VLDR - Very Low Density Residential	2.07	125
95	4	370	DU	2. LDR - Low Density Residential	2.07	766
96	4	190	DU	2. LDR - Low Density Residential	2.07	394
97	5	210	DU	2. LDR - Low Density Residential	2.07	435
97	5	8.712	TSF	7. CR - Commercial Recreation	1.01	9
98	5	150	DU	2. LDR - Low Density Residential	2.07	311
98	5	8.712	TSF	7. CR - Commercial Recreation	1.01	9
99	5	315	DU	3. MDR - Medium Density Residential	2.07	653
99	5	5	ACRE	13. Park	0.24	2

TAZ No.	Village	Amount	Unit	LU Name	Modified Vehicle Generation Rate	Total Vehicles
100	5	432	DU	3. MDR - Medium Density Residential	2.07	895
111	5	230	DU	2. LDR - Low Density Residential	2.07	477
112	5	44	DU	1. VLDR - Very Low Density Residential	2.07	92
113	5	423	DU	3. MDR - Medium Density Residential	2.07	876
113	5	5	ACRE	13. Park	0.24	2
114	5	603	DU	3. MDR - Medium Density Residential	2.07	1249
115	5	555	DU	4. HDR - High Density Residential	2.07	1149
116	5	87.12	TSF	6. C-Commercial	1.01	88
117	5	8	ACRE	13. Park	0.24	2
118	5	1500	STU	11. K-8 School	0	0
119	5	459	DU	3. MDR - Medium Density Residential	2.07	951
120	5	72	DU	1. VLDR - Very Low Density Residential	2.07	150
120	5	5	ACRE	13. Park	0.24	2
121	5	459	DU	3. MDR - Medium Density Residential	2.07	951
122	5	160	DU	2. LDR - Low Density Residential	2.07	332
122	5	5	ACRE	13. Park	0.24	2
123	5	185	DU	2. LDR - Low Density Residential	2.07	383
124	5	95	DU	2. LDR - Low Density Residential	2.07	197
124	5	5	ACRE	13. Park	0.24	2
125	5	200	DU	2. LDR - Low Density Residential	2.07	414
126	5	95	DU	2. LDR - Low Density Residential	2.07	197
127	5	300	DU	2. LDR - Low Density Residential	2.07	621
131	8W	110	DU	2. LDR - Low Density Residential	2.07	228
132	8W	120	DU	2. LDR - Low Density Residential	2.07	249
133	8W	60	DU	2. LDR - Low Density Residential	2.07	125
134	8W	102	ACRE	9. PF - Public Facilities	1.08	111
135	8W	75	DU	2. LDR - Low Density Residential	2.07	156
136	8W	297	DU	3. MDR - Medium Density Residential	2.07	615

TAZ No.	Village	Amount	Unit	LU Name	Modified Vehicle Generation Rate	Total Vehicles
136	8W	6	ACRE	13. Park	0.24	2
137	8W	100	DU	2. LDR - Low Density Residential	2.07	207
138	8W	1500	STU	11. K-8 School	0	0
139	8	108.9	TSF	6. C-Commercial	1.01	110
140	8	445	DU	2. LDR - Low Density Residential	2.07	922
141	8	70	DU	2. LDR - Low Density Residential	2.07	145
142	8	45	ACRE	9. PF - Public Facilities	1.08	49
143	8	215	DU	2. LDR - Low Density Residential	2.07	446
143	8	5	ACRE	13. Park	0.24	2
144	8	240	DU	2. LDR - Low Density Residential	2.07	497
144	8	5	ACRE	13. Park	0.24	2
145	8	130	DU	1. VLDR - Very Low Density Residential	2.07	270
146	8	355	DU	2. LDR - Low Density Residential	2.07	735
147	8	320	DU	2. LDR - Low Density Residential	2.07	663
147	8	5	ACRE	13. Park	0.24	2
148	8W	165	DU	2. LDR - Low Density Residential	2.07	342
151	7	90	DU	2. LDR - Low Density Residential	2.07	187
152	7	265	DU	2. LDR - Low Density Residential	2.07	549
152	7	4	ACRE	13. Park	0.24	1
153	7	60	DU	1. VLDR - Very Low Density Residential	2.07	125
154	7	235	DU	2. LDR - Low Density Residential	2.07	487
155	7	163.35	TSF	6. C-Commercial	1.01	165
156	7	255	DU	2. LDR - Low Density Residential	2.07	528
157	7	315	DU	3. MDR - Medium Density Residential	2.07	653
157	7	165	DU	4. HDR - High Density Residential	2.07	342
158	7	8.712	TSF	7. CR - Commercial Recreation	1.01	9
158	7	6	ACRE	13. Park	0.24	2
159	7	52	DU	1. VLDR - Very Low Density Residential	2.07	108

TAZ No.	Village	Amount	Unit	LU Name	Modified Vehicle Generation Rate	Total Vehicles
161	6	25	ACRE	13. Park	0.24	6
162	6	425	DU	2. LDR - Low Density Residential	2.07	880
163	6	265	DU	2. LDR - Low Density Residential	2.07	549
163	6	2	ACRE	13. Park	0.24	1
164	6	81	DU	3. MDR - Medium Density Residential	2.07	168
164	6	1	ACRE	13. Park	0.24	1
164	6	54.45	TSF	6. C-Commercial	1.01	55
165	6	144	DU	3. MDR - Medium Density Residential	2.07	299
166	6	3500	STU	12. High School	0	0
167	6	34	DU	1. VLDR - Very Low Density Residential	2.07	71
168	6	34	DU	1. VLDR - Very Low Density Residential	2.07	71
168	6	5	ACRE	13. Park	0.24	2
169	6	56	DU	1. VLDR - Very Low Density Residential	2.07	116
170	6	40	DU	1. VLDR - Very Low Density Residential	2.07	83
171	6	205	DU	2. LDR - Low Density Residential	2.07	425
172	6	24	DU	1. VLDR - Very Low Density Residential	2.07	50
173	6	195	DU	2. LDR - Low Density Residential	2.07	404
173	6	81	DU	3. MDR - Medium Density Residential	2.07	168
173	6	2	ACRE	13. Park	0.24	1
174	6	30	DU	1. VLDR - Very Low Density Residential	2.07	63
174	6	5	ACRE	13. Park	0.24	2
175	6	68	DU	1. VLDR - Very Low Density Residential	2.07	141
181	IC	738.979	TSF	8. BP - Business Park	0.34	252
182	IC	1428.77	TSF	10. CI - Civic	1.08	1544
183	BP1	960.498	TSF	8. BP - Business Park	0.34	327
184	BP1	960.498	TSF	8. BP - Business Park	0.34	327
185	BP1	960.498	TSF	8. BP - Business Park	0.34	327
186	BP2	960.498	TSF	8. BP - Business Park	0.34	327

TAZ No.	Village	Amount	Unit	LU Name	Modified Vehicle Generation Rate	Total Vehicles
187	BP2	960.498	TSF	8. BP - Business Park	0.34	327
189	BP3	622.037	TSF	8. BP - Business Park	0.34	212
190	BP3	1200.312	TSF	8. BP - Business Park	0.34	409

Attachment E
Evacuation Analysis Worksheets

The tables below present the evacuation results for each scenario. The displayed times represent the maximum evacuation time for the area being evacuated, meaning the time when the last vehicle from a specific village or area crossed the "finish" line. The times are shown as the total number of seconds since the evacuation order was issued.

Scenario 1

- Phases: 1-2
- Build Land Use: Village 1 & Village 3
- Fire Approach Direction: South/Southeast
- Area Under Evacuation: Village 1, Village 3, Existing

Destination Point / Run Number	Existing	Village 1	Village 3
1	2004.5	12945.3	16419.5
2	1645.8	7116.4	12814.4
3	1520.7	7571.7	12873.4
4	1672.2	7181.2	12819.1
5	1872.9	7035.6	12914.7
6	1669	7250.6	12642.9
7	1672.1	7547.2	13168
8	1955.6	7270.5	13164.1
9	1894.6	6860.8	12962.4
10	1746.2	7244.8	13118.6
11	1751	6980	12739
12	1802.3	7275.8	12949.9
13	1806	7379.3	13009.4
14	1751.9	7112.7	12789.3
15	1677.6	7138	12809.1
16	1843.4	7251.7	12886.5
17	1742.2	6825.3	12596.1
18	1760.5	7214.1	12725.6
19	1743.9	6860.7	12777.2
20	1785.8	7404.8	12734.4
Average end time of 20 runs in seconds	1765.91	7473.325	13045.68
Average end time of 20 runs in hours : minutes	0:29	2:04	3:37

Scenario 2

- **Phases:** 1-2
- **Build Land Use:** Village 1 & Village 3
- **Fire Approach Direction:** North/Northeast
- **Area Under Evacuation:** Village 1, Village 3, Existing

Destination Point / Number of Runs	Existing	Village 1	Village 3
1	1043.9	5691.4	5485.1
2	977.4	5717	5851.5
3	1014.2	5581.3	5566.7
4	1060.5	5584.5	5851.6
5	1057	5838.2	5556
6	1059.1	5679.9	5782.9
7	971.8	5592.3	5727.1
8	1054.9	5471.9	5628.4
9	1026.1	5592.6	5920.9
10	1050.8	5597.1	5658.1
11	1017.7	5730.5	5748.8
12	954.5	5619.9	5654.1
13	1010.2	5552.1	5760.3
14	1010.8	5522	5514.1
15	1013.6	5543.9	5810.5
16	968.6	5464.7	5464.8
17	1039.6	5669.2	5578.6
18	1075.2	5440.3	5531.5
19	1015	5679.7	5631.5
20	1022.6	5456.5	5508.7
Average end time of 20 runs in seconds	1022.175	5601.25	5661.56
Average end time of 20 runs in hours : minutes	0:17	1:33	1:34

Scenario 3

- **Phases:** 1-2
- **Build Land Use:** Village 1 & Village 3
- **Fire Approach Direction:** West/Northwest
- **Area Under Evacuation:** Village 1, Village 3, Existing

Destination Point / Number of Runs	Existing	Village 1	Village 3
1	1043.9	7513.7	5756.1
2	977.4	7433.5	5789
3	1014.2	7408.2	5755.3
4	1060.5	7213.6	5817.2
5	1057	7350.9	5816.9
6	1059.1	7461	5841.3
7	971.8	7367.1	5938.9
8	1054.9	7265	5977.5
9	1026.1	7483.7	5810.9
10	1050.8	7464.4	5818.6
11	1017.7	7471.1	5827
12	954.5	7410	5785.6
13	1010.2	7284.9	5794.4
14	1010.8	7535.8	5786.2
15	1013.6	7336.1	5727.3
16	968.6	7306.5	5709.9
17	1039.6	7358.6	5667.8
18	1075.2	7334.7	5676
19	1015	7372.4	5695.2
20	1022.6	7352.8	5784
Average end time of 20 runs in seconds	1022.175	7386.2	5788.755
Average end time of 20 runs in hours : minutes	0:17	2:03	1:36

Scenario 4

- **Phases:** 1-4
- **Build Land Use:** Village 1, Village 3, Village 7, Business Park West, Institutional & Civic
- **Fire Approach Direction:** South/Southeast
- **Area Under Evacuation:** 50% of Village 7, Business Park West, Institutional & Civic

Destination Point / Number of Runs	50% of Village 7	western portion of Business Park	Institutional & Civic
1	3799.3	6716.4	5959.5
2	3790.8	6767.6	6530.8
3	3555.3	6955.3	6442.1
4	3759	6858.7	6152.8
5	3643.1	6856.9	6534.8
6	3670.1	6617.8	6323.1
7	3616.5	6900.2	6493.9
8	3750.2	6907.4	6497.9
9	3546.2	6753.8	6245
10	3643.9	6774.1	6203.9
11	3518.4	6963.9	6580.6
12	3582.6	6853.3	6037.8
13	3560.7	6890.5	6212.9
14	3734.6	6819.7	6269.6
15	3514.8	6945.8	6689.4
16	3689.3	6715	6302
17	3792.7	6999.6	6513.5
18	3671.3	6858.1	6305.9
19	3605	6838.5	6431.4
20	3634	7049.1	6812
Average end time of 20 runs in seconds	3653.89	6852.085	6376.945
Average end time of 20 runs in hours : minutes	1:00	1:54	1:46

Scenario 5

- **Phases:** 1-4
- **Build Land Use:** Village 1, Village 3, Village 7, Business Park West, Institutional & Civic
- **Fire Approach Direction:** North/Northeast
- **Area Under Evacuation:** 50% of Village 3, Village 7, Existing

Destination Point / Number of Runs	Existing	Village 3 Exit @ Village 1	Village 7 Exit @ Village 1	Village 7 @ Lancaster	V7 Exit @ I5
1	1082.8	3875.4	3893.7	2269.1	5126.4
2	1082.8	3875.4	3893.7	2269.1	5126.4
3	1096.1	4088	3857.5	2314.6	4917.1
4	1047.8	4203.3	3860.2	2446.6	5021.6
5	1077.7	3867.5	3867.8	2233	5029.9
6	1090.8	4169.5	3700.2	2382.6	4945
7	1092.1	4019.7	3949	2339.5	5131.5
8	1097.4	4032.5	3883.4	2295.6	5030
9	1064.8	4238.4	3811.2	2253.6	4983.2
10	1087.6	3939.8	3773.4	2413.1	5062.1
11	1087.3	4010.5	3858.3	2194.6	4900.6
12	1100	4071.7	3698.2	2302.9	4944
13	1069.8	4008	3848.2	2207.2	5044.5
14	1035.4	3975.3	3777.1	2223.6	4986.8
15	1070.6	4158.1	3869.4	2204.5	4939.9
16	1075.5	4202.9	3779.7	2353.8	5105.2
17	1074.2	3956.7	3833.4	2194	5021.8
18	1060.4	3747	3769.4	2314.2	5011.2
19	1082.6	3867.6	3845	2407.9	5115.3
20	1098.8	3600.4	3901.3	2323.5	5020.1
Average end time of 20 runs in seconds	1078.73	3995.385	3833.505	2297.15	5023.13
Average end time of 20 runs in hours : minutes	0:17	1:06	1:03	0:38	1:23

Scenario 6

- **Phases:** 1-4
- **Build Land Use:** Village 1, Village 3, Village 7, Business Park West, Institutional & Civic
- **Fire Approach Direction:** West/Northwest
- **Area Under Evacuation:** Village 1, 30% of Village 3, Business Park West, Existing

Destination Point / Number of Runs	Existing Exit East	Village 1 Exit East	30% of Village 3	Business Park West
1	1063.8	8673.7	2495.7	8394.7
2	1063.8	8673.7	2495.7	8394.7
3	1063.8	8673.7	2495.7	8394.7
4	1058.3	8814.1	2418.6	8497.6
5	1066.9	8756.4	2367.1	8403.3
6	1063.9	8623.1	2517.3	8389.1
7	1061.9	8546.6	2467.6	8391.1
8	1076.5	8771.9	2469.4	8439.4
9	1064.1	8895.1	2524.9	8497.5
10	1060.2	8647.8	2482.2	8304.2
11	1060.5	8796.7	2499.4	8538.2
12	1064.3	8788.7	2555.4	8529.8
13	1068.5	8865.8	2524.4	8725.1
14	1058	8902.7	2491	8672.9
15	1062.4	8821.9	2463.1	8608.7
16	1064.4	8756.8	2405.3	8538.4
17	1058.5	8952.6	2488.8	8792.2
18	1066.7	8776.6	2422.6	8579.6
19	1061.8	8820.5	2417.2	8595.6
20	1067.2	8698	2405.7	8459
Average end time of 20 runs in seconds	1063.775	8762.82	2470.355	8507.29
Average end time of 20 runs in hours : minutes	0:17	2:26	0:41	2:21

Scenario 7

- **Phases:** 1-6
- **Build Land Use:** Village 1, Village 3, Village 6, Village 7, Village 9 West, Business Park West, Business Park Central, Institutional & Civic
- **Fire Approach Direction:** South/Southeast
- **Area Under Evacuation:** 50% of Village 7, Business Park West, Business Park Central, Institutional & Civic

Destination Point / Number of Runs	Village 7 Exit	Business West Exit	Central Business Exit	Civic Exit @ V3
1	2486.8	2982.1	3914.1	4735.7
2	2370.7	3030.5	4083.8	5027.2
3	2432.6	2951.7	4061.8	4780.5
4	2325.3	3017.6	3980.8	4829.8
5	2348.8	3017.9	3981.6	4832.5
6	2473.9	3018.1	4088.6	4794.6
7	2342	2973.9	3996.5	4838.6
8	2246.3	2933.4	4091.5	4993.9
9	2469.6	2924.1	4093	4706.7
10	2418.2	3047.8	4064.5	4877.2
11	2334.7	3044	4031.4	4789.8
12	2320.2	3029.8	4037.3	4829.4
13	2316.6	2967.2	3963.9	4684.1
14	2350.6	2992.7	4126.2	4944.8
15	2365.4	3072.7	4022	4789.6
16	2319.7	3036.7	3930.1	4788.1
17	2371.1	3105.8	3970.3	4951.4
18	2390.7	2984.8	4124.6	4911.1
19	2398.6	3007.3	3930.1	4788.1
20	2419.2	3048.8	4065.5	4878.2
Average end time of 20 runs in seconds	2375.05	3009.345	4027.88	4838.565
Average end time of 20 runs in hours : minutes	0:39	0:50	1:07	1:20

Scenario 8

- **Phases:** 1-6
- **Build Land Use:** Village 1, Village 3, Village 6, Village 7, Village 9 West, Business Park West, Business Park Central, Institutional & Civic
- **Fire Approach Direction:** North/Northeast
- **Area Under Evacuation:** Village 6, Village 7

Destination Point / Number of Runs	Village 7 @ Lancaster	Village 6 @ V3	Village 6 @ V1	Village 6 @ I5
1	6630.8	12140.4	10255.3	12156.9
2	6573	12008.1	8989.8	12023.8
3	6688.5	12427.6	8918	12446.1
4	6495.3	12737.6	8982.9	12729.9
5	6582.6	12613.3	9334.3	12610.8
6	6612.2	12459.1	10191.4	12489.6
7	6610.7	12185.3	9234.8	12223.9
8	6491.3	12140.7	8678.1	12159.7
9	6691.8	12450.1	8967	12460.4
10	6373.7	12412.8	9062.6	12431.6
11	6472.3	12330.8	9273.5	12338.8
12	6492	12301	8898.1	12326.4
13	6511.2	12358.9	9049.1	12377.1
14	6468.2	12539.4	9214.8	12561.1
15	6636.5	12532.1	9027.3	12565.7
16	6544.4	12626.8	10214	12620.9
17	6585.4	12353.4	10253.9	12369.2
18	6918.4	12463.6	10295.7	12491.8
19	6660.8	12671	9127.8	12680.6
20	6469.7	12445.3	10239.4	12461.8
Average end time of 20 runs in seconds	6575.44	12409.87	9410.39	12426.31
Average end time of 20 runs in hours : minutes	1:49	3:26	2:36	3:27

Scenario 9

- **Phases:** 1-6
- **Build Land Use:** Village 1, Village 3, Village 6, Village 7, Village 9 West, Business Park West, Business Park Central, Institutional & Civic
- **Fire Approach Direction:** West/Northwest
- **Area Under Evacuation:** Village 1, Village 9 West, Existing

Destination Point / Number of Runs	Village 9 @ Village 3	Village 9 @ SR-135 / Business Park	Village 1 @ Village 3	Existing Exit
1	4266.4	3475.1	5052.1	1082.8
2	4171	3487.9	4880.9	1096.1
3	4267.2	3539.4	4894.1	1047.8
4	4318.3	3387.4	4834.8	1077.7
5	4215.9	3447.9	5043.5	1090.8
6	4214.6	3528.4	4962	1092.1
7	4530.6	3534	5057	1097.4
8	4336.3	3549.9	5042.8	1064.8
9	4082.2	3709.1	4801.9	1087.6
10	4218.4	3583.2	4912.4	1087.3
11	4250.2	3362.4	4990.2	1100
12	4380.1	3382.5	5009.4	1069.8
13	4292.5	3681	4926.7	1035.4
14	4215.9	3640.9	4940.2	1070.6
15	4207.2	3562.7	4831.1	1075.5
16	4236.9	3448.6	4894.2	1074.2
17	4183.9	3415.4	4892.1	1060.4
18	4356	3379.9	5018.6	1082.6
19	4218	3511.2	4863.3	1098.8
20	4299.6	3538.2	5024.3	1062.3
Average end time of 20 runs in seconds	4263.06	3508.255	4943.58	1077.7
Average end time of 20 runs in hours : minutes	1:11	0:58	1:22	0:17

Scenario 10

- **Phases:** 1-8
- **Build Land Use:** Village 1, Village 3, Village 7 E & West, Village 9 West, Village 6, Village 9 East, Village 8 West, Village 2, Village 4 South
- **Fire Approach Direction:** South/Southeast
- **Area Under Evacuation:** 50% of Village 7, Business Park West, Business Park Central, Business Park East, 30% of Institutional & Civic

Destination Point / Number of Runs	Village 7 Exit @ V6	Business West (1) Exit	Central Business Exit @ V1	Business East @V6	Civic Exit @ V3
1	4682	3967.3	2973.6	4859.6	1595.2
2	4510.9	4022.4	2855.7	4685.3	1637.6
3	4562.8	3966.7	2799.5	4646.4	1590.2
4	4502.9	4060.4	2870.9	4770.4	1589.9
5	4611.9	4003.2	2858.5	4725.1	1551.3
6	4696.6	4057.3	2842	4855.4	1489.1
7	4499.8	3975.8	2831.2	4736.3	1643.1
8	4461.4	3931.4	2876.4	4773.1	1615.8
9	4599.4	4003.3	2856	4693.1	1492.8
10	4639.6	4044.5	2847.6	4840.7	1586
11	4546.6	4085.5	2855.3	4679.1	1558.6
12	4538.6	4069.9	3009.1	4750.9	1454.5
13	4595.3	3988.8	2784.9	4865.4	1471.6
14	4501.8	4019.2	3000.5	4731.6	1615.7
15	4467.7	4058.5	2779.5	4628.8	1548.6
16	4521.9	4073	2933.8	4784.8	1549.4
17	4672.7	4093.8	2857.9	4910	1577
18	4561.4	4043.8	2832.3	4734.6	1563.1
19	4531.9	4080.5	2866.9	4782.1	1545
20	4315.2	3960.2	2879.7	4432.5	1664.1
Average end time of 20 runs in seconds	4551.02	4025.275	2870.565	4744.26	1566.93
Average end time of 20 runs in hours : minutes	1:15	1:07	0:47	1:19	0:26

Scenario 11

- **Phases:** 1-8
- **Build Land Use:** Village 1, Village 2, Village 3, Village 6, Village 7, Village 9, Village 8 West, Village 4 South, Business Park West, Business Park Central, Business Park East, Institutional & Civic
- **Fire Approach Direction:** North/Northeast
- **Area Under Evacuation:** 30% of Village 2, Village 4 South, 50% of Village 6, Village 8 West, 30% of Village 9

Destination Point / Number of Runs	Village 2 Exit	Village 4 Exit	Village 6 Exit	Village 8 Exit	Village 9 Exit
1	3199.2	3181.6	3204.2	3630.8	3008.1
2	3199.2	3181.6	3204.2	3630.8	3008.1
3	3322.1	3442.5	3316.1	3674.9	2923.8
4	3209	3316.6	3211.8	3778.5	2968.9
5	3211.2	3311.2	3191.2	3925.4	2960.7
6	3295.4	3264.1	3297.4	3746.1	3001
7	3118.8	3233.9	3106.1	3672.3	3038
8	3197.9	3118.2	3194.4	3646.7	3034.7
9	3233.7	3369.4	3224	3585.2	3079.1
10	3181.7	3016.2	3175.3	3706.5	2969.2
11	3150.9	3360.4	3133.9	3781.7	2961.9
12	3176.9	3426.5	3177.1	3745.1	2887.9
13	3137.6	3123.6	3134.9	3729.1	2860.2
14	3162.6	3091.5	3159.7	3723.5	2881.1
15	3229.2	3312	3229	3657.1	2895.7
16	3249.1	3218.4	3249.5	3633.4	2866.7
17	3259.7	3292.3	3260.3	3803.9	2846.1
18	3180.2	3089.8	3178	3725	2892.5
19	3204.3	3172.8	3213.6	3757.4	2936
20	3197	3187	3195.7	3844.5	2957.4
Average end time of 20 runs in seconds	3205.785	3235.48	3202.82	3719.895	2948.855
Average end time of 20 runs in hours : minutes	0:53	0:53	0:53	1:02	0:49

Scenario 12

- **Phases:** 1-8
- **Build Land Use:** Village 1, Village 2, Village 3, Village 6, Village 7, Village 9, Village 8 West, Village 4 South, Business Park West, Business Park Central, Business Park East, Institutional & Civic
- **Fire Approach Direction:** West/Northwest
- **Area Under Evacuation:** 30% of Village 1, 30% of Village 2, Village 4 South, Village 9

Destination Point / Number of Runs	Village 1 Exit @ Village 7	Village 2 Exit	Village 4 Exit	Village 9 Exit
1	3145.9	3421.3	2929.6	10626.3
2	3145.9	3421.3	2929.6	10626.3
3	3290.2	3717.4	3108.8	10674.9
4	3406	3444	2959.2	10670.8
5	3210.9	3479.5	2895.8	10676.9
6	3053.1	3290.7	2880.4	10752.8
7	3188.9	3396.1	2961.1	10852.7
8	3219.2	3368	2819.5	10863.7
9	3052.7	3646.8	3026.6	10761.9
10	3010.7	3384.1	2773.6	10593.5
11	2944.8	3481.6	2941.6	10522.7
12	3036.2	3532.4	2989.8	10750.7
13	3319.7	3318.6	2897.3	10692.6
14	3090.4	3399.6	2819.3	10664
15	3125.2	3520.4	3038.7	10589.1
16	3275.8	3327.7	2954.3	10611.1
17	3121.6	3484.5	2806.4	10652
18	2996.9	3523.3	2965.6	10692.5
19	3121.3	3453.7	2959.9	10697.9
20	3186.3	3190.1	2788.4	10679.8
Average end time of 20 runs in seconds	3147.085	3440.055	2922.275	10682.61
Average end time of 20 runs in hours : minutes	0:52	0:57	0:48	2:58

Scenario 13

- **Phases:** 1-10
- **Build Land Use:** Buildout
- **Fire Approach Direction:** South/Southeast
- **Area Under Evacuation:** Business Park West, Business Park Central, Business Park East, 30% of Institutional & Civic, 50% of Village 7, Village 8 East

Destination Point / Number of Runs	Business West (1) Exit	Central Business Exit @ V1	Business East Exit	Civic Exit @ V3	Village 7 Exit @ V6	Village 8 Exit
1	3967.3	3283.8	5631.8	1585.8	5804	8477.7
2	3967.3	3138.6	5631.8	1619.3	5804	8477.7
3	4022.4	3397	5508.5	1712.6	5402.7	8328.5
4	3966.7	3329	5382.4	1593	5864.6	8531.8
5	4060.4	3181.2	5437.5	1606.8	5388.9	8566.9
6	4003.2	3162	5596.4	1583.7	5599.1	8501.2
7	4057.3	3379.7	5566.4	1472.9	5549.3	8627.1
8	3975.8	3452.8	5536.6	1723.5	5336.2	8366.4
9	3931.4	3346.8	5444.7	1580.9	5242.8	8310.2
10	4003.3	3275.9	5541.6	1506.8	5941.4	8575.4
11	4044.5	3406.2	5621.1	1570.6	5568.8	8609.4
12	4085.5	3352.3	5506.9	1587.2	5458.8	8481
13	4069.9	3450.4	5470.5	1472.1	5562	8411.3
14	3988.8	3146.1	5643.8	1466.6	5381	8301.2
15	4019.2	3484	5520.7	1604.4	5388	8227.4
16	4058.5	3310.5	5313.5	1600.2	5733.2	8362.8
17	4073	3219.3	5456.7	1565.1	5330.4	8372.5
18	4093.8	3200.4	5665.2	1606.4	5684.1	8673.5
19	4043.8	3443.6	5540.5	1621.3	5839.4	8499.3
20	4080.5	3314.7	5479.1	1598.5	5591	8442.7
Average end time of 20 runs in seconds	4025.63	3313.715	5524.785	1583.885	5573.485	8457.2
Average end time of 20 runs in hours : minutes	1:07	0:55	1:32	0:26	1:32	2:20

Scenario 14

- **Phases:** 1-10
- **Build Land Use:** Buildout
- **Fire Approach Direction:** North/Northeast
- **Area Under Evacuation:** 30% of Village 4, Village 5, 30% of Village 6, Village 8 West, Village 8 East

Destination Point / Number of Runs	Village 4 Exit	Village 5 Exit	Village 6 Exit	Village 8 West Exit	Village 8 East Exit
1	3091.9	24651.8	2114.8	16260.3	12377.7
2	3091.9	24651.8	2114.8	16260.3	12377.7
3	2909.5	24282.6	1929.5	16780.7	11188.4
4	3073.5	24467.4	2104.5	16409.1	10924.8
5	3093.2	24166.7	2327.3	16565.2	10892.7
6	3141.7	23930.2	2207.7	16091.7	11342.7
7	3106.4	23763.4	1911.6	15660.6	11040.6
8	2985.8	24136	1958.6	15824.1	11233.1
9	3238.1	24166.3	1901.5	16881.6	10964.6
10	3739.5	24016.3	1939.6	16709.5	10968.3
11	2962.4	24045.7	2109.7	15747.4	10994.6
12	3055	23932.5	2033.5	16515.9	11084.8
13	3067.7	23981.2	2019.5	16141.2	11243.7
14	2836.8	23915.1	1895.1	16050.9	11039.2
15	2949.5	24324.3	2107.3	16530.2	11086
16	3030.8	24000.4	2011.8	16781.7	10847.4
17	3269.9	24057.6	2134.6	16460.2	10594.2
18	3133.4	23799	2097.1	16993.5	10938
19	2882.7	23777.8	1979.3	16224.7	10808.4
20	2968.6	24054.6	2000.6	16682.4	11263.5
Average end time of 20 runs in seconds	3081.415	24106.035	2044.92	16378.56	11160.52
Average end time of 20 runs in hours : minutes	0:51	6:41	0:34	4:32	3:06

Scenario 15

- **Phases:** 1-10
- **Build Land Use:** Buildout
- **Fire Approach Direction:** West/Northwest
- **Area Under Evacuation:** 30% of Village 2, 50% of Village 4, 50% of Village 5, Village 9

Destination Point / Number of Runs	Village 2 Exit	Village 4 Exit	Village 5 Exit	Village 9 Exit
1	3992.5	4042	9477.5	6793.2
2	3992.5	4042	9477.5	6793.2
3	4628.9	3828.5	10401.8	6706.2
4	4177.9	4230.9	10427.9	6791.9
5	4164.2	4329.8	9421.6	6739.6
6	4604.2	4343.1	9269	6913.2
7	4300.2	4042.7	9102.8	7037.9
8	4483.7	3679.9	9315.8	7172.6
9	4706	4026	9217.8	7037.9
10	4251.1	4207.3	9279.9	6813.3
11	4258.7	4069.9	9313.9	6665.3
12	4450.6	4130.6	9235.2	6856.5
13	4094.5	4070.7	9266	6793.3
14	4555.3	4030.2	9355.9	6967.6
15	4187.3	3993.8	9458.5	6667.1
16	3923.5	4151	9324.7	6708.8
17	4541.3	4135.3	9389.7	6704.1
18	4295.6	4403.2	9341.2	6859.4
19	4234.8	4032.1	9447	6833
20	4221.1	4072.4	9359	6850.3
Average end time of 20 runs in seconds	4303.195	4093.07	9444.135	6835.22
Average end time of 20 runs in hours : minutes	1:11	1:08	2:37	1:53

Appendix I

Centennial Construction Fire Prevention Plan

Construction Fire Prevention Plan

Centennial Project

MAY 2026

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APPENDIX

A Selected Fire Safety Regulations, Guidelines, and Standards

Acronyms and Abbreviations

Acronym/Abbreviation	Definition
CAL FIRE	California Department of Forestry and Fire Protection
CDFW	California Department of Fish and Wildlife
CFC	California Fire Code (2022)
CFPP	Construction Fire Prevention Plan
CFR	Code of Federal Regulations
IC	Incident Command or Incident Commander
NFPA	National Fire Protection Association
OSHA	Occupational Safety and Health Administration
RFW	Red Flag Warning
RMDP	Resource Management and Development Plan
LACoFD	Los Angeles County Fire Department
SSO	Site Safety Officer/Fire Safety Coordinator
TBD	To be determined
USGS	U.S. Geological Survey

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Definitions

1. **Activity Risk:** Activity risks include those actions that present a risk of igniting a wildfire.
2. **Fire Patrol:** A Centennial Project individual will be assigned as “Fire Patrol” specifically to monitor work activities when an Activity Risk exists for fire compliance. The Fire Patrol personnel shall regularly patrol the area on foot and monitor the area for any signs of fire or unsafe practices. They shall have no other duties and shall not be sitting in a vehicle or using a cell phone or computer except for emergency-related calls or for checking for Red Flag Warning or other fire hazard or weather conditions.
3. **Fire Season:** Fire season is no longer officially designated by the wildland fire agencies. Southern California is considered to be in fire season on a yearlong basis. CALFIRE adjusts their staffing patterns as fire conditions moderate or escalate and this can be used as an indicator of potential fire activity.
4. **Fire Tools:** Essential firefighting tools to be staged near work activities are a 46-inch round point shovel, Pulaski, McLeod, 5-gallon “Indian” Backpack hand pump or water fire extinguisher, and a minimum 10-pound 4A:80B:C Dry Chemical Fire extinguisher.
5. **Incident Commander (IC):** The Project Site Safety Officer will be the positively identified single point of contact for all utility resources (people and equipment) on an emergency incident. This person will interface with the Incident Command, as necessary.
6. **Incident Command System (ICS):** The Incident Command System is "a systematic tool used for the command, control, and coordination of emergency response" according to the United States Federal Highway Administration. A more detailed definition of an ICS according to the United States Center for Excellence in Disaster Management & Humanitarian Assistance is "a set of personnel, policies, procedures, facilities, and equipment, integrated into a common organizational structure designed to improve emergency response operations of all types and complexities.
7. **Plan:** The Construction Fire Prevention Plan (CFPP).
8. **Red Flag Warning (RFW):** A Red Flag Warning is issued for a stated period of time by the National Weather Service using predetermined criteria to identify particularly critical wildfire danger in a particular geographic area. All construction and maintenance activities shall temporarily cease during RFWs.
9. **Site Safety Officer (SSO):** The Site Safety Officer or Fire Safety Coordinator serves as a liaison to the emergency service agencies and all contractors or inspectors on the jobsite for the utilities on emergency incidents and construction-related activities. The SSO has the authority to stop any project work that appears to pose a particular fire risk or hazard.

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1 Summary

This Construction Fire Prevention Plan (CFPP) provides basic direction for fire safety awareness on the Centennial Project site during construction. CFPPs do not anticipate every potential fire scenario that may occur during construction but attempt to educate site personnel to the very real danger associated with fire ignitions. Fire ignitions can, if they involve site or off-site vegetation under certain weather conditions, develop into large scale wildfires that burn many acres and can threaten public and private assets. Therefore, this CFPP provides standard protocols and approaches for reducing the potential of ignitions for typical construction site activities. When employed, the concepts discussed herein will help minimize and avoid ignitions as well as extinguishment of any ignitions while they are small and controllable.

Note: as detailed in Section 8, this CFPP requires all site activities that include risk of fire ignitions to cease during declared Red Flag Warning (RFW) periods. The National Weather Service may issue RFWs at any time when humidity and wind conditions meet predetermined thresholds that would promote fire ignition and spread. Because the majority of acreage burned in California occurs during RFW weather conditions, all construction activities will be prohibited until the RFW has been lifted.

Fire Safety Plan Goals

The primary goals of this CFPP are to address the identified ignition sources and risks so that the personnel involved with constructing of the Project have clearly defined protocols and procedures for reducing fire risk and maintaining a fire safe worksite. Among the fire-related goals developed for the Centennial Project site are:

- Prevent/minimize fires during construction activities.
- Provide a safe worksite for all employees, contractors, visitors, and emergency personnel.
- Prevent shock to emergency responders, workers, and unauthorized trespassers.
- Prevent arcing or sparking, which could ignite vegetation on site.
- Prevent or minimize dollar loss to the equipment.
- Prevent or minimize potential for a fire starting on site to spread off site.
- Provide water, appropriate fire extinguishers, and access for firefighters.
- Provide adequate signage and shut off devices to stop power feed into power lines in the event of a line failure, or fire in right of way.
- Provide water trucks equipped with fire extinguishers, hoses, shovels, Pulaski's and McLeods when work involves the use of chainsaws, chippers, vegetation masticators, grading/blading, grinders, drill rigs, tractors, torches, and/or explosives.
- Provide the ability to report a fire or other emergency to emergency dispatch center without delay and to utilize internet websites and contact personnel.
- Report all fire ignitions, regardless of size, to the LACoFD.

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2 Introduction and Project Description

This Construction Fire Protection Plan (CFPP) has been prepared for the Centennial Specific Plan Project (Project) in unincorporated Los Angeles County (County). The Centennial Specific Plan Project is an approximately 12,323-acre property proposed for the creation of a new master-planned community. The Project site is located in the northwestern portion of the Antelope Valley and in the immediate vicinity of Quail Lake. The northern Project boundary is contiguous to the southern boundary of Kern County. The extreme western portion of the Project is located approximately 1 mile east of Interstate 5. The Project's southern boundary is delineated by State Route 138. The Project will be built in nine phases and, at build-out, will include approximately 19,333 residential units on approximately 4,987 acres, along with commercial buildings, businesses, institutional/civic, schools, parks, recreation/entertainment, streets, and utilities on approximately 1,711 acres. Roughly 5,624 acres will be designated as active and passive recreation, preserves, or other open space.

The Project site is primarily dominated by both native and non-native grassland, encompassing approximately 76%, and also includes mixed oak woodland and scrub vegetation types. The terrain on, and within the vicinity of the Project, is characterized by slopes ranging from relatively flat (0%) up to nearly 95% (approximately 45°). Steeper slopes are associated with the portions of the property that are situated on the flanks of the Tehachapi and Liebre Mountains in the west and southeast portions of the property where development is not proposed. The Project site area, like all of Southern California and Los Angeles County, is subject to seasonal weather conditions that can heighten the likelihood of fire ignition and spread, and, considering the site's terrain and vegetation, may result in a fast moving and intense wildfire.

The Centennial Specific Plan Project site lies within an area considered Moderate, High and Very High Fire Hazard Severity Zone (VHFHSZ), as designated by the Los Angeles County Fire Department (LACoFD) and California Department of Forestry and Fire Protection (CAL FIRE). Fire hazard designations are based on topography, vegetation, and weather, amongst other factors. VHFHSZ and HFHSZ designations do not indicate that an area is not safe for development. It does indicate that specific fire protection features that minimize fire risk during the Project's construction phase are implemented. The purpose of this CFPP is to generate and memorialize the CFPP fire safety requirements and standards of the LACoFD along with Project-specific measures based on the site, its intended use, and its fire environment.

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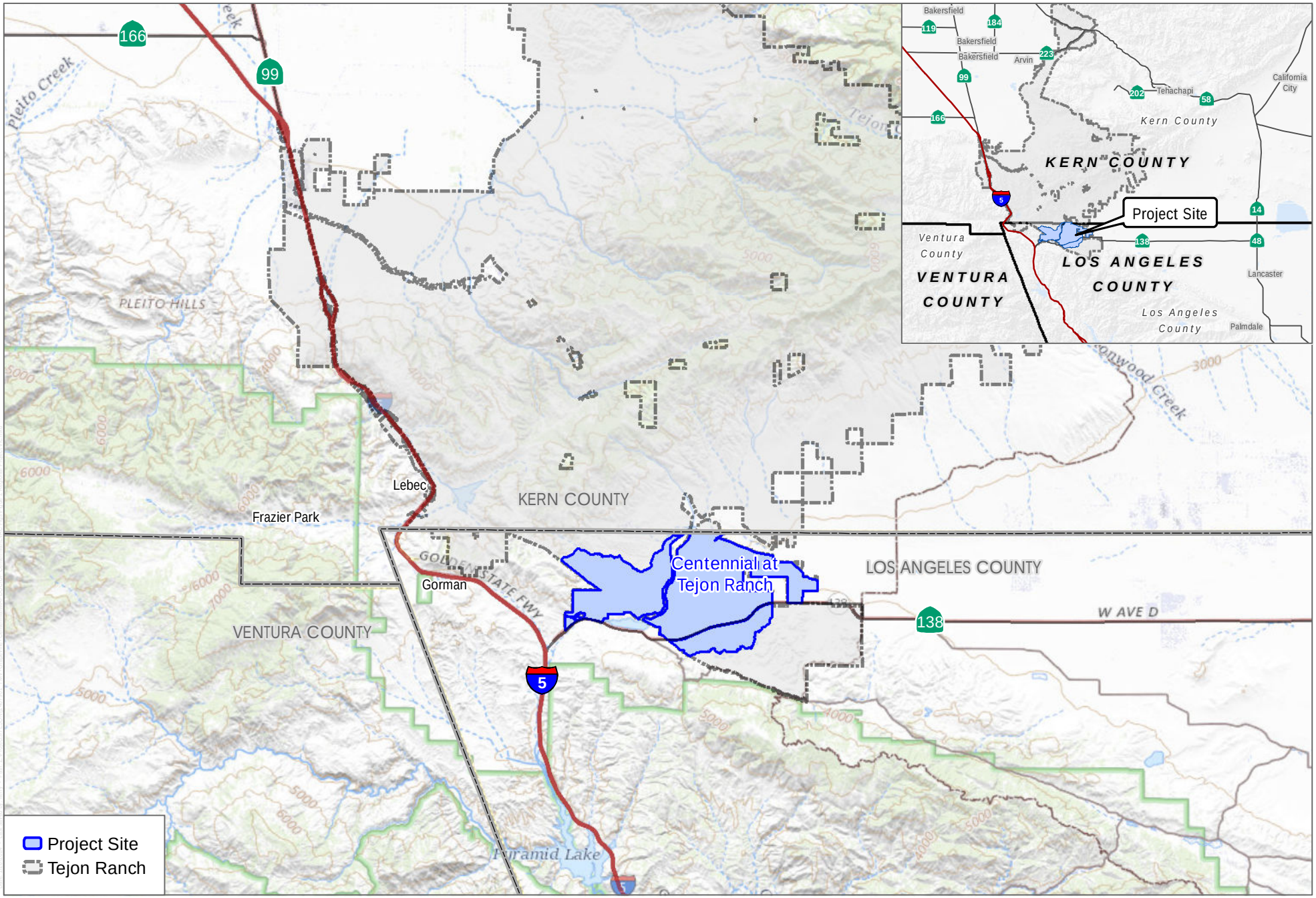

SOURCE: AERIAL-NAIP 2020

DUDEK

0 55,000 110,000 Feet

FIGURE 1

Regional Project Vicinity

Construction Fire Prevention Plan

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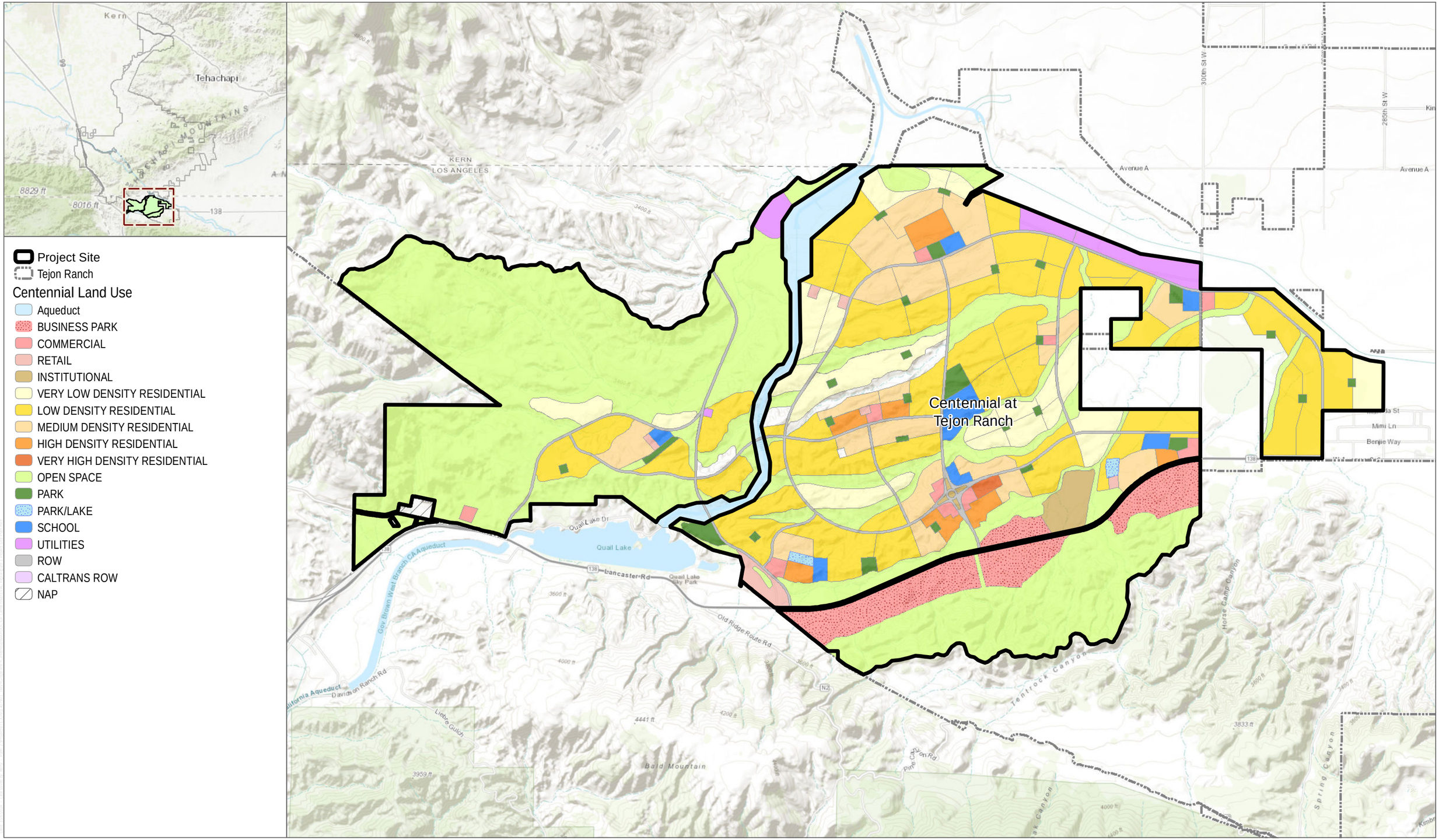

SOURCE: BASEMAP-ESRI MAPPING SERVICE 2023; LAND USE-TEJON RANCH 2023

DUDEK

0 1,950 3,900 Feet

FIGURE 2

Centennial Project Site Plan

Construction Fire Prevention Plan

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3 Emergency Notification Procedures

Any fire event (where activities result in combustion), or any fire that has the potential to cause a wildland fire, at or near the site will trigger the emergency notification procedures identified in this section. Fire reporting is critical for tracking where, when, how, and why fire ignitions occur and will help the fire agencies develop protocols for reducing their occurrence.

3.1 First Call = 9-1-1

Reporting fires and other emergencies: The first call should be to 9-1-1 so that appropriate apparatus can be dispatched.

The personnel in Table 1 are the primary site contacts to be notified during a fire event

Table 1. Emergency Notification Primary Contacts

Name*	Position	Telephone Number*
TBD	Site Safety Officer	TBD
TBD	Site Manager	TBD
TBD	Project Manager	TBD
TBD	Project Engineer	TBD
TBD	Construction Supervisor	TBD

Note:
* Upon designation of each of the positions listed, the Names and contact numbers and emails shall be inserted into this table.

Technical Staff Contact: Project contact information will be provided to local fire agencies/stations to assist responding firefighters during an emergency. A copy of this CFPP will be submitted to the responding fire agencies.

The first call should be to 9-1-1 so that emergency responders can be dispatched. Travel times to the site require notification of 9-1-1 as early as possible after the fire or other emergency has been observed.

Emergency related contacts currently near the site include:

- Fire/Emergency Medical (LACoFD)
- LACoFD Stations #77, 78
- Kern County Fire Stations #56, 57
- Los Angeles County Sheriff's Station – 661.225.1121
- California Highway Patrol (Lebec Office) – 661.248.6655
- Hospital – Henry Mayo Newhall Hospital – 661.200.2000
- Hospital – Valencia Medical Center – 661.222.9117

To facilitate the arrival of fire services during construction, an emergency response meeting point will be established with the LACoFD prior to the start of construction. The Site Safety Officer (SSO) or designee will meet the emergency

response team at the meeting point, likely the Project's main entrance, to lead them into the site. The meeting point will be selected with fire agency input prior to the start of construction.

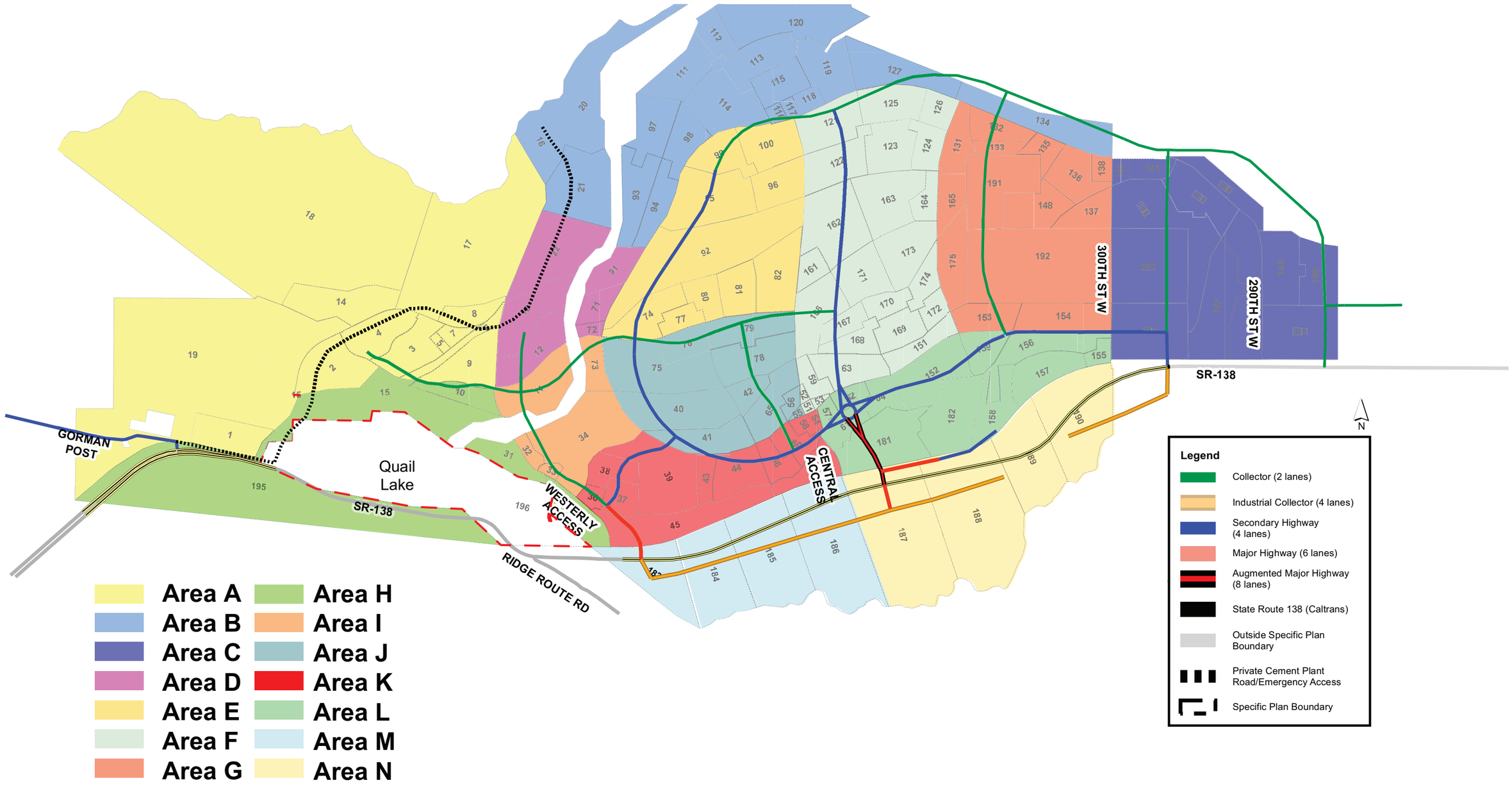
3.2 Evacuation Procedures

During fire events at or near the Project site, the site manager and/or SSO, in consultation with law or fire authorities, as possible, may issue an evacuation notice. When an evacuation has been called, all site employees will gather at a designated assembly area (to be established prior to active construction on site) and the SSO will account for all personnel, as time allows. Once all employees are accounted for, or sooner if dictated by the emergency, the vehicles will safely convoy from the site to safe zones, which are generally areas off-site away from the threat. Should there still be persons within the site after the evacuation has been called, the SSO will send convened personnel off site to safe zones and the SSO and supervisors will perform a sweep of the project site to locate persons and reconvene at the assembly area. Once all personnel are accounted for, they will exit the site. Should a structure or wildland fire (or other emergency) occur that threatens the primary assembly area; other locations may be designated as secondary assembly areas by the SSO or supervisors, as dictated by the situation. The SSO and/or Site Supervisors should be prepared to be available to the Incident Commander (IC) throughout the Incident to facilitate information exchange.

3.2.1 Evacuation Routes

Depending on the type and severity of the emergency, along with weather and/or localized site conditions, roadways designated on Figure 3 will be used for evacuating the Centennial project site.

People onsite are urged to follow the directions of emergency notices and personnel and to evacuate as soon as they are notified to do so or earlier, if they feel uncomfortable. Directions on evacuation routes will be provided in most cases but, when not provided, occupants will proceed according to known available routes away from the encroaching fire. Occupants are cautioned not to rely on navigation apps which may inadvertently lead them toward an oncoming fire. The SSO and site managers are primarily responsible for evacuations. They will determine the level of emergency, talk with fire officials, as possible, and declare the emergency status. Foreman level supervisors shall assist in accounting for personnel.



SOURCE: CHEN RYAN

FIGURE 3
Centennial Evacuation Routes and Evacuation Zones
Construction Fire Prevention Plan

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4 Centennial Project Roles and Responsibilities

All employees should know how to prevent and respond to fires and are responsible for adhering to policies regarding fire emergencies. In particular, the following sections detail general responsibilities, by position.

4.1 Project Owner/Management

A Final Environmental Impact Report, including a site-specific Wildfire Safety Plan (WSP) to determine overall fire risk has been prepared for the Project. Pending approval of the FPP, the Project is required to implement necessary measures to reduce the risk and comply with federal, state, and local fire safety/protection policies. Additionally, Owners/Management will conduct necessary training and make equipment available to provide a safe working environment for employees and contractors.

4.2 Site Safety Officer

The SSO or a designated Site Fire Safety Coordinator will manage the Project's FPP and this CFPP and shall maintain all records pertaining to the plan. Among the other responsibilities of the SSO are:

- Understanding the CFPP and its mandates for training, fire prevention, fire suppression, and evacuation.
- Understanding the fire risk associated with the site and with activities that will occur on site.
- Developing and administering the fire prevention and safety training program.
- Ensuring that fire control equipment and systems are properly maintained and in good working condition.
- Monitoring combustibles on the site and managing where they are stored.
- Conducting fire safety surveys and making recommendations.
- Posting fire rules on the project bulletin board at the contractor's field office and areas visible to employees.
- Stopping project work activities that pose a fire hazard or are not in compliance with this CFPP.
- Reporting all fires ignited on the site, whether structural, vegetation, electrical, or other to LACoFD.

4.3 Supervisors

Supervisors are responsible for:

- Ensuring that employees receive appropriate fire safety training
- Notifying the SSO when changes in operation increase the risk of fire
- Enforcing fire prevention and protection policies
- Accounting for employees/contractors in the case of an evacuation
- Performing site sweeps to round up staff
- Facilitating fire agency access to the site

- Cooperating with the fire agencies/Incident Command during and following fires
- Identifying unsafe work practices that may lead to fire ignitions

4.4 Employees/Contractors

All employees and contractors shall:

- Complete all required training before working on site without supervision
- Conduct operations safely to limit the risk of fire
- Report potential fire hazards to their supervisors
- Follow fire emergency procedures
- Understand the emergency evacuation protocols

5 Site and Project Description

The Project footprint is currently mostly undeveloped. Vegetation on the Centennial property is dominated primarily by both native and non-native grassland which represent nearly 76% of the site's vegetative cover. Mixed oak woodland inhabits nearly 12% of the site and is situated both on the north-facing slope of the Liebre Mountains in the southeast portion of the property as well as in the higher elevations in the western portion of the property. Scrub vegetation types, scattered throughout the site, represent nearly 8% of the site's vegetative cover. While this fuel type can burn intensely under strong, dry wind patterns, it does not produce the high fire intensity and fast-spreading wildland fires found with chaparral fuel types, which cover less than 1% of the site. The remaining cover on site (less than 4%) consists of disturbed or un-vegetated areas (roads, aqueduct, etc.), riparian scrub, and riparian woodland habitats.

The Project footprint would be converted to roads, structures, and maintained landscape vegetation. Native vegetative fuels allowed to remain within the outer thinning fuel modification zones would be modified as a result of development. The modification would include altering current densities, distributions, and species composition. The vegetation outside the Project's perimeter fuel modification zones and within the retained open spaces are the primary wildfire concern for the Centennial site. These areas would be preserved as open space and would continue to be dominated by annual grassland. The fuels on and directly adjacent the Project are not consistent with extreme wildfire behavior in their natural condition, but especially given the historic and ongoing fuel management practices that include livestock grazing and active management. Tejon Ranch remains unfragmented and has been carefully managed with livestock and cattle grazing for nearly one hundred sixty years by pre-statehood vaqueros till today by modern-day cowboys and has committed to doing so in the future. Actively grazed landscapes, which will be maintained following the buildout of the Project, assure sustainability and limit the severity of wildfire because grassland fuel loads are reduced. The sustainable grazing operation employed at Tejon Ranch effectively reduces the grass fuels on an ongoing basis which reduces the potential for ignitions and for rapid fire spread. The proposed project's fire protection features, including the code-exceeding fuel modification zones, were designed to be fire-hardened for the type of wildfire these areas could produce and provide a system of fire protection.

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6 Project Specific Risk Summary

6.1 Fire Risk

Fire risks must be assessed based upon the potential frequency (probability of an incident occurring) and consequence (potential damage should an event occur). The evaluation of fire risks must take into account the frequency and severity of fires and other significant incidents. This includes common risks and heightened sources of risk.

Common risks that result in emergency calls include accidental injuries (residential, vehicle, other), medical related incidents including heart attacks, strokes and other serious conditions and illnesses, accidental vegetation fires, and occasional structure fires. The study area also includes a major transportation corridor risk category that has a higher occurrence rate than commonly realized in other areas. Vehicle related incidents along the SR-138 freeway and Interstate 5 are likely to occur at higher levels in the Project area than in areas without a major freeway. Roadside fires are also a significant risk with spread into the adjacent wildlands possible.

Among the listed potential causes of fire incidents involving construction of a residential community that are relevant for this study are:

- Explosion/Arcs, arc flashing, electrical shorts, sparking, motor or other machinery fire, wiring and harnessing fire, overheated junction boxes, rodents chewing on wires and causing arcing, etc.
- Collapse of supporting structure causing electrical shorts and fire
- Overgrown vegetative fuel
- Equipment and supplies storage
- Trash cans, smoking areas, and other combustible storage around construction sites

The Project's fire risks are associated with the following:

6.1.1 Construction Phase Risks

- **Earth-moving equipment –** create sparks, heat sources, fuel or hydraulic leaks, etc.
- **Chainsaws –** may result in vegetation ignition from overheating, spark, fuel leak, etc.
- **Vehicles –** heated exhausts/catalytic converters in contact with vegetation may result in ignition
- **Welders –** open heat source may result in metallic spark coming into contact with vegetation
- **Woodchippers –** include flammable fuels and hydraulic fluid that may leak and spray onto vegetation with a hose failure
- **Compost piles –** large piles that are allowed to dry and are left on-site for extended periods may result in combustion and potential for embers landing in adjacent vegetation
- **Grinders –** sparks from grinding metal components may land on a receptive fuel bed
- **Torches –** heat source, open flame, and resulting heated metal shards may come in contact with vegetation
- **Dynamite/blasting –** if necessary, blasting may cause vegetation ignition from open flame, excessive heat or contact of heated material on dry vegetation

- **Other human-caused accidental ignitions –** ignitions related to discarded cigarettes, matches, temporary electrical connections, inappropriately placed generators, poor maintenance of equipment, and others.

Fire Prevention Measures for all Construction Activities:

- Minimize combustible and flammable materials storage on site.
- Store any combustible or flammable materials that need to be on site away from ignition sources.
- Clear parking areas shall be cleared of all grass and brush by a distance of at least 10 feet.
- Keep evacuation routes free of obstructions.
- Label all containers of potentially hazardous materials with their contents and stored in the same location as flammable or combustible liquids.
- Perform "hot work" according to fire safe practices1 in a controlled environment and with fire suppression equipment at the job site. A fire watch person (Fire Patrol), with extinguishing capability (e.g., fire extinguishers), should be in place for all 'Hot Work" activities during construction. Ensure hot work adheres to the guidelines provided.
- Dispose of combustible waste promptly and according to applicable laws and regulations.
- Report and repair all fuel leaks without delay.
- Do not overload circuits or rely on extension cords where other options would be safer.
- Turn off and unplug electrical equipment when not in use.
- Direct contractors on site to restrict use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to outside during RFW. When the above tools and equipment are used, water trucks (4,000-gallon capacity) equipped with hoses, shovels, Pulaski's, and McLeod's shall easily be accessible to personnel.
- Equip all construction-related vehicles with a 10-pound 4A:80B:C Dry Chemical Fire Extinguisher, a 5-gallon backpack pump or water fire extinguisher, a 46-inch round point shovel, and a first-aid kit.
- When an evacuation has been called, all site personnel will gather at the designated assembly area and the SSO will account for all personnel. Once all personnel are accounted for, the vehicles will safely convoy from the site to safe zones, which are generally areas off-site away from the threat.

6.1.2 Consultants and Contractor On-site Risk

Consultants and contractors should know how to prevent and respond to fires and are responsible for adhering to the Project's policies regarding fire emergencies. These general fire prevention measures should help in the efforts to prevent a fire from occurring while on-site.

Fire Prevention Measures for Consultants/Contractors:

- Vehicles equipped with fire prevention equipment:
  - 10 pounds, 4A:80B:C dry chemical fire extinguisher
  - 46-inch round point shovel

1 Hot Work Safety Fact Sheet (nfpa.org)

  - 5-gallons of water or a 5-gallon water backpack
  - First-aid kit
- No driving (cars, trucks, ATVs or similar) over unmaintained and dry vegetation.
- Vehicles can be parked a minimum of 10 feet from any vegetation as long as the vehicle is parked in an area devoid of any vegetation.
- Site activities limited during Red Flag Warning Weather periods; stay alert to fire and weather conditions and evacuate employees, if safe to do so.
- Consultants/Contractors will conduct operations safely to limit the risk of fire
- Hot Work shall adhere to the guidelines provided below in Section 7.5.
- During significant emergency situations, an evacuation notice may be issued by the site manager/supervisor or SSO. When an evacuation has been called, all consultant or contractor employees will gather at the designated assembly area and the SSO will account for all personnel. Once all employees are accounted for, the vehicles will safely convoy from the site to safe zones, which are generally areas off-site away from the threat.

The estimated risk associated with the Project site is considered to be low to moderate during construction and decommissioning and low during operation, based on the successful application of FPP and CFPP fire risk reducing requirements.

The active construction phase results in higher potential for fires. Hot works, vegetation clearing, and other activities that may result in flame or heat sources can ignite vegetation, especially if non-native grasses have established and cured. Although there will be a potential for structural/equipment fires and wildfires, the risk is considered manageable as indicated by the low historic fire occurrence in similar development Projects.

6.2 Risk Reduction Measures

The estimated risk associated with the Project site is considered to be low to moderate during construction and decommissioning and low during operation, based on the successful application of WSP and CFPP fire risk reducing requirements.

The active construction phase results in higher potential for fires. Hot works, vegetation clearing, and other activities that may result in flame or heat sources can ignite vegetation, especially if non-native grasses have established and cured. Although there will be a potential for structural/equipment fires and wildfires, the risk is considered manageable as indicated by the low historic fire occurrence in similar development Projects.

The following measures will be employed during the project's phases (construction, operation and maintenance and decommissioning) to reduce the risk of ignitions. These measures will be enforced through the SSO and ongoing worker safety training.

- All internal combustion engines, both stationary and mobile, shall be equipped with spark arresters. Spark arresters shall be in good working order. (See 4.3, bullet one)
- Light trucks and cars with factory-installed (type) mufflers shall be used only on roads where the roadway is cleared of vegetation. These vehicle types will maintain their factory-installed (type) muffler in good condition.

- Fire rules shall be posted on the project bulletin board at the contractor's field office and areas visible to employees.
- Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials.
- Personnel shall be trained in the practices of the fire safety plan relevant to their duties. Construction and maintenance personnel shall be trained and equipped to extinguish small fires to prevent them from growing into more serious threats.
- The protect proponent/operator shall restrict the use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to days when the LACoFD Daily Fire Danger Rating is low. When the above tools are used, water tanks equipped with hoses, fire rakes, and axes shall be easily accessible to personnel.
- The Project will be equipped with two water trucks each of 4,000-gallon capacity. Each truck will be equipped with 50 feet of 0.25-inch fast response hose with fog nozzles. Any hose size greater than 1.5 inches shall use National Hose (NH) couplings.
- A cache of shovels, McLeods, and Pulaskis shall be available at staging sites. The amount of equipment will be determined by consultation between SSD and the LACoFD. Additionally, on-site pickup trucks will be equipped with first aid kits, fire extinguishers, and shovels. Contractor vehicles will be required to include the same basic equipment.
- Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials and provided with a gravel surface.
- A fire watch (i.e., person responsible for monitoring for ignitions) shall be provided during hot work and shall occur for up to one hour following completion of the hot work activities.
- Smoking will not be permitted on the site.
- Each Project construction site, if construction occurs simultaneously at various locations on the site, shall be equipped with fire extinguishers and firefighting equipment sufficient to extinguish small fires.
- The on-site contractor or Project staff shall coordinate with the LACoFD to create a training component for emergency first responders to prepare for specialized emergency incidents that may occur at the Project site.
- All on-site employees shall participate in fire prevention and response training exercises with the LACoFD.
- The Project shall implement ongoing fire patrols during the fire season as defined by local and state agencies. The SSO will be assigned as fire patrol to monitor work activities for fire compliance when activities are occurring that have the potential to create ignitions. . The SSO shall verify proper tools and equipment are on site, assess any fire agency work restrictions, and serve as a lookout for fire starts, including staying behind (e.g., a fire watch) to make certain no residual fire exists. Fire watch may be performed by any site personnel. An SSO shall perform routine patrols of the Project site equipped with a portable fire extinguisher and communications equipment. The Project staff shall notify the LACoFD of the name and contact information of the current SSO in the event of any change.
- Fires ignited on site shall be immediately reported LACoFD via calling 9-1-1 for Emergency Dispatch.
- The engineering, procurement, and construction contracts for the Project shall clearly state the fire safety requirements that are the responsibility of any person who enters the site, as described in this CFPP.

6.3 Daily Fire Prevention Measures

To limit the risk of fires, all site staff, employees, and contractors shall take the following precautions:

- Fire safety shall be a component of daily tailgate meetings. Foremen will remind employees of fire safety, prevention, and emergency protocols on a daily basis.
- No Smoking will be allowed on site except in designated safe smoking areas which include cleared area with no combustible vegetation or materials and approved butt receptacles (noncombustible containment of cigarette butts). Smoking inside closed vehicles at the site may be allowed in designated areas away from vegetation, at the discretion of the SSO.
- Combustible materials will be stored in areas away from native vegetation. Whenever combustibles are being stored in the open air, the SSO shall be informed of the situation.
- Evacuation routes shall be maintained free of obstructions. Unavoidable evacuation route blockages shall be coordinated such that a secondary route is identified and available.
- Disposal of combustible waste in accordance with all applicable laws and regulations.
- Use and store flammable materials in areas away from ignition sources.
- Proper storage of chemicals, such that incompatible (i.e., chemically reactive) substances would be separated appropriately, shall be required.
- Performance of hot work (i.e., welding or working with an open flame or other ignition sources) in controlled areas under the supervision of a fire watch shall be required. Hot work permits are required and will be reviewed and granted by the SSO for all hot work.
- Equipment shall be kept in good working order by inspecting electrical wiring and appliances regularly and maintaining motors and tools free of excessive dust and grease.
- Immediate reporting of fuel or petroleum leaks shall be required. The site mechanic shall ensure that all leaks are repaired immediately upon notification.
- Immediate repair and cleanup of flammable liquid leaks shall be required.
- Extension cords shall not be relied on as a permanent substitute for permanent wiring if wiring improvements are needed, and overloading of circuits with multiple pieces of equipment shall be prohibited.
- Turning off and unplugging electrical equipment when not in use.

6.3.1 Fire Prevention/Protection System Maintenance

The SSO (or trained specialist, when necessary) will ensure that fire suppression and related equipment is maintained according to manufacturers' specifications. National Fire Protection Association (NFPA) guidelines shall be implemented for specific equipment.

The following equipment is subject to ongoing maintenance, inspection, and testing procedures:

- Portable fire extinguishers;
- Fire alarm and suppression systems;
- Water trucks and associated equipment; and
- Emergency backup generators/systems and the equipment they support.

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7 Hot Work

These requirements are primarily from the Los Angeles County Fire Code which adopts the California Fire Code (CFC) Chapter 35 - Welding and Other Hot Work, the National Fire Protection association (NFPA) 51B, Standard for Fire Prevention During Welding, Cutting, and Other Hot Work, and the Standards and American society of Mechanical engineers (ASME) Schemes when referenced. *Note: where two conflicting requirements occur, the more restrictive has been chosen.*

Hot Work is defined in the CFC as operations involving cutting, welding, thermite welding, brazing, soldering, grinding, thermal spraying, thawing pipe, or any other similar activity.

Hot Work Areas are defined as the areas exposed to sparks, hot slag, radiant heat, or convective heat as a result of the hot work.

The LACoFD does not currently issue Hot Work operational permits. In this case, a Hot Work Permit shall be obtained from the SSO, following guidelines from the LACOFD if required. The SSO would require all hot work to be done in compliance with the requirements of the CFC, Chapter 35 and NFPA 51B.

This will require the SSO to develop a formal process for contractors to initiate hot work operations. Documentation will be developed to keep track of who, when, where, and for how long a contract may perform hot work. This paperwork must be made available if requested by the LACOFD to determine fire origin and cause if necessary.

CFC Requirements:

General Requirements:

- **Hot Work Program Permit:** Hot work permits, issued by an approved responsible person (SSO) under a hot work program, shall be available for review by the fire code official (LACOFD) at the time the work is conducted and for 48 hours after work is complete. (CFC §3503.3)
- **Qualification of Operators:** A permit for hot work operations shall not be issued unless the individuals in charge of performing such operations are capable of performing such operations safely. Demonstration of working knowledge of the provisions of this chapter shall constitute acceptable evidence of compliance with this requirement. (CFC §3503.4)
- **Records:** The individual responsible for the hot work area shall maintain “prework check” reports in accordance with Section 3504.3.1. Such reports shall be maintained on the premises for not less than 48 hours after work is complete. (CFC §3503.5)
- **Signage:** Visible hazard identification signs shall be provided where required by Chapter 50. Where the hot work area is open to persons other than the operator of the hot work equipment, conspicuous signs shall be posted to warn others before they enter the hot work area. Such signs shall display the following warning (CFC §3503.6):
- “CAUTION - HOT WORK IN PROGRESS - STAY CLEAR”

Fire Safety Requirements – Protection of Combustibles

- **Combustibles:** Hot work areas shall not contain combustibles or shall be provided with appropriate shielding to prevent sparks, slag or heat from igniting exposed combustibles. (CFC §3504.1.1)
- **Openings:** Openings or cracks in walls, floors, ducts or shafts within the hot work area shall be tightly covered to prevent the passage of sparks to adjacent combustible areas, or shielded by metal fire-resistant guards, or curtains shall be provided to prevent passage of sparks or slag. (CFC C3504.1.2)
- **Housekeeping:** Floors shall be kept clean with the hot work area. (CFC §3504.1.3)
- **Conveyor Systems:** Conveyor systems that can carry sparks to distant combustibles shall be shielded or shut down. (CFC §3504.1.4)
- **Partitions:** Partitions segregating hot work areas from other areas of the building shall be noncombustible. In fixed hot work areas, the partitions shall be securely connected to the floor such that gaps do not exist between the floor and the partition. Partitions shall prevent the passage of sparks, slag, and heat from the hot work area. (CFC §3504.1.5)
- **Floors:** Fixed hot work areas shall have floors with noncombustible surfaces. (CFC §3504.1.6)
- **Precautions in Hot Work**: Hot work shall not be performed on containers or equipment that contain or have contained flammable liquids, gases or solids until the containers and equipment have been thoroughly cleaned, inerted or purged; except that "hot tapping" shall be allowed on tanks and pipelines where such work is to be conducted by approved personnel. Hot work on flammable and combustible liquid storage tanks shall be conducted in accordance with Section 3510. (CFC §3504.1.7)
- **Sprinkler Protection:** Where applicable, automatic sprinkler protection shall not be shut off while hot work is performed. Where hot work is performed close to automatic sprinklers, noncombustible barriers or damp cloth guards shall shield the individual sprinkler heads and shall be removed when the work is completed. If the work extends over several days, the shields shall be removed at the end of each workday. The fire code official (LACOFD) shall approve hot work where sprinkler protection is impaired. (CFC §3504.1.8)
- **Fire Detection Systems:** Approved special precautions shall be taken to avoid accidental operation of automatic fire detection systems. (CFC §3504.1.9)

Fire Watch

- **When Required:** A fire watch shall be provided during hot work activities and shall continue for not less than 30 minutes after the conclusion of the work. The fire code official (LACOFD), or the responsible manager (SSO) under a hot work program, is authorized to extend the fire watch based on the hazards or work being performed. (CFC §3504.2.1)
  - **Exception:** Where the hot work area has no fire hazards or combustible exposures.
- **Location:** The fire watch shall include the entire hot work area. Hot work conducted in areas with vertical or horizontal fire exposures that are not observable by a single individual shall have additional personnel assigned to fire watches to ensure that exposed areas are monitored. (CFC §3504.2.2)
- **Duties:** Individual s designated to fire watch duty shall have fire-extinguishing equipment readily available and shall be trained in the use of such equipment. Individuals assigned to fire watch duty shall be responsible for extinguishing spot fires and communicating an alarm. (CFC §3504.2.3)
- **Fire Training:** The individuals responsible for performing the hot work and individuals responsible for providing the fire watch shall be trained in the use of portable fire extinguishers. (CFC §3504.2.4)

- **Fire Hoses:** Where hoselines are required, they shall be connected, charged and ready for operation. (CFC §3504.2.5)
- **Fire Extinguisher:** Not less than one portable fire extinguisher complying with Section 906 and with a minimum 2-A:20-B:C rating shall be provided with ready access within 30 feet of the location where the hot work is performed. (CFC §3504.2.6)

Area Reviews

- Before hot work is permitted and not less than once per day while the permit is in effect, the area shall be inspected by the individuals responsible for authorizing hot work operations (SSO) [with the Pre-hot work check provided below] to ensure that it is a fire safe area. [2]Information shown on the permit shall be verified prior to signing the permit in accordance with Section 105.6. (CFC §3504.3)

Pre-Hot Work Check

- A pre-hot work check shall be conducted prior to work to ensure that all equipment is safe, and hazards are recognized and protected. A report of the check shall be kept at the work site during the work and available upon request. The pre-hot work check shall determine all the following (CFC §3504.3.1):
  1. Hot work equipment to be used shall be in satisfactory operating condition and in good repair.
  2. Hot work site is clear of combustibles or combustibles are protected.
  3. Exposed construction is of noncombustible materials or, if combustible, then protected.
  4. Openings are protected.
  5. Floors are kept clean.
  6. Exposed combustibles are not located on the opposite side of partitions, walls, ceilings or floors.
  7. Fire watches, where required, are assigned.
  8. Approved actions have been taken to prevent accidental activation of suppression and detection equipment in accordance with Sections 3504.1.8 and 3504.1.9.
  9. Fire extinguishers and fire hoses (where provided) are operable and available.

Gas Welding and Cutting

- **General:** Devices or attachments mixing air or oxygen with combustible gases prior to consumption, except at the burner or in a standard torch or blow pipe, shall not be allowed unless approved. (CFC §3505.1)

Cylinder and Container Storage, Handling and Use

- **Cylinders Connected for Use:** The storage or use of a single cylinder of oxygen and a single cylinder of fuel gas located on a cart shall be allowed without requiring the cylinders to be separated in accordance with Section 5003.9.8 or 5003.10.6.3 when the cylinders are connected to regulators, ready for service, equipped with apparatus designed for cutting or welding and all the following (CFC §3505.2.1):
  1. Carts shall be kept away from the cutting or welding operation in accordance with Section 3505.5 or fire-resistant shields shall be protected.

[2] In this case, because the KCFD does not require hot work permits in Section 105.6, the SSO will verify the information shown on the permit prior to signing the permit.

2. Cylinders shall be secured to the cart to resist movement.
3. Carts shall be in accordance with Section 5003.10.3.
4. Cylinder valves not having fixed hand wheels shall have keys, handles or nonadjustable wrenches on valve stems while the cylinders are in service.
5. Cylinder valve outlet connections shall conform to the requirements of CGA V-1.
6. Cylinder valves shall be closed when work is finished.
7. Cylinder valves shall be closed before moving the cart.

- **Individual Cart Separation:** Individual carts shall be separated from each other in accordance with Section 5003.9.8.[3] (CFC §3505.2.1.1)
- **Precautions:** Cylinders, valves, regulators, hose and other apparatus and fittings for oxygen shall be kept free from oil or grease. Oxygen cylinders, apparatus and fittings shall not be handled with oily hands, oily gloves, or greasy tools or equipment. (CFC §3505.3)
- **Acetylene Gas:** Acetylene gas shall not be piped except in approved cylinder manifolds and cylinder manifold connections or utilized at a pressure exceeding 15 psi unless dissolved in a suitable solvent in cylinders manufactured in accordance with DOT 49 CFR Part 178. Acetylene gas shall not be brought in contact with unalloyed copper, except in a blowpipe or torch. (CFC §3505.4)
- **Remote Locations:** Oxygen and fuel-gas cylinders and acetylene generators shall be located away from the hot work area to prevent such cylinders or generators from being heated by radiation from heated materials, sparks or slag, or misdirection of the torch flame. (CFC §3505.5)
- **Cylinders Shutoff:** The torch valve shall be closed and the gas supply to the torch completely shut off when gas welding or cutting operations are discontinued for a period of 1 hour or more. (CFC §3505.6)
- **Prohibited Operation:** Welding or cutting work shall not be held or supported on compressed gas cylinders or containers. (CFC §3505.7)
- **Tests:** Test for leaks in piping systems and equipment shall be made with soapy water. The use of flames shall be prohibited for leak testing. (CFC §3505.8)

Electric Arc Hot Work

- **General:** The frame or case of electric hot work machines, except internal-combustion-engine-driven machines, shall be grounded. Ground connections shall be mechanically strong and electrically adequate for the required current. (CFC §3506.1)
- **Return Circuits:** Welding current return circuits from the work to the machine shall have proper electrical contact at joints. The electrical contact shall be periodically inspected. (CFC §3506.2)
- **Disconnecting:** Electrodes shall be removed from the holders when electric arc welding or cutting is discontinued for any period of 1 hour or more. The holders shall be located to prevent accidental contact and the machines shall be disconnected from the power source. (CFC §3506.3)
- **Emergency Disconnect:** A switch or circuit breaker shall be provided so that fixed electric welders and control equipment can be disconnected from the supply circuit. The disconnect shall be installed in accordance with the *California Electrical Code*. (CFC §3506.4)

[3] By either separating the carts by at least 20ft. or having a noncombustible partition extending not less than 18in. above and to the sides of the stored material.

- **Damaged Cable:** Damaged cable shall be removed from service until properly repaired or replaced. (CFC §3506.5)

Calcium Carbide Systems

- **Calcium Carbide Storage:** Storage and handling of calcium carbide shall comply with Chapter 50 of this code and Chapter 9 of NFPA 51. (CFC §3507.1)

Acetylene Generators

- **Use of Acetylene Generators:** The use of acetylene generators[4] shall comply with this section and Chapter 15 of NFPA 55.[5] (CFC §3508.1)
- **Portable Generators:** The minimum volume of rooms containing portable generators shall be 35 times the total gas-generating capacity per charge of all generators in the room. The gas-generating capacity in cubic feet per charge shall be assumed to be 4.5 times the weight of carbide per charge in pounds. The minimum ceiling height of rooms containing generators shall be 10 feet. An acetylene generator shall not be moved by derrick, crane or hoist while charged. (CFC §3508.2)
- **Protection Against Freezing:** Generators shall be located where water will not freeze. Common salt such as sodium chloride or other corrosive chemicals shall not be utilized for protection against freezing. (CFC §3508.3)

Piping Manifolds and Hose Systems for Fuel Gases and Oxygen

- **General:** The use of piping manifolds and hose systems shall be in accordance with this Section and Chapter 53 (Compressed Gases), and Chapter 5 of NFPA 51.[6] (CFC §3509.1)
- **Protection:** Piping shall be protected against physical damage. (CFC §3509.2)
- **Signage:** Signage shall be provided for piping and hose systems as follows (CFC §3509.3):
  - Above-ground piping systems shall be marked in accordance with ASME A13.1.[7]
  - Station outlets shall be marked to indicate their intended usage.
  - Signs shall be posted, indicating clearly the location and identity of section shutoff valves.
- **Manifolding of Cylinders:** Oxygen manifolds shall not be located in an acetylene generator room. Oxygen manifolds shall be located not less than 20 feet away from combustible material such as oil or grease, and gas cylinders containing flammable gases, unless the gas cylinders are separated by a fire partition. (CFC §3509.4)
- **Identification of Manifolds:** Signs shall be posted for oxygen manifolds with service pressures not exceeding 200 psig. Such signs shall include the words (CFC §3509.5):
  - "LOW-PRESSURE MANIFOLD - DO NOT CONNECT HIGH-PRESSURE CYLINDERS - MAXIMUM PRESSURE 250 PSIG."

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4 For storage outside buildings, Calcium carbide in unopened containers in good condition (watertight and airtight) shall be permitted to be stored outdoors. Containers shall be stored horizontally in single or double rows. The bottom tier of each row shall be placed on wooden planking or equivalent so that the containers will not come in contact with the ground or ground water. Storage areas shall be at least 10 ft. from lines of adjoining property that can be built upon.

5 NFPA 55 is the Compressed Gases and Cryogenic Fluids Code

6 NFPA 51 is the Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes

7 ASME A13.1 is the Scheme for The Identification Of Piping Systems

- **Clamps:** Hose connections shall be clamped or otherwise securely fastened. (CFC §3509.6)
- **Inspection:** Hoses shall be inspected frequently for leaks, burns, wear, loose connections or other defects rendering the hose unfit for service. (CFC §3509.7)

Hot Work on Flammable and Combustible Liquid Storage Tanks

- **General:** Hot work performed on the interior or exterior of tanks that hold or have held flammable or combustible liquids shall be in accordance with this Section and Chapters 4, 5, 6, 7 and 10 of NFPA 326.[8] (CFC §3510.1)
- **Prevention**: The following steps shall be taken to minimize hazards where hot work must be performed on a flammable or combustible liquid storage container (CFC §3510.2):
  1. Use alternative methods to avoid hot work where possible.
  2. Analyze the hazards prior to performing hot work, identify the potential hazards and the methods of hazard control.
  3. Hot work shall conform to the requirements of the code or standard to which the container was originally fabricated.
  4. Test the immediate and surrounding work area with a combustible gas detector and provide a means of continuing monitoring while conducting the hot work.
  5. Qualified employees and contractors performing hot work shall use an industry-approved hot work permit system to control the work.
  6. Personnel shall be properly trained on hot work policies and procedures regarding equipment, safety, hazard controls and job-specific requirements.
  7. On-site safety supervision shall be present where hot work is in progress to protect the personnel conducting the hot work and provide additional overview of site-specific hazards.

Additional, Project Specific, Hot Work Requirements:

Hot Work shall only be done in fire safe areas designated by the SSO and will comply with the following:

- All personnel involved in hot work shall be trained in safe operation of the equipment by the SSO. This will include providing training at “tailgate safety meetings.” Personnel would also be made aware of the risks involved and emergency procedures, such as how to transmit an alarm and who is responsible to call 9-1-1.
- A fire extinguisher with a minimum rating of 4A:80BC, a 5-gallon backpack pump fire extinguisher, and a 46-round point hardwood shovel, shall be readily accessible within 25 feet of hot work area.
- Personal protective clothing will be selected to minimize the potential for ignition, burning, trapping hot sparks, and electric shock.
- Any ignitions will be immediately extinguished (if possible and safely) by site personnel, and LACOFD will be notified immediately by calling 9-1-1.

[8] NFPA 326 is the Standard for the Safeguarding of Tanks and Containers for Entry, Cleaning, or Repair.

Note: The SSO shall have the responsibility to assure safe hot work operations and will have the authority to modify hot work activities associated with construction and/or maintenance and to exceed the requirements of this CFPP to the degree necessary to prevent accidental or unintended fire ignition.

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8 Red Flag Warning Protocol

Red Flag Warnings are issued by the National Weather Service and indicate that conditions are such (low humidity, high winds) that wildfire ignitions and spread may be facilitated. To ensure compliance with Red Flag Warnings restrictions, the National Weather Service website would be monitored at the site (http://www.srh.noaa.gov/ridge2/fire/briefing.php).

During Red Flag Warnings, construction-related activities would be limited and precautions may be taken on site during periods of a Red Flag Warning, when conditions such as low humidity and high winds are present. Upon announcement of a Red Flag Warning, red flags will be prominently displayed at the entrance gate and main office, indicating to employees and contractors that restrictions are in place. Any hot work (work that could result in ignition sources or increase fire risk), grading, or any other work that could result in heat, flame, sparks, or may cause an ignition to vegetation would be prohibited during Red Flag Warning conditions. Project areas may be evacuated where personnel may be exposed to higher risks. If vehicles are required to be used during Red Flag Warning conditions, vehicles shall remain only on designated access roads on the site.

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9 Fire Safety Briefings, Inspections, and Training

9.1 Briefings and Inspections

The SSO would conduct routine, unannounced inspections a minimum of once, weekly. The SSO would develop an inspection checklist to document these inspections.

Prior to Project construction, necessary personnel would receive training on the contents of this CFPP, along with additional fire safety and fire prevention information provided by an informed SSO (or designee). As possible, firefighters from LACoFD will attend these meetings, as possible, and provide input, which has a dual benefit of informing site personnel and providing Project familiarity for the firefighters.

Site supervisors/foremen will be responsible for sharing CFPP content with consultants and construction personnel throughout the duration of the Project. A review of the content of this CFPP would take place at a formal safety briefing at a minimum of once per month.

Each daily safety tailgate session should include an assessment of the day's fire-related risks or hazards and the mitigation for each.

Compliance, including monitoring compliance, with this CFPP is mandatory. All levels of project management have the authority to shut down any operation that presents an inappropriate amount of fire risk or hazard until it can be properly mitigated.

Violations of any of the requirements of this CFPP would be addressed by the SSO or other supervisory personnel, immediately. Appropriate consequences for repeated or serious negligence in respect to this CFPP would be dealt with accordingly. All Project-related vegetation fires, regardless of size, shall be promptly reported to the SSO and LACoFD to determine if appropriate mitigation measures are being taken.

9.2 Training Requirements

9.2.1 Basic Fire Safety Training

The SSO and or site supervisors/foremen would present basic fire prevention training to employees upon employment, and shall maintain documentation of the training, which includes the following:

- The Project-specific WSP
- Review of the Occupational Safety and Health Administration (OSHA)Fire Protection and Prevention (29 CFR 1926.24)
- Proper response and notification in the event of a fire;
- Instruction on the use of portable fire extinguishers (as determined by company policy in the Emergency Action Plan), and hand tools, such as shovels, and recognition of potential fire hazards.

The SSO would train persons entering the site on the fire hazards associated with the specific materials and processes to which they are exposed, and will maintain documentation of the training. Employees would receive this training at the following times:

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

Upon returning to the site after having been gone longer than 90 days

9.2.2 Site Supervisor Fire Safety Training

Prior to Project construction, site supervisors would receive a minimum of 1 hour training on wildland fire prevention and safety. This training would be provided by the SSO or qualified designee. This training would then be shared with all construction personnel by the site supervisor or the SSO.

Each site supervisor would be trained on the following:

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

9.2.3 Communication

The ability to communicate with personnel working on the Project site is mandatory. Construction crews would be required to have a cell phone or satellite phone, and/or radios that are operational within the area of work to report an emergency. Contact information for lead construction personnel would be provided to respective agencies. Communication pathways and equipment would be tested and confirmed operational each day prior to initiating construction activities. Fires and medical emergencies would be immediately reported to LACoFD via 9-1-1.

Each on-site worker would carry at all times a laminated, CFPP 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 CFPP card would be updated as needed and redistributed to all workers before the initiation of any construction activities. The Project's compliance monitor would provide the CFPP cards to the site's SSO prior to construction kick-off so that all site staff can be provided training and receive their cards.

10 Project Personnel Fire Fighting Limitations

Responding to fires at the Project site, whether structural, wildland, or other, is the responsibility of LACoFD. Because their response to the site may require several minutes or more, Project employees and contractors should provide only initial firefighting efforts, and only if they have had appropriate training. No employee shall fight a fire beyond the incipient stage and the arrival of professional fire suppression personnel. Involvement in firefighting is voluntary and should only be attempted by trained, qualified individuals.

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11 Review and Approval

The signatory reviewing officials are acknowledging that Centennial Founders, LLC (applicant) has established a CFPP, which when properly implemented, maintained, and enforced will result in fire hazard and risk reduction for the Project's construction phase. Reviewing agencies do not accept any responsibility for the applicant's interpretation or implementation of this CFPP prior to, during, or following the construction of the Project or for any resulting actions associated with these activities.

Reviewed by:

_____ _____

TBD Date

_____ _____

Los Angeles County Fire Department Date

Approved by:

_____ _____

TBD Date

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Appendix A

Selected Fire Safety Regulations, Guidelines, and Standards

The primary regulations related to fire at Centennial Project site are summarized below. Other regulations on energy producing and transmission facilities/operations may apply, but are not included herein as they are not related specifically to fire safety.

Federal and Other Regulations/Guidelines

- **NFPA 10, Fire Extinguishers:** A long-standing standard, which specifies the types, sizes, rating, and locations for portable fire extinguishers. It also provides information on how to calculate the number and size of portable fire extinguishers needed.
- **NFPA 22, Standard for Water Tanks for Private Fire Protection:** Provides recommendations for the design, construction, and installation of water storage tanks for private fire protection systems.
- **NFPA 30, Flammable and Combustible Liquids Code:** This standard provides recommendations for storage, use, and handling of flammable and combustible liquids. It provides detailed information regarding tank storage, spacing, dispensing of liquids, portable containers, and other related operations. NFPA 30 is referenced by the California Fire Code.
- **NFPA 70, National Electrical Code:** NFPA 70 is the standard for the design and installation of electrical systems. It includes recommendations for various types of occupancies and also provides recommendations and criteria for the location and installation of "explosion proof" electrical systems.
- **NFPA 72, National Fire Alarm and Signaling Code:** NFPA 72 is the standard for the design, installation, and operation of fire alarm systems in various occupancies. This standard is used by fire alarm system designers when designing and installing a system. It is utilized also by fire agencies when reviewing plans for new systems.
- **NFPA 497, Classification of Flammable Liquids, Gases, and Vapors, and for Electrical Area Installations in Chemical Process Areas:** NFPA 497 is the standard, which is utilized along with NFPA 70 to determine flammable gas, flammable liquid, and combustible liquid hazards and to recommend the areas that require explosion- proof electrical systems. It also sets forth the extent of the classified areas. Although the title says chemical process areas, it is used as a standard for explosion-proof electrical as it defines various risks and contains numerous diagrams to help the electrical system designer.

California Public Utilities Commission General Order 95: Rules for Overhead Transmission Line Construction

General Order 95 was initially adopted in 1941 and was most recently updated in 2020 for Southern California General Order 95 governs the design, construction, and maintenance of overhead electrical lines. Rule 31.1 generally states that design, construction, and maintenance of overhead electrical lines should be done in accordance with accepted good practices for the given location conditions known at the time by the persons responsible for the design, construction, and maintenance of the overhead electrical lines and equipment. Rule 35 of General Order 95 (Tree Trimming) requires the following:

- 4 feet radial clearances for any conductor of a line operating at 2,400 volts or more, but less than 72,000 volts
- 6 feet radial clearances for any conductor of a line operating at 72,000 volts or more, but less than 110,000 volts
- 10 feet radial clearances for any conductor of a line operating at 110,000 volts or more, but less than 300,000 volts (this would apply to the project)
- 15 feet radial clearances for any conductor of a line operating at 300,000 volts or more.

Under California Public Utilities Code Section 1708.5, interested persons are permitted to petition the CPUC to adopt, amend, or repeal a regulation. In response to the 2007 wildfires in San Diego County, on November 6, 2007, SDG&E submitted a petition to the CPUC requesting that the CPUC issues an Order Instituting Rulemaking to determine whether General Order 95 should be amended or if more rules should be adopted to address disaster preparedness, including damage from Santa Ana wind-driven firestorms (CPUC and BLM 2008a). The petition requested that the CPUC consider several items, including the following:

- Operating rural electrical lines differently during severe fire weather
- Mitigating potential hazards associated with rural lines including undergrounding line, using steel poles in place of wood, and shortening spans between poles
- Better coordinating disaster management efforts among agencies, municipalities, local jurisdictions, and utilities
- Maintaining electrical line rights-of-way (ROWs) free of vegetation
- Adopting a state-wide Disaster Management Plan.

While the 2007 SDG&E petition did not immediately change the rule, it helped initiate CPUC rulemaking proceedings that ultimately resulted in amendments to General Order 95, including fire-hazard-related revisions adopted in 2014 and later updates.

California Department of Forestry and Fire Protection (CAL FIRE)

- Public Resource Code 4291 requires a reduction of fire hazards around buildings, requiring 100 feet of vegetation management around all buildings, and is the primary mechanism for conducting fire prevention activities on private property within CAL FIRE jurisdiction.
- Public Resources Code 4292 states that a minimum firebreak of 10 feet in all directions from the outer circumference of such pole or tower be established around any pole which supports a switch, transformer, lightning arrester, line junction, or end or corner pole. All vegetation shall be cleared within the firebreak.
- Public Resources Code 4293 establishes the minimum vegetation clearance distances (between vegetation and energized conductors) required for overhead transmission line construction. Minimum clearances are discussed as follows:
  - A minimum radial clearance of 4 feet shall be established for any conductor of a line operating at 2,400 or more volts but less than 72,000 volts.
  - A minimum radial clearance of 6 feet shall be established for any conductor of a line operating at 72,000 or more volts but less than 110,000 volts.
  - A minimum radial clearance of 10 feet shall be established for any conductor of a line operating at 110,000 or more volts but less than 300,000 volts.
  - A minimum radial clearance of 15 feet shall be established for any conductor of a line operating at 300,000 or more volts.

Specific requirements applicable to the construction and operation of the Proposed Project include those from Public Resources Code, Division 4, Chapter 6:

- Section 4427 – Operation of fire-causing equipment
- Section 4428 – Use of hydrocarbon-powered engines near forest, brush, or grass-covered lands without maintaining firefighting tools

- Section 4431 – Gasoline-powered saws, etc.; firefighting tools
- Section 4442 – Spark arrestors of fire prevention measures, requirements, exemptions.

California Wildland-Urban Interface Code

With the adoption of the 2025 codes on January 1, 2026, all wildfire protection and safety related requirements formerly located in the CBC, CFC, and CRC have been consolidated into the CWUIC, specifically:

- Chapter 3: Wildland-Urban Interface Areas, which includes provisions from the Public Resources Code and Government Code.
- Chapter 4: Wildland-Urban Interface Area Requirements, which includes provisions from Title 14, State Minimum Fire Safe Regulations.
- Chapter 5: Special Building Construction Regulations, which includes the Materials and Construction Methods for Exterior Wildfire Exposure from CBC Chapter 7A.
- Chapter 6: Fire Protection Requirements, which includes the Requirements for Wildland-Urban Interface Areas from CFC Chapter 49.

These requirements apply as adopted and amended by Los Angeles County at the time of construction. Additionally, LACoFD references the National Fire Protection Association (NFPA) and California Public Resources Code (PRC) for clarification and interpretation of applicable fire protection requirements.

California Code of Regulations Title 14 Section, Sections 1252, 1253, and 1254

CCR Title 14 Sections 1252 and 1253 state that in State Responsibility Areas (SRAs), power line hazard reduction standards are applicable year-round. Power lines reduction strategies include pole brush clearing, and in Los Angeles County, CAL FIRE is responsible for inspecting local implementation of these strategies.

CCR Title 14 Section 1254 states that the fire break minimum clearance requirements of California Public Resources Code 4292 are applicable within an imaginary cylindrical space surrounding each pole or tower on which a switch, fuse, transformer, or lightning arrester is attached. The radius of the cylindroid is 3.1 meters (10 feet) measured horizontally from the outer circumference of the specified pole or tower with height equal to the distance from the intersection of the imaginary vertical exterior surface of the cylindroid with the ground to an intersection with a horizontal plane passing through the highest point at which a conductor is attached to such pole of tower. Flammable vegetation and materials located wholly or partially within the firebreak space shall be treated as follows:

- At ground level: remove flammable materials, including but not limited to, ground liter, duff, and dead or desiccated vegetation that will allow fire to spread
- From 0–2.4 meters (0–8 feet) above ground level: remove flammable trash, debris, or other materials, including grass, herbaceous, and brush vegetation. All limbs and foliage of living trees shall be removed up to a height of 2.4 meters (8 feet)
- From 2.2 meters (8 feet) to horizontal plane of highest point of conductor attachment: remove dead, diseased, or dying limbs and foliage from living sound trees and any dead, diseased, or dying trees in their entirety.

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Appendix J

Centennial Off-Site Ignition Risk Assessment

Focused Off-site Ignition Risk Assessment

Centennial

MAY 2026

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
CAL FIRE	California Department of Forestry and Fire Protection
CBC	California Building Code
CEQA	California Environmental Quality Act
CFC	California Fire Code
CMG	Centennial Monitoring Group
EIR	environmental impact report
ERP	Emergency Response Plan
FHSZ	Fire Hazard Severity Zone
FMZ	fuel modification zone
FPP	fire protection plan
FRAP	Fire and Resource Assessment Program
GIS	geographic information system
HOA	Homeowners Association
I	Interstate
IRWIN	Integrated Reporting of Wildland Fire Information
LACoFD	Los Angeles County Fire Department
NFPA	National Fire Protection Association
OAG	Attorney General's Office
PRC	Public Resources Code
Project	Centennial Master-Planned Community Project
SDG&E	San Diego Gas and Electric
SR	State Route
SRA	state responsibility area
WSP	Wildfire Safety Plan
WUI	wildland–urban interface

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1 Executive Summary

The potential fire impacts of the Centennial Specific Plan project were disclosed and analyzed in the 2019 Centennial Specific Plan Draft Environmental Impact Report (DEIR) and Final Environmental Impact (FEIR) (collectively the "2019 EIR"). The 2019 EIR was certified by the Los Angeles County Board of Supervisors on April 30, 2019, but it was subsequently challenged in two separate lawsuits, one of which alleged, among other claims, that the 2019 EIR analysis of the environmental impacts caused by Centennial and related to fire risk failed to comply with CEQA.

On April 5, 2021, the Los Angeles County Superior Court issued an order upholding the 2019 EIR's assessment of fire impacts in most respects. However, it faulted the 2019 EIR for purportedly failing to adequately analyze the Project's potential fire-related impacts on existing off-site resources. In June 2025, the Second District Court of Appeal issued its decision in *Center For Biological Diversity et al. v. County of Los Angeles et al*. (2025) 112 Cal.App.5th 317 affirming the Superior Court decision and finding that the 2019 EIR's analysis of the wildfire risks associated with the Project's off-site infrastructure improvements lacked sufficient detail to enable those who did not participate in its preparation to understand to consider meaningfully the 2019 EIR's conclusion of less than significant off-site wildfire impacts

The purpose of this report is to assess the potential of the Project, including associated off-site improvements, to cause fires that ignite and subsequently spread off-site, thereby impacting existing land uses in the Project's proximity. It is intended that this report will be used to support the wildfire impact analysis prepared for the Recirculated Partial Draft Environmental Impact Report (RPDEIR).

To date, there is no recognized scientific method for analyzing off-site ignition risk impacts of a proposed master-planned community such as the Centennial Specific Plan. There are various data available that can be used to evaluate some aspects of the potential for a project's population to result in ignitions, but understanding how regulatory requirements, project-specific wildfire risk reduction measures, and mitigation measures reduce potential ignition risk, if not prevent it altogether, have not been formalized. In many cases, the Project's approach to wildfire risk reduction also provides a public benefit beyond lessening the potential for increased ignitions and off-site fire spread, as discussed herein. To that end, this analysis provides a comprehensive approach to evaluating the potential for an ignition caused by a Project feature to cause an off-site ignition and spread-related impacts for a new master-planned community in a Fire Hazard Severity Zone (FHSZ). This report also applies this method to the Project to better inform the RPDEIR's assessment of the Project's potential fire-related impacts.

A team of fire protection experts was assembled to develop this assessment method utilizing best practices, extensive research, publicly available and Project-specific fire environment data, and years of professional experience to quantify and weigh the various risk factors and fire protection mitigation measures. Resumes of the fire protection team members are provided in Appendix A. The process involved creation of an off-site wildfire[1] risk matrix that assesses risk based on provisions for fire safety and protection features (described in detail herein).

[1] CFC 4902 Definitions. WILDFIRE. Any uncontrolled fire spreading through vegetative fuels that threatens to destroy life, property or resources as defined in PRC, Sec. 4103 and 4104.

Technical Report – Scope of Study

The scope of study included the following:

1. Characterize the existing site and its surroundings (estimate up to 10 miles) in terms of fire environment
   a. A 10-mile distance was selected as a conservative boundary that captures assets located in proximity to the Centennial Project Site
2. Summarize the Project's fire protection and safety features (required codes, Project proposed [specific], litigation settlement [above and beyond]); Required codes: Los Angeles County Fire Code, Los Angeles County Building Code, Los Angeles County Residential Code, California Building Code, California Fire Code, Fire Safe Regulations (Public Resources Code), and local ordinances.
3. Research articles, studies, and other sources to support analysis.
4. Conduct advanced fire behavior/fire spread modeling.
5. Discuss/describe Project's multi-layered approach to fire safety and protection.
6. Utilizing the analysis results and findings, develop a systematic method that can be used for a project to determine its off-site ignition risk.

Summary

Following the comprehensive research, development and application of the off-site risk assessment method, it was concluded that the Project presents a Moderate Off-site Ignition Risk to the adjacent land uses and communities in the region.

2 Project Background

Description of the Project site and its surrounding areas within a 5-mile radius are provided to assess landscape characteristics and features that may influence the Project's impact on off-site wildfire ignitions. This includes an assessment of the local fire environment and adjacent land uses.

The proposed Project site consists of approximately 12,323 acres of natural and agricultural land and is located in the northwestern portion of the Antelope Valley in an unincorporated area of Los Angeles County (County) (Figure 1, Project Site). The site is located adjacent to Quail Lake and is contiguous to the southern boundary of Kern County (Figure 2, Regional Map). The western boundary of the Project site is approximately 1 mile east of Interstate 5 (I-5). State Route (SR) 138 traverses the southern portion of the Project site in an east-west direction and forms its southern boundary west of Quail Lake. Elevations range from approximately 3,000 feet above mean sea level on the floor of Antelope Valley in the northeastern portion of the site to approximately 4,250 feet above mean sea level in the southwestern portion of the property.

Appendix B includes images and photographs of the site and surrounding area that support the discussion and conclusions presented herein.

- The current site is vacant and includes agricultural and open space, much of which is part of Tejon Ranch's ongoing grazing operation.
- The site includes paved roads (Cement Plant Road, 300th Street, Oso Pumping Plant Road), dirt roads, fences, power poles, and agriculture, effectively compartmentalizing the landscape.
- Vegetation is primarily maintained/grazed non-native grass and weedy growth and grassland with scattered native shrubs and oak woodland.

2.1 Off-site Fire Environment[2]

2.1.1 Fire History

According to the Integrated Reporting of Wildland Fire Information (IRWIN) database[3], there have been 196 reported wildfire ignitions within five miles of the Project site since 2014 (see Figure 3, Fire History). As presented graphically in Figure 4, Historical Off-site Ignition Locations, regional wildfire ignition locations documented in the IRWIN database are **strongly associated with major roadways** including I-5, SR-138, and Pine Canyon Road, with the majority of ignitions occurring along I-5 to the southwest of the Project site.

As depicted in Figure 4, the majority of wildfires within five miles of the Project site occur along the I-5 corridor and other major roadways. This pattern has been observed in other areas of Southern California. In San Diego County, distance to roads contributed significantly to the location of ignition points, with more ignitions closer to roads (Syphard and Keeley, 2015). Wildfire ignitions along roads are generally caused by **vehicles** with broken catalytic converters, dragging tow chains, parking over dry fuels, or directly from car fires spreading into adjacent vegetation. The potential for roadside ignitions is highest when fuels are cured and receptive to ignition from sparking.

[2] See the Project's Wildfire Safety Plan for more details about the Local Fire Environment including history, fuels (vegetation), climate and fire behavior modeling.

[3] https://www.wildfire.gov/application/irwin-integrated-reporting-wildfire-information

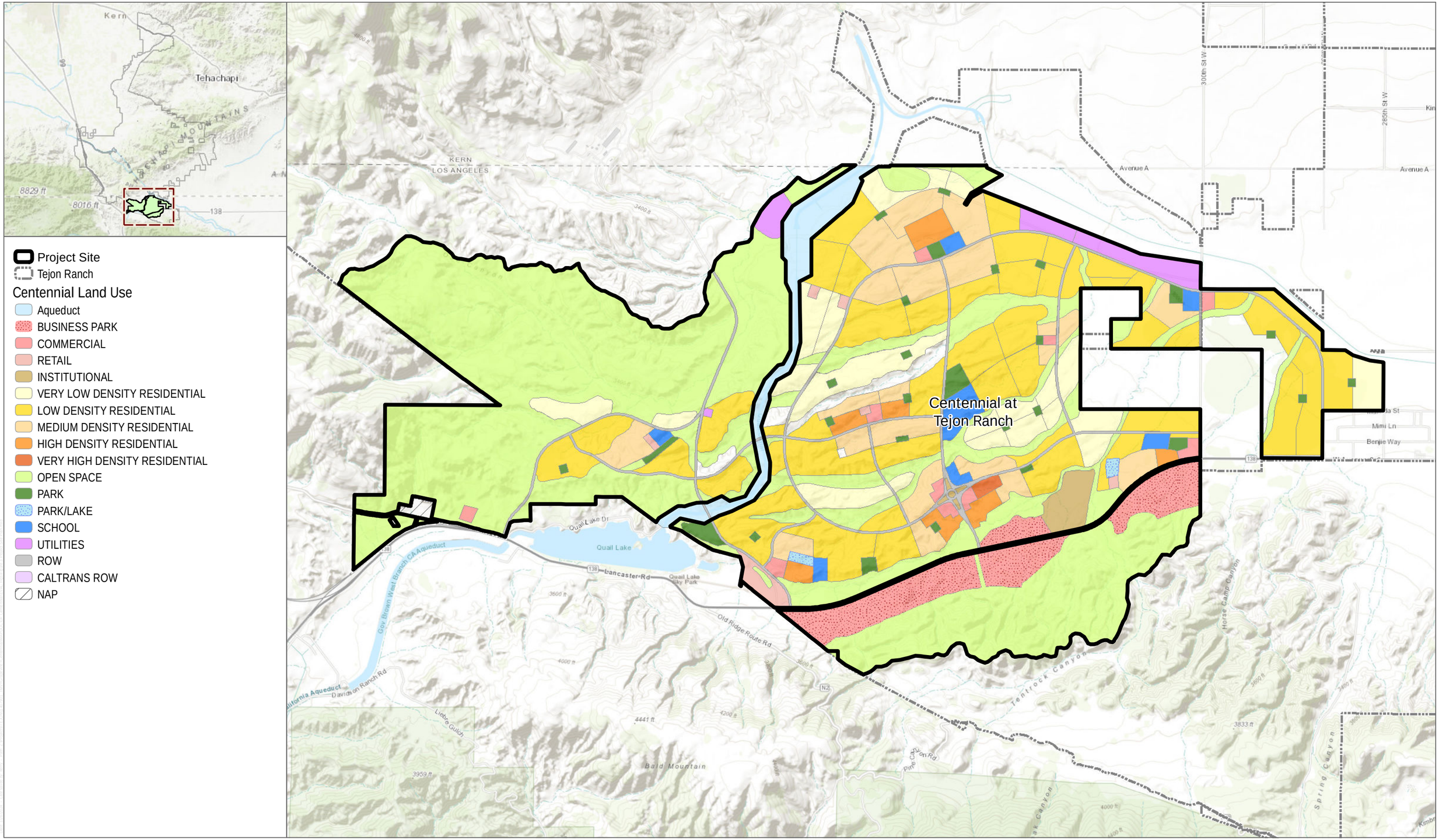
Maintenance or the removal of vegetation from roadsides has been a proven strategy for reducing the potential for roadside ignitions.

According to CAL FIRE's FRAP fire history database, other human-caused ignitions sources in the Project's vicinity include equipment use, arson, powerlines, and smoking. In other parts of the County, **equipment use** is the most common source of wildfire ignitions. Equipment commonly associated with wildfire ignitions includes power saws, mowers, or other equipment with gas or electric motors.

Compared to surrounding areas, the Project **site shows an obvious reduction in wildfire occurrence over time**. According to the FRAP database, 23 wildfires, have occurred on or within 1 mile of the Project site since 1800. The most recent fire burning in the vicinity of the Project site (within 1 mile) was the Gorman Fire, which occurred in May of 2007 and burned west of the property and I-5.

While not yet recorded in the public fire history database, other notable wildfires within the region have occurred in 2024. Most notably, the Post Fire ignited on June 15, 2024, near Gorman Post Road in Gorman, California located roughly 6 miles northwest of the Project site. Fueled by strong winds from the northeast and long-range spotting, the fire spread rapidly to the south, eventually growing to 15,563 acres. Firefighters suggested that fire spread was exacerbated by two back-to-back wet winters which resulted in dense vegetation growth. Two structures were destroyed in the Post Fire, resulting in one civilian injury. The fire was declared fully contained on June 26, 2024. While the Post Fire spread quickly south, it did not cross Interstate-5 or threaten the Project site.

The White Fire ignited on July 13, 2024, roughly 11 miles south of Tehachapi near Twin Lakes. The fire was caused by lightning and eventually spread to 5,646 acres roughly 16 miles northeast of the Project site. The fire was limited to the steeper terrain of the Tehachapi Mountains and did not spread to the Antelope Valley or the Project site. The lack of significant historical CAL FIRE activity on the majority of the Project site is likely **attributed to the removal of fine fuels by cattle grazing**. Limited wildfire history at the Project site is believed to be largely due to the site's terrain, managed fuels, barriers to wildfire spread, and quick wildfire detection and response. Wildfire occurrence off-site is more common, particularly south of the Project site in the Liebre Mountains. However, wildfires encroaching onto the Project site from the south rarely enter the interior of the site due to the position of Highway 138 and its utilization as a fire break. Wildfires that have previously burned within the Project site have been limited in size, with an average area of 284 acres. To date, fire has had a limited effect on the plant communities found on the Project site; grazing, which has been ongoing for over 150 years, has had the primary role in creating the current vegetation community.



SOURCE: BASEMAP-ESRI MAPPING SERVICE 2023; LAND USE-TEJON RANCH 2023

DUDEK

0 1,950 3,900 Feet

FIGURE 1

Centennial Project Site Plan

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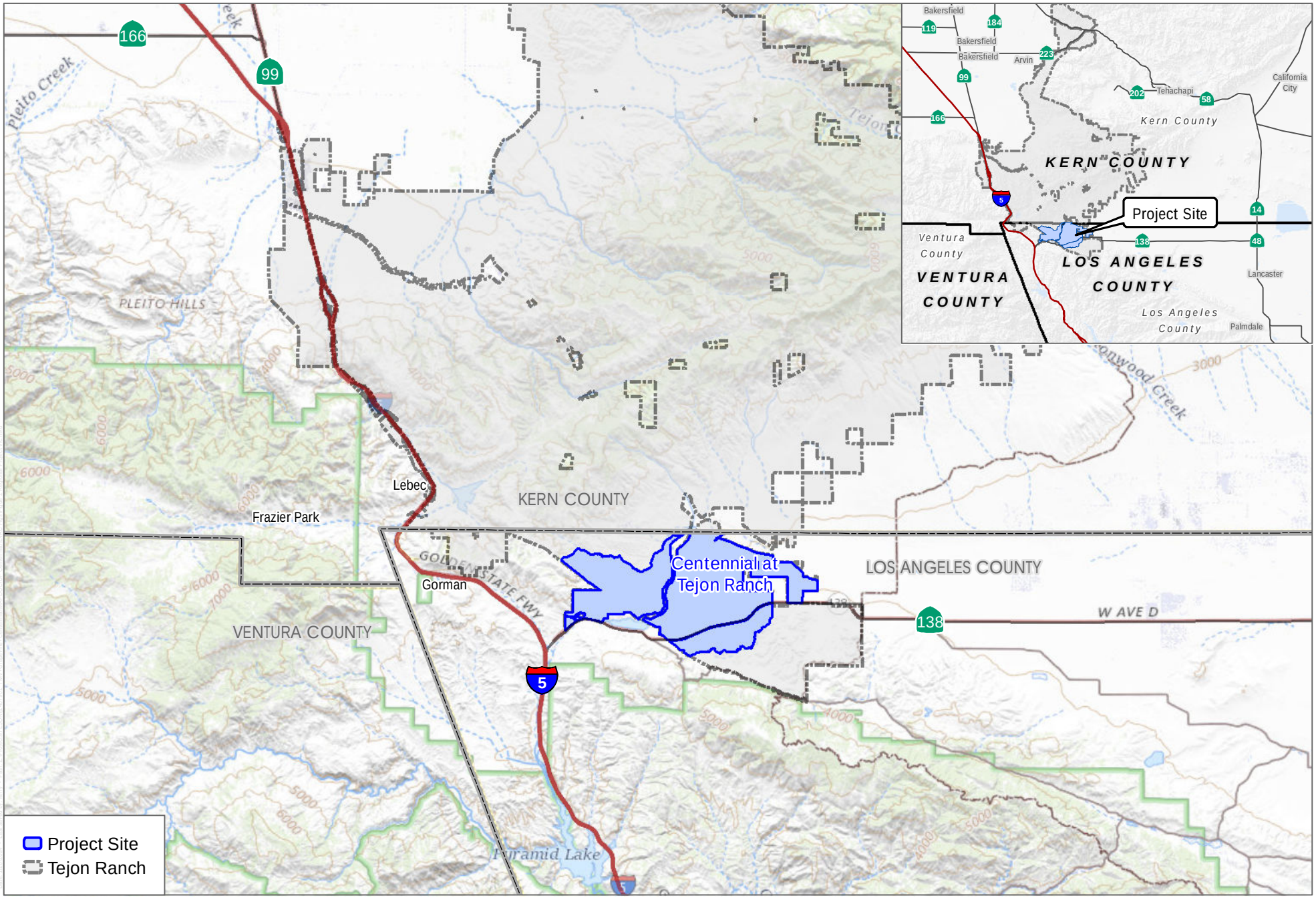

SOURCE: AERIAL-NAIP 2020

DUDEK

0 55,000 110,000 Feet

FIGURE 2

Regional Project Vicinity

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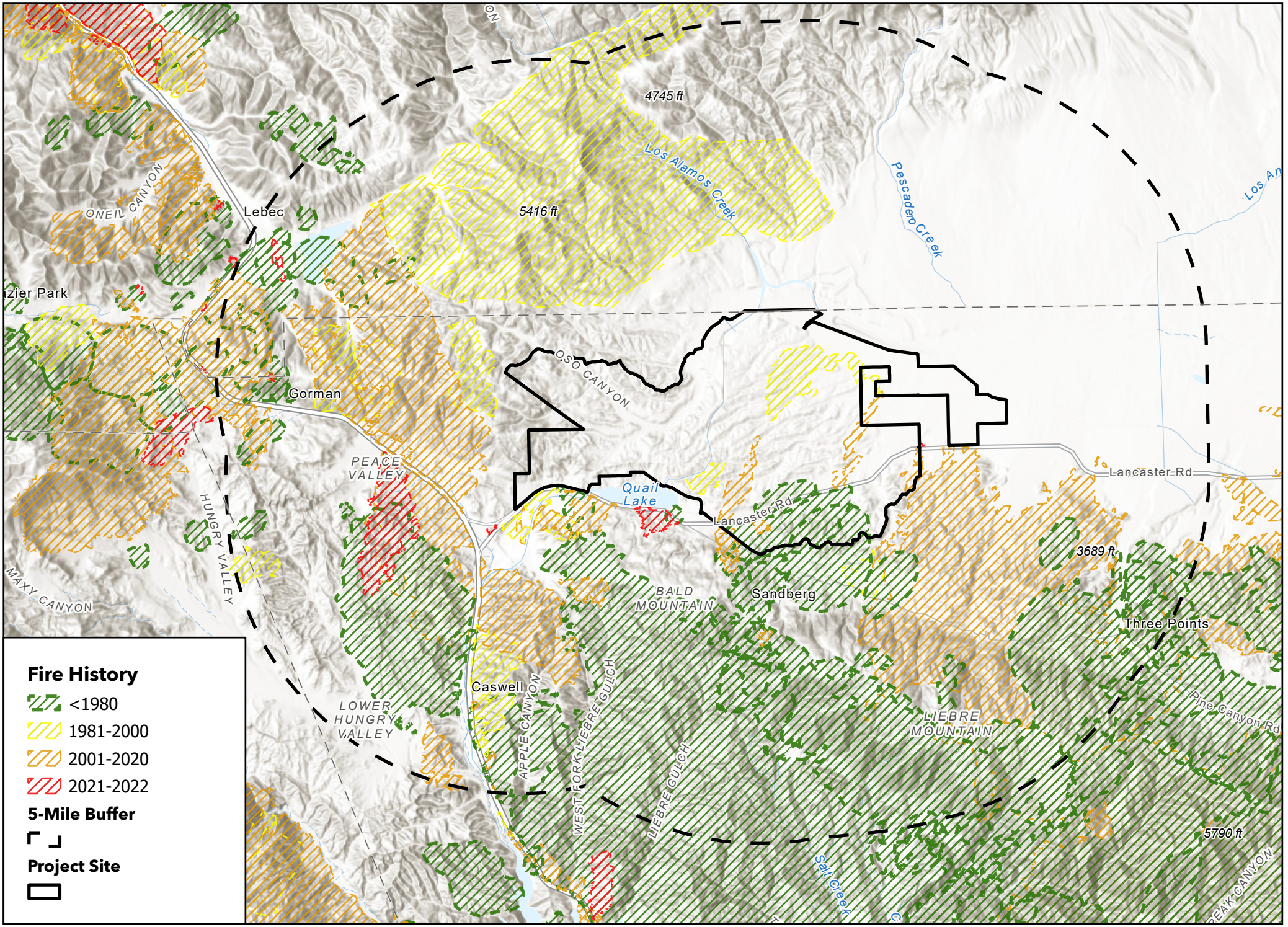

DUDEK

Source: FRAP, 2023

FIGURE 3
Fire History

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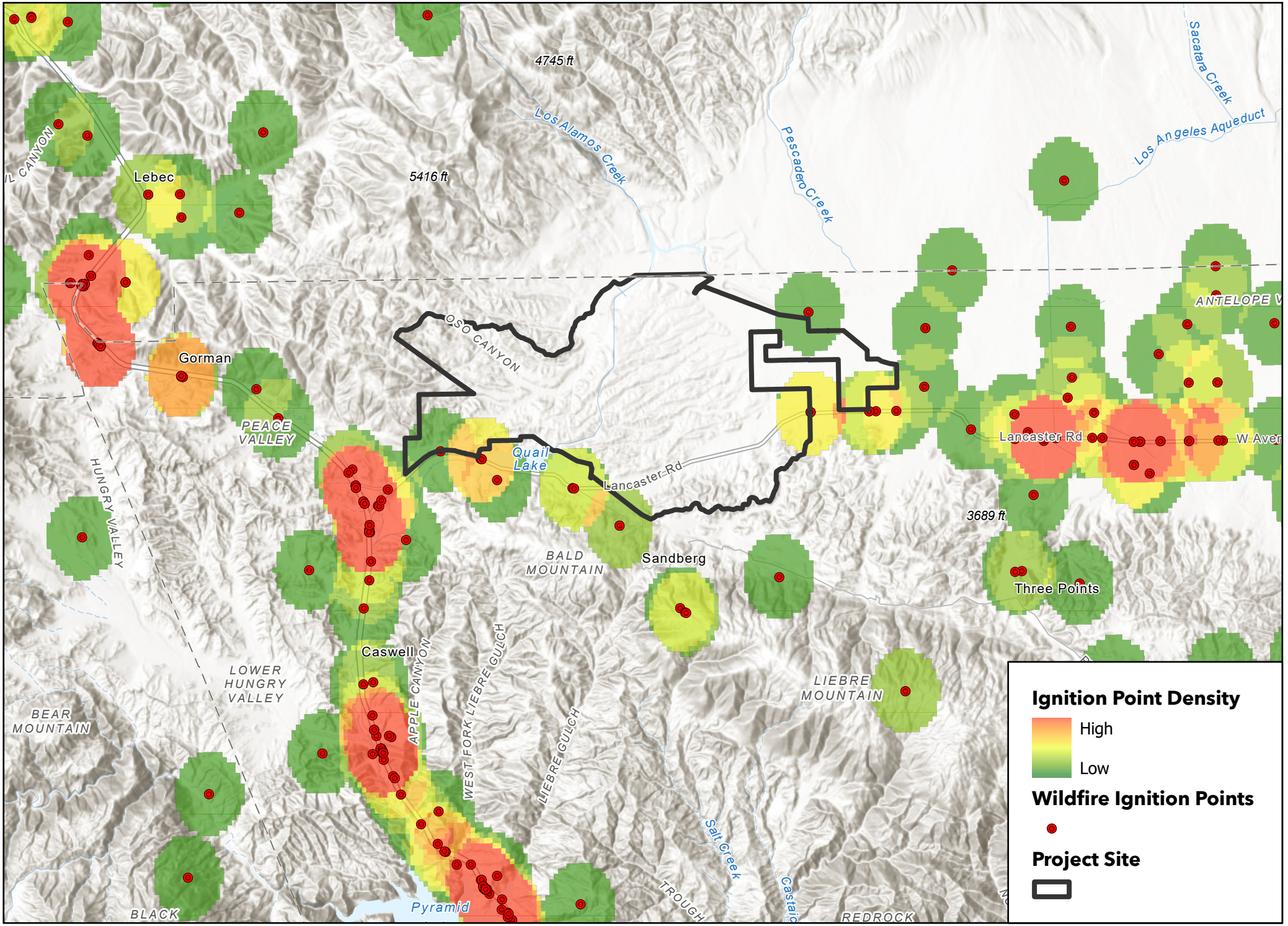

DUDEK

0 1 2 4 Miles

Source: WFGIS Ignition Data, 2023

FIGURE 4

Wildfire Ignition Locations

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2.1.2 Topography

In general, off-site terrain is heavily influenced by the southern edge of the Tehachapi Mountains to the north and Liebre mountains to the south (see Figure 5, Off-site Topography). Notable topographic features in the Project's vicinity include Liebre Mountain, Bald Mountain, Peace Valley, Pine Canyon, Apple Canyon, Liebre Gulch, and Tejon Pass. Terrain to the east of the Project site is generally flat, comprising the western edge of Antelope Valley. Wildfires burning in off-site areas are likely to be heavily influenced by variations in topography, among other factors. The Project site can be described as occurring in a wide valley absent of the topographical features that contribute to more aggressive fire behavior, as presented in Table 1.

Table 1. Effects of Topographic Features on Fire Behavior

Topographic Feature	Effect
Narrow Canyon	Surface winds follow canyon direction, which may differ from the prevailing wind. Wind eddies/strong upslope air movement expected, which may cause erratic fire behavior. Radiant heat transfer between slopes facilitates spotting/ignition on opposite canyon side.
Wide Canyon	Prevailing wind direction not significantly altered; aspect significant contributor to fire behavior. Wide canyons are not as susceptible to cross-canyon spotting except in high winds.
Box Canyon/ Chute	Air is drawn in from canyon bottom, with strong upslope drafts. No gaps or prominent saddles to let heated air escape. Fires starting at the canyon bottom can move upslope very rapidly due to a chimney-like preheating of the higher-level fuels and upslope winds.
Ridge	Fires may change direction when reaching ridge/canyon edge; strong air flows likely at ridge point; possibility for different wind directions on different sides of the ridge. Ridges experience more wind. Fires gain speed and intensity moving toward a ridge. Fires burning at a ridge can exhibit erratic fire behavior. Strong air flows can cause a whirling motion by the fire. As the wind crosses a ridge it usually has a leeward eddy in which the wind rolls around and comes up the leeward side.
Saddle	Potential for rapid rates of fire spread; fires are pushed through saddles faster during upslope runs. Winds can increase when blowing through saddles due to the funneling effect of the constricted pass. On the other side, winds will slow, but erratic winds potentially occur at the saddle due to eddies.

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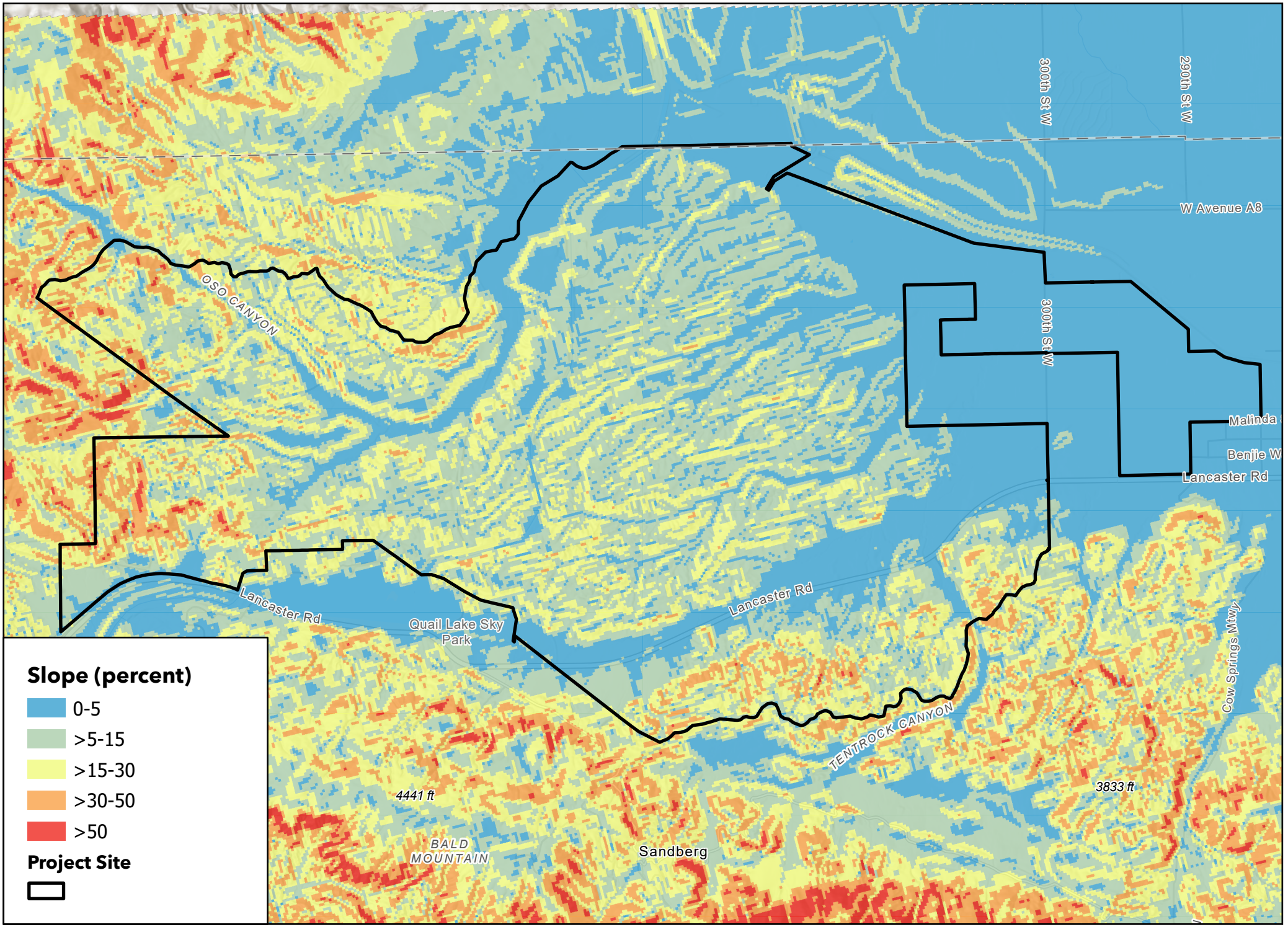

DUDEK

0 0.5 1 2 Miles

Source: LANDFIRE, 2024

FIGURE 5

Topography

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2.1.3 Vegetation and Fuels

Tejon Ranch remains unfragmented and has been carefully managed with livestock and cattle grazing for nearly 160 years, first by pre-statehood vaqueros, up until today by modern-day cowboys, and has committed to doing so in the future. Actively grazed landscapes, including those of portions of the ranch within the Antelope Valley in the County, assure sustainability and limit the severity of wildfire due to the reduction of grassland fuel loads. The sustainable grazing operation employed at Tejon Ranch effectively reduces the grass fuels on an ongoing basis, which reduces the potential for ignitions and for rapid fire spread.

As presented in Table 2, off-site fuels include grazed grasslands, oak woodlands, scrub vegetation, chaparral, coniferous forests, and extensive agricultural areas to the east. Variations in vegetative cover type and species composition have a direct effect on fire behavior. Some plant communities and their associated plant species have increased flammability based on plant physiology (resin content), biological function (flowering, retention of dead plant material), physical structure (bark thickness, leaf size, branching patterns), and overall fuel loading. For example, non-native grass-dominated plant communities become seasonally prone to ignition and produce lower-intensity, higher-spread rate fires. In comparison, sage scrub can produce higher heat intensity and higher flame lengths under strong, dry wind patterns, but does not typically promote ignition or spread as quickly as light, flashy grass fuels.

Table 2. Vegetation Communities within 5 Miles of the Project Site

Vegetation Type (WHR13NAME)	Acres	Percent of Area
Shrub	48,798	42%
Herbaceous	36,404	32%
Hardwood Forest	8,961	8%
Hardwood Woodland	6,366	6%
Agriculture	3,631	3%
Urban	2,907	3%
Desert Shrub	2,542	2%
Conifer Woodland	1,725	1%
Water	1,213	1%
Barren	1,035	1%
Desert Woodland	1,009	1%
Conifer Forest	590	1%
Wetland	265	<1%
Total:	**115,452**	**100%**

Source: FVEG, 2024

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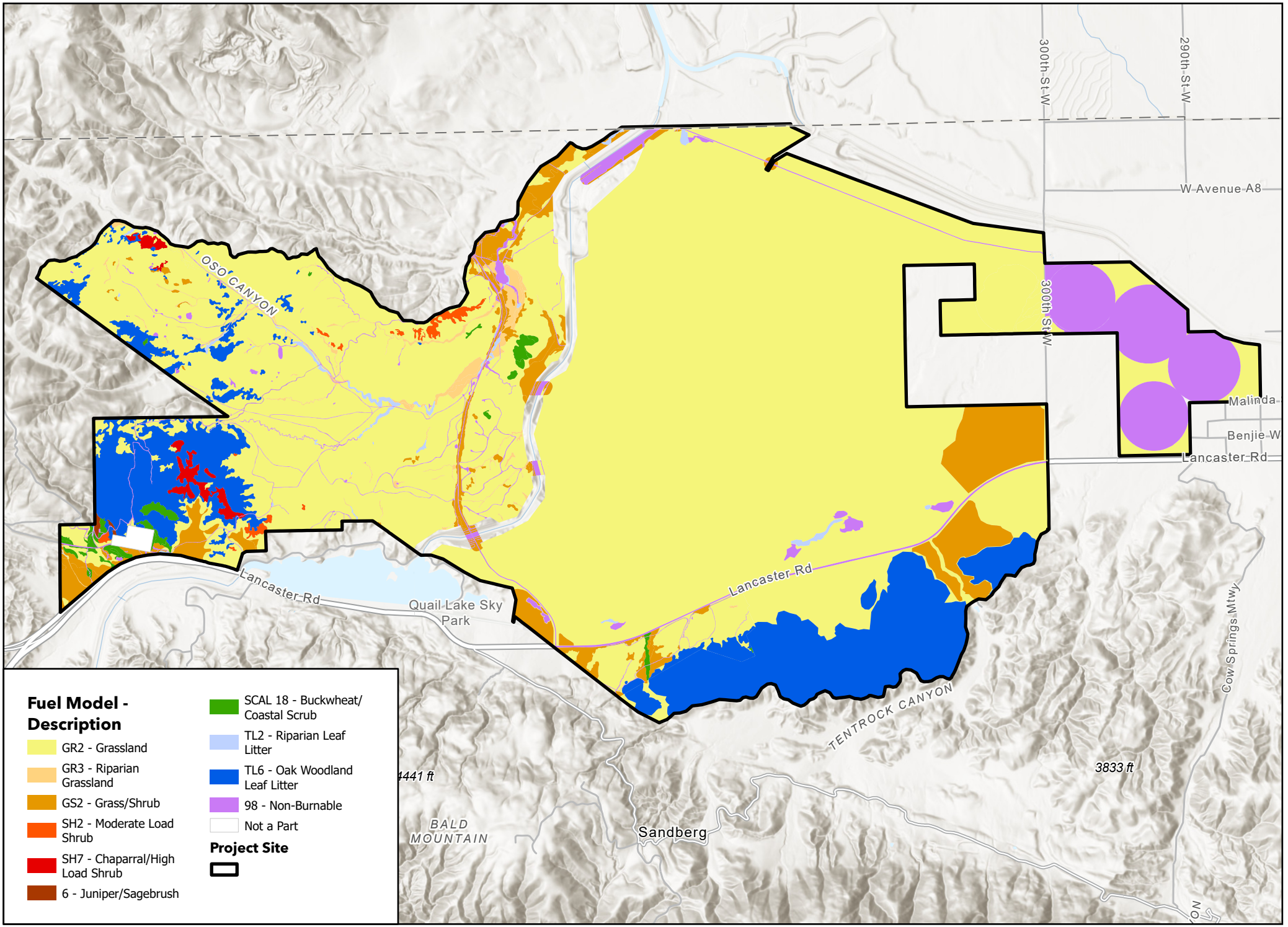

DUDEK

0 0.5 1 2 Miles

Source: Bonterra, 2009, Edited 2024

FIGURE 6

Vegetation - Fuel Models

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2.1.4 Climate

Table 3 provides typical (50th Percentile) and extreme (97th Percentile) weather conditions at the Project site that were used for site-specific fire behavior modeling.

Table 3. 50th and 97th Percentile Weather Conditions at the Project Site

Climate Variable	50th Percentile Weather	97th Percentile Weather (w/ Max. Wind)
1 hour fuel moisture	5%	2%
10 hour fuel moisture	6%	3%
100 hour fuel moisture	12%	6%
Live herbaceous moisture	60%	30%
Live woody moisture	70%	60%
20 foot wind speed (mph)	7 mph	47 mph (maximum observed Fall wind speed)
Wind direction	240 degrees	60 degrees
Slope steepness	Variable by location, range: 0% to 95%	Variable by location, range: 0% to 95%

2.1.5 Project Vicinity and Land Uses

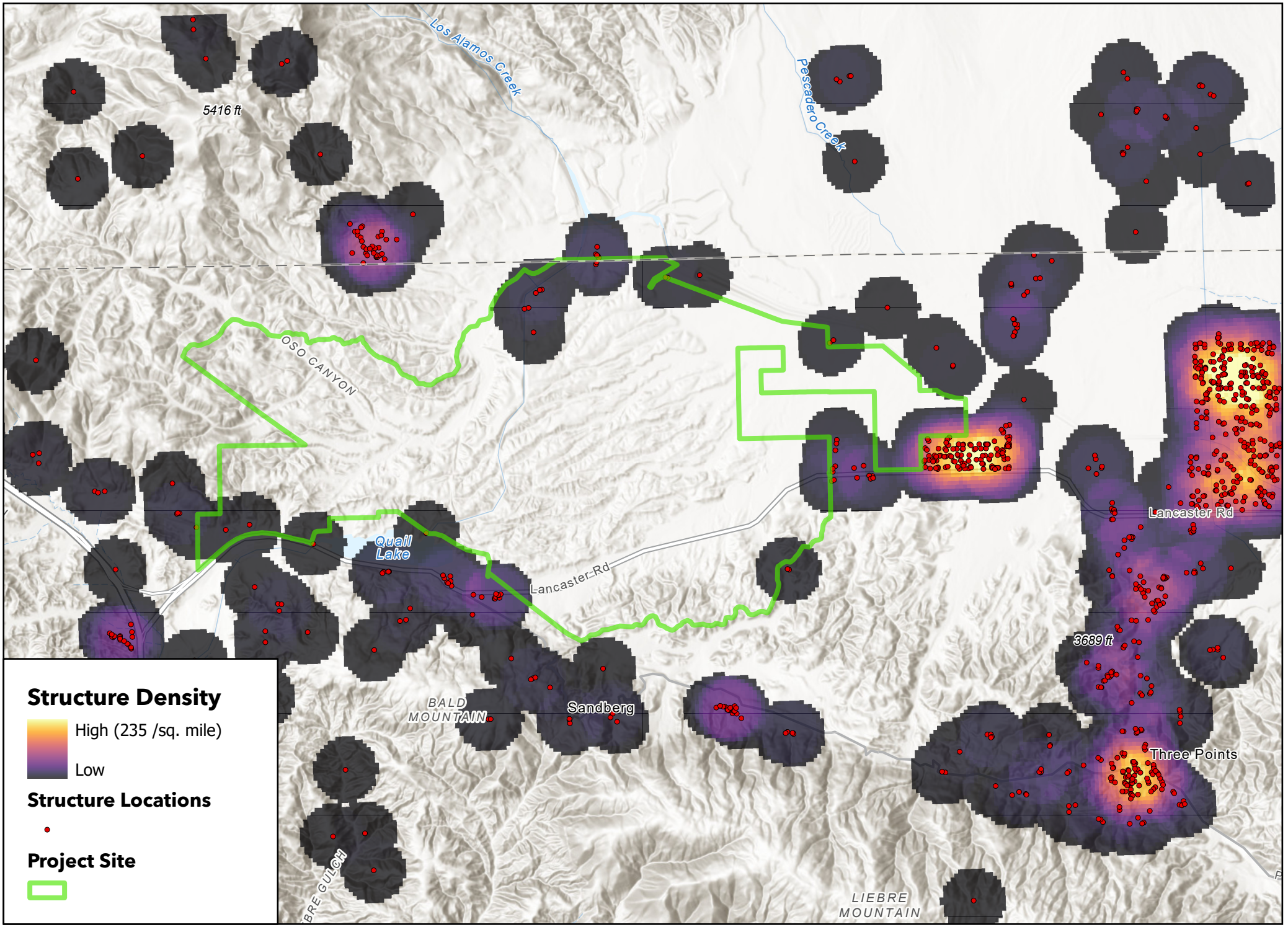
Existing land uses within 10 miles of the Project site were analyzed to identify off-site assets at risk from potential wildfires originating from the Project site. The immediate vicinity of the Project site is generally bound by the Tehachapi Mountains to the north, the Antelope Valley is to the east, the northern edges of the Liebre and San Gabriel Mountains (Angeles National Forest) are approximately one mile to the south, privately owned vacant land is immediately adjacent to the site to the west, and the Los Padres National Forest is approximately seven miles to the west. The Project site is approximately 35 miles north of the City of Santa Clarita in Los Angeles County, approximately 50 miles south of the City of Bakersfield in Kern County via SR-99 and I-5, and approximately 36 and 43 miles west of the cities of Lancaster and Palmdale, respectively, in Los Angeles County via SR-138. The community of Gorman in Los Angeles County is adjacent to the I-5 approximately four miles north of the I-5/SR-138 junction.

The majority of adjacent lands can be categorized as undeveloped or agricultural. Vast open spaces in the Project's vicinity include the Angeles National Forest, Bureau of Land Management lands, Tejon Ranch, Hungry Valley State Vehicular Recreation Area, Los Padres National Forest, and various private landowners. Proximal human development is generally limited to small enclaves along major roadways. Existing communities are rural large-lot residential and lower-density residential and are generally confined to the areas of Lebec, Gorman, Caswell, Sandberg, Three Points, and Neenach. According to the Microsoft Building Footprints database, 1,064 structures currently exist within 10 miles of the Project site, the majority of which are located to the east near Three Points and Neenach, in the opposite direction that wildfire under extreme conditions would spread from a wildfire originating from the Project site. Structure locations and density in the Project's vicinity are presented graphically in Figure 7, Off-site Existing Structures. Other adjacent land uses include but are not limited to the following:

- California Department of Water Resources – the California Aqueduct and Quail Lake
- Pacific Gas and Electric, Southern California Gas Company, and Southern California Edison – major transmission facilities that traverse Tejon Ranch and are constantly monitored and upgraded

- **Multiple telecommunications carriers –** communications facilities and fiber optic easements traversing Tejon Ranch adjacent to or through future developments
- **National Cement –** major mining operations
- Agricultural and farming operations

The aerial image in Figure 2 illustrates the Project's immediate surroundings, which are a mix of agriculture, grassland-dominated open space, Quail Lake and aqueduct, rural large-lot residential, lower-density residential, school, I-5 freeway and SR-138, and various disturbed landscapes.



DUDEK

0 0.75 1.5 3 Miles

Source: Microsoft Building Data, 2023

FIGURE 7

Off-Site Existing Structures

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2.1.6 Fire Hazard Severity Zones

CAL FIRE is statutorily required to determine and map FHSZs throughout California. These zones were established based on fire environments and the likelihood of wildfire ignition and spread. The initial mapping process was completed and adopted in 2007. The 2007 fire hazard severity mapping at the Project site included mostly High FHSZs (north, west, and south), an area of Very High FHSZ in the central/north-central portion of the site, and a Moderate FHSZ in the eastern portion of the site.

Fire Hazard Severity Zone maps evaluate "hazard," not "risk". They are like flood zone maps, where lands are described in terms of the probability level of a particular area being inundated by floodwaters, and not specifically prescriptive of impacts.[4] CAL FIRE is also statutorily required to update the FHSZ maps on a periodic basis. The first map update in state responsibility areas (SRAs), like that found on the Project site, has recently been updated and has expanded the mapping of the Very High Fire Hazard Severity zone both within the Project area and statewide. The first and second drafts of the updated maps resulted in most of the site being elevated to a Very High FHSZ with small portions of the eastern and northeastern portions mapped as High or Moderate FHSZs. Dudek's analysis of the updated CAL FIRE modeling approach revealed that the inputs, including fuel models/fire behavior and burn probabilities, were not well aligned to the actual conditions on site. After providing details to CAL FIRE, the Project site was remapped by CAL FIRE to include primarily High FHSZs, as depicted in Figure 8. (See Figure 6 for Fuel Models.)

2.1.7 Project Description

The proposed Project involves the development of a new community with residential, commercial, business park, and cultural and civic/institutional uses. Additionally, the proposed Project includes open space, parks, and infrastructure to support the proposed land uses and future residents.

The Project site encompasses approximately 12,323 acres and would allow up to 19,333 dwelling units on approximately 4,987 acres, approximately 7,363,818 square feet of employment-generating uses (office, research and development, and warehousing or light manufacturing uses) on approximately 597 acres, and approximately 1,034,550 square feet of commercial uses on approximately 102 acres. Proposed sites for civic and institutional land uses (such as schools for higher education, fire and police stations, transit centers, and a library) encompass approximately 110 acres. The Project includes approximately 130,680 sf of Recreation/Entertainment uses (clubhouse, farmers market, childcare facilities, health clubs) on approximately 75 acres. Approximately 5,624 acres (approximately 45.6 percent) of the 12,323-acre Project site are proposed for Open Space for natural resource protection and greenways, and parks for active and passive recreational use. The Project site also includes a vehicular and a non-vehicular circulation system.

The proposed Project would include the implementation of off-site Project features consisting of roadway improvements, connections to existing off-site utility systems and water infrastructure, and off-site public facilities. [See Wildfire Safety Plan for more details about the project and off-site improvements.]

[4] CalFire OSFM: https://osfm.fire.ca.gov/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones

2.2 Multilayered Approach to Fire Safety and Protection

2.2.1 Preventing Fire Ignitions

2.2.1.1 Emergency Response Plan

The Project's Recirculated Partial Draft EIR requires the Project to prepare an Emergency Response Plan (ERP), which shall be updated as needed for each Tentative Map and shall be submitted to the County (California Department of Forestry and Fire Protection and County Fire Department and/or County Sheriff's Department) for review and approval. The Project Applicant/Developer shall be responsible for distributing the current ERP to each purchaser or tenant of each property within the Project site and shall distribute the ERP to all landowners through the Transportation Management Association (Mitigation Measure 3-7).

The plan will utilize existing information from the Los Angeles County Office of Emergency Management, coordinate with County emergency planners, and provide site-specific procedures for various emergency situations including wildfire. As required, the ERP will be available to all homeowners and commercial and resort tenants. There will be ongoing updates, which will be distributed to the community through the community website. As required by the Project's proposed Development Agreement, the property owners shall require future residential and commercial property owners' associations to develop and implement an emergency preparation and response plan, which includes shelter-in-place and evacuation plans and also addresses first aid and emergency electric power supplies. At the initial point of property sale and annually thereafter in Property Owner Association website notices, the property owners shall provide educational information about the health and safety benefits of emergency preparation and response supplies for earthquakes and other potential disasters, such as a 7-day supply of potable water and food as well as solar-powered batteries for communication and refrigeration. The property owners and Property Owner Association website notices may also identify emergency response supply and battery vendors providing discounts or other preferential terms to Project site occupants (Development Agreement, Exhibit G, Section 12.3).

With regard to wildfire emergencies, the following components should be incorporated into the ERP:

- Building and facility protection (as defined in the Project's Wildfire Safety Plan (Dudek, 2024))
- Grounds protection (fuel modification zone [FMZ] purpose)
- Fire prevention during Red Flag conditions
- Emergency supplies
- Telephones/communications
- Fire Safe Council information
- Incident command list
- Emergency response notebook
- Annual review and update
- Emergency notification procedures
- Advisement of potential fire danger
- Emergency relocation/evacuation plan
- Animal relocation/evacuation plan

In addition to the ERP, the Project shall provide one or more of the following communication formats for dispersing wildfire (and other) hazard educational information in a timely manner:

- Establish a reverse 9-1-1 system capable of contacting every listed telephone number in the community by computer at a rate of at least 250 calls per minute.
- Establish a community website that can be used for providing wildfire education materials on an ongoing basis and that can be used to provide wildfire alert information on short notice.

2.3.1.2 Homeowner Association Wildfire Education Program

Project residents and occupants would be provided ongoing education regarding wildfire and the Fire Protection Plan (FPP) required by the Settlement Agreement with Climate Resolve (described in Section 2.2.3, below) and Wildfire Safety Plan (Dudek, 2024) requirements. This educational information must include maintaining the landscape and structural components according to the appropriate standards designed for this community. Informational handouts, a community website page, mailers, Fire Safe Council participation, inspections, and seasonal reminders are some methods that would be used to disseminate wildfire and relocation awareness information. The HOA will coordinate with the Los Angeles County Fire Department (LACoFD) for review and input on all wildfire educational material/programs before printing and distribution as required through the Climate Resolve Settlement Agreement.

2.3.1.3 Fuel Modification Zones

The anticipated fire behavior for each area of the Project's phases was used to determine appropriate structure setbacks and fuel modification zone widths. FMZs are designed to provide vegetation buffers that gradually reduce fire intensity and flame lengths from advancing fire by strategically placing thinning zones, restricted vegetation zones, and irrigated zones adjacent to each other on the perimeter of the wildland–urban interface (WUI)-exposed structures. FMZs were originally developed by CAL FIRE to protect natural resources from urban area fires and over the years have become essential to setting urban areas back from wildland areas, with a dual role of protecting structures and people while buffering natural areas from urban ignitions and reducing the potential for urban fires to spread into wildland areas.

Each FMZ will incorporate four zones: an ember resistant zone (if required), a setback zone, an irrigated zone, and a thinning zone. The total width of the FMZ will be either 100, 150, or 200 feet, depending on the anticipated fire behavior. Landscaping on private lots directly adjacent to the WUI will include standard County fuel modification requirements. Flammable plant species will be restricted, spacing standards implemented, and basic low-fuel requirements will be applicable. A community landscape committee will be implemented to review and approve proposed landscaping in these areas.

Fuel modification will also occur along roadways to mitigate roadside wildfire ignition risk. A code exceeding 20-foot FMZ along sides of roads adjacent to open spaces will be implemented. Roadways are a particularly common source for wildfire ignitions due to high usage and vehicle-caused fires (catalytic converter failure, overheated brakes, dragging chains, tossed cigarette, etc.) (Romero-Calcerrada et al. 2008). Reducing natural fuels along roadways and replacing them with irrigated and ignition-resistant landscaping substantially reduces the potential for wildfire ignition and spread. It is also likely that roadside maintenance activities by the state and County would continue and/or be enhanced in the Project's vicinity and would remove the flashy fuels most prone to ignitions on an annual basis.

The impacts of perimeter FMZs on slowing the off-site spread of wildfires originating from Project features was modelled using the FlamMap Minimum Travel Time tool and embedded FARSITE fire growth modeling in order to evaluate fire progression. FlamMap and the embedded FARSITE software requires a minimum of five separate input files that represent field conditions in the analysis area, including elevation, slope, aspect, fuel model, and canopy cover. Each of these data files was obtained from the LANDFIRE (Landscape Fire and Resource Management Planning Tools) data distribution site. LANDFIRE is a shared program between the wildland fire management programs of the U.S. Department of Agriculture Forest Service and U.S. Department of the Interior and provides landscape-scale GIS data layers, including those representing elevation, slope, aspect, fuel model, and canopy cover.

Fuel models in perimeter FMZ areas were edited to reflect vegetation conditions corresponding to the various FMZ standards. Off-site wildfire spread is modelled to slow substantially when accounting for the effects of perimeter FMZs during both average and extreme weather conditions. Graphical presentations of these results are provided in Figure 9, Off-site Fire Progression (50th Percentile Weather) and Figure 10, Off-site Fire Progression (97th Percentile Weather).

2.3.1.4 Structures

Ignition-resistant construction will be used for all of the buildings, including homes, in compliance with Chapter 5 of the CWUIC and LACoFD requirements for Very High Fire Hazard areas, per the California Fire Code (CFC) adopted by LACoFD (the most restrictive requirement shall apply). All buildings will include the construction features listed therein for WUI Fire Protection. All structures must comply with CWUIC and CBC requirements based on type of occupancy, size, and number of stories.

All habitable and combustible structures over 200 square feet will have approved interior fire sprinkler systems. The construction requirements apply to the main structure and to ancillary buildings and structures. The applicable codes at time of construction will govern design and construction of the structures on the Project site as determined by the architect, LACoFD, and the County Building Official.

2.3.1.5 Construction Period Ignition Risk Reduction

Construction activities are often associated with vegetation ignitions because activities that can create sparks, heat, and/or flame may occur in the process of clearing site vegetation, grading, trenching, and various hot-work associated with constructing the infrastructure and buildings found within a typical development. The Project's risk would include both on-site and off-site (roads and utilities) construction activities. The risks associated with construction-related vegetation ignitions are mitigated through application of relevant portions of the LACoFD Fire Code and construction best practices as formalized in the Centennial Construction Fire Prevention Plan (CFPP) (Lordson 2020; National Safety Council 2016). These best practices would be implemented for all phases of construction, in addition to protections and restrictions during the periods when the risk of wildfire is at its highest. Construction contractors working in WUI areas would be expected to implement fire prevention and safety best practices at all times during construction, and they would routinely conduct daily safety meetings as reminders to site personnel about the highest-priority safety measures. According to the Project Construction Fire Prevention Plan (CFPP) and Wildfire Safety Plan (WSP) (Dudek, 2024), the types of precautions that would be in place include:

- Clear brush and other combustible materials from immediate work area and pre-wet areas where there are known potential ignition sources.
- Have water tenders on site during initial vegetation grubbing.

- Ensure quick access to appropriate fire suppression hand tools and fire suppression equipment, including fire extinguishers, water trucks, and water tank trailers
- Perform equipment checks to reduce potential for a malfunction that could create an ignition source. Lock out faulty equipment for repair prior to use on site.
- Reduce run time of common ignition sources such as trucks, heavy equipment, generators, and welders, using them only as much as needed to complete the job.
- Keep construction equipment and materials on site as little as possible in fire-prone areas. This will reduce loss if the construction storage area is affected by nearby fire. This includes removing equipment during weekends or off-work hours.
- Restrictions during Red Flag Warning weather.
- Hot works restrictions and fire watch during and following hot work activities.
- Designation of a site safety supervisor responsible for education and enforcement of fire safety rules.
- Coordination with LACoFD for presence during highest-risk activities.
- Notify local fire authorities of potential higher-risk work.
- Develop and use "Stop Work" guidelines that include weather monitoring, work type, and work locations. These should be easily communicated to work crews, clients, and owners' groups.

The results of these and other fire prevention, fire safety, and fire protection requirements during construction have been found to minimize the potential for vegetation ignitions and have been used extensively on large construction sites similar to the Project's on- and off-site construction areas in wildfire-prone environments throughout California (Dudek 2022).

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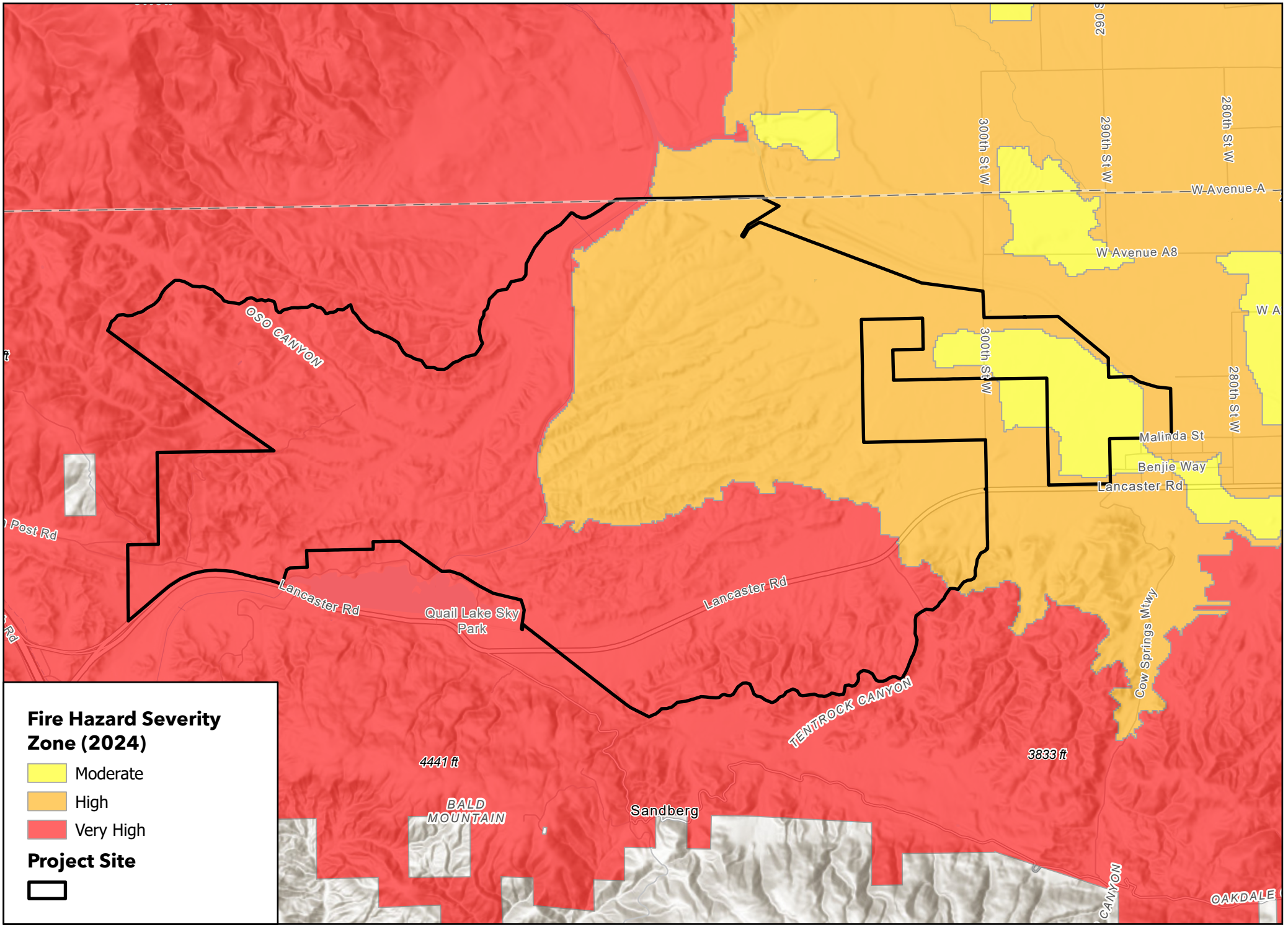

DUDEK

0 0.5 1 2 Miles

Source: OSFM, 2024

FIGURE 8
Fire Hazard Severity Zones

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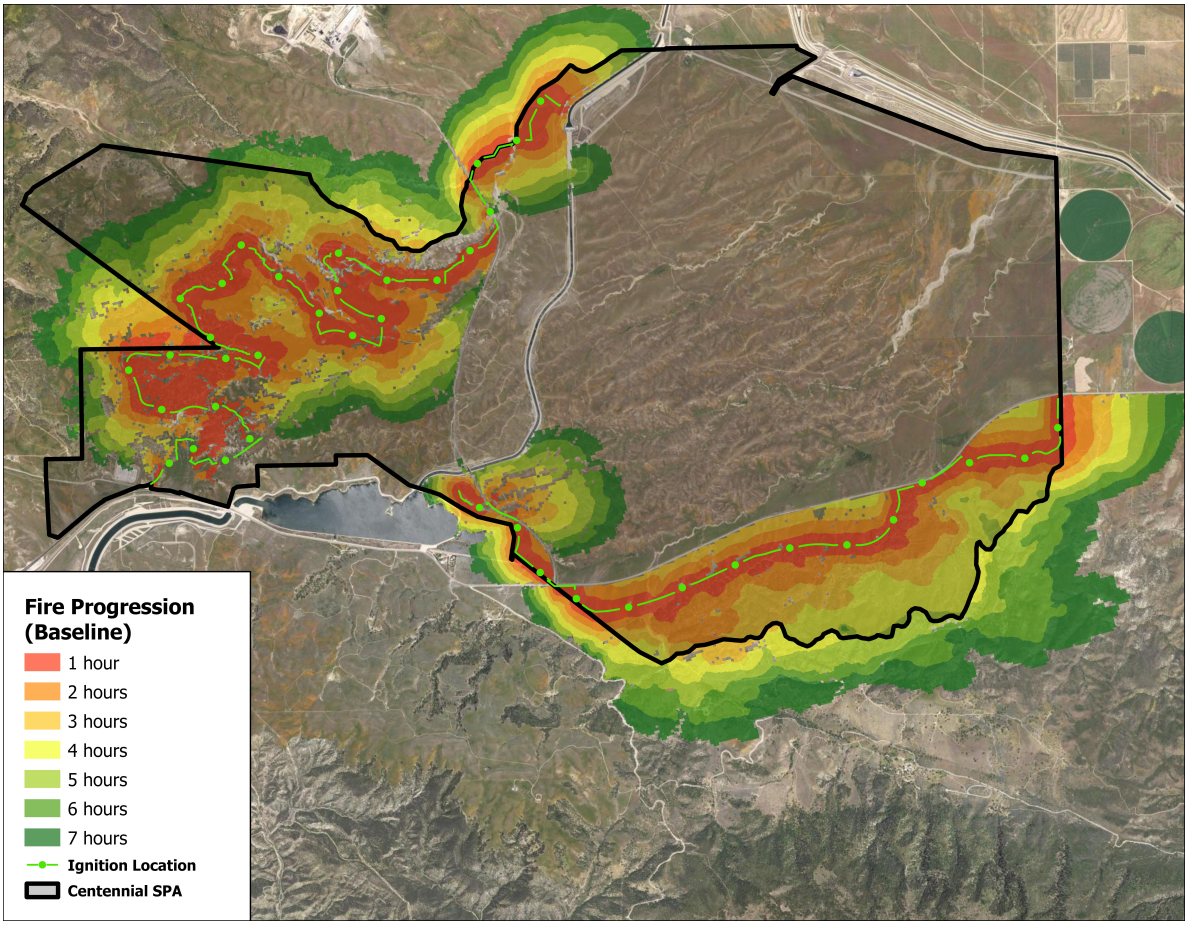

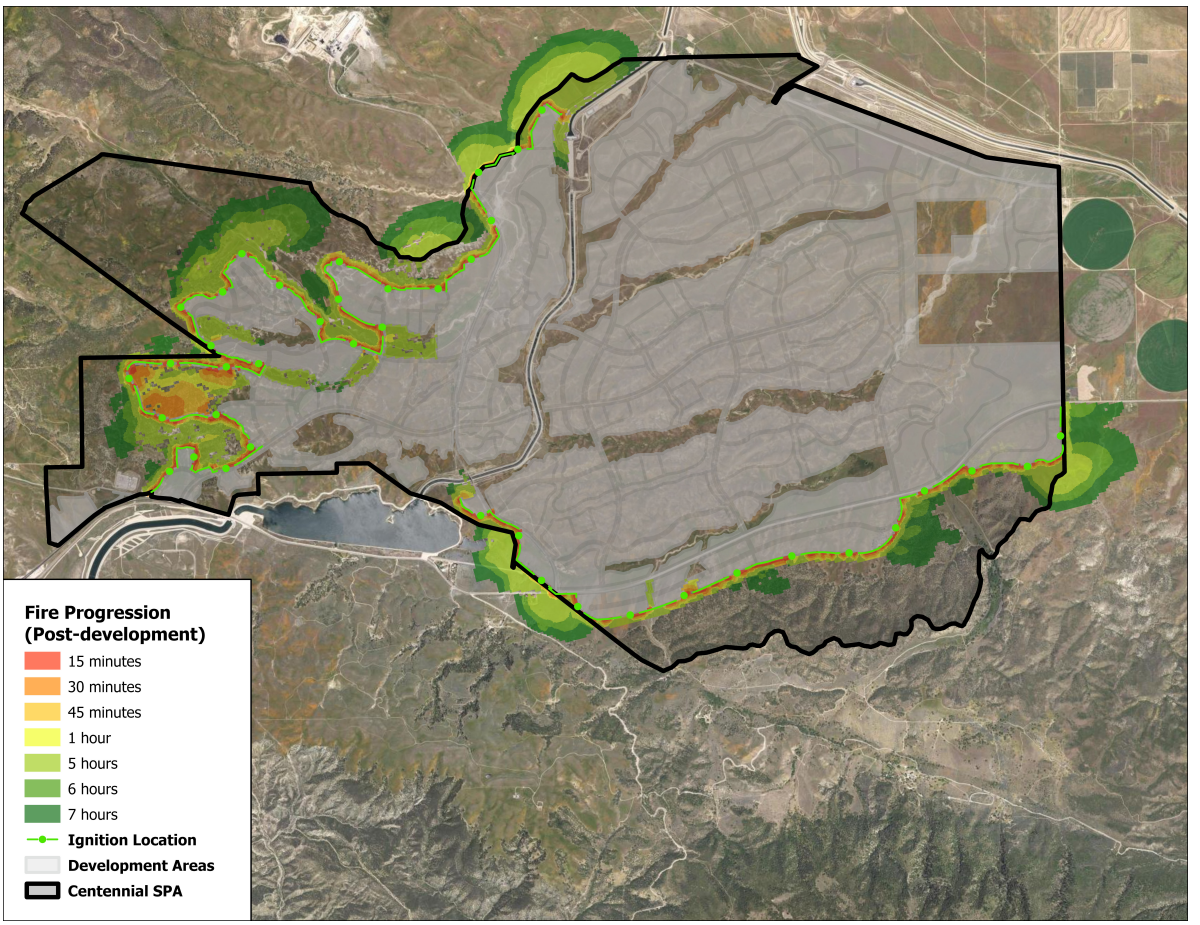

SOURCE: BASE MAP- ESRI MAPPING SERVICE

DUDEK

0 .75 1.5 Miles

FIGURE 9
Off-site Fire Progression
50th Percentile Weather

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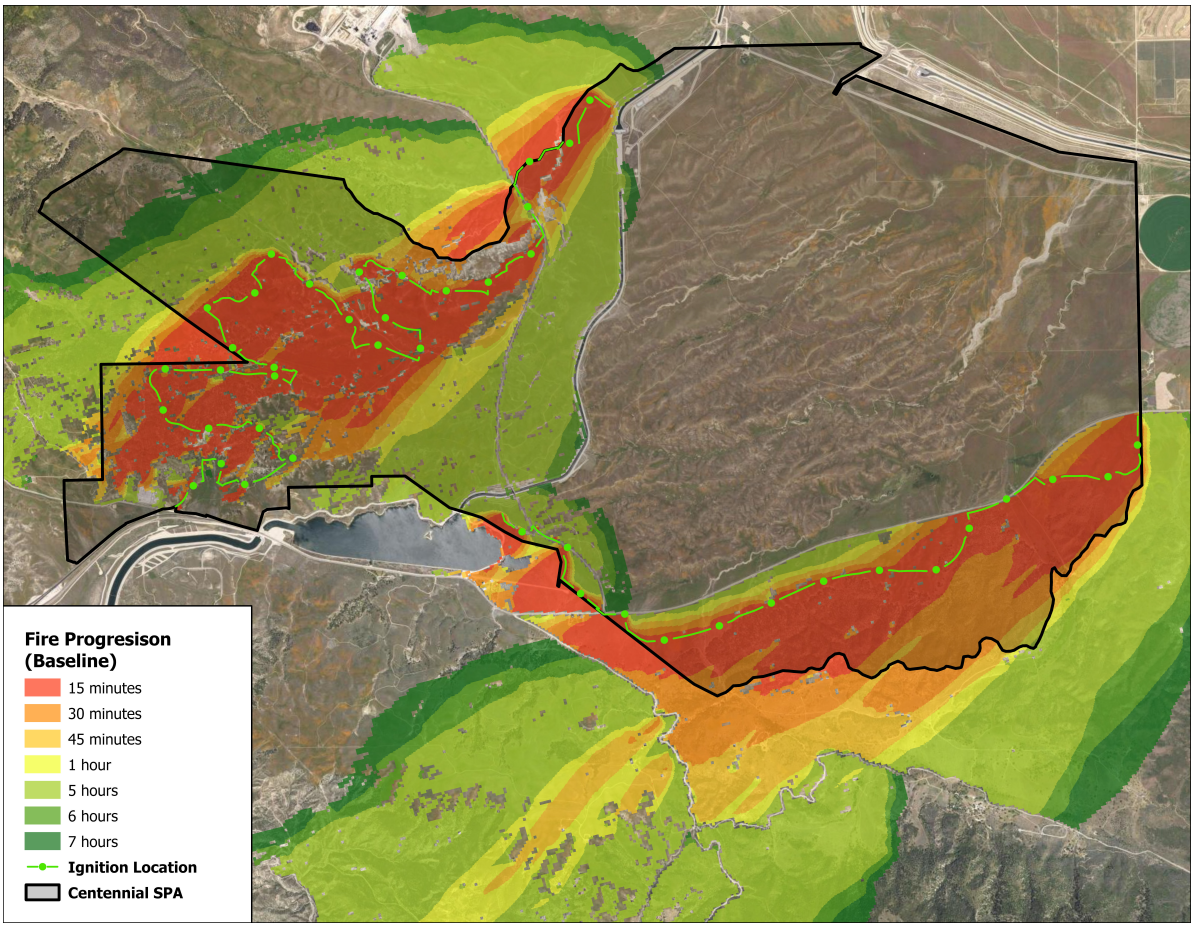

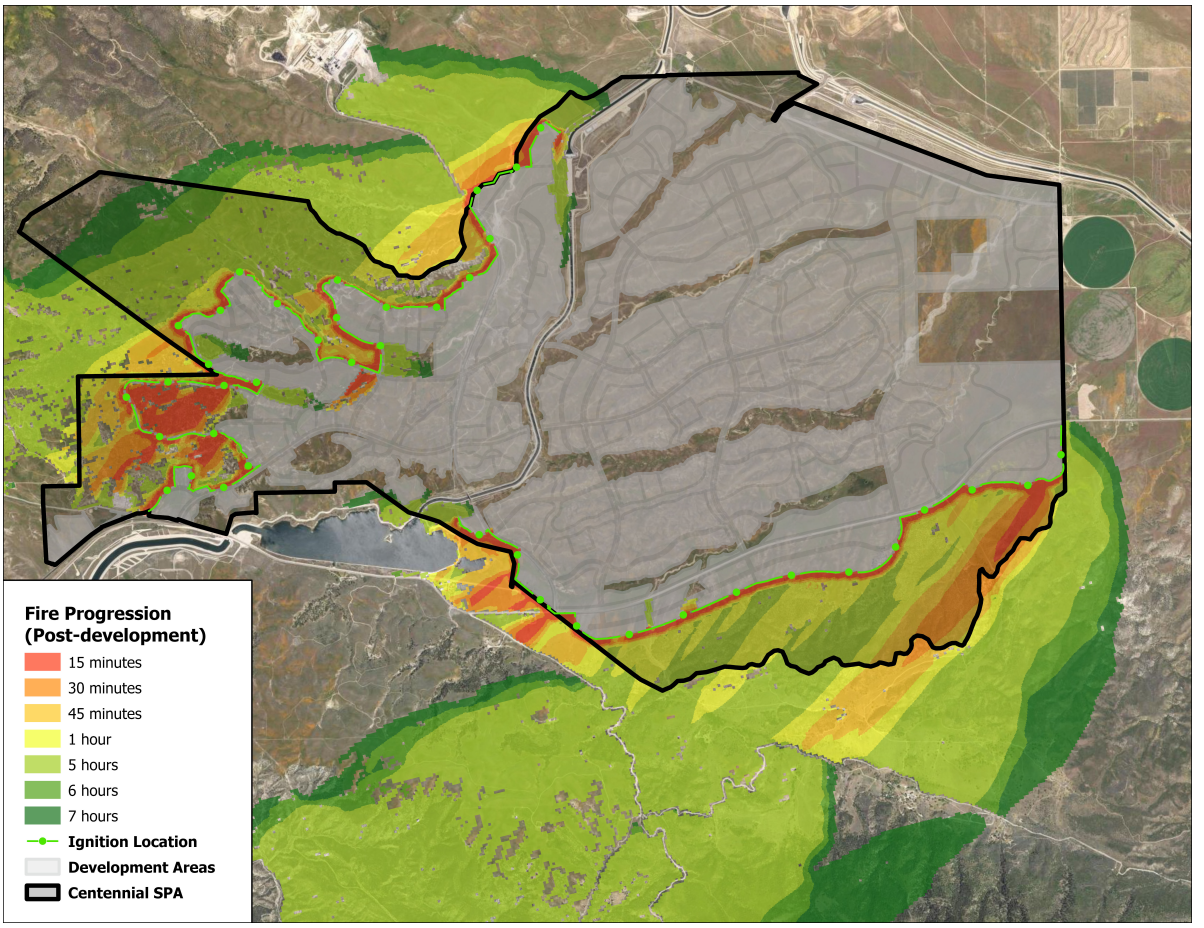

SOURCE: BASE MAP- ESRI MAPPING SERVICE

DUDEK

0 .75 1.5 Miles

FIGURE 10
Off-site Fire Progression
97th Percentile Weather

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2.2.2 Emergency Response to Ignitions

2.2.2.1 On-site Fire Stations

The **Project will provide at least three, and up to four, on-site fire stations** and will thus provide a robust response capability to the Project site and the region, in which there are currently long emergency response delays due to the rural nature of the area (See Wildfire Risk Reduction Measure 24 of the Wildfire Safety Plan). This response capability includes fast response throughout the Project site and surrounding open space areas and a heavy response (number of engine companies) that can respond within a short timeframe. Attacking fires in their incipient stages is critical to fire suppression and controlling fire spread, especially for wildfires moving into off-site open spaces. Thus, the Project's provision of significant firefighting resources will greatly improve the ability to control and suppress all fires in the Project area, both on-site and off-site, compared to existing conditions.

2.2.2.2 Water

Water will be provided via a fire-code-consistent delivery system including hydrants placed at County spacing requirements and fire flow meeting pressure and duration standards. The water supply for fire protection will be a looped public water system provided by the local water district and shall be designed and installed to their standards. The water delivery system will be designed to minimize damage and service interruptions as a result of seismic activity. A "Can and Will Serve" letter will be obtained from the water purveyor. If a private water system is utilized, it must comply with National Fire Protection Association (NFPA) Standard 24.

The water supply to the fire sprinkler systems shall be designed to water purveyor, LACoFD, and NFPA 13 standards. Design, coverage, and plans will be subject to LACoFD approval. Sprinkler systems in designated houses should have approved systems with a four head calc, or as otherwise required by the Fire Marshal. The final design criteria and sprinkler standard used (13-D, 13-R or 13) shall be subject to County fire marshal approval.

Large water bodies on site, including Quail Lake and the California Aqueduct, may also be utilized as water sources for aerial fire suppression efforts, facilitating a rapid and effective initial attack.

2.2.3 Wildfire Safety Plan and Settlement Agreement

The Project proponent and one of the Petitioners that challenged in court the County's approval of the Project on CEQA grounds, Climate Resolve, entered into a legally enforceable settlement agreement to resolve the Climate Resolve litigation (Settlement Agreement). The Settlement Agreement addresses the key fire-related issues identified in the Court Order by requiring the Project to (i) implement a Fire Protection Plan (FPP) that is subject to ongoing update procedures to incorporate any new or modified state or county fire prevention, protection, and response requirements to ensure that each phase of the Project's development is at all times in compliance with then-prevailing standards and fire codes, (ii) obligate funding of the ongoing implementation of the Settlement Agreement FPP, (iii) ensure the completion of ongoing FPP compliance monitoring by a qualified third-party compliance inspector approved by the Los Angeles County Fire Department, including annual fuel management zone inspection, and (iv) require the establishment of a Good Neighbor Firewise Fund, which will provide grants to needs-based applicants to aid communities with a population of less than 100,000 within 15 miles of the project site to reduce off-site fire risks, increase fire prevention, protection and response measures, and avoid adverse impacts of fire, to be funded in an amount equal to $500,000 per year.

The following provides a summary of the Settlement Agreement as it pertains to enhanced fire mitigation measures for the Project.

- Fire Mitigation
  - Requires establishment and funding of two fire mitigation funds:
    - On-site fire risk mitigation. FPP: $500,000/yr funding to provide for implementation of the EIR-required FPP, which identifies community fire hazard reduction measures including building, design, and fuel management requirements.

  1. Off-site fire risk mitigation. Centennial shall establish a Good Neighbor Firewise Fund, which will provide grants to needs-based applicants to be awarded by the CMG to aid communities with a population of less than 100,000 within 15 miles of the boundaries of Tejon Ranch to reduce off-site fire risks, increase fire prevention, protection and response measures, and avoid adverse impacts of fire, for the Project's residents and neighboring communities. The 100,000-population limit will be adjusted commensurately with population changes in Los Angeles, Kern and Ventura Counties as documented by each Census. Centennial shall fund the Good Neighbor Firewise Fund in the inflation-adjusted amount of $500,000 annually. CMG will review applications and award the grants to applicants based on a majority vote of the CMG Board. The grants shall be in support of the following actions:
     a. Updating planning documents and zoning ordinances, including general plans, community plans, specific plans, local hazard mitigation plans, community wildfire protection plans, climate adaptation plans, and local coastal programs to protect against the impacts of wildfires;
     b. Developing and adopting a comprehensive retrofit strategy;
     c. Funding fire-hardening retrofits of residential units and other buildings;
     d. Reviewing and updating the local designation of lands within the jurisdiction as very high fire hazard severity zones;
     e. Implementing wildfire risk reduction standards, including development and adoption of any appropriate local ordinances, rules, or regulations;
     f. Establishing and initial funding of an enforcement program for fuel and vegetation management;
     g. Performing infrastructure planning, including for access roads, water supplies providing fire protection, or other public facilities necessary to support the wildfire risk reduction standards;
     h. Partnering with other local entities to implement wildfire risk reduction;
     i. Updating local planning processes to otherwise support wildfire risk reduction;
     j. Completing any environmental review associated with the listed activities;
     k. Covering the costs of temporary staffing or consulting needs associated with the listed activities;
     l. Implementing community-scale risk reduction programs to become Firewise USA sites;
     m. Implementing resiliency plans such as resiliency centers with stable electricity supplies (e.g., microgrid, solar, and battery equipment) available to residents during times of power shutdowns or other emergencies; and
     n. Other fire-related risk-reduction activities that may be approved by the CMG Board.

- Centennial Monitoring Group (CMG)
  - Independent nonprofit entity established to monitor compliance with agreement and implementation of terms

- The Project to fund CMG operations annually, starting at $300,000/yr and adjusting as CMG implementation workload varies
- Will receive and disburse Good Neighbor Firewise Fund grants

In addition, the Project shall implement the Wildfire Safety Plan (WSP), which shall be updated any time the Project files a tract map to include any new or modified state or County fire prevention, protection, and response requirements, and will, through covenants, conditions, and restrictions, ensure that each phase of the Project's development is at all times in compliance with then-prevailing standards and fire codes.

A. Prior to the filing of the first application for a building permit for dwelling units at the Project, Centennial shall cause the creation of a master Homeowners Association ("HOA") for all dwelling units at Centennial to fund the ongoing implementation, including education, inspections, enforcement, and corrective action, of the FPP. Such HOA shall be authorized to assess each dwelling unit at the Project an ongoing, permanent fee, tax, or assessment in the total cumulative amount for the Project of no more than $500,000 per year, inflation adjusted, with a presumptive pro-rata allocation of $26.00 per dwelling unit ("On-site WSP Assessment"). The HOA shall disperse funds consistent with, and to further the implementation of, the WSP.
B. Centennial shall ensure, pursuant to the WSP, that the master Homeowners Association for Centennial will hire a qualified third-party compliance inspector, approved by the Los Angeles County Fire Department, to conduct a fuel management zone inspection and submit a Fuel Management Report to the County before June 1 of each year certifying that vegetation management activities throughout the Project site have been timely and properly performed.
C. Every 2 years after the first dwelling units are occupied, Centennial and County will meet with the purpose of reviewing evacuation policies and Centennial will demonstrate that they are clearly understood and communicated with residents. Centennial will also work with the HOA to promote creation of Firewise USA communities within the Project.

The detailed and specific actions and responsibilities outlined in the WSP and the Settlement Agreement result in a package of on- and off-site fire safety that is unprecedented. The fire protection, prevention, and suppression measures combine to present a robust fire hazard reduction strategy that contributes significantly to minimizing the Project's off-site ignition risk ratings.

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3 Review of Related Research

3.1 Purpose of Section

This section explores and summarizes scientific research that supports the Wildfire Off-Site Ignition Risk Matrix and the conclusions of this analysis.

People vary in their preference for where they choose to live, and there will continue to be a demand for homes in the WUI or within wildland areas. To safely meet this demand, decision makers should encourage design, mitigation, and construction standards that improve the protection of the life and safety of residents and reduce the potential for structural loss from wildfires (Moritz and Butsic 2020). In addition, development standards, mitigation standards, and project design features in wildfire-prone areas should also aim to reduce the potential for on-site ignitions and wildfire spread into off-site areas.

While components of land use planning including project design, and wildfire risk mitigation measures have been effectively proven to reduce risks to structures and their inhabitants from wildfire, these design and mitigation features also have an inverse impact of reducing the likelihood of on-site wildfire ignitions and their spread into off-site areas. This section provides a description of relevant research related to wildfire risk mitigation and creates a nexus describing how these mitigations also impact the likelihood of off-site wildfire ignitions.

The vast majority of structural damages and destruction in the state due to wildfires occur in the WUI, which is where human development is located within or adjacent to wildland vegetation. Various attributes of the WUI, particularly housing layout, vegetative cover, and proximity to large patches of wildland vegetation, have proved extremely predictive of the potential for building loss in the United States (Caggiano et al. 2020). Thus, development in fire-prone areas should implement design and mitigation measures or actions to further reduce that risk and the risk of off-site ignitions and wildfire spread.

Reducing potential for loss requires a holistic approach that involves a diversity of stakeholder groups and disciplines (Calkin et al. 2013) and must be considered at multiple scales (Mell et al. 2010). Land use planners should aim to minimize exposure of development to wildfire based on the physical and sociopolitical factors at a given site (Gonzales-Mathiesen and March 2014; March and Rijal 2015). As discussed throughout this section, the implementation of measures intended to reduce a development's exposure to encroaching wildfires also reduces the potential for ignitions originating in development areas and spreading off site.

It should be noted that most predictive models of wildfire behavior are based on vegetative fuels, but the buildings in a WUI with sparse to no wildland fuels can also be significantly impacted (Maranghides and Mell 2012; Skowronski et al. 2016). Thus, risk reduction approaches, both on-site and off-site, and including the framework presented in this report, should account for multiple risk reduction factors at multiple spatial scales, recognizing that a "one-size-fits-all" approach may not meet the needs of each individual development (Syphard et al. 2021).

3.2 Risk Assessment Framework

Risk assessment is critical to identifying the likelihood of wildfire, predicting exposure of communities to radiant heat and embers, and guiding mitigation efforts to overcome said exposure (Calkin et al. 2013). Different fire hazard

and risk assessments are utilized in various locales at various scales, including at the national scale (Radelhoff et al. 2005), regional scale (Oregon Wildfire Risk Explorer 2018, CAL FIRE 2023, Southern Group of State Foresters 2023) and local scale (Maranghides and Mell 2012). While it is conventional to assess a development's risk from encroaching off-site wildfires, the risk assessment framework presented in this report seeks to understand a development's contribution to new wildfire ignitions and their potential to spread off-site.

This report utilizes the following formula to quantify the potential for a development and associated off-site infrastructure to contribute to off-site wildfire ignition risk:

Fire Hazard + Ignition Risk – Mitigation = Risk

This methodology has precedence in a previous study (Dicus et al. 2014, Leyshon 2015). As here, the previous study utilized California Fire Hazard Severity Zones (FHSZs) as the basis for fire hazard and explored mitigation actions to reduce the potential for structural loss (risk) in various communities of San Diego County that varied in housing layout, age, and demographics.

3.3 Hazard Analysis

> "Hazard" is based on the physical conditions that create a likelihood and expected fire behavior without considering mitigation measures such as home hardening, recent wildfire, or fuel reduction efforts. "Risk" is the potential damage a fire can do to the area under existing conditions, accounting for any modifications such as fuel reduction projects, defensible space, and ignition resistant building construction.[5]

Note that fire "hazard" is not the same as fire "risk." **Risk is the likelihood that a fire in a given area will cause damage to human life, structures, or infrastructure**. Thus, even if there is a potentially low fire hazard in a given area (expected low flame lengths), a home might still be at high risk of ignition if the physical characteristics of the property would facilitate structural ignition (e.g., flammable vegetation next to a home with wood siding).

Fire hazard was selected as the methodology starting point as it reflects the "default" existing condition of the landscape and site. To convey relative fire hazard across California, CAL FIRE categorizes all lands in which the State has primary fire protection responsibilities into one of three specific FHSZs: Moderate, High, or Very High. These categories are based upon the probability of a wildfire occurring (a product of historic fire occurrence) and the likely behavior of the fire following ignition (a product of the expected mature vegetation at the site, extreme fire weather, and slope steepness).

By design, the state does not consider any planned actions that reduce the potential fire hazard in a given area when designating a specific hazard rating. Instead, FHSZs are based on worst-case conditions, including extreme fire weather in mature (and untreated) vegetation. FHSZs are not designated with the intention to prohibit development but are instead meant to be used as a tool to illustrate the relative fire potential if no steps are taken to reduce the threat in a given area and to trigger the more restrictive construction requirements for buildings, roads, water, and other fire protection and safety features.

[5] CalFire OSFM: https://osfm.fire.ca.gov/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones

3.4 Ignition Risk Analysis

This off-site **ignition risk** analysis evaluates how Project development, including associated off-site infrastructure, could impact potential fire ignitions. Even though ignition probability is inherently built into FHSZs via past fire history, changes to the landscape through development could change the probability of ignition via human activities.

While the proportion changes regionally across California, the vast majority of wildfires in California are started by human activities and are near developed areas (Syphard et al. 2007; Balch et al. 2017), or near human infrastructure (Syphard and Keeley 2016). Historically, the WUI expansion has been linked with increasing ignition probability (Faivre et al. 2014, Radeloff et al. 2018, Syphard et al. 2019), but wildfires in those studies occurred almost exclusively in older, existing communities that had little mitigation to lower the risk of loss to property. Since 2008, when the California Building Code was expanded to include Chapter 7A, Materials and Construction Methods for Exterior Wildfire Exposure, all new construction in WUI areas have included the "hardening" features outlined in that new code section.

3.4.1 Project Design, Population, and Roads

Ignition frequency in California has been tied to population density, with intermediate levels of population density and intermediate distances to WUI areas being observed as having the highest frequencies (Syphard et al. 2007, 2009). In intermediate-density development, also referred to as the intermix, homes are often located on larger parcels (See Exhibit 2, Intermediate-Density Development) and include varying levels of ignition resistance and landscape/fuel modification provision and maintenance. Therefore, this type of development results in a higher wildland exposure level for all homes and does not provide the same buffers from wildfire encroaching onto the site or starting at a structure and moving into the wildlands as an interface, clustered master-planned community (Syphard et.al. 2019) (UCANR 2020). In general, as wildland areas are developed, ignitions increase until continued development reduces wildland fuels to the point where subsequent wildfires are largely excluded (Keeley and Syphard 2018). **Clustered, interface, master-planned communities** are considered highly ignition resistant, often exclude readily ignitable vegetative fuels throughout, and provide a perimeter FMZ. This type of new development requires fewer fire resources to defend and can therefore minimize the likelihood of on-site fires spreading off site (APA Multihazard Planning Framework for Communities in the WUI, 2018; UCANR 2020.

The **extent of road networks**, which is commonly associated with community design (ex. Intermix or interface), has been associated with human-caused ignitions in numerous studies (Syphard et al. 2008; Naryanaraj and Wimberly 2012; Faivre et al. 2014; Li and Banjerjee 2021; Chen and Jin 2022). In California, the importance of road networks on human-caused ignitions seems to vary regionally, with the North Coast, Central Coast, and much of the Southern California regions showing the greatest potential for ignitions along roadways (Chen and Jin 2022). However, it should be noted that vehicle-caused fires have decreased in recent years, which may be a result of improved roadside fuel treatments or by improved warning lights indicating overheating of a car (Keeley and Syphard 2018), which possibly reduced expulsion of catalytic converter debris, which was considered to be a significant roadside ignition source (Bertagna 1999). **Roadside vegetation management** strongly reduces the likelihood of wildfires originating along existing and newly constructed roadways (Monlina et. Al. 2019).

Of interest, Naryanaraj and Wimberly (2012) found that the forest roads in areas of lower population densities seem to actually reduce predicted fire size. Road networks in these areas were deemed to increase suppression access and subsequent initial attack success, the effect of which was greater than the impact of increased fire ignitions. Roads throughout large land areas increase suppression capability by facilitating access by responding firefighters.

It would follow that land areas that are closely managed and prohibit unauthorized access, resulting in very infrequent use compared to public lands, would have much lower potential road-related ignitions than public access forest areas. Therefore, the benefits from the access roads in terms of fire suppression would be higher on managed lands because the number of fire ignitions per mile of road would be significantly lower than the roads evaluated in the study.

3.4.2 Fire Department Access

If on-site ignitions were to occur, rapid emergency response limits the time available for wildfires to spread into off-site areas. Because the response time needed to arrive to a fire ignition location significantly impacts initial attack success, the **proximity and access of firefighting resources** to a local community should appreciably impact the potential for loss to the built environment. Indeed, CAL FIRE aspires to keep 95% of wildfire ignitions to less than 10 acres. In general, the sooner fire resources can engage in suppression activities, the more likely a fire will be contained before it threatens developed areas. The same is true for wildfires originating along the edges of development areas, as rapid response limits the potential for off-site ignition and damages. Response time to arrival at the fire site, therefore, is dependent on multiple factors including **rapid fire detection, sound roadways (i.e., wide and relatively flat), and placement of fire department resources** that are strategically located to developed areas. Thus, land use planning should incorporate the availability, capacity, location, and travel times of emergency services (Gonzales-Mathiesen and March 2014; March and Rijal 2015).

That said, fire prevention is a shared responsibility between first responders and residents, and thus adequate fire suppression capabilities are not a substitute for sufficient mitigation efforts (Collins 2004). Also, it must be understood that initial attack is sometimes hindered even if response is almost immediate, especially under wind-driven events such as Santa Ana winds due to increased safety hazards and the inability to conduct aerial fire suppression. Therefore, pre-event mitigations are critically important to buy time in the event initial attack is delayed and to provide a passive protection that will function without outside intervention.

3.4.3 Overhead Powerlines

As noted, ignitions per capita have significantly declined in recent decades with the exception of powerline ignitions, which are becoming increasingly problematic in California and in other similar parts of the world (Collins et al. 2016; Keeley and Syphard 2018). Indeed, since 2015, six of the most destructive and deadly wildfires in California have been ignited via electrical power lines (Tilden 2022), which are occurring largely during high wind events (Syphard and Keeley 2015). Thus, **improving power line safety** would likely decrease both the number and consequences of wildfires in the WUI (Collins et al. 2016).

In addition to overhead powerlines increasing the potential for ignition, they also serve as a threat to both first responders and residents during a wildfire when wooden poles catch fire and subsequently fall onto roadways or other critical areas. Further, power loss due to burned distribution lines can cause water utility systems to lose pressure (Whelton et al. 2023), significantly impacting water availability for firefighting efforts (EPA 2019).

3.4.4 Site Location

The physical attributes of a development's location will impact the potential for human-caused wildfire ignitions. For example, **slope steepness** has been correlated with wildfire ignitions and spread in numerous studies (Syphard et al. 2008; Faivre et al. 2014; Li and Banerjee 2021; Li and Banerjee 2021; Chen and Jin 2022). Further,

vegetation type (Syphard et al. 2008) and **precipitation levels** (Chen and Jin 2022), which influence moisture in vegetation, have also been shown to influence potential for human-caused ignitions in the WUI. For example, certain vegetation types have higher likelihoods of ignitability due to their fuel characteristics. Flashy fuels, such as annual grasslands, have a higher surface-to-volume ratio than other vegetation types such as chapparal and therefore may dry out quickly and spread wildfire at faster rates. In the Santa Monica Mountains specifically, Syphard et al. (2008) found that wildfire ignitions were more likely to occur in non-native grasslands compared to other vegetation types such as northern mixed chaparral and coastal sage scrub.

3.4.5 Power Supply Reliability

Power supply for fighting wildfires is primarily related to the **potential impact on water supply** in areas without adequate gravity flow to sustain the minimum water pressure needed. As noted above, reliable water availability improves initial attack success and, therefore, helps to reduce the potential for structural loss in a given community. Power loss can cause water utility systems to lose pressure (Whelton et al. 2023), significantly limiting water availability for firefighting efforts (EPA 2019). Thus, **reliable power supply** in a development should be considered an initial component to reduce potential for a large, destructive wildfire.

3.5 Ignition Risk Mitigation Analysis

Certainly, even with diligent efforts to prevent wildfire, not all ignitions can be averted. Thus, mitigation and preparatory efforts will reduce the risk of life/safety impacts to residents and loss of structures, both on- and off-site, even if fire suppression is precluded in a given area. If fighting wildfire is considered to be a battle to protect lives, buildings, and infrastructure, then preemptive **mitigation measures** must be incorporated so as to shape the proverbial battlefield to best enable success. Hence, the next step of the risk assessment methodology is to analyze the proposed protection features and design elements and their effectiveness in mitigating the risk.

3.5.1 Housing Pattern and Development Design

Location and pattern of development significantly influence where wildfires are most likely to cause structural loss (Keeley et al. 2013) and, thus, it is critical that sound land use planning in the WUI incorporate these factors into the design of a given development (Gonzales-Mathiesen and March 2014; March and Rijal 2015). In addition to being less susceptible to impacts from encroaching wildfires, it can be concluded that clustered, interface developments are also less likely to cause off-site wildfires. Reductions in vegetative fuels interspersed between development areas and continuous FMZs limit the capacity for wildfire spread within communities and from developed to undeveloped areas.

For example, a clustered, interface development would have minimal vegetation to ignite within the development itself since the structures are close together (see Exhibit 1, Clustered, Interface Development). Research suggests that fire frequency may increase in early stages of WUI development but decline once development reaches a threshold at which natural vegetation becomes substantially reduced and fragmented. Syphard et al. 2007 explain that when human population density and development exceed a certain threshold, ignitions tend to decrease due to diminished and highly fragmented open space with insufficient fuels to sustain fire, as well as the increased concentration of fire suppression resources in more densely developed WUI areas.

Conversely a low-density intermix development (estate lots, or areas of intermixed open space) would have much more vegetation within the development that could be ignited (see Exhibit 3, Low-Density, Intermix Development).

A wildfire starting in the on-site vegetation could then communicate to adjacent off-site vegetation, that ultimately could threaten a nearby community.

Exhibit 1. Clustered, Interface Development. Example of master-planned community that is ignition resistant, excludes readily ignitable vegetative fuels throughout, and provides a perimeter FMZ. This type of new development requires fewer fire resources to defend and can minimize the likelihood of on-site fires spreading off site.

Exhibit 2. Intermediate-Density Intermix Development. Example of semi-rural, intermediate-density development. Homes are located on larger properties and include varying levels of ignition resistance and landscape/fuel modification provision and maintenance. Compared to a master-planned community, this type of development results in a higher wildland exposure level for all homes and does not provide the same buffers from wildfire encroaching onto the site or starting at a structure and moving into the wildlands.

Exhibit 3. Low-Density Intermix Development. Example of rural/large-parcel development where homes are interspersed amongst wildland fuels, are of varying ages, and include varying levels of FMZ setbacks. Homes are exposed on most or all sides to flammable vegetation, properties rely solely on owners for maintenance, are often far distances from the nearest fire station, and have minimal buffer from on-site fire spreading to wildlands.

3.5.2 Building Construction

Buildings themselves can be a contributory fuel; house-to-house spread may occur in WUI fires, particularly in older, non-ignition-resistant buildings (Maranghides and Mell 2012; Syphard et al. 2014; Kramer et al. 2019; Knapp et al. 2021; Maranghides 2022; Pludow and Murray 2023). Indeed, wildfire can cause extensive damage, even in areas with relatively little wildland vegetation (Kramer et al. 2019). While the studies cited above consider structure losses from wildfires encroaching upon communities, code-compliant building construction can be determined to also reduce the likelihood of fires igniting on-site from spreading structure-to-structure and then into off-site areas.

Because of the high fire intensity of burning buildings and their extended burning time compared to vegetative fuels (hours vs. minutes), clustered interface development would seem at first glance to be at odds with mitigating fire losses. However, **structures built to meet new wildfire building codes** (i.e., Chapter 7A of the California Building Code and section R337 of the California Residential Code) are significantly less ignition prone than older buildings, especially when located next to other ignition-resistant buildings (Knapp et al. 2021).

Buildings constructed to meet exterior wildfire exposure standards (Chapter 7A of the California Building Code and Section R337 of the California Residential Code) can help to reduce the potential of a fire originating within the structure escaping its confines and transmitting fire into off-site areas. In addition, if a structure were to ignite, these construction methods could reduce the potential of a fire communicating to adjacent structures or becoming a conflagration with multiple structures involved.

Thus, expansion of code-compliant human development into the WUI does not necessarily increase risk of home loss during a wildfire but instead may actually serve to buffer older fire-prone developments (Dicus et al. 2014; Leyshon 2015), acting as a fuel break, potentially enabling firefighters to slow spread or control the fire's progression. Code compliant clustered developments convert readily ignitable vegetative fuels into hardened landscapes that act to buffer higher risk communities from high hazard vegetation.

3.5.3 Eliminating Structure-Adjacent Vegetation and Maintaining Defensible Space

3.5.3.1 Near-Structure (close proximity)

Near-structure vegetation exposes structures to radiant heat, flame impingement, and ember accumulation, which poses a substantial threat to structures (Dicus et al. 2009; Maranghides and Mell 2009; Syphard et al. 2012; Caton et al. 2017; Westhaver 2016; Maranghides et al. 2022; Manzello and Suzuki 2023). Thus, to reduce fire exposure to buildings, **near-structure vegetation should be eliminated** (Cohen 1999; Quarles et al. 2010; Mathiesen and March 2014; March and Rijal 2015; Hakes et al. 2017; Thomas et al. 2017).

Via modeling, experiments, and case studies, Cohen (1999) demonstrated that there should be from **10 to 40 meters of fuel modification** between wildland vegetation and buildings to minimize the impacts from radiant heat or direct flame impingement. Syphard et al. (2014, 2017) recommended **reducing near-structure vegetation to 40% woody cover** and also completely **eliminating vegetation that touches a structure** (due to likely flame impingement). Similarly, Leyshon (2015) and Uribe (2021) found that the most important area to **reduce combustible materials on a given property was the immediate 1.5 meters surrounding a building**. Because of the increasing evidence that wildland and non-wildland combustible materials (including ornamental vegetation, mulches, or storage) may readily cause structure ignition, California is in the process of updating its defensible space regulations in SRAs to include an ember-resistant zone within the first 5 feet of structures referred to as "Zone-0" (in addition to the existing 30-foot and 100-foot fuel management zones, CFC 4906.3.1).

Trees or large shrubs (even if largely ignition-resistant due to distance from ground to foliage or high in moisture), **should also be eliminated** because deposition of leaves, needles, or twigs can accumulate next to or on top of a house, which would then serve as a ready receptor for airborne embers.

Fire threat on a given property increases through time without continued maintenance because vegetation regularly grows and deposits dead debris onto or next to structures (Moritz and Butsic 2020). Further, plants tend to dry out with age if not adequately irrigated and will thus burn with greater intensity. Many residents, particularly renters, commonly lack the means or motivation to mitigate elevated fire hazard (Collins 2004). Thus, focus should be placed on **diverse mechanisms to incentivize residents to ameliorate property elements** that may lead to home loss; the specific approach should vary based upon the demographics specific to a given community (Leyshon 2015).

Enacting **measures that minimize vegetation adjacent to buildings** would have the beneficial effect of reducing the potential for structure fires to ignite vegetation and facilitate spread to off-site areas.

3.5.3.2 Defensible Space

An important component of wildfire risk mitigation is the **provision of fire-resistant landscapes and modified vegetation buffers**. FMZs are designed to provide vegetation buffers that gradually reduce fire intensity and flame lengths from advancing fire, whether it originates on-site or off-site, by strategically placing thinning zones and irrigated zones adjacent to each other on the perimeter of the WUI-exposed structures. FMZs not only help protect new communities and structures from external wildfire risks, but FMZs also reduce the risk of fire originating from such new communities or structures and spreading to surrounding natural resources/habitat areas (Braziunas et al. 2021; Cochrane et al. 2012; Price et al. 2021).[6] FMZs thereby provide a dual benefit of **buffering communities and structures from encroaching wildfires** while separating the new community and structures (and potential introduction of new ignition sources associated with the new community) from surrounding open space, fuel sources, or habitat areas (Bhandary and Muller 2009; Braziunas et al. 2021; Cochrane et al. 2012; Fox et al. 2018). Research has also indicated that the likelihood of ignitions occurring in a given location is significantly influenced by the existing vegetation/fuel available (Elia et al. 2019). In addition to protecting structures, fuel treatments and defensible space, when utilized in conjunction with place-based fire-hardened design, also **act as a buffer for natural areas and surrounding communities** (Safford et al. 2009; Scott et al. 2016).

3.5.4 Structure Placement in the Landscape

As described in the following sections, the position of structures on the landscape (and relative to each other) influences the risk of structure loss from wildfires and off-site ignition risks (Alexandre et al. 2015; Knapp et al. 2021), and thus project locations should consider the overall context and landscape impacts on exposure in the design of a given development (Gonzales-Mathiesen and March 2014; March and Rijal 2015). How the position and placement of structures influences their risk is discussed in more detail in the following sections.

3.5.4.1 Avoiding Ridges and Steep Slopes

For example, locating buildings on highly variable topography or at the **top of ridges should be avoided** because wildfire intensity increases if moving uphill (Syphard et al. 2012; Syphard et al. 2019; Syphard and Keeley 2020). Further, **steep slopes and rugged terrain will negatively impact fire department access and response time** and can imperil residents during evacuation.

If a wildfire were to originate from a community, its spread rate into off-site areas may be increased if steep slopes are nearby. Steep terrain typically results in faster upslope fire spread due to the pre-heating of uphill vegetation. Flat areas typically result in slower fire spread in the absence of windy conditions. Topographic features such as saddles, canyons, and chimneys (land formations that collect and funnel heated air upward along a slope) may form unique circulation conditions that concentrate winds and funnel or accelerate fire spread. For example, fire generally moves slower downslope than upslope. Terrain may also buffer, shelter, or redirect winds away from some areas based on canyons or formations on the landscape. Saddles occurring at the top of drainages or ridgelines

[6] Historically, the California Department of Forestry and Fire Protection originated as a conservation agency and implemented brush management, like fuel modification and fire breaks to protect natural resource areas from fires originating in developed areas, such as the Ponderosa Way, an 800-mile fire break in the Sierra Nevada Mountain Range.

may facilitate the migration of wildfire from one canyon to the next. Various terrain features can also influence fire behavior, as summarized in Table 1.

3.5.4.2 Avoiding Wind Corridors

Similarly, **development should not be located in known wind corridors** (Syphard et al. 2012), the avoidance of which could be one of the most effective long-term strategies to prevent wildfire losses and off-site ignitions and wildfire spread (Syphard et al. 2022). When located in wind corridors or in terrain that facilitates fire movement, mitigations must be as proportionally extreme as the potential for wildfire.

3.5.5 Powerlines

Multiple strategies can be employed to mitigate ignitions via electrical powerlines. The California Public Utilities Code 8386 requires that electrical corporations "construct, maintain, and operate its electrical lines and equipment in a manner that will minimize the risk of catastrophic wildfire posed by those electrical lines and equipment." Certainly, one of the most prevalent mitigation activities is the clearing of vegetation around and under powerlines and poles, which occurs continuously throughout the state. Further, new technologies have been developed recently that immediately detect power surges in a specific electrical distribution line and then immediately deenergize it so as to avoid sparks that could ignite vegetation or debris beneath it. It should be noted that all public and private power companies are required to develop and annually update a Wildfire Mitigation Plan, which describes requirements for mitigating wildfire ignition risks associated with electrical power infrastructure.

Recently, major electrical utility companies, including Pacific Gas and Electric (PG&E), Southern California Edison (SCE), and San Diego Gas and Electric (SDG&E) have enacted Public Safety Power Shutoffs, where electrical lines are deenergized in specific areas that are deemed to present a significant risk of causing a wildfire ignition. Power outages from these Public Safety Power Shutoffs have proved to be negatively impactful, costly, and widespread in some areas. Indeed, one study on Public Safety Power Shutoffs in California identified approximately 12 million person-days of outages in 2019 (Abatzoglou et al. 2020), the costs of which were estimated to be $10 billion (Wara 2019).

Electrical utilities are recognizing the potential threat that overhead distribution lines cause to public safety, power disruption, and cost of replacement, and are thus mitigating potential for ignition to power poles in fire-prone areas. One such effort includes converting wood poles to steel poles, which significantly reduces the risk of pole ignition and subsequent failure. However, even when overhead poles are steel, wildfire ignitions can still be facilitated by powerlines if lines come in contact with other lines, vegetation, or floating debris during a high-wind event.

Arguably, the most effective mitigation to minimize ignitions from powerlines would be to place them underground. While these efforts certainly cause additional installation and short-term costs and may result in some environmental disturbance during their installation, they effectively eliminate the potential for ignitions from electrical utilities. New developments that choose to underground powerlines significantly reduce the likelihood of off-site ignitions caused by electrical infrastructure.

Thus, the most effective mitigation measure would be to place electrical utilities underground. While undergrounding powerlines may cause additional costs and provide some environmental disturbance, they largely eliminate damage to electrical utilities. Further, they also eliminate potential entrapment of residents during evacuation from burned poles falling onto roadways.

3.5.6 Development with Adequate Ingress/Egress

Safe ingress and egress includes time for fire detection, alarm, emergency response, pre-movement, and evacuation (Ronchi et al. 2017, 2019; Mitchell et al. 2023). Thus, planners should **facilitate efficient access and ingress of emergency services** as well as egress of evacuating residents (Gonzales-Mathiesen and March 2014; March and Rijal 2015). Longer distance to traffic flow and safe areas can cause gridlock, imperil evacuees, and increase emergency response times. Thus, **close proximity of developed areas to code-compliant major roadways** provides more options and contingencies to both residents and first responders and may reduce overall congestion by reducing travel distances and simplifying routes to the nearest safety zone (Conn et al. 2016).

Similarly, **additional points of ingress/egress into/out of a development** provide for multiple alternatives to leave a fire-threatened community and could reduce traffic congestion. Per Public Resources Code 4290, maximum dead-end lengths only depend on parcel size and do not take into account other factors such as land use, demographics, road system adequacy for proposed development, fire hazard level, and location of exits that may not be safe in the event of fire. Therefore, ingress/egress points should consider ultimate land uses, vegetation, expected wind speeds, topography, and subsequent evacuation time in a given locale (Conn et al. 2016).

Ensuring that **ingress and egress roadways are code compliant** allows for safe evacuation and efficient emergency response. If wildfires near development areas were to occur, rapid emergency response provides the best opportunity for an effective initial attack and quick wildfire suppression. Early wildfire suppression lowers the chances of wildfires growing out of control and damaging adjacent developments.

Rapid emergency response is a critical component in an effective initial attack. The potential for wildfires originating in development areas to spread off-site is greatly reduced when emergency responders have quick and efficient means of ingress.

3.5.7 Proximity to Emergency Services

As previously noted, sound land use planning should incorporate the availability, capacity, location, and travel times of emergency services (Gonzales-Mathiesen and March 2014; March and Rijal 2015). Again, **close proximity to fire department resources** better enables initial attack success, which subsequently reduces exposure of people and buildings to wildfire and improves ease of escape to off-site areas. Time to fire arrival is dependent on multiple factors including rapid fire detection, sound roadways (i.e., wide and relatively flat), and placement of fire department resources that are located strategically to developed areas.

3.5.8 Limiting Parking in WUI Developments

Limitations on roadside parking can better facilitate ingress/egress during a wildfire because they effectively guarantee a given road's unobstructed width. Limitations on parking can be enforced in local zoning ordinances or in subdivision design (Mowery et al. 2022).

Parking restrictions can be **permanent** in nature or enacted **during time periods in which fire ignition potential is heightened**. For example, the County enacted parking restrictions during a predicted Santa Ana wind event in October 2023 to proactively clear roads and better facilitate evacuation and emergency response should a wildfire occur (Mays 2023). Rapid emergency response improves the likelihood of quick wildfire extinguishment and may prevent a wildfire's off-site spread.

3.5.9 On-site Water Supply/Storage

As earlier noted, developments should provide for reliable water supply (Moritz and Butsic 2020), which can improve firefighting effectiveness. Proper water supply should include appropriate location, supply, connectivity, and signage (Gonzales-Mathiesen and March 2014; March and Rijal 2015).

Guaranteeing adequate water supply improves the potential success of wildfire suppression efforts. In addition to **ensuring code-compliant water supply and fire flow**, **additional on-site aerial fire-suppression water supplies** (dip sites) or **other aboveground water access points** can act as added mitigation and increase opportunities for rapid wildfire extinguishment.

3.5.10 Firebrand Hazard

Airborne embers, commonly referred to as firebrands, are burning materials which become airborne and carried for some distance in an airstream (Babrauskas 2020). Firebrands can serve as ignition sources through a phenomenon defined as spotting. Spotting occurs when firebrands are lofted into the air and ignite small fires called spot fires ahead of the main fire front when landing on a receptive fuel bed. Wildfire spotting is multi-faceted and occurs at varying levels of severity. Main drivers of wildfire spotting include (NWCG, 2021):

- Firebrand Source, Size, and Amount
- Firebrand travel distance
- Probability of ignition where firebrands land

Firebrands pose significant risk to communities. In extreme cases, California chapparal has been found to cause ignitions up to four miles away from the main fire front. However, these risks can be mitigated through the implementation of fire-resistant construction methods, properly maintained landscaping, Fuel Modification Zones, and ignition resistant landscaping (NIST, 2022, Tacaliti, 2023). While the majority of home losses in the WUI are due to firebrands (NIST, 2021), a review of structural loss data highlights that modern master-planned communities are extremely unlikely to be destroyed by wildfires (CBIA, 2022). Of all wildfires in California since 2017, less than 1% of structures lost were structures built after 2010 (CBIA, 2022). Structural hardening requirements mandated through Chapter 7A of the California Building Code and implementation of adequate defensible space at the community and parcel scale are designed to effectively mitigate structural ignition risks from firebrands.

The following section discusses wildfire hazards caused by firebrands. Factors influencing firebrand production, transport, and ignition are highlighted, emphasizing the importance of fire-resistant construction methods and defensible space.

3.5.10.1 Firebrand Generation

In extreme cases, fire spread by firebrands can become the dominant form of fire spread and overwhelm fire suppression efforts. In order for firebrands to pose a hazard, they must have had sufficient initial size to sustain enough heat during transport to ignite a receptive fuel bed (Babrauskas 2020). Firebrand size is influenced by an array of factors including fuel type, fire intensity, and wind speed (Adusumilli and Blunck, 2023, Suzuki and Manzello, 2022). However, the complex nature of firebrand production and spread remains relatively unstudied. Limited research exists regarding processes of firebrand generation and its relation to the source materials which produce firebrands (Manzello and Suzuki, 2023). The vast majority of available firebrand research is focused on

transport of firebrands, with little research focused on the burnout process of firebrands following generation and transport (CBC, 2022).

Currently, no computed models exist for predicting firebrand generation. Instead, research into the topic relies on experimental studies. In general, greater fire intensity is found to generate more firebrands (Thomas et al. 2021). Fuel load, or the total amount of combustible fuels, has been found to related to the severity of firebrand production. The total number of burning firebrands has been observed to increase alongside an increase in the height of trees or shrubs (Adusumilli et al., 2021).

3.5.10.2 Firebrand Transport

Firebrand transport is the most commonly studied component of firebrands. This is likely because the processes behind firebrand transport are the simplest to model. In addition, understanding maximum firebrand transport provides important information for firefighters and emergency managers during wildfires. Models predicting maximum firebrand transport or spotting distance account for factors such as fuel type, tree height and crown width, wind speed, spotting location (ex. Ridgetop, valley) (Albini 1979, Chase 1981, Rothermel 1983, Albini 1983, Chase 1984, Morris 1987). Before firebrands can travel downwind in the atmospheric air current, they first must be lofted into the air. Ember lofting leads to firebrands and is influenced by fire intensity, fuel loading, and terrain features (NWCG, 2021). Once airborne, firebrand transport distance is mainly driven by wind speed and firebrand size (Manzello and Suzuki, 2023).

3.5.10.3 Firebrand Ignition

Several properties influence a firebrand's ignition potential upon landing. Firebrand characteristics such as mass and size, thermal degradation or burnout, and environmental conditions (i.e. weather) greatly influence the potential for new ignition caused by firebrands (Bearinger et al., 2020). For example, firebrands may burnout completely in the atmosphere, or, after landing, undergo glowing combustion and die out, smolder, or transition into flaming and grow into a larger fire (Manzello et al, 2021). While the relationship between firebrand characteristics and ignition potential is understudied, several factors are known to mitigate structure losses from firebrands in the WUI. It is known from general understanding of thermodynamics that the condition of the receptive fuels, both urban and natural, is a significant predictor of new ignitions from firebrands.

Ensuring code compliant defensible space surrounding structures has been found to mitigate structure losses from firebrands in the WUI. Defensible space is often created in the form of Fuel Modification Zones, which create buffers between natural vegetation and structures. In many jurisdictions, Fuel Modification Zones within 30 feet of structures are required to be irrigated, further limiting the potential for firebrand ignitions. New research has shown that vegetation, decorations, and additional flammable material attached to the house are of the most important factors contributing to structure ignition from firebrands (IBHS, 2023). Research has shown that firebrands more easily collect around the edges of structures and can significantly contribute to structure ignitions if fuels are readily ignitable (IBHS, 2023). In response to these findings, CAL FIRE has created a new defensible space zone, Zone 0, which requires the first 5 feet from structures to be void of combustible materials.

The condition of building materials themselves greatly determines structure losses from firebrands (NIST, 2022). Studies suggest that building construction is as if not more important than defensible space in determining structure losses in the WUI (Syphard et al. 2017). As mentioned previously, firebrands are responsible for the majority of structure losses in the WUI. Chapter 7A of the California Building Code has been developed through

partnership with experimental research into structure losses. Incorporating the building construction and design requirements outlined in Chapter 7A (ex. Roof type and assembling, exterior decking, siding materials, etc.) have been proven to mitigate structure losses from firebrand ignitions (NIST, 2022).

3.6 Firebrand Production From Urban Fuels

The following sections discuss the potential for firebrand production from structure fires in modern master-planned communities, noting the effectiveness of building design features and fire safety measures in reducing the risk producing firebrands from onsite wildfires. Historical data on wildfires caused by structure fires are also presented, identifying common characteristics associated with wildfire incidents caused by structure fires.

3.6.1 Historical Wildfires Caused by Structure Fires

CAL FIRE maintains fire history data throughout the state and includes ignition causes when available (CAL FRAP, 2023). According to the historical fire record, wildfires caused by structure fires account for only <1% percent of all wildfires where the cause is known. Wildfires by cause in California is summarized below in Table 4.

Table 4. Wildfire Occurrences in California by Cause

Fire Cause	Frequency	Percent of All Causes
1 - Lightning	3483	22%
9 - Miscellaneous	3458	22%
2 - Equipment Use	1325	8%
7 - Arson	945	6%
5 - Debris	757	5%
10 - Vehicle	534	3%
11 - Powerline	444	3%
4 - Campfire	391	3%
3 - Smoking	337	2%
8 - Playing with fire	192	1%
18 - Escaped Prescribed Burn	103	1%
6 - Railroad	78	<1%
15 - Structure	**27**	**<1%**
19 - Illegal Alien Campfire	17	<1%
16 - Aircraft	15	<1%
13 - Non-Firefighter Training	11	<1%
12 - Firefighter Training	5	<1%

Source: CAL FIRE FRAP, 2023
Note: Does not include wildfires with Unknown cause

Through a detailed assessment of these fires, clear patterns and characteristics related to community design and the surrounding landscape are identified. These include:

- Wildland Urban Intermix style development with substantial vegetation surrounding structures.
- Limited setback from wildland vegetation with structures located in close proximity to unmaintained natural vegetation.

- Adjacent wildland vegetation often resembles heavy fuels. Vegetation surrounding structures is rarely herbaceous.
- Surrounding terrain is often steep with structures located on steep slopes.
- Structures are often positioned atop slopes.
- Development can be described as rural, with structures located far from existing communities or fire stations.
- Structure age is considered old.

Appendix C provides a graphical depiction of historical wildfires caused by structure fires. These occurrences exemplify many or all of the characteristics identified above. It is important to note that the Centennial Project is set apart from these characteristics and features a clustered master plan design with code compliant design features that minimize the potential for onsite structure fires to result in offsite ignitions. Centennial's development footprint does not include unmaintained vegetation near structures. Structures will be constructed in accordance with the latest building code requirements for fire safety and each structure will be equipped with automatic interior fire sprinklers. Development edges feature one, continuous interface between development and offsite grassland fuels buffered by annually maintained Fuel Modification Zones. Planned development pads are not located on steep terrain or on ridgelines. Further, Centennial will include three onsite fire stations with an optional fourth as determined necessary by LACoFD to ensure rapid response to potential onsite structure fires. **As described, Centennial does not include factors that increase the potential for offsite ignitions caused by onsite structure fires.**

3.6.2 Risk Reduction Summary

Studies have shown that land use decision making, defensible space, homeowner preparation, and ignition prevention can complement traditional management practices in reducing wildfire ignitions (Schwartz and Syphard 2021; Syphard et al. 2017). Because most fires are caused by humans, ignition reduction is a powerful management strategy (Syphard and Keeley 2015). **Examples of effective ignition risk mitigation measures** include:

Development location and design

- The inherent nature of a project's site may have characteristics that affect wildland fire behavior and off-site ignition risk. Assessing and mitigating these factors can help to reduce potential ignitions and wildland fire behavior. For example, developments should be placed away from steep slopes, ridgelines, and known wind corridors.
- Lower-density intermix developments with unmaintained vegetation interspersed between structures, such as WUI development, should be avoided. Instead, clustered, interface developments with one continuous interface between the built environment and vegetative fuels are preferred. This style of development reduces vegetative fuels between developments, thus limiting the potential for ignition within development areas.

Vegetation Management and Defensible Space

- Research has also indicated that the likelihood of ignitions occurring in a given location is significantly influenced by the existing vegetation/fuel available (Elia et al. 2019). Therefore, manipulating existing vegetation is a critical component of off-site ignition risk mitigation. Defensible space, often referred to as an FMZ, not only helps protect new communities and structures from external wildfire risks but also reduces

the risk of fire originating from such new communities or structures and spreading to surrounding natural resources/habitat areas.

- In addition to FMZs surrounding structures, roadside FMZs have also proven effective in reducing ignition risks along roadways, a common ignition source in southern California.

Underground Powerlines

- Common ignition sources in southern California are related to powerlines, and many destructive fires across the state have been caused by powerlines (Keeley and Syphard 2018). However, this risk can be mitigated by placing powerlines underground.

3.7 Supporting Research Summary

The research cited in this section supports the Wildfire Off-Site Ignition Risk Assessment Matrix and the conclusions of this analysis.

- Development standards, mitigation standards, and project design features in wildfire-prone areas aim to reduce the potential for on-site ignitions and wildfire spread into off-site areas.
- While components of land use planning including project design and wildfire risk mitigation measures have been effectively proven to reduce risks to structures and their inhabitants from wildfire, these design and mitigation features also have an inverse impact of reducing the likelihood of on-site wildfire ignitions and their spread into off-site areas.
- The reports cited provide a description of relevant research related to wildfire risk mitigation and creates a nexus describing how these mitigations also impact the likelihood of off-site wildfire ignitions.
- Reducing potential for loss requires a holistic approach that involves a diversity of stakeholder groups and disciplines (Calkin et al. 2013) and must be considered at multiple scales (Mell et al. 2010).
- Land use planners should aim to minimize exposure of development to wildfire based on the physical and sociopolitical factors at a given site (Gonzales-Mathiesen and March 2014; March and Rijal 2015).
- The implementation of measures intended to reduce a development's exposure to encroaching wildfires also reduces the potential for ignitions originating in development areas and spreading off-site.
- Risk reduction approaches, both on-site and off-site, and including the framework presented in this report, should account for multiple risk reduction factors at multiple spatial scales, recognizing that a "one-size-fits-all" approach may not meet the needs of each individual development (Syphard et al. 2021).

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4 Wildfire Off-site Ignition Risk Assessment Matrix

4.1 Introduction

At the request of the Tejon Ranch, Dudek assembled a team to research and develop **an approach to evaluate the potential of a new master-planned community and associated off-site infrastructure to cause off-site wildfire ignitions and ember cast**. This effort is in response to the Project's litigation that specifically included rulings on potential off-site ignitions and is also influenced by a variety of factors including the October 2022 California Attorney General Guidance on Wildfire and Evacuation Planning (California OAG 2022), the lack of California Environmental Quality Act (CEQA) thresholds targeting off-site ignitions, and Office of the State Fire Marshal revisions of FHSZ Maps (typically increasing the footprint of Very High FHSZs).

Concern about project wildfire risks is often focused on a project's introduction or increase of people to an area; by attracting more people, the presumption is that proposed development would result in a higher likelihood of wildfire ignitions. While wildfire impacts to older, established communities have been notably documented, the authors of this study could not find research directly linking ignition-resistant master-planned communities developed in accordance with modern fire code standards with increased fire ignitions or frequency. Chapter 3 of this report provides published documentation that **clustered, interface master-planned communities constructed using modern ignition resistant development techniques actually minimize the likelihood of an on-site fire transitioning to off-site areas**.

This report describes a risk assessment matrix that can be utilized for development projects located in fire hazard severity zones, including the Project, as part of an EIR document to address the potential for off-site ignitions and impacts. However, **the present focus of the methodology centers on the proposed Project** and the characteristics therein. Essentially, modeling or other tools are used to analyze ignition risk[7] and reveal the potential impacts that proposed development projects may have on adjacent lands or communities.

- Challenge: Determining potential wildfire ignition increases from new communities, including the Project, and potential impact on existing residents, structures, and communities
- Goal: Develop defensible method for evaluating off-site ignition potential from the Project (or any project), addressing the significance question
- Objectives:
  - Utilize new method to inform the Project's EIR Wildfire Section
  - Create an off-site wildfire risk matrix that assesses risk based on:
    - Fire hazard
    - Ignition risk
    - Fire protection/mitigation measures
  - Address California Attorney General Guidance on CEQA Wildfire Risk Mitigation

[7] "Risk" is the potential damage a fire can do to the area under existing conditions, accounting for any modifications such as fuel reduction projects, defensible space, and ignition-resistant building construction (CAL FIRE 2023).

4.2 Risk Assessment Equation

The overall risk assessment is **based on a model developed in 2015** (Leyshon) that starts with the hazard of a site based on the FHSZ rating and then subtracts the mitigation for the site to arrive at a risk score for the site.

Hazard - Mitigation = Risk

For purposes of determining the potential off-site risk for a development, the Leyshon equation was modified to add an Ignition Risk factor to represent the potential for on-site ignitions; the sum is reduced by the risk reduction measures a proposed project is providing. The result then represents the potential Off-site Risk.

Hazard + Ignition Risk – Mitigation = Off-site Risk

1. The first term in the equation is **Hazard**. A given site's overall wildfire hazard may be analyzed using a variety of models and approaches. Because California relies on CAL FIRE's FHSZ modeling as the best available science, it is prudent to incorporate that model into this assessment of off-site ignition risk. Therefore, the FHSZ ratings are incorporated as the potential wildfire **Hazard** and simplified using the following ranking:

Hazard: CAL FIRE FHSZ; Very High (3); High (2); Moderate (1)

2. The second term in the equation is **Ignition Risk**. Ignition Risk is associated with a variety of site and project factors that either increase or decrease the potential for a vegetation ignition. The various factors are incorporated as the potential **Ignition Risk** and simplified using the following ranking:

Ignition Risk: High risk factor (3); Moderate risk factor (2); Low risk factor (1)

3. The third term in the equation is **Mitigation**, which, based on natural or project-provided features can reduce the overall risk, which the mitigation or other risk reduction measures are designed to do whether they are code-based, above and beyond the code, or naturally occurring.

- ***Structural Mitigation Variables:*** hardening features, period of urban development, house size
- ***Non-structural Mitigation Variables:*** defensible space, housing layout, distance from wildland vegetation
- ***Natural:*** bodies of water, non-burnable landscape

The measures are incorporated as **Mitigation** and simplified using the following ranking:

Mitigation: High reduction of ignition risk (3); Moderate reduction of ignition risk (2); Low reduction of ignition risk (1)

After establishing the risk assessment equation as the applicable **Formula**, then the terms of the equation are identified (hazard, risk, and mitigation **Factors**) which leads to populating the risk assessment **Matrix**, and subsequently a **Ranking** system in order to apply the **Matrix** to a development and assess its potential off-site ignition risk.

Formula —> Hazard/Risk/Mitigation Factors —> Matrix —> Ranking —> Application

4.3 Off-site Ignition Risk Assessment Method

4.3.1 Wildfire Hazard Assessment

For purposes of this analysis, the CAL FIRE FHSZ classification system will be relied upon for the de facto hazard[8] designation for a project or area. The CAL FIRE hazard rating reflects the inherent natural physical conditions of the site that create a likelihood of fire ignition and expected fire behavior and burn probability for a potential wildfire that may be ignited within the project vicinity. **Listed below are the CAL FIRE FHSZs and their corresponding hazard ranking**, which would be identified for the project being evaluated and entered into the assessment equation. Projects located in a FHSZ will be assigned a hazard rating as classified by CAL FIRE: Moderate, High or Very High.

Fire Hazard Severity Zone	Hazard Ranking
Moderate	1
High	2
Very High	3

The ranking is not a measurement but rather a comparison of the different zones one to another. The FHSZ classification is determined by referring to the CAL FIRE Office of the State Fire Marshal map designation. A lower ranking represents a lower level of risk.

4.3.2 Wildfire Ignition Risk Assessment

4.3.2.1 California Attorney General Best Practices Guidelines

As stated in a recent guidance document by the California Attorney General's Office (California OAG 2022), development in fire-prone areas increases the likelihood that more fires will ignite. The guidance document was designed to assist lead agencies in complying with CEQA when considering whether to approve projects in wildfire-prone areas. The document further states that many of California's largest and most destructive fires have been caused by human activities. According to this guidance, there are **three reasons why residential developments in the WUI increase the risks of wildfire**: (1) there is an increase of wildfire ignitions due to the **increased presence of people**, and increase of ignitions becoming wildfires because of homes placed among flammable vegetation; (2) building housing units in the WUI **places more people in harm's way**; (3) fires in **remote locations require significant fire-fighting resources** and mobilization of fire-fighters.

Table 5 summarizes the various elements of a project's design and ranks them by category based on the Attorney General's Office guidance document's assessment of features and characteristics that result in increased or decreased ignition risk. The ranking was determined by comparing the elements with each other, analyzing whether each element was more or less of a risk than other elements, and does not represent an actual measurement or scoring. Instead, the ignition risk factors are assessed as more impactful, or less impactful, than other factors and ranked accordingly, just as the FHSZs are "ranked" as Moderate, High and Very High. A lower ranking represents a lower risk; a higher ranking represents a higher risk.

[8] "Hazard" is based on the physical conditions that create a likelihood and expected fire behavior over a 30- to 50-year period without considering mitigation measures such as home hardening, recent wildfire, or fuel reduction efforts (CAL FIRE 2023).

Table 5. Ignition Risk: Wildfire Ignition Risk Assessment for Development Projects[1]

Wildfire Ignition Risk Variables	Ignition Risk Impact Factor*	Ranking
Wildfire Risk Variables Related to the Project's Design		
Variable A. Project Design		
Choose either A1 or A2, but not both; select A3 if applicable.	A1. Interface: concentrated (disrupts fire spread)	1
	A2. Low or intermediate density: not concentrated, fragmented, isolated clusters (more exposure to wildland vegetation)	2
	A3. Remote or disconnected from existing development (difficult fire department access)	3
Variable B. Project Location in the Landscape		
Select all that apply.	B1. Structures and infrastructure sited in gentle terrain and not within a wind corridor	0
	B2. Structures and infrastructure sited in rugged terrain or on top of steep hills (may increase wildfire risk)	2
Variable C. Water Supply and Infrastructure		
Select all that apply.	C1. The Project's water supply and infrastructure are adequate for firefighting needs	0
	C2. There is a potential for loss of water pressure during a fire that may decrease available water supply	1
	C3. There is a potential for loss of power that may eliminate the water supply	2
	C4. Implementation of aboveground power lines near flammable vegetation where they previously did not exist (power lines located in a wind corridor may become a source of ignition)	3
	Sum of Ignition Risk Assessment Ranking	**14**

1 Based on California Atorney General Guidance.

Note:

* Ignition Risk Assessment: High risk factor (3); Moderate risk factor (2); Low risk factor (1); Not a risk factor (0).

Sum of Ignition Risk Factors Ranking	Ranking for Matrix
Sum of 0 to 1: Not a risk factor	0
Sum of 2 to 5: Low risk factor	1
Sum of 6 to 10: Moderate risk factor	2
Sum of 11 to 14: High risk factor	3

Notes:

1. Select the applicable risk impact factors based on the project's design, location, and water supply variables.
2. Select the corresponding value on the table.
3. Sum the values.
4. Select the appropriate matrix ranking based on the sum of risk factors.
5. Enter the Wildfire Ignition Risk Assessment ranking on the Wildfire Ignition Risk Matrix.

Table 6. Applicable Fire and Building Code Sections that Influence Potential Off-site Ignition Risk

Code Section	Code Description	Risk Factor or Mitigation Measure
CFC Sec. 4901.1 Scope	CFC Chapter 49 contains the minimum requirements to mitigate conditions that might cause a fire originating in a structure to ignite vegetation in the WUI Area, and conversely, a wildfire burning in vegetative fuels to transmit fire to buildings and threaten to destroy life, overwhelm fire suppression capabilities or result in large property losses.	WUI mitigation strategies help to reduce the potential of a fire igniting within the Project site's landscaping or spreading outwardly off-site through the landscaping if a structure was to ignite.
CFC Sec. 4907 Defensible Space	The purpose of CFC 4907 is to manage hazardous vegetation and fuels to reduce the severity of potential exterior wildfire exposure to buildings and to reduce the risk of fire spreading to buildings.	Defensible space helps to reduce the potential of a fire igniting in vegetative fuels around buildings and structures or outwardly spreading off-site.
CRC Sec. R337; CBC Ch. 7A; CBC Sec. 903; CFC Sec. 903, Building construction	The purpose of these code sections is to establish minimum standards for the protection of life and property by increasing the ability of a building located in any FHSZ to resist the intrusion of flame or burning embers projected by a vegetation fire and thereby contribute to a systematic reduction in conflagration losses.	Buildings constructed to exterior wildfire exposure standards can help to reduce the potential of a fire originating within a structure from leaving the property and even escaping its confines (sprinkler system, fire resistant exterior walls, dual paned windows, fuel modification, etc.). In addition, if a structure were to ignite, these construction methods could reduce the potential of a fire from communicating to adjacent structures or becoming a conflagration with multiple structures involved (sprinkler system, fire resistant exterior walls, dual paned windows, fuel modification, etc.).
CFC Sec. 4903, Project Site	The purpose of CFC 4903 is to determine the acceptability of fire protection and life safety measures designed to mitigate wildfire hazards presented for the property (proposed Project site). [This code section authorizes the fire code official to require the preparation of a fire protection plan. The plan is prepared to determine the acceptability of fire protection and life safety measures designed to mitigate wildfire hazards which would then be reviewed and approved by the fire code official.] (CFC 4903.1).	The inherent nature of a Project's site may have characteristics that affect wildland fire behavior. The Project's design itself may impact wildland fire ignition and behavior. Assessing and mitigating these factors can help to reduce potential ignitions and ultimately wildland fire behavior.
CFC Sec. 4903, Surroundings	The purpose of CFC 4903 is to determine the acceptability of fire protection and life safety measures designed to mitigate wildfire hazards presented for the property [proposed Project site] (CFC 4903.1).	The inherent nature of the land surrounding a proposed project may have characteristics that affect the ignition and behavior of wildland fire. The current land uses and management practices may have an impact as well. Assessing these factors can help to

Table 6. Applicable Fire and Building Code Sections that Influence Potential Off-site Ignition Risk

Code Section	Code Description	Risk Factor or Mitigation Measure
		determine the likelihood and potential fire behavior of a wildland fire if it were to ignite from within a proposed project and spread to its surroundings, compared to the existing conditions without the proposed Project.

Notes: CFC = California Fire Code; Ch. = Chapter; WUI = wildland–urban interface; FMZ = fire management zone; Sec. = Section; CRC = California Residential Code; CBC = California Building Code; FHSZ = Fire Hazard Severity Zone.

4.3.3 Wildfire Ignition Risk Reduction Assessment

Table 7 provides a description of California Attorney General guidance mitigation measures that are used to evaluate a project's potential for igniting fires that spread off-site into adjacent wildlands.

Table 7. Mitigation: Wildfire Ignition Risk Reduction Measures

Wildfire Ignition Risk Mitigation Measure[1]	Category	Ranking for On-site Ignition Risk	Ranking for Off-site Ignition Risk[2]
Siting projects to maximize the role of low-flammability landscape features to buffer the development from fire spread	Project siting	2	2
Limiting development along steep slopes and amid rugged terrain (decreases exposure to rapid fire spread and increases accessibility for firefighting)	Project siting	2	1
Placement of development close to existing or planned ingress/egress and designated evacuation routes (for efficient evacuation while allowing emergency access and rapid fire suppression)	Project siting	1	1
Placement of projects close to adequate emergency services	Project siting	3	2
Consolidated design, relying on clustered infill developments as much as possible	Project Design	3	2
Avoidance and minimization of low-density intermix development patterns or leapfrog-type developments	Project Design	3	0
Decreasing the extent and amount of "edge" or interface area that is adjacent to undeveloped wildlands	Project Design	3	2
Construction of additional points of ingress and egress and modification of evacuation routes	Ingress/egress	2	0
Undergrounding power lines	Infrastructure	3	3
Compliance with regulatory measures to prevent ignitions during the construction	Infrastructure	0	3

Table 7. Mitigation: Wildfire Ignition Risk Reduction Measures

Wildfire Ignition Risk Mitigation Measure[1]	Category	Ranking for On-site Ignition Risk	Ranking for Off-site Ignition Risk[2]
and operational phases of off-site improvements			
Requiring fire-hardened communication to the project site	Infrastructure	1	0
Parking limitations to ensure roads are not clogged with parked vehicles	Infrastructure	1	1
On-site water supply/storage to augment ordinary supplies	Infrastructure	2	2
Fire hardening structures and homes to requirements provided in Chapter 7A of California Building Code (CBC) and Section R237 of the California Residential Code (resistance to heat, flames, and embers)	Construction features	2	1
Creation of buffer zones and defensible space within and adjacent to the development	Vegetation management/ FMZ/ defensible space	3	2
Ensuring that vegetation will not touch structures or overhang roofs	Vegetation management/ FMZ/ defensible space	2	1
Structure legal obligations so that defensible space measures are retained over time	Vegetation management/ FMZ/ defensible space	1	0[9]
Enhanced communication to the project population about emergency evacuation plans and evacuation zones[10]	Training	1	0
	Mitigation Rating Sum	**35**	**23**

Notes: FMZ = Fire Management Zone.

1 Potential mitigation measures and design alternatives that may reduce wildfire risk impacts (not exclusive).

2 Potentially impacting existing structures in proximity to the new development.

Rankings (derived by comparing the listed mitigation measures against each other using a scale from 0 to 3): 3 = High reduction of ignition risk; 2 = Moderate reduction of ignition risk; 1 = Low reduction of ignition risk; 0 = NA.

9 Legal obligations would only apply to the project or its future residents and not to off-site lands or neighbors. Therefore, the obligations would only be able to directly address on-site risk factors. The risk of an on-site ignition spreading to off-site is always a possibility, but legal obligations would not have a significant impact in that regard.

10 While evacuation communication may not on its face seem to play a role in reducing ignition risk, the practice of regular communication keeps residents engaged in the preparedness process and more aware of wildfire hazards/risks and their role in prevention and response. See the points below from the U.S. Fire Administration.

- When residents are informed about potential wildfire threats early, they have time to prepare their homes, gather essential items, and make informed decisions about evacuation, reducing the likelihood of rushed actions that could lead to accidental ignition.
- Active communication with residents helps build awareness of fire risks, encourages proactive measures like defensible space creation, and fosters a sense of preparedness within the community.
- By regularly communicating evacuation procedures and the consequences of not evacuating promptly, residents are more likely to heed warnings and take necessary actions to protect themselves and their property.

Sums of On-site Mitigation Measures	Ranking for Matrix
Sum of 0 to 3: No significant reduction of ignition risk	0
Sum of 4 to 13: Low reduction of ignition risk	1
Sum of 14 to 24: Moderate reduction of ignition risk	2
Sum of 25 to 35: High reduction of ignition risk	3

Sums Of Off-Site Mitigation Measures	Ranking for Matrix
Sum of 0 to 2: No significant reduction of ignition risk	0
Sum of 3 to 7: Low reduction of ignition risk	1
Sum of 8 to 13: Moderate reduction of ignition risk	2
Sum of 14 to 23: High reduction of ignition risk	3

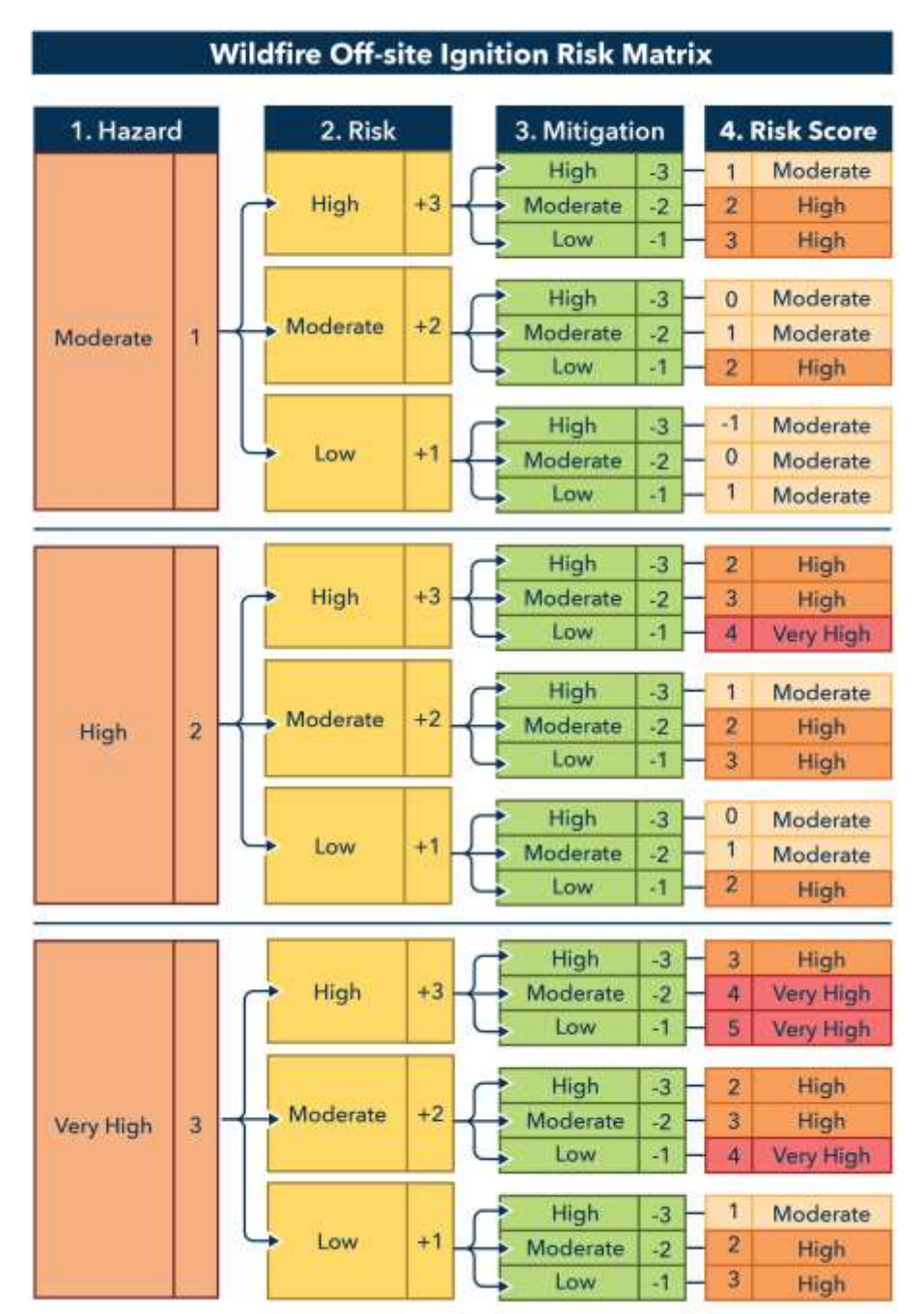
Notes:

1. Select the applicable wildfire ignition risk mitigation measures based on the project's design (siting, design, ingress/egress, infrastructure, construction, and FMZ).
2. Select the corresponding ranking on the table for on-site or off-site ignition.
3. Sum the rankings.
4. Select the appropriate matrix ranking based on the risk factor ranking categories.
5. Enter the wildfire ignition risk mitigation measures ranking on the Wildfire Ignition Risk Matrix.

4.4 Application of the Wildfire Off-site Ignition Assessment Matrix

Based on the variables and ranking parameters for each risk factor and mitigation measure an experienced professional fire protection planner can evaluate a project from an overall wildfire risk and mitigation perspective to assess the project in terms of its potential to result in off-site ignitions that may threaten off-site habitats and communities. Exhibit 4 provides the complete matrix.

Exhibit 4. Wildfire Off-site Ignition Risk Matrix.



Notes: CAL FIRE = California Department of Forestry and Fire Protection; FHSZ = Fire Hazard Severity Zone.
* Risk = Hazard + Ignition Risk – Mitigation

Once the matrix is used to identify the appropriate Hazard, Ignition Risk and Mitigation rankings for the project, the rankings can then be entered as terms into the risk equation to determine the Off-site Risk ranking and the corresponding Off-site Risk Level.

Hazard + Ignition Risk – Mitigation = Off-site Risk

The risk results can be classified into the following categories:

Ranking	Off-site Risk Level
WORL ≤ 1	Moderate
1 < WORL < 4	High
WORL ≥ 4	Very High

WORL = Wildfire Off-site Risk Level

Moderate risk represents an acceptable level of risk based on the risk vs. mitigation evaluation.

High risk represents a potential cause for concern and the possible need for additional mitigation measures to reduce to a Moderate level unless a specific site condition or overriding determination is justified and found acceptable to the local fire authority.

Very High risk would be unacceptable and subject to additional mitigations to reduce the potential ignition risks to Moderate or High with overriding acceptance from the fire authority.

4.5 Application of the Wildfire Off-site Ignition Assessment Matrix to the Centennial Project

Based on the site-specific analysis and considering the various input factors for the fire environment, the Project's hazard, ignition risk and mitigation measures, the overall Project Wildfire Off-Site Ignition Risk Level is considered by the Dudek team to result in a Moderate level, as shown below.

Hazard + Ignition Risk – Mitigation = Off-site Risk

Step 1. Hazard Ranking: Very High Fire Hazard Area = 3

Fire Hazard Severity Zone	Hazard Ranking
Moderate	1
High	2
Very High	3

Step 2. Risk Factor Ranking: Moderate = 1

Table 8. Centennial Specific Ignition Risk: Wildfire Ignition Risk Assessment for Development Projects[1]

Wildfire Ignition Risk Variables	Ignition Risk Impact Factor*	Ranking
Wildfire Risk Variables Related to the Project's Design		
Variable A. Project Design		
Choose either A1 or A2, but not both; select A3 if applicable.	A1. Interface: concentrated (disrupts fire spread)	1
	A2. Low or intermediate density: not concentrated, fragmented, isolated clusters (more exposure to wildland vegetation)	2
	A3. Remote or disconnected from existing development (difficult fire department access)	3
Variable B. Project Location in the Landscape		
Select all that apply.	B1. Structures and off-site improvements sited in gentle terrain and not within a wind corridor	0
	B2. Structures and off-site improvements sited in rugged terrain or on top of steep hills (may increase wildfire risk)	2
	B3. Implementation of aboveground power lines where they previously did not exist (power lines located in a wind corridor may become a source of ignition)	3
Variable C. Water Supply and Infrastructure		
Select all that apply.	C1. The project's water supply and infrastructure are adequate for firefighting needs	0
	C2. There is a potential for loss of water pressure during a fire that may decrease available water supply	1
	C3. There is a potential for loss of power that may eliminate the water supply	2
	C4. Implementation of aboveground power lines near flammable vegetation where they previously did not exist (power lines located in a wind corridor may become a source of ignition)	3
	Centennial Project Sum of Ignition Risk Assessment Ranking	**4**

1 Based on California Atorney General Guidance.

Note:

* Ignition Risk Assessment: High risk factor (3); Moderate risk factor (2); Low risk factor (1); Not a risk factor (0).

Sum of Ignition Risk Factors Ranking	Ranking for Matrix
Sum of 0 to 1: Not a risk factor	0
Sum of 2 to 5: Low risk factor	1
Sum of 6 to 10: Moderate risk factor	2
Sum of 11 to 14: High risk factor	3

Notes:

1. Select the applicable risk impact factors based on the project's design, location, and water supply variables.
2. Select the corresponding value on the table.
3. Sum the values.

4. Select the appropriate matrix ranking based on the sum of risk factors.
5. Enter the Wildfire Ignition Risk Assessment ranking on the Wildfire Ignition Risk Matrix.

Step 3. Mitigation Level Ranking: High = 3

Table 9. Centennial Specific Mitigation. Wildfire Ignition Risk Mitigation Measures

Wildfire Ignition Risk Mitigation Measure[1]	Category	Ranking for On-site Ignition Risk	Ranking for Off-site Ignition Risk[2]
Siting projects to maximize the role of low-flammability landscape features to buffer the development from fire spread	Project siting	2	2
Limiting development along steep slopes and amid rugged terrain (decreases exposure to rapid fire spread and increases accessibility for firefighting)	Project siting	2	1
Placement of development close to existing or planned ingress/egress and designated evacuation routes (for efficient evacuation while allowing emergency access and rapid fire suppression)	Project siting	1	1
Placement of projects close to adequate emergency services	Project siting	3	2
Consolidated design, relying on clustered infill developments as much as possible	Project Design	3	2
Avoidance and minimization of low-density exurban development patterns or leapfrog-type developments	Project Design	3	0
Decreasing the extent and amount of “edge” or interface area that is adjacent to undeveloped wildlands	Project Design	3	2
Construction of additional points of ingress and egress and modification of evacuation routes	Ingress/egress	2	0
Undergrounding power lines	Infrastructure	3	3
Compliance with regulatory measures to prevent ignitions during the construction and operational phases of off-site improvements	Infrastructure	0	3
Requiring fire-hardened communication to the project site	Infrastructure	1	0
Parking limitations to ensure roads are not clogged with parked vehicles	Infrastructure	1	1

Table 9. Centennial Specific Mitigation. Wildfire Ignition Risk Mitigation Measures

Wildfire Ignition Risk Mitigation Measure[1]	Category	Ranking for On-site Ignition Risk	Ranking for Off-site Ignition Risk[2]
On-site water supply/storage to augment ordinary supplies	Infrastructure	2	2
Fire hardening structures and homes beyond what is required in applicable building codes (resistance to heat, flames, and embers)	Construction features	2	1
Creation of buffer zones and defensible space within and adjacent to the development	Vegetation management/ FMZ/ defensible space	3	2
Ensuring that vegetation will not touch structures or overhang roofs	Vegetation management/ FMZ/ defensible space	2	1
Structure legal obligations so that defensible space measures are retained over time	Vegetation management/ FMZ/ defensible space	1	1
Enhanced communication to the project population about emergency evacuation plans and evacuation zones[11]	Training	1	0
	Mitigation Rating Sum	**35**	**24**

Notes: FMZ = Fire Management Zone.

1 Potential mitigation measures and design alternatives that may reduce wildfire risk impacts (not exclusive).

2 Potentially impacting existing structures in proximity to the new development.

Centennial Specific Sum of On-site Mitigation Measures	Ranking for Matrix
Sum of 0 to 3: No significant reduction of ignition risk	0
Sum of 4 to 13: Low reduction of ignition risk	1
Sum of 14 to 24: Moderate reduction of ignition risk	2
Sum of 25 to 35: High reduction of ignition risk	3

11 While evacuation communication may not on its face seem to play a role in reducing ignition risk, the practice of regular communication keeps residents engaged in the preparedness process and more aware of wildfire hazards/risks and their role in prevention and response. See the points below from the U.S. Fire Administration.

- When residents are informed about potential wildfire threats early, they have time to prepare their homes, gather essential items, and make informed decisions about evacuation, reducing the likelihood of rushed actions that could lead to accidental ignition.
- Active communication with residents helps build awareness of fire risks, encourages proactive measures like defensible space creation, and fosters a sense of preparedness within the community.
- By regularly communicating evacuation procedures and the consequences of not evacuating promptly, residents are more likely to heed warnings and take necessary actions to protect themselves and their property.

Centennial Specific Sum Of Off-Site Mitigation Measures	Ranking for Matrix
Sum of 0 to 2: No significant reduction of ignition risk	0
Sum of 3 to 7: Low reduction of ignition risk	1
Sum of 8 to 13: Moderate reduction of ignition risk	2
Sum of 14 to 24: High reduction of ignition risk	3

Notes:

1. Select the applicable wildfire ignition risk mitigation measures based on the project's design (siting, design, ingress/egress, infrastructure, construction, and FMZ).
2. Select the corresponding ranking on the table for on-site or off-site ignition.
3. Sum the rankings.
4. Select the appropriate matrix ranking based on the risk factor ranking categories.
5. Enter the wildfire ignition risk mitigation measures ranking on the Wildfire Ignition Risk Matrix.

Enter the assigned ranking from each step into the risk assessment formula and sum.

3 (Hazard) + 1 (Ignition Risk) – 3 (Mitigation) = 1 (Off-site Ignition Risk)

Complete Step 4 by referring to Table 10 (Wildfire Off-site Fire Risk Categories).

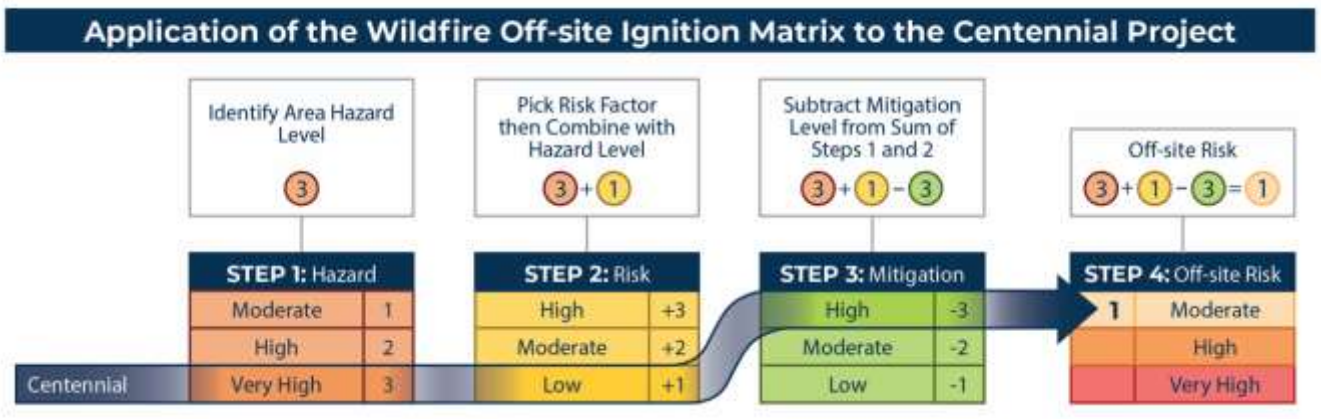
Step 4. Wildfire Off-site Ignition Risk Level: 1 = Moderate

Table 10. Wildfire Off-site Fire Risk Categories.

Ranking	Off-site Risk Level
WORL ≤ 1	Moderate
1 < WORL < 4	High
WORL ≥ 4	Very High

WORL = Wildfire Off-site Risk Level

The figure below provides a graphical representation of following the four steps to determine the Wildfire Off-site Ignition Risk Level.



Off-site Risk Ranking

Ranking (1) ≤ 1

Wildfire Off-site Risk Level

Moderate Risk

Moderate risk reflects an acceptable level of exposure based on the evaluation of risk in relation to mitigation measures. Although the term "moderate" is relative, in the context of this analysis it indicates that the Project fully complies with all applicable regulatory requirements for ignition risk and incorporates additional measures beyond the minimum standards. As a result, the Project implements comprehensive measures to minimize the potential for off-site ignitions. Although located within a CAL FIRE Very High Fire Hazard Severity Zone, the Project achieves the lowest possible ignition risk score for this FHSZ by fully complying with all applicable safety regulations and incorporating additional measures beyond the minimum requirements as described in the tables within Appendix D.

While it is infeasible to eliminate all ignition risk anywhere in the wildland-urban interface (WUI), Project compliance with regulatory requirements and additional safety measures provides an acceptable level of risk by systematically addressing the most significant ignition and spread factors as detailed in the California Fire Code (CFC), California Building Code Chapter 7A, and Public Resources Code (PRC) requirements. These regulatory requirements specifically target the primary mechanisms by which development can contribute to off-site wildfire ignitions, including structural ember generation, vegetation-related ignition sources, utility-related ignitions, and construction- or maintenance-related ignitions.

Ignition-resistant building materials, ember-resistant design features, defensible space and fuel modification requirements, and ongoing vegetation management substantially reduce the probability that Project structures or associated activities would generate embers capable of igniting adjacent off-site vegetation.

In addition, code-compliant emergency access, adequate water supply, and emergency response provisions improve the ability to quickly suppress any localized ignition before it can spread off site. These measures are specifically intended to interrupt ignition pathways and reduce fire intensity at the point of origin, thereby limiting the potential for a site-based ignition to transition into a broader wildfire affecting surrounding properties or wildland areas.

From a planning and risk management perspective, a moderate level of risk is considered less than significant because it reflects a balance between residual wildfire exposure and the effectiveness of regulatory requirements. In moderate-risk areas, compliance with regulatory requirements effectively reduces both the likelihood of ignition and the potential for off-site fire spread. ***While some residual risk remains as it must in any wildland-urban interface setting, these measures ensure that the risk is manageable. and potential impacts to people and property are minimized and represent a less than significant impact.***

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5 Findings and Conclusion

Findings

Methodology development

Developing a method for determining the potential off-site ignition risk associated with a new development project involved considerable research, application of experience, and adoption of frameworks already in use in various forms. The evaluation process and method evolved over the course of several months during development, from an overly complex series of matrices utilizing numerous factors and limited to use by seasoned wildfire planning experts to a method and process that is based on the most commonly used guides for new community planning, i.e., the CFC, CBC, and/or the California Attorney General's Office Wildfire Guidance Best Practices. The evaluation process presented herein represents the culmination of the Dudek fire protection planning team's efforts, and while it would not be appropriate for use by an inexperienced person for evaluating a project's overall off-site ignition risk, it is considered useable by WUI-familiar fire prevention officers, fire protection planners, fire inspectors, fire-protection-focused foresters and landscape architects, and others, if they have demonstrated their experience evaluating wildfire hazards and mitigating them through proven and justified methods.

The method has been developed so that it provides a narrow possibility of achieving a Moderate off-site fire ignition risk if a project is located within a Very High FHSZ. In this case, a project would need to meet a very high bar for mitigating wildfire hazards as the only path to achieve a Moderate final ranking. It is far more common for projects to result in a High or Very High off-site ignition risk result than Moderate, unless the project provides a strategic, targeted set of mitigation measures addressing the primary ways that fire could ignite and move to off-site fuels.

Data support

The off-site ignition risk evaluation of the proposed Project included reliance on a vast amount of site-specific information, fire environment data, fire behavior and spread modeling, and extensive mitigations that will be provided above and beyond the strict code requirements. This information was available for this effort because the Project applicant made considerable investment to evaluate wildfire risk and needed protections as part of its planning process. As such, the Project bases its off-site risk analysis on supporting information provided within the (1) Project WSP; (2) Project Construction Fire Prevention Plan (3) Fuel Modification Plan; and (4) a Project Wildfire Evacuation Study. In addition, extensive analysis and modeling was conducted as part of an FHSZ remapping comment exercise, based on which CAL FIRE corrected their initial remapping of the site, downgrading much of the site from High and Very High to Moderate and High.

Project Ignition Risk Rating

Based on Dudek's technical review of the site and surrounding areas and development of a comprehensive wildfire ignition risk and risk reduction method, it is our opinion that the Project's off-site ignition risk of Moderate, as determined by the presented method, is accurate and supported.

Risk Reduction Measures

The following sections discuss off-site wildfire risk and mitigations that reduce the potential risk associated with the Project, a properly designed and carefully mitigated project.

Potential Changes in Off-site Wildfire Risk

Commercial and residential development brings more people, as well as construction and routine occupancy activities, to a project site. Certain human activities result in sparks, flames, or heat that may ignite vegetative fuels unless proper prevention measures are in place. As described throughout this analysis, the Project includes comprehensive measures to prevent, protect, and contain on the Project site any potential on-site accidental ignitions. This section of the report is focused on the potential for increased risks of accidental off-site ignitions associated with commercial and residential construction and occupancy of the future Project, including the risk from airborne embers, a leading cause for structural loss and wildfire spread.

Additionally, there has been concern over structural fires from urbanized areas creating airborne burning embers, which can be transported large distances (in excess of 1 mile) downwind of a fire event. If the ember(s) remain viable, i.e., capable of igniting receptive fuels, a new fire can be ignited, and if that fire is within naturally occurring vegetation and the weather conditions are such that fire spread is facilitated, a wildfire may occur. This situation could lead to encroachment of wildfire on existing communities and residents. However, this potential has been contemplated and addressed during the Project wildfire hazard and risk analysis within the Project's EIR and Wildfire Safety Plan (Dudek 2024). The Project's layered design, construction, and maintenance requirements create a system of fire prevention and protection that minimizes the possibility of ember generation, which in turn minimizes the potential for off-site ember ignitions.

Project Wildfire Risk Reduction Measures

Taken together, the fire prevention, suppression, and response measures incorporated into the Project and applicable regulatory requirements serve to adequately protect both on-site and off-site resources in the event of an on-site fire ignition, the most significant of which are as follows. For a complete list of wildfire risk reduction measures, see Appendix D.

1. **Wide FMZ around the perimeter of the Project.** The Project's FMZ varies in width between 100 and 200 feet and would be improved with specified fire-resistant plant species at low fuel densities and subject to ongoing HOA-funded and applied maintenance. FMZs are also provided along all on-site roads and, as feasible, off-site roads. The strategic design and placement of FMZs works to disrupt fire spread, reduce fire intensity, and facilitate fire suppression within a landscape (Braziunas et al. 2021). This is true regardless of the direction a vegetation fire may be burning, whether toward a community or from within a community. The risk of a structure being destroyed is significantly lower when defensible space is implemented on both shallow and steep properties (Syphard et al. 2014). Even if just half the landscape is treated, the percentage of houses exposed to fire can decrease from 51% to 16% (Braziunas et al. 2021). Moreover, when FMZs are designed properly, they not only protect homes but also the surrounding environment. For example, when the Tahoe Basin experienced the Angora Fire in 2007, fuel treatments had the dual effect of saving homes and increasing forest survival (Safford et al. 2009). In areas where fuel management had been carried out prior to the Angora Fire, home loss was significantly reduced in the adjacent community, and 85% of the trees survived, as compared to the 22% that survived in untreated areas (Safford et al. 2009). Fuel management treatments also facilitated the ecological benefit of reduced fire severity, including higher post-fire soil litter cover, higher herbaceous plant cover, higher species diversity, and lower levels of invasive beetles (Safford et al. 2009). At a minimum, managing defensible space can reduce risk across multiple scales by dampening fire risk and reducing the impact of fire, and in turn reducing annual fire risk (Braziunas et al. 2021).

2. **Continued grazing of Project's open space.** Open spaces within the Project's interior and open edges will experience continual grazing following development of the Project. This will maintain the site's flashy fuels outside of developed and landscaped areas and will contribute to reduced fire hazard.
3. **Ignition-resistant structures.** All Project structures will be built to the requirements of Chapter 5 of the CWUIC and CBC or California Residential Code ignition-resistant requirements that have been developed and codified as a direct result of after-fire save and loss assessments. Each facet of a building's exterior construction and appendages are addressed within Chapter 7A of the CBC and Section R337 of the California Residential Code, with a primary focus on requiring structures that can withstand heat, flame, and embers. The way to reduce a project's likelihood to cause a fire that may spread on- or off-site is to reduce the likelihood that the project's structural elements will ignite (Maranghides and Mell 2012; Calkin et al. 2014; Mockrin et al. 2020). There are two primary concerns for structure ignition: (1) radiant and/or convective heat; and (2) burning embers (NFPA 1144 2008 and IBHS 2008). Burning embers have been a focus of building code updates for at least the last decade, and new structures in the WUI built to these codes have proven to be very ignition resistant, which significantly decreases the likelihood of home-to-home fire spread and minimizes ember production that could ignite the surrounding environment.
4. **Interior fire sprinklers.** All Project structures, of any occupancy type, will be protected by an automatic, interior fire sprinkler system. All automatic internal fire sprinklers would be installed in accordance with NFPA 13, 13D, or 13R and LACoFD installation requirements. Interior fire sprinklers are very successful at assisting responding firefighters by either extinguishing a structural fire or containing the fire to the room of origin and delaying flashover. This benefit also reduces the potential for an open space vegetation ignition by minimizing the possibility for structure fires to grow large and uncontrollable, resulting in embers that are blown into wildland areas.
5. **Ignition-resistant, planned, and maintained landscape.** All landscaping of Project common areas will be subject to strict fire-resistant plant types with those closest to structures requiring irrigation to maintain high plant moistures, which equates to difficult ignition and reduced fire spread. These areas are closest to structures, where ignitions would be expected to be highest but will be prevented through ongoing maintenance efforts.
6. **Undergrounding of power lines.** Power lines are a common concern with respect to human-caused wildfires (Syphard and Keeley 2015). These fires are often started by the arcing between lower-voltage supply lines during high-wind events. The Centennial Specific Plan and applicable County regulations require the Project to underground all electric utility lines, and new aboveground power lines are prohibited on the Project site. These restrictions will significantly reduce, if not eliminate, the likelihood that power lines serving the Project will cause on-site or off-site fires.
7. **On-site fire stations.** The Project will provide at least three, and up to four, on-site fire stations and will thus provide a robust response capability to the Project site and the region, where there are currently long emergency response delays due to the rural nature of the area. This response capability includes fast response throughout the Project site and surrounding open space areas, and a heavy response (number of engine companies) that can respond within a short timeframe. Attacking fires in their incipient stages is critical to fire suppression and controlling fire spread. Thus, the Project's provision of significant firefighting resources will greatly improve the ability to control and suppress all fires in the Project area, both on site and off site, compared to existing conditions.
8. **Water availability and fire flow.** The Project is required to provide water meeting fire flow for each of the Project's proposed land uses. Thus, water will be available to firefighters at any of several hundred (or more) fire hydrants distributed throughout the community. Water is a key to fighting most urban fires and keeping

them from inadvertently spreading on or off site. Water is also critical for fighting wildfires and keeping them small in size.

9. **Fire access roads.** The Project is required to provide access roads for firefighting apparatus. Project roads provide code-consistent access throughout the community. Better access to wildland areas would result in faster wildfire response and continuation of the fire agencies' successful control of wildfires at small sizes. Such access would also allow firefighters to better prevent the spread of on-site fires to off-site locations.

   The methodology used to assess the Project's potential impacts related to wildfire conformed to industry standard protocols and accepted data sets. The Project agreed to commitments designed to mitigate off-site fire risk in the Climate Resolve agreement, which would provide for Project and regional efforts to reduce wildfire risk. As confirmed by LACoFD at the hearing at which the Project was finally approved, developments, like the Project, that implement modern land use planning and hazard mitigation strategies can be safely sited in WUI areas without significant risk to the community or the surrounding environments. At Project approval, the Project's fire protection features went above and beyond applicable codes. Moreover, the Project approvals require the Project to comply with stricter fire code standards as they are updated in the future. Project compliance with such regulatory mandates will ensure that the community's structures will have the ability to survive a wildland fire with little intervention of firefighting forces. Moreover, the Project's fire safety design will adequately reduce its potential to cause structure fires that could result in off-site fire starts by incorporating modern, fire-safe construction materials and by significantly increasing fire services response capacity to the Project site and surrounding area. As such, the Project will adequately reduce on-site and off-site impacts associated with wildfire risk.

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Appendix A

Fire Protection Team Resumes

Michael Huff, RCA

URBAN FORESTRY AND FIRE PROTECTION PLANNING LEAD

Michael Huff is founder and manager of Dudek's Urban Forestry/Fire Protection Planning team with 32 years' experience (1.2.1) as a forester and fire protection planner. Mr. Huff specializes in management of community-wide and project-specific fire protection plans (FPPs), wildland–urban interface (WUI) fire management plans, wildfire hazard reduction projects, California Environmental Quality Act (CEQA) supporting technical documents, Oak Woodland impact and mitigation plans, urban and community forest management plans, forest and tree inventories, impact analysis studies, and tree hazard evaluations. Mr. Huff possesses considerable project issue resolution experience and focuses on working within the regulations to provide creative, cost-saving solutions to his clients. He routinely participates in public hearings, strategy sessions, and provides public presentations.

Education (1.2.2)

Northern Arizona University
BS, Forest Management, 1992

Certifications (1.2.3)

Registered Consulting Arborist (RCA)

Certified Arborist, No. WE-4276A

San Diego County Department of Planning and Land Use-Approved Fire Protection Planner

Laguna Beach Fire Department-Approved Fire Protection Planner

Certified Wildland Fire Ecologist

Professional Affiliations

American Society of Consulting Arborists

National Fire Protection Association – International

California Fire Chief's Association – Fire Prevention Officers

Project Experience (1.2.4)

FPP for the MRCA Public Access Enhancement Plan, Malibu, California. Served as Project Manager and technical expert, and drafted portions of the FPP, which served as a component of the project EIR. The project involved development of facilities to enhance public access to open space within the Santa Monica Mountains, including parking areas, campsites, and trails. The FPP analyzed fire risk components associated with increased public access into wildland areas and developed measures to mitigate risk. Technical analysis of risk included assessment of fire history, fire behavior modeling, access constraints, and proximity to firefighting resources. Fire behavior modeling involved the use of both tabular (BehavePlus) and GIS-based (FlamMap) fire behavior modeling software packages and was an integral component of the fire-planning process. The FPP served as a component of the project final EIR, which was approved by the MRCA board and the California Coastal Commission.

Centennial Master Planned Community, California Environmental Quality Act Technical Support, Los Angeles County, California. Served as Project Manager for a multi-faceted fire and evacuation planning project for this proposed master planned community. Dudek conducted comprehensive analysis, reviewed available research, developed tools and models, and evaluated potential impacts on the environment. Dudek was also involved with mitigation measures and project design features.

Newhall Ranch, California Environmental Quality Act Technical Support, Santa Clarita, California. Mr. Huff served as Project Manager for this CEQA technical support project, providing various fire and evacuation related analysis, emergency response modeling, fire behavior modeling, and report preparation for several master planned communities.

Otay Ranch Village 14/Adara FPP, Jackson Pendo Development, San Diego County, California. Managed this mixed-use master planned community. This 1,119 residential unit project includes a school, village center, fire station, related infrastructure, and open space/recreation areas. The project is located within a very high fire hazard severity zone and required comprehensive analysis of the site's potential hazards and overall wildfire risk. Dudek conducted analysis according to the San Diego County Fire Protection District guidelines that include fire behavior modeling, fire history analysis, emergency response travel time analysis, establishment of fuel modification zones, and requirements for code compliance and community fire safety.

Paraiso Springs Resort Fire Protection Planning, Paraiso Springs Resort, LLC., Soledad, Monterey County, California. Managed this hot springs resort project and provided authorship of a fire safety plan, evacuation plan, and an environmental impact report (EIR) wildfire section. Dudek's fire protection planning team performed a comprehensive review of the site's fire environment and developed approaches to address the hazards and reduce risk to acceptable levels. Provided support at several public hearings and answered questions regarding the site's safety for the planned use.

Confidential Ranch Fire Protection Planning, Confidential Client, San Diego County, California. Provides fire safety planning for a 25,000 plus acre ranch. Safety planning includes advisement on vegetation management, site activity restrictions during red flag warning weather conditions, improvements for fire fighter access, on-site fire response resources, and high-tech fire detection. In addition, coordination with fire agencies and familiarization with site resources, high risk areas, and assets is included in the scope.

Otay Ranch Villages 2, 3, 4, 6, 8, 9, and 10 Mixed-Use Projects, various clients, Chula Vista, California. Managed several Fire Protection Planning projects for Otay Ranch villages while coordinating with the Chula Vista Fire Department, project engineers, planners, landscape architects, and others; analyzing each site's risk potential; and customizing protection measures and features to result in fire safety projects receiving fire department acceptance. Among the tasks completed for the various projects are fire behavior modeling, emergency travel time response modeling, site plan reviews, site/field evaluations, digital data acquisition and review, and development of appropriate mitigating measures.

Sunset Crossroads FPP, MC Group, Riverside County, California. Managed this project which includes 5.3 million square feet of industrial and commercial space. The project is located within a high fire hazard severity zone. The project included developing appropriate measures to address the site's fire risk and confirming code compliance for access, building construction, emergency response, water availability, and related fire safety and protection requirements. In addition, Dudek prepared the wildfire section of the project's EIR, utilizing the results of the FPP to inform analysis regarding the four CEQA significance trigger thresholds.

The Junipers Age-Restricted Residential Development, Lennar Homes, San Diego, California. Managed the preparation of a comprehensive FPP and Evacuation Plan for this 550-unit project. Dudek's fire specialists performed extensive analysis of the fire environment and documented the project's compliance with enhanced fire safety requirements. In addition, Dudek provided extensive analysis of the ability to evacuate the area based on existing conditions and post-project, enhanced conditions, noting that the project provides additional options and capacity, resulting in a safer area than the current condition.

Hummingbird Nest Ranch FPP, Five S Properties, Ventura County, California. Prepared an FPP for this unique project that consists of a large ranch proposing site development to allow for on-site large events. The project's very high fire hazard severity zone location required careful consideration of the types of events and the restrictions and additional measures that would be required to enable the plan to proceed with an acceptable safety risk.

Murai Subdivision FPP, ColRich, San Marcos, California. Managed this 89 single-family unit project in San Marcos that resides within a high fire hazard severity zone. The project included constrained site characteristics that required development of prescriptive measures, including landscape and building hardening beyond code requirements to meet the intent of the code.

Murrieta Hills FPP, Pulte Homes, Murrieta, California. Managed and guided analysis, wrote the FPP, and coordinated with local fire personnel on this 750-unit residential master plan. The project required a code modification regarding dead-end road length with justifying measures to meet the intent of the code. Dudek performed a comprehensive analysis of the fire environment and prescribed a redundant system of protections to provide safe vehicle evacuation through the community to available evacuation routes while enabling emergency ingress. The project is within a very high fire hazard severity zone, and the site's wildfire risk was evaluated and addressed through site-specific design features.

Newland Sierra Master Planned Community FPP and Evacuation Plan, Newland Communities, San Diego County, California. Managed a team of fire protection planners to prepare this comprehensive FPP. The plan followed San Diego County Guidelines to evaluate the potential fire risk and address it such that an acceptable level of risk was achieved. Deer Springs Fire Protection District and San Diego County accepted the plan and approved the project. Provided reviews and authorship of the EIR wildfire/hazards sections, responded to comments, and spoke at public meetings to resolve questions and misinformation regarding the project's fire safety and provisions.

Sky Ridge Community Fuel Modification Zone Inspections, D.R. Horton, San Bernardino, California. Provided oversight and managed this project that included inspection of existing fuel modification zones in a very high fire hazard severity zone. Dudek's fire protection specialists inspected the perimeter fuel modification zones and documented issues. A report indicating where issues were noted and how they could be mitigated was prepared.

Emerald Heights Fire Safety Inspections, Emerald Heights Property Management, Escondido, California. Dudek provided two rounds of fire safety inspections of the Emerald Heights community. The inspections focused on perimeter fuel modification zones, evacuation route road-side vegetation management, and internal green space species inclusion and maintenance practices. Dudek prepared summary reports and attended community meetings to discuss the results and findings and to further define the recommended actions to improve fire safety.

Hidden Valley Ranch FPP, Shea Homes, Escondido, California. Managed this 179 single-family residential development project FPP. The project included customized fuel modification zones and incorporation of maintained avocado groves as part of the defensible space area.

Costco FPP and EIR Wildfire Chapter, Costco Corporation, Murrieta, California. Managed and guided an FPP for a planned Costco in a WUI area, specifically providing protection features for a reduced fuel modification zone area. Provided quality assurance/quality control (QA/QC) for the project's EIR wildfire chapter.

Hitch Ranch Residential Development FPP, Comstock Homes, Camarillo, California. Managed the preparation of an FPP for this 328 single-family home community. Dudek evaluated the site fire risk, product type details, access, water and fire flow, and provided mitigation for project components that were not code conforming.

Fairview Residential Development FPP, D.R. Horton, Bonsall, California. Provided project management, fire district coordination and interface, section preparation, review, and final QA/QC for the Fairview project. The project is a 73-unit detached condominium project that included outdoor living rooms. Special considerations were required to achieve code intent regarding fuel modification zones and setbacks.

Hidden Oaks Country Club FPP and Fuel Modification Plan, Hidden Oak Country Club, Chino Hills, California. Managed and prepared an FPP and Fuel Modification Plan for this 35-unit residential project in Chino Hills. Proposed approaches to resolve access issues and move the project forward. Fuel modification zones exceeding the local fire authority requirements were proposed due to the site's unique fire risk.

Stoneridge Commerce Center FPP, Richland Properties, Riverside County, California. Managed the preparation of a comprehensive FPP for the Stoneridge Commerce Center, which includes a total maximum building space of 8,803,470 square feet and establishes Light Industrial uses on approximately 442.8 acres with a maximum of 7,488,800 square feet of building space; Business Park uses on 83.4 acres with a maximum of 1,170,570 square feet of building space; Commercial Retail uses with a maximum of 144,100 square feet of building space on 13.3 acres; 36.6 acres of Open Space Conservation; and 81.6 acres of Open Space-Conservation Habitat. Provided client coordination, QA/QC review of all submittals, and budget and timeline management.

Wildland Fire Management Plan, Nature Reserve of Orange County, California. Managed and was primary author of a wildland fire management plan for the 36,000-acre preserve located on the Irvine Ranch from Laguna Beach and extending to Anaheim Hills. The project included extensive stakeholder outreach and coordination of the 38 stakeholder agencies. Goals of the plan were to minimize fire ignitions, protect natural resources, protect private property assets neighboring the Reserve, and prepare a guidance document that was implementable and included realistic measures for reducing fire frequency and impacts.

Oak View Estates, Third-Party Fire Plan Review, Michael Baker International (for City of Bradbury), Bradbury, California. Managed a residential project in the very high fire hazard severity zones of Bradbury and provided final review of a consultant-prepared FPP and QA/QC of the comment letter.

Third-Party Review of Assembly Bill 68–Accessory Dwelling Unit Law, City of Bradbury, California. Managed a team of retired fire prevention officers' review of Assembly Bill 68 as it applies to Bradbury. Was final author of the letter report indicating issues with the law and how it may impact Bradbury's residents' fire safety. Provided two City Council updates, including the final results presentation.

Fairmont Fire Station Fire Fuel Load Modeling Report, City of San Diego, California. Managed the preparation of a Fire Fuel Load Modeling Report and Brush Management Plan for a proposed fire station site within a high fire hazard severity zone. The project included evaluation of the fire hazards and overall risk and appropriate measures, including brush management and vertical, non-combustible walls, to protect the station from wildland fire.

Monarch Hills Residential Development, Richland Real Estate Fund, LLC, Fontana, California. Managed the preparation of an FPP for the 472-unit project in Fontana. Provided fire protection analysis along with coordination with the Fontana Fire Department towards completion of the project's FPP. The project is within a very high fire hazard severity zone and included several potential site plan issues that Dudek helped resolve through site plan changes and alternative materials and methods.

The Ranch at Laguna Beach Fire and Evacuation Planning, Laguna Beach, California. Provided an evaluation of fire safety at the site's event venue and golf course. Located at the ocean end of Aliso Canyon in Orange County, the interior portions of the project are located in areas considered very high fire hazard severity zones in Laguna Beach. The event venue would host large gatherings and required evaluation for fire safety and moving people quickly out of the area. Dudek's analysis provided steps that would increase efficiency during evacuations, prepare the site for the types of fires that could occur in the area, and reduce risk to acceptable levels.

West Oaks Residential Project FPP, Integral Communities, Carlsbad, California. Managed the preparation of an FPP for this 209-unit development. Site constraints required a creative approach to fuel modification zones, their configuration, allowable plant species, and required maintenance.

LaMoree Residential Development FPP, Integral Communities, San Marcos, California. Led Dudek's fire protection planners in the evaluation of this 8-unit project within a fire hazard severity zone. The FPP addresses the site's unique fire risk and provides for structural hardening, water supply, access, fuel modification, and emergency response.

Fanita Ranch Master Planned Community Project FPP and Evacuation Plan, HomeFed Corp., Santee, California. Managed the preparation of this comprehensive FPP. The project is a 2,638-unit development with a village core, fire station, school, agriculture, parks, trails, and related infrastructure. The FPP is a robust document that identifies the potential wildfire risk at the site and then defines and provides specifications for addressing the risk to acceptable levels. The project's evacuation plan provides future residents with a toolkit for preparedness and awareness so they are familiar with the potential evacuation declarations and actions they may need to take.

Post-Wildfire Landscape Assessments, AIG Insurance, Santa Barbara, Poway, and Rancho Santa Fe, California. Managed several projects involving the post-wildfire landscape assessments and loss valuations. The projects included landscape inventory with GPS technology, assessments of plant material for damage level and anticipated recovery, and appraised loss value calculations.

North River Farms, Integral Communities, Oceanside, California. Managed this residential development project FPP that included conversion of agricultural fields in a high fire hazard severity zone along the San Luis Rey River to a community of 689 lots with retail, fire station, parks, and infrastructure. The project required evacuation planning and prescription of appropriate fire safety features customized for the site. In addition, emergency response modeling was conducted and determined that existing stations could not serve the project in sufficient travel times, and an on-site station was proposed that included a reduced staffing model for a temporary period.

Harmony Grove Village South Fire Protection and Evacuation Plan, Harmony Grove Village South Partners, LLC., San Diego County, California. Project manager, lead fire protection planner, and primary author of this comprehensive FPP for a 554-unit project. The project required a modification for dead-end road length, and a package of 27 features was developed for justifying the modification as meeting the intent of the code. Worked with County fire planners, Rancho Santa Fe Fire Protection District fire prevention officers, and third-party fire operations experts to gain confirmation that the project would be safe and meets the code intent. The project can be considered a shelter in place community due to its robust wildfire hardening and improved evacuation capabilities.

Rio Estrella Residential Development FPP, California West Communities, Bonsall, California. This 93-lot subdivision encircling the Bonsall Elementary School included fire hazards requiring mitigation through design features. Mr. Huff coordinated with the North County Fire Protection District to address reduced fuel modification zones by requiring additional structural hardening and fire protection features. The project's FPP documented the site's risk and how it is addressed and guides future maintenance.

Ocean Breeze Residential Development Wildfire Evacuation Plan, Helios Property Solutions, Bonsall, California. Dudek provide a comprehensive evacuation plan for this 396 single-family home development in a very high fire hazard severity zone. The evacuation plan calculated the project area's evacuation timing currently and with the project and laid out steps the project would take to result in a prepared and aware population. The evacuation plan also contemplated the ability to refuge residents and area citizens on-site at various locations if there was not time to evacuate. Mr. Huff managed the project, wrote the evacuation plan, and presented it at the local planning group.

Valiano Residential Community Evacuation Plan, Integral Communities, San Marcos, California. Managed and was primary author of an evacuation plan for this 325-unit residential project. The evacuation plan focused on determining the project's ability to evacuate given available evacuation routes and planned enhancements. The road capacities were evaluated against the project's population numbers to determine the timing to move all residents out of the area. The evacuation plan was accepted by the local fire agency.

Lake Point FPP, Integral Communities, Chula Vista, California. Managed and authored this FPP for this mixed-use, multi-family condominium project in Chula Vista. The FPP evaluated wildfire, fire access, water and fire flow, and fire response, amongst other fire safety details, and provided recommended enhancements to improve the project's safety and defensibility.

Portola Parkway Residential Development FPP, Baldwin & Sons, Lake Forest, California. Dudek prepared a comprehensive FPP and fuel modification plan for this project in a very high fire hazard severity zone. Mr. Huff developed a habitat-based approach to the fuel modification zones, incorporating cactus wren (*Campylorhynchus brunneicapillus*) habitat in the form of prickly pear cacti to result in a functional equivalent fuel modification zone with habitat benefits. The FPP included evaluation of all fire environment hazards and development of unique and site-specific measures and design features to provide for public safety.

Olympic Pointe FPP, Integral Partners, Chula Vista, California. Managed this project's FPP to provide a fire safe community for the 423 planned units. The project is located within a high fire hazard severity zone and required analysis of the fire environment and related risk factors to determine if it required any additional measures for fire safety. The FPP provides a detailed documentation of the site's hazards and overall risk and how it is mitigated to acceptable levels.

Cheyenne Residential Development, MLL Investments, Santee, California. Prepared an FPP with alternative materials and methods for fire protection due to constrained fuel modification zones. The project is located within a very high fire hazard severity zone, and the FPP documents and analyzes the risk and provides appropriate features to mitigate the risk to acceptable levels.

PETCO Headquarters Wildfire Risk Assessment, PETCO, San Diego, California. Performed a site assessment of the headquarters' grounds to determine the potential wildfire vulnerability and provide recommendations to reduce the potential threat. Among the recommendations were active maintenance of unmaintained fuels on slopes, enforcement of smoking policies and use of butt receptacles, and regular maintenance of palm tree petticoats throughout the site.

Oak Tree and Woodland Inventory and Evaluations, NBC Universal, Hollywood, California. Participated in the inventory, mapping, and evaluation of oak trees and oak woodland on the Universal Studios Site in Hollywood. Proposed development on the site required preparation of an EIR, and Dudek's oak woodland management plan is a technical appendix of that document. Dudek provided impact analysis along with a comprehensive mitigation program.

Oak Tree Evaluations and Arborist's Reports, City and County of Santa Barbara, California. Managed and participated in several native oak tree arborist's reports in the City and County of Santa Barbara. The projects are primarily related to single-family residence construction within an oak woodland or near oak trees. Arborist's reports that addressed existing conditions, anticipated impacts, and mitigation measures according to local policies and ordinances were prepared.

Landscape Oak Tree Health Assessments and Recommendations, Sycuan Indian Reservation, San Diego County, California. With his team, evaluated declining oak trees for their health and prognosis throughout portions of the parking lots at the Sycuan Indian Reservation's Casino. Noted that pre-construction tree protections were minimal and that has led to the current decline. Mitigation measures designed to stabilize the tree decline and improve health, where possible, were provided in an oak tree arborists report.

Native Forest Preservation and Management Plans, Rutter Development, Eastbridge Partners, and The Irvine Company, Orange County, California. Managed multiple projects, including wildland oak and other native tree inventory, mapping, and assessment; project impact analysis, mitigation, revegetation, and monitoring plan preparation; and agency coordination and interaction. Projects include Saddle Creek/Saddle Crest, Rancho Potrero Leadership Academy, and Sakaida Nursery–all located in Orange County; Canyon Crest–City of Brea; Martin Ranch–City of San Bernardino; Areas 1, 2, 3, and 4–Eastern Orange County; and Mountain Park, City of Anaheim Hills. Most of these projects include large populations of native coast live oak trees, some of which are impacted by development.

Great Oak Management Plan, Golf Course Oak Tree Relocation Assessment, Pechanga Indian Reservation, Riverside County, California. Managed and performed technical analysis of the Great Oak management plan project at the Pechanga Indian Reservation. The Great Oak is the largest coast live oak (*Quercus agrifolia*) in California. Among the findings, Noted that the tree is younger than formerly estimated, the tree is in good condition, and the proposed plans to provide increased tourist access require a set of management guidelines to minimize impacts. In addition, over 2,000 native oak trees were inventoried, mapped, and assessed for relocation potential related to the footprint of a proposed golf course. Many of the oak trees were boxed and relocated during construction of the golf course. Of note, Dudek inventoried the only native valley oak known from Riverside County, and it was preserved based on our recommendations.

Native Oak Tree Inventory and Impact Analysis, Tierra Development, Santa Clarita, California. Provided on-site evaluation of native oak trees and prepared an oak tree report according to Santa Clarita and Los Angeles County tree protection ordinances. Based on the proposed project, several of the scrub oak on site would be impacted, and as such, a mitigation program providing equivalent offset was provided within the oak tree report.

Oak Tree Protection, Via Roble Affordable Housing Site, Trinity Housing Group, Escondido, California. Identified for preservation a stately and mature oak tree that had been encroached upon by a mobile home park. The tree is the focal point of the affordable housing project in downtown Escondido. Provided tree protection measures; monitored the tree during demolition of existing, and construction of new, structures; and provided public relations presentations regarding the tree.

Oak Tree Inventory and Evaluations, Various Clients, Southern California. Performed large- and small-scale evaluations of oak trees in communities throughout Orange, San Diego, and Riverside counties. The oak trees have typically been incorporated into development landscaping, and due to horticultural issues, were not performing well. Provided maintenance specifications and tree-by-tree recommendations for improving tree health.

Oak Tree Impact and Mitigation Report, Vista Hacienda, Vista, California. Provided a complete oak tree study on the site identifying tree locations related to the proposed project footprint, potential impacts, measures to reduce or avoid impacts, and proportional mitigation for impacts. An arborist's report was prepared for the project and included as a technical appendix of the project's EIR.

Sycamore Ranch, William Lyon Homes, Fallbrook, California. Oak trees preserved by project developers were in failing health but were desired for golf course features. Provided specific recommendations for improving tree health and monitored the trees over the course of nearly two years. The trees' condition improved throughout the course of the project, and they remain important landscape features on the Sycamore Ranch Golf Course.

Lincoln Ranch, Lincoln Properties, Murrieta, California. The site for a proposed new residential development in the City of Murrieta in Riverside County had extensive mature native trees. Inventoried, assessed, and appraised a total of 260 native trees were according to International Society of Arboriculture standards. The trees' positions were digitally captured and descriptive data digitally stored with the use of Trimble Pro-XL, a global positioning and data collection system. This digital data was then electronically transferred to AutoCAD for creation of tree base maps. The trees are located in an agricultural area proposed for development. The appraised value of the 260 trees is $815,000. GPS positioning allows the project developer to design grading plans that do not disturb the valuable native tree resources on site.

Vista Valley Country Club Oak Tree Evaluation, Vista Valley Country Club, Vista, California. Provided assistance with the golf course trees as many of the feature oaks were declining. Recommendations were made to reduce tree decline rates and provide for future forest as senescent trees were lost.

Oak Tree Impact Evaluation, Hidden Meadow Golf Course, Escondido, California. Evaluated the potential impacts from a proposed project on an existing golf course. A total of 160 native oaks were within the vicinity of the project. Determined that none of the trees would experience direct impacts and that anticipated indirect impacts could be mitigated to insignificant.

Oak Tree Health Evaluation, Rainbow Propane, Rainbow, California. Evaluated 40 native oak trees and provided the project owner with a summary report. The trees ranged from good to dead with most trees falling within the poor or fair categories. Many of the trees had been impacted by wildfire or were declining due to root or trunk rot.

EIR Technical Appendices Oak Tree Report, Greystone, Calimesa, California. Prepared a tree management plan in support of a planned community development EIR in Calimesa. The site included several hundred native oak trees, some of which were within the proposed project footprint and required appropriate mitigation measures. Dudek prepared a mitigation plan that meets local and state requirements to support the project's construction.

Great Park Tree Inventory and Assessments, Former El Toro Marine Corp Air Station, Irvine, California. Participated in tree inventory and data collection for several thousand trees located on the former El Toro Marine Corp Air Station. The Station was designated the site for the Orange County Great Park and many of the mature trees throughout the base and the base housing were identified by Dudek for preservation or relocation. Dudek provided oversight and monitoring of the trees for relocation and preservation through build-out of the park.

Tree Inventory, Impact Analysis, Mitigation Plan Arborist Report, Acacia Creek, Covina, California. Provided urban forestry services pertaining to potential impacts to mature trees and native oak trees within an impact sphere of the project's planned expansion. Dudek provided specifications to project engineers and planners for measures to avoid native oak impacts through grading alterations and provided a mitigation plan acceptable to the City of Covina for anticipated tree impacts. The resulting tree management plan was included in the project's overall mitigation measures and conditions of approval.

Community Forest Management Plan, Turtle Rock Pointe Homeowners' Association, Irvine, California. Provided tree inventory, tree mapping, and a comprehensive management plan detailing necessary facets of tree population management. Among the components of the management plan were species diversity, tree maintenance, trim cycle management, pest and disease management, water management, tree removal and replacement, and infrastructure conflicts.

Sunrise Residential Project Emergency Response Analysis, Integral Communities, San Marcos, California. Managed this project and prepared an analysis of the project's location and nearest fire station response times. Modeling included use of Network Analyst in a geographic information system (GIS) platform to determine the total travel time for each project lot. The goal was to show that the lots could be responded to within the San Marcos Fire Protection District's internal response time standards.

Meadowood Emergency Response Travel Time Analysis, Pardee Homes, Fallbrook, California. Managed this GIS analysis of response travel times to all project lots using customized models and response speeds to determine how many of the project's lots are within a 5-minute travel time from the nearest stations. The project included utilizing various approaches and methods and various routes and providing a visual, GIS created graphic to illustrate results.

Community Tree Management Plan, Turtle Rock Garden Homes, Irvine, California. Provided tree inventory, tree mapping, and a comprehensive management plan detailing necessary facets of tree population management. Among the components of the management plan were species diversity, tree maintenance, trim cycle management, pest and disease management, water management, tree removal and replacement, and infrastructure conflicts.

Tree Inventory and Arborist's Report, Stewardship Foundation, Escondido, California. A proposed senior living center on a vacant, treed parcel required the inventory, mapping, impact evaluation, and mitigation plan preparation within an arborist's report. Provided a comprehensive plan to avoid high quality trees, relocate trees that were worth relocating, and remove trees that were considered of low quality or little benefit.

Whittwood Mall Beautification Project, EPT Landscape Design, Whittier, California. Evaluated several hundred mature trees for their relocation desirability. The trees comprised much of the initial mall landscaping and are now, some 40 years after planting, slated for removal as part of a mall revitalization project. Approximately 110 of the trees were identified as relocation candidates.

Arboricultural Assessment, Inventory, Impact Analysis, and Mitigation, Leo Baeck Compound, Los Angeles, California. Managed this project which included site facility expansion. Numerous mature landscape and native trees occur throughout the site and would be impacted by the expansion. Dudek's report findings concluded that tree removal was consistent with applicable regulations subject to suitable mitigation, which was defined in the project's arborist's report.

Third-Party Review of Arborist Report for proposed Home Depot Project, Fontana, California. Reviewed the arborist report prepared by another arborist and commented on inadequacies. Recommendations included the following: include greater detail on protection measures; include greater detail on replacement tree sizes and planting techniques; perform closer evaluation of preserved windrow trees due to their tendency to become less stable when adjacent trees are removed; and include greater detail on parking lot trees within the report so net mitigation is easily discernible.

Northwood 5 Tree Evaluation, The Irvine Company, Irvine, California. Project manager for this evaluation of eight eucalyptus windrows in the Northwood 5 development of Irvine and the adjacent Hicks Canyon Wash. Inspected each tree in the eight windrows and prepared recommendations for which ones should be removed because of health, structure, or hazardous conditions. In addition, provided specifications for removal, pruning, irrigation, and maintenance, and supervised the tree removal. Additional services included recommendations of techniques for tree protection during and after construction, and providing a complete eucalyptus tree maintenance plan. This project involved close cooperation with the Orange County Environmental Management Agency.

Market Place Eucalyptus Windrow Inspection, Irvine Apartment Communities, Irvine, California. Project manager for an inspection and report of the condition of a windrow of 57 blue gum trees (*Eucalyptus globulus*) that formerly had served as a windbreak for crops, but was now on a site slated for development. The developer wished to retain as many of the trees as possible. Project tasks included tree inspection, coordination with site engineers and landscape architects, report compilation, and a review of the tentative grading plan for construction impacts to the trees, along with suggestions for mitigating possible impacts.

On-Call Fire Plan Review/Third-Party Consultant, Orange County Fire Authority, California. Provides as-needed review of fuel modification plans and provides special studies regarding alternative materials and methods for the Orange County Fire Authority. To date, Dudek has provided review and comment of fire behavior modeling and proposed fuel modification and structural hardening for a large, master planned community in southern Orange County. Also involved with research and preparation of a report on the efficacy of utilizing water cannons as an alternative for full fuel modification width.

Tustin Ranch, Irvine Community Development Company, Tustin, California. Served as project manager for multiple projects spanning a 5-year period involving eucalyptus plantation and windrow trees on a large site being developed into residential and commercial development. Projects included an analysis, written report, recommendations, contract specifications, assistance in the bid selection process, and supervision/inspection of contractor work. One of the projects was analyzed for fire and hazard management on a site containing over 20,000 trees with various understory growth, including coastal sage scrub. Recommended tree removal, tree pruning, understory management, plant density, and crown heights. Additionally, identified individual trees to be preserved, delineated preservable stands and fuel modification zones, recommended an irrigation system and scheduling, and provided demolition specifications. Recommendations considered tree protection, fire prevention, grading/construction plans, viewshed, tree health, structural hazards, aesthetics, and density. Another project involved evaluation of 1,656 eucalyptus trees on a 200-acre site, including numbering/tagging each tree and recording detailed information. Removals, pruning specifications, hazard reduction, and construction techniques were recommended.

FPP Third-Party Review, Rancho Cielo Shelter-in-Place Community, Rancho Santa Fe Fire Protection District, California. Provided third-party review of an existing FPP for the Cielo community. The existing plan was outdated and required updating according to new codes and new industry findings. Dudek confirmed fire behavior modeling results and provided updated language throughout the procedural manual which is distributed to Cielo homeowners.

FPP, Bella Vista Residential Development, Encinitas Fire Department, California. Prepared an FPP providing "same practical effect" justification for reduced fuel modification width on this ridge top project in Encinitas. Sensitive biological habitat constrained the possible disturbance area. Coordinated regularly with the fire marshal, attending on-site meetings to discuss the results of fire behavior modeling and the proposed measures to offset fuel modification. The FPP was approved by the fire department and enabled construction of two additional luxury homes that would not have been possible otherwise.

Fuel Modification Zone Analysis and Fuel Management Program Development, Various Developers, Orange County, California. Managed various fuel modification plan projects for a residential development in Orange County. Field assessments of existing vegetation types and fuel loads were followed by fuel model input and scenario outputs. In addition, managed the preparation of conceptual and precise fuel modification plans meeting Orange County Fire Authority guidelines.

On-Call Fire Consulting, Laguna Beach Fire Department, California. Provides as-needed consulting to the Laguna Beach Fire Department. Among tasks requested are site fire risk assessments, vegetation hazard assessments, shelter-in-place assessments, red flag warning action plans, and fuel reduction monitoring and inspections.

West Coyote Hills FPP and Assessment, Chevron, Fullerton, California. Manages the preparation of an FPP for a 500-acre, 1,600-unit planned community in Fullerton. The project includes WUI, and based on the fire behavior assessments and analysis on the site, proposed reduced fuel modification in areas that include reduced fire intensity. The net result of the proposed fuel modification zones is a reduction in native habitat impacts with fire behavior modeling backed justifications for the reduced impacts.

Barona Oak Tree Health Assessment and Recommendations, Barona Golf Course, California. Provided assessment and recommendations for improving the declining conditions of relocated native oak trees. Tree conditions improved steadily following implementation of Dudek's recommendations. Approximately six months after the project ended, wildfire encroached onto the golf course and damaged several trees. After revisiting the trees, further specific recommendations for minimizing decline and maximizing tree life expectancy were provided.

Fuel Modification Zone Analysis and Fuel Management Program Development, Various Developers, Orange County, California. Assisted a wildland fire ecologist on several residential development projects in Orange County. Field assessments of existing vegetation types and fuel loads were followed by fuel model input and scenario outputs. Fuel management programs that justified deviations from the Orange County Fire Authority standards were provided, along with agency coordination and meeting attendance.

Onyx Ridge Residential Development, Latitude 33, Rancho Santa Fe, California. Prepared a shelter-in-place FPP for this residential development project in Rancho Santa Fe. The project included development of nine residential units on a ridgetop with one access. Mitigation measures were integrated into the FPP to compensate for the access issue. Coordinated regularly with the Rancho Santa Fe Fire Protection District and the client through project approval.

Camp Expansion FPP, Salvation Army, Ramona, California. Managed and prepared an FPP for this 600-acre project site. The Salvation Army proposes facility expansion to include several new structures, including large multi-purpose facilities. The FPP outlines several customized mitigation measures for the site to compensate for the sole access identified as a key project issue. The project included FlamMap fire behavior modeling, site assessment, code review and application, customized fuel modification zone development, structural fire protection system recommendations, and planned infrastructure summaries.

Cross Creek Residential Development, Fallbrook, California. Managed and prepared an FPP letter report, per San Diego County format, for a 10-unit residential project in the community of Fallbrook. The FPP supports the project's EIR as a technical appendix. Coordinated with the local fire protection district, the client, the consulting team, and the County of San Diego Department of Planning and Land Use Fire Services through FPP approval.

Master Planned Community FPP, Confidential, Southern California. Assembled a fire protection planning team anchored by Dudek and Hunt Research on this 26,000-acre project site in Southern California. Authored the report, integrated subconsultant input, provided presentations to fire department personnel, managed fire behavior modeling using FlamMap, and worked closely with project biologists to minimize ecological impacts while providing fire protection.

Master Planned Community FPP, Confidential Project, Southern California. Revised, updated, and re-wrote an existing FPP based on a revised project footprint and updated fire and building codes. The FPP includes documentation of all fire protection features that will be provided for this community. Key issues included road width reductions, fire response travel times, fuel modification plant palettes, and fire station construction.

Master Planned Community FPP, Confidential Project, Los Angeles County. Managed and authored an FPP for a 12,000-acre project site in Los Angeles County. The FPP provided scientific data to support recommended fire protection features, fuel modification widths, and fire station locations for this new community. The FPP was not a requirement of the local fire department but was prepared to provide a single source for the numerous fire protection related components of this large community.

Master Planned Community FPP, Yokohl Ranch, Tulare County, California. Prepared an FPP for this 36,000-acre project site near Visalia. The FPP summarizes the site's current conditions, fire history, overall risk of wildfire, anticipated fire behavior, and required and recommended fire protection features. The site includes grasslands, chaparral, oak woodlands, and mixed conifer forest fuel types.

FPP for Hotel Resort Community, Aliso Creek, Laguna Beach, California. Managed this project to prepare a comprehensive FPP for a resort community within a very high fire hazard severity zone in Laguna Beach. The FPP included justifications for reduced fuel modification zones based on environmentally sensitive habitat area constraints. The use of shelter-in-place and water cannon technology are included as alternative materials and methods for non-conformances.

Master Planned Community FPP, Merriam Mountains, NNP, Stonegate Merriam LLC, San Diego County, California. Served as the fire protection planning team coordinator, leading a 6-person team of experienced fire protection planners with over 150 years of combined experience. Re-wrote and augmented the existing FPP, provided FlamMap fire behavior modeling to represent the pre- and post-project fire behavior predictions, and assembled additional reviewers with statewide recognition who ultimately endorsed the FPP. The originally stalled FPP was approved by the county fire services section following this strategically implemented process.

Fuel Modification Plans, Restoration Area FPP, Newhall Land, Santa Clarita, California. Provided support on this project which included preparation of conceptual and precise fuel modification plans for proposed residential development. The project also included assessment of a proposed sensitive species restoration site and pre-plans for fire department response to minimize damage to the restoration area.

FPP, Residential Development, Malibu, California. Managed and provided oversight and QA/QC for two FPPs in the City of Malibu. The FPPs provided single-source technical appendices of the project's EIR where all fire protection related information was summarized. The FPPs addressed structural ignition, water availability requirements, sprinkler requirements, roads/fire access, and fuel modification.

Post-Burn Oak Tree Evaluations, Mountain Park Development Site, Anaheim, California. Participated in this study of a large development site following the Sierra Fire in Orange County. Many of the site's oak trees were damaged by the wildfire, and Dudek conducted a post-burn analysis that documented oaks that were killed, moderately damaged, and minimally damaged. Dudek provided recommendations for tree management and restoration.

Post-Burn Oak Tree Assessments, Proposed Development Project, Trabuco Canyon, Orange County, California. Conducted a post-wildfire oak tree evaluation for approximately 200 oak trees occurring within a proposed project site. The oak trees were damaged by the Trabuco wildfire and varied from completely killed to minimally scorched. Dudek provided a narrative and photographic summary of the site as well as recommendations for recovery of some of the trees and potential restoration for areas most severely damaged.

Wildfire Hazard Assessment and Community Wildfire Protection Plan, Rancho Santa Fe Association and Fairbanks Ranch, Rancho Santa Fe, California. Provided assessment and recommendations for a 100-acre area that was previously burned in the Witch wildfire. Several homes were lost, and that prompted the associations to assess the hazard and develop recommendations to reduce the hazard. Dudek conducted fire behavior modeling using FlamMap to graphically display the priority areas and provided recommendations to reduce the hazard. Dudek also prepared a community wildfire protection plan for the area that was accepted by the FireSafe Council. This plan has been submitted with a grant application for fuel reduction funding.

The Enclave at Ivanhoe Ranch Residential Project FPP, PV Ivanhoe, LLC, San Diego County, California. Managed this FPP project which evaluated and designed appropriate fire protection features for a 119-unit residential dwelling unit project in a very high fire hazard severity zone. The project included evaluation of emergency fire and medical response, defensible space, water and fire flow, fire access, evacuation, and code consistency.

Education

University Innovation District, City of Chula Vista, California. Managed and was lead author of this FPP for a university campus and supporting academic uses, student housing, a research and development park, and public infrastructure (e.g., streets and utilities) to serve the proposed project. The project included analysis of appropriate wildfire protections as well as determining appropriate emergency response configurations from nearby fire stations.

University of California, San Diego Fire Protection Planning Study, University of California, San Diego Planning Department, La Jolla, California. Prepared a Fire Protection Planning Study to support the University of California, San Diego Long Range Development Plan (LRDP) process. The study evaluated the site's fire risk, which includes a large eucalyptus forest and native chaparral and coastal sage scrub landscapes, along with laying out best practices for fire protection. As the LRDP is realized, the fire protection measures and features defined in the Fire Protection Planning Study document will be used to guide fire safety requirements.

San Diego State University Campus Housing FPP, San Diego State University, California. Managed and was primary author of this FPP for new campus housing located next to a wildland canyon. The FPP addresses the potential fire risk and delineates fuel modification zones and building requirements for ignition resistance.

Santa Barbara Botanic Garden FPP, Santa Barbara, California. Managed the preparation of an FPP for the proposed botanic garden expansion. The FPP included site-specific fire behavior modeling, analysis of the option for on-site sheltering, and addressed all fire protection features that would be provided for the site's structures. Fuel modification was customized for this site based on the site's terrain and expected fire behavior.

Santa Barbara Museum of Natural History FPP, Santa Barbara, California. Was primary author and managed this FPP for the proposed expansion of the museum of natural history. The FPP addresses the site's unique fire hazards and guides future expansion, including considerations for evacuation, restricted on-site populations during Red Flag Warning weather, and provisions for defensible space.

Bonsall Unified School District New High School Fire Protection and Evacuation Plan, Bonsall, California. Lead author, fire protection planner, and manager of this project to assist the Bonsall Unified School District with fire safe planning for a new high school within a high fire hazard severity zone. The FPP documented the fire environment, related hazards, and overall fire risk while specifying safety features and measures that would result in low overall fire risk and the ability to shelter in place if considered safer than evacuating. Provided input on the EIR's wildfire chapter, responses to comments, and overall fire- and evacuation-related planning.

Site Fire Hazard Inspections, Red Flag Warning Action Plan, and Fuel Modification Monitoring, Anneliese's School's Willowbrook Campus, Laguna Beach, California. At the request of the Laguna Beach Fire Department, was retained to provide site-wide assessment of wildfire vulnerability. The site assessment included evaluations of vegetative fuels, structural composition, fire protection systems, combustible storage on site, ignition sources, and school location. Among other facets of this project, a red flag warning action plan was devised to close school during extreme fire weather days, an emergency preparedness plan was prepared to guide evacuations during various scenarios, and a structural retrofit timeline was put in place to increase the ignition resistance of the main administration building.

Laguna College of Art and Design Emergency Response and Evacuation Plan, Laguna College of Art and Design, Laguna Beach, California. Managed and authored the Emergency Response and Evacuation Plan (EREP) for the Laguna College of Art and Design (LCADD) several campus locations within Laguna Canyon. Chapters address the top several potential natural disasters or human-caused emergencies with appropriate actions that should be taken prior to, during, and following each. The EREP helps LCADD manage and mitigate potential risk at each of its campus locations through proactive measures.

Wildfire Hazard Assessment, Camp Hi Hill, The Planning Center, Angeles National Forest, California. Managed this project assessing a Long Beach Unified School District Camp (Camp) situated amongst mixed conifer and hardwood forest in the Angeles National Forest. The Camp is used for elementary school student exposure to the forest and the unique learning opportunities it provides. Dudek conducted fuel loading analysis, fire behavior modeling using BehavePlus, structural conditions, hazard assessment, relocation/evacuation potential, and provided fuel reduction recommendations. In addition, Dudek advised the Camp on a last-resort option of sheltering in place on site with the implementation of structural hardening procedures.

Chapman University Community Forest Management Plan, Chapman University, Orange, California. Conducted tree inventory and mapping using GPS technology. Data derived from the tree inventory and interviews with maintenance staff were used to develop a comprehensive management plan. The management plan included maintenance practices, trim cycle analysis, pest and disease issues, watering, fertilizing, species diversity, and tree removal and replacement. Provided a tree management software review and analysis of the tree inventory maintenance software used by Chapman University.

Energy

East County Substation/Tule Wind/Energia Sierra Juarez Gen-Tie Projects EIR/Environmental Impact Statement, California Public Utilities Commission and Bureau of Land Management, San Diego County, California. Responsible for preparation of the EIR/Environmental Impact Statement (EIS) fire and fuels management section of the EIR/EIS for San Diego Gas & Electric's East County Substation project, which includes a 500/230/138-kilovolt (kV) substation, approximately 14 miles of new 138 kV transmission line, and a rebuild of the Boulevard Substation. In addition to addressing the new substation project, the EIR/EIS also addresses as "connected actions" a 200-megawatt (MW) wind energy project encompassing approximately 15,000 acres and a generation tie-in required for a 500/230 kV transmission line to connect an approximately 1,200 MW wind energy project in Baja California, Mexico. The Draft EIR/EIS was prepared in December 2010.

Deimer Treatment Plant Walnut Woodlands Assessment and Monitoring, Metropolitan Water District of California, Yorba Linda, California. Managed this project that evaluated a habitat mitigation project of native California black walnut tree plantings for their establishment success and monitored them over the mitigation establishment period. Dudek documented the tree conditions, overall mitigation success criteria achievement, and made recommendations for improving the growing site. Photographs were collected throughout the monitoring period from established points to document the walnut tree mitigation success.

Confidential Solar and Wind Renewable Energy Projects, various clients, San Diego County, California. Managed fire protection and evacuation planning documents for large scale renewable energy projects, including solar farms and wind energy projects. Dudek's role was to evaluate the potential for wildfires related to the projects and develop measures to protect the facilities while minimizing potential ignitions associated with the projects. Additional planning documents included Construction FPPs, Technical Fire Response Plans, and Fire Safety Plans.

Suncrest Renewable Energy Facility Fire Protection and Evacuation Plan, Construction Fire Prevention Plan and Technical Report, San Diego County, California. Managed the preparation of three fire-safety-related documents for the Suncrest Facility, focusing on protecting the facility's assets and on minimizing the potential for a fire ignition that escapes to off-site vegetation. The FPP documents the site's fire environment and details design features to protect the site and contain fire that occurs on-site.

Suncrest Renewable Energy Facility Wildfire Mitigation Plan, HorizonWest Transmission, San Diego County, California. Prepared the first Wildfire Mitigation Plan for the Suncrest facility in 2019 with significant coordination and input from HorizonWest Transmission operations and planning personnel. Updated the plan to convert to the California Public Utilities Commission (CPUC) new format in 2020. The comprehensive Wildfire Mitigation Plan documents all policies, measures, and plans that are implemented or planned to be implemented to reduce risk of vegetation fires.

Burbank Water and Power Wildfire Mitigation Plan, City of Burbank Water and Power, California. Prepared a Wildfire Mitigation Plan for the City of Burbank Water and Power that is consistent with the CPUC requirements. The Wildfire Mitigation Plan documents risk categories and the efforts that have been made or will be made to minimize the potential for vegetation ignitions.

Wildfire Mitigation Plan Third-Party Reviews, various clients, California. Provided third-party review and acted as manager for several projects where Dudek was tasked with reviewing Wildfire Mitigation Plans for municipal utilities for CPUC requirement compliance. Dudek reviewed the plans, provided recommended corrections/additions, and presented findings at public meetings.

Oak Tree Damage Assessments, Confidential Oil Field, Santa Barbara County, California. Managed the evaluation of 250 oak trees scattered throughout a large oil field in Santa Barbara County. The trees were subjected to poor pruning, branch breakage and tearing, and in some cases, whole tree removal. Trees were inventoried, mapped, and assessed for damage level and likelihood of tree recovery. Measures were provided to address issues, as possible.

Navajo Transmission Project, Western Area Power, New Mexico, Arizona, and Nevada. Performed photo-interpretation and vegetation mapping along 2,400 miles of 1-mile-wide alternative corridors for a 500 kV electrical transmission project in New Mexico, Arizona, and Nevada. Mapped special-status species (fauna) habitats and calculated wood volume for potentially impacted forest stands on Native American land along the proposed corridors.

Unnamed Electrical Transmission Line Project, Western Area Power, Kingman, Arizona. Performed rare plant surveys in western Arizona for white margined beardtongue (*Penstemon albomarginatus*) on a proposed electrical transmission line corridor near Kingman and authored a biological report with recommendations.

Fiber Optic Infrastructure Project, IXC Communications, Inc., Boulder City, Nevada to Bullhead City, Arizona. Provided environmental monitoring on a large fiber optic cable installation project in Nevada and Arizona. Primary responsibilities consisted of enforcement of environmental regulations regarding desert tortoise (*Gopherus agassizii*) and archaeological resources.

Arizona Public Service, Unnamed Pipeline Project, Oak Creek Canyon, Sedona, Arizona. Performed delineation of Waters of the United States for a pipeline project in northern Arizona. Extensive use of GPS for determining distances, creek profiles, and creek bank locations was required.

United States to Mexico Electrical Transmission Line Project, Arizona Public Service, Yuma, Arizona to San Luis Rio Colorado, Mexico. Provided environmental monitoring at a construction site in southwestern Arizona for an Arizona-to-Mexico electrical transmission line. The species of greatest concern was the endangered flat-tailed horned lizard (*Phrynosoma mcallii*).

Mead–Adelanto Electrical Transmission Line Project, Southern Nevada to Southern California. Environmental monitor (over a 2-month period) at various substation and transmission line construction sites on a major transmission line from Nevada to California. Trained staff and conducted desert tortoise monitoring, surveys, and relocation on a daily basis in fulfillment of EIR measures.

Unnamed Electrical Transmission Line Project, Arizona Public Service, Salton Sea, California. Conducted flat-tailed horned lizard surveys along potential transmission line corridors near the Salton Sea in the Imperial Valley, California.

Military

Miramar Naval Station Fire Management Plan, K2U&A Consultants, San Diego County, California. Participated in field assessments across the Miramar Naval Station and prepared multiple sections of the Fire Management Plan. The Fire Management Plan focused on fire behavior on the site, creation of mosaic fuel patterns and discussion of fire history, likely fire scenarios, and use of prescribed fire as a fuel reduction tool.

Integrated Natural Resources Management Plans, United States Air Force and United States Marine Corps, Nellis Air Force Base, Nevada and Marine Corps Air Station Miramar, California. Assisted with the preparation of integrated natural resources management plans for Nellis Air Force Base (AFB) in Nevada and Marine Corps Air Station Miramar in California.

Legislative EIS – Barry M. Goldwater Air Force Range, United States Air Force, Southern Arizona. Assisted with preparation of a Legislative EIS for Barry M. Goldwater Air Force Training Range in Arizona. Responsible for sections within three chapters and assisted with coordination and completion of the final product. In addition, performed land-use field truthing and zone mapping.

Cactus Ferruginous Pygmy Owl Surveys, Various Private Clients, Tucson and Florence, Arizona. Performed multiple Ferruginous pygmy owl (*Glaucidium brasilianum*) surveys at sites proposed for residential and commercial development. Surveys were required by local permitting agencies and typically included a detailed report summarizing each site's vegetation/habitats, survey results, and the likelihood that pygmy owls would utilize the site.

Native Fish Capture and Relocation, United States Air Force, Nellis AFB, Southern Nevada. Assisted with the capture and relocation of native fish from a man-made pond scheduled for closure and draining at Nellis AFB in southern Nevada.

Disturbed Target Site Revegetation Project, United States Air Force, Nellis AFB, Southern Nevada. Participated in native species revegetation efforts on target sites on Nellis Air Force Range in southern Nevada. Disturbed target areas that were regularly bombed by fighter jets as part of the overall mission were revegetated with native creosote and saltbush plants.

Ferruginous Pygmy Owl Surveys, United States Air Force, Barry Goldwater Air Force Range, Southern Arizona. Performed dusk and dawn surveys for Ferruginous Pygmy Owl, a crepuscular species. Surveys were conducted in every primary dry river bed on the 2-million-acre air force range. Provided major contributions to the final report summarizing the status of pygmy owls on the range.

Legislative EIS, United States Air Force, Luke AFB, Glendale, Arizona. Senior author of biological resource chapter addressing bird-aircraft strike hazards in the EIS for a golf course project on Luke AFB in Arizona.

Maternal Bat Colony Surveys, United States Air Force, Barry M. Goldwater Air Force Range, Southern Arizona. Organized and participated in abandoned mine audit and shaft surveys for maternity bat colonies on Barry M. Goldwater Air Force Range in Arizona. Species encountered included California leaf-nosed Bat (*Macrotis californicus*), Cave Myotis (*Myotis velifer*), Western Pipistrelle (*Pipistrellus hesperus*), and Pallid bat (*Antrozous pallidus*).

Multiple Species Surveys, United States Air Force, Barry M. Goldwater Air Force Range, Southern Arizona. Conducted biological surveys on large expanses of habitat on the 2-million-acre Barry M. Goldwater Air Force Range in Arizona. Surveys were designed for sensitive species, such as desert tortoise, chuckwalla (*Sauromalus ater*), Gila monster (*Heloderma suspectum*), red-backed whiptail lizard (*Aspidoscelis xanthonota*), bats, and loggerhead shrike (*Lanius ludovicianus*).

Intensive Tortoise Population Study, United States Air Force, Barry M. Goldwater Air Force Range, Southern Arizona. Served as crew chief during intensive population estimate surveys for desert tortoise on the Barry M. Goldwater Air Force Range in Arizona. Responsible for field crews, data collection and analysis, and co-authoring the final report.

Native Vegetation Impact Study, United States Air Force, Barry M. Goldwater Air Force Range, Southern Arizona. Assisted with 3-year repeat photography study on an active bombing range on the Barry M. Goldwater Air Force Range in Arizona. The project's primary goal was to document effects of Air Force activity on natural plant communities.

Native Vegetation Impact Study, United States Army National Guard, Florence Training Center, Florence, Arizona. Authored methods and results sections of an assessment on potential impacts to a military training site operated by the Army National Guard in Florence, Arizona. Coordinated field crew and compiled and reduced field data, as well as mapping vegetation types across the range.

Environmental Monitoring, United States Air Force, Nellis AFB, Nevada. Conducted environmental monitoring at Nellis Air Force Base in southern Nevada during fence construction on sensitive habitat (bearpaw poppy [*Arctomecon californica]* and desert tortoise).

Urban Forest Management Plan, United States Air Force, Luke AFB, Glendale, Arizona. Conducted extensive field inventory using GPS, analyzed data, and authored the management plan for development of an urban forest management plan (UFMP) database for Luke AFB in Arizona.

Municipal

South Orange County Wastewater Authority Coastal Treatment Plant Fire Protection Planning, South Orange County Wastewater Authority, Aliso Canyon, California. Managed and prepared this FPP that provides a summary of the Coastal Treatment Plant's wildfire risk associated with specific operations, staffing, and its WUI location. In addition, the FPP provides a summary of existing conditions and recommended measures for "enhanced" fire protection and safety based on the site's unique function, facilities, and location within a wilderness park. Among the recommended measures are strategic fuel modification, building ignition resistance retrofits, fire suppression equipment, and training

On-Call Arboricultural Services, City of San Clemente, California. Responds to numerous requests for tree evaluations and assessments throughout the City of San Clemente. Tree evaluations often include assessment of potential sidewalk removal/installation impacts and assessment of trees exhibiting declining health. Provides objective analysis and reports regarding the trees from a sound arboricultural perspective.

Fuel Modification Plan Third-Party Review, Emerald Bay Service District, Laguna Beach, California. Managed this project to review the necessary fuel modification to protect the residential and infrastructure within the Emerald Bay Service District jurisdictional boundaries. Dudek provided research, fire behavior modeling, historical fire review, and overall risk at the site and developed a recommended approach within a letter report to support the District's negotiations with California State Parks.

Community Forest Management Plan, City of Carlsbad Public Works, California. Prepared a city-wide community forest management plan for the City of Carlsbad (City). The City has inventoried some 13,000 street and median trees as part of a city-wide GIS survey system. To ensure that the tree resources are managed appropriately, a comprehensive community forest management plan was developed that includes an evaluation of the existing tree inventory, implementation of a long-term maintenance program, and a recommended tree replacement program. In addition, the plan addresses the declining Hosp Grove, a large open space area forested with dying eucalyptus. The plan includes removal of nearly 9,000 dead and dying trees and replanting with native and drought-tolerant species.

On-Call Arboricultural Services, City of Irvine, California. Responds to numerous requests for tree evaluations and assessments throughout the City of Irvine. Tree evaluations often include assessment of potential sidewalk removal/installation impacts and assessment of trees exhibiting declining health. Provides objective analysis and reports regarding the trees from a sound arboricultural perspective.

First Step to a UFMP, City Plants/City of Los Angeles, California. Managed this comprehensive analysis of the existing Los Angeles urban forest management approach, personnel, budgets, and policies. The project included extensive stakeholder outreach and coordination along with preparation of a comprehensive status document that critically evaluates how Los Angeles' urban forest and its management compare with other well-run municipal urban forests. The study sets the stage for Los Angeles to make significant changes to their current approach and provides a launching pad for the eventual creation of a complete UFMP. Dudek presented results at two large public meetings.

UFMP, National City, California. Prepared a city-wide UFMP for National City. The project included tree inventory of some 10,000 street and median trees, analysis of tree-provided benefits, assessment of the City's urban forest, its tree policies and its management approach, and preparation of the comprehensive plan. To ensure that the tree resources are managed appropriately, a comprehensive community forest management plan was developed that includes an evaluation of the existing tree inventory, implementation of a long-term maintenance program, and a recommended tree replacement program.

UFMP, City of Irvine Public Works, California. Conducted analysis of city tree populations following collection of tree attribute information for over 50,000 city-owned trees. Analysis included species diversity and distribution, trim cycle breakdown, recommended species for future planting, park tree species, changes from initial plantings, and planting opportunity identification throughout the City.

UFMP, City of Beverly Hills, California. Managing the creation of a UFMP for Beverly Hills. Primary author of the Wildfire chapter that focuses on tree-related fire risks in the city's northern reaches that are within very high fire hazard severity zones. The project is critically evaluating the city's tree management practices, policies, and regulations, and providing a comprehensive path forward to meet city and resident stakeholder goals.

UFMP, City of Downey, California. Managed the preparation of a comprehensive UFMP, including graphically portraying common concepts and strategies. The project included analysis of tree inventory information, review of tree protection policies and climate adaptation plans, public and stakeholder surveys, setting up an urban forest working group, and goal setting.

Tree Assessments and Arborist's Report for Median Curb Replacement, Barranca Parkway, City of Irvine, California. Curb replacement on both sides of a Barranca Parkway median required root disturbances for median trees, root removal, and backfill soil placement at back of curb. Evaluated the potential tree impacts, provided specifications to minimize impact, and monitored selected trees considered at highest risk. All trees were retained in place and provided special measures to reduce potential impacts.

Illegal Tree Cutting Loss Appraisal, Avenida Pico, City of San Clemente, California. Several large City of San Clemente–owned eucalyptus trees were illegally and improperly pruned for coastal views. The tree damage was valued at $36,000 by using the trunk formula method of tree appraisal, and this amount was collected by the city from the guilty party.

Street Tree Impact Assessment for Sidewalk Placement Project, MacArthur Boulevard, City of Irvine, California. Managed this project that identified impact levels associated with sidewalk construction along the parkway of MacArthur Boulevard. Nearly 300 trees were located within or directly adjacent to the proposed sidewalk. Evaluations resulted in the removal of a small percentage of the trees and the preservation and special practices provided to most of the trees. Dudek is well-equipped to assess impacts and disposition of trees adjacent to construction projects.

Tree Protection and Monitoring at Cell Tower Site, Verizon, Mission Viejo, California. Managed this project directing buried utilities placement at an existing water tank site. The site was identified for placement of cell towers, and existing mature trees were identified as a project constraint. Dudek recommended horizontal boring to span the several-hundred-yard treed area and limited trenching for daylight areas. As a result of these recommendations, the existing trees were unharmed.

University Drive Median Tree Encroachment Evaluations, City of Irvine, California. Managed this project that focused on the assessment of tree impacts from curb replacement in the University Drive medians. Back of curb trenches, equipment operation, and backfill soil were evaluated, and recommendations regarding tree preservation or removal were provided within an arborist's report.

Eucalyptus Windrow Internal Decay Study, Irvine Public Works, City of Irvine, California. Currently managing this 5-year study of internal tree decay in the City of Irvine's historic eucalyptus windrow trees. The study includes internal probing of nearly 400 trees per year and statistical analysis of results to correlate external observations with likelihood of extensive internal decay. The project will result in valuable insight regarding eucalyptus trees converted from agricultural to urban environments and their ability to cope with harsh urban environments.

Streetscape, Park, and Windrow Tree Inventory and Mapping, Public Works, City of Irvine, California. Leads this perpetual tree inventory effort to capture locations and tree attribute information for over 50,000 trees within the City of Irvine. Skilled arborists conduct tree inventory and assessment while using GPS and a customized data interface to capture tree positions.

Vegetation Management Plans Sycamore Canyon, Stoneridge, Portrero Mason, Escondido Creek Parks, San Diego County, California. Managed and participated in completion of several San Diego County Parks Vegetation Management Plans to help pre-plan for wildfires, minimize the potential for wildfires, protect natural resources and neighboring private party assets, and plan for post-fire responses. The Vegetation Management Plans help guide efficient and effective approaches to preserving park resources.

T-Street Canyon Bank Stabilization, Beaches and Parks Department, City of San Clemente, California. Provided on-site monitoring and recommendations during this 5-year project designed to meet agency-set performance goals for regeneration success. Native vegetation was removed for placement of stabilization features, including a box culvert. Revegetation occurred, and as a result of monitoring efforts and issue resolution recommendations, the project accomplished success goals earlier than anticipated.

Street Tree Inventory, Beaches and Parks Department, City of San Clemente, California. Leading the team responsible for implementing tree inventory and establishment of TreePro management software for the City of San Clemente. The team is inventorying all of the street trees within the city using GPS technology. While in the field they are mapping each tree, as well as assessing each one for health, condition, and maintenance needs. The software, which includes a mapping component tied to a database, will allow city staff to more effectively manage and budget for the city's urban forest.

Integrated Pest Management Plan, San Clemente Pier, City of San Clemente, California. Managed preparation of an integrated pest management plan for bird over-population on the San Clemente Pier. The pigeons and sea bird populations on the pier had become too high, and the resulting public nuisance and rise in maintenance costs created the nexus for this project. Dudek provided an analysis of the situation and identified several non-poisonous methods for reducing the population within existing laws and using humane approaches.

Transplanted Canary Island Pine Tree Monitoring at Santa Ana Stadium Cell Tower Site, Sprint, Santa Ana, California. Provided arboricultural monitoring for four transplanted Canary Island pine trees (*Pinus canariensis*) located directly adjacent to a cell tower at Santa Ana Stadium. Issues encountered included vandalism, inadequate watering, and poor pruning practices.

Fawnskin Tree Planting Monitoring at Cell Tower Site, Verizon Wireless, Big Bear, California. Coordinated the planting of eight native cedar trees at a cell tower site. The trees were planted to provide, over time, visual mitigation for the facility from nearby residences. Monitoring occurred for a 6-month period and issues encountered included vandalism, deer browsing, inadequate watering, and hard freezes.

WUI Code Implementation Plan, Chula Vista Building Department, Chula Vista, California. Assembled a fire protection planning team, including Hunt Research and Scott Franklin Consulting, and managed this complex project that produced a document addressing fire behavior, structural and infrastructure fire code updates, and fuel reduction/vegetation management within the Natural Community Conservation Plan Open Space Preserve areas. The City of Chula Vista Building Department sought an update of the WUI code based on the natural areas that occur throughout the City of Chula Vista. Much of the preserve is adjacent to older construction residences that were not provided adequate set-backs. Dudek worked with the City of Chula Vista building, planning, fire, recreation, and landscape architecture departments to resolve conflicts and result in a safer situation for existing and new development.

Preplan Map Conversion, Newport Beach Fire Department, California. Managed a project that involved creation of a database for "pre-planning" fire management in high-priority structures for the Newport Beach Fire Department (NBFD). This project involved the creation of digital access, layout and fire equipment maps, and associated

property data for high-priority structures, which include hospitals, schools, apartments, and other high-occupancy buildings. Important components of the maps include site and building access and egress points, utilities, ventilation, elevators, and types of construction. These maps are also linked with associated property data that includes alarm and sprinkler conditions, property owner information, inspection schedules, and special hazard conditions. In addition, the maps are geo-referenced for future incorporation into the City of Newport Beach's GIS.

Community Wildfire Protection Plans, Santa Clara County FireSafe Council, Santa Clara County, California. Project manager for preparation of community wildfire protection plans for the Santa Clara County FireSafe Council. The plans focus on two areas, the east foothills area and the Croy fire area. Responsible for interfacing with approximately 20 different fire personnel, along with community groups throughout Santa Clara County. Managed and participated in site fuel assessments, fire behavior modeling, risk assessments, and preparation of several chapters of the final plan.

Structural Preplan Project, NBFD, Newport Beach, California. Managed the digitization of hard copy pre-plan maps and the creation of electronic versions useful in on-board fire engine computers. Pre-plan information identified ingress and egress routes as well as floor-by-floor layouts and special fire-related apparatus.

Fuel Management in WUI Areas, NBFD, Newport Beach, California. Worked with NBFD to assess compliance with fuel modification zones in the WUI areas prone to wildfire. Vegetation type, spacing, and conditions were evaluated for compliance with established fuel modification zone ordinances. Oversaw database creation for use by Fire Chief and staff and managed a related project to inspect fuel modification zones annually.

Wildfire Hazard Reduction Project, Crest Canyon, City of Del Mar Fire Department, California. Managed this project for the Del Mar/Solana Beach Fire Department. The project included parcel by parcel inspection and assessment of 65 parcels within or directly adjacent to Crest Canyon. Dudek recommended fuel reduction treatments for each parcel, prepared specifications for contractor bid, and monitored contractor work for this project. Dudek also provided community education and outreach due to highly emotional ties to flammable trees and vegetation requiring removal. In all, 134 tons of fuels were treated with all but 15 tons remaining on site as chipped ground cover.

Wildfire Hazard Reduction Project, Saxony Canyon and Lake Val Sereno, City of Encinitas Fire Department, California. Dudek was contracted by the City of Encinitas Fire Department to perform a prioritization analysis and then focused fire hazard reduction projects in the city's WUI. Dudek performed lot-by-lot analysis for some 300 parcels, ran fire behavior models for each site, and prepared lot-by-lot treatment specifications. Dudek worked with in-house biologists and restoration specialists to ensure that fuel reduction work was being completed within governing regulations.

Resource Management

Stephens' Kangaroo Rat Habitat Management Plan, Riverside Habitat Conservation Authority, Riverside, California. Managed the Fire Management Plan for this project that provided overall fire management goals within each delineated Stephens' Kangaroo Rat (SKR; *Dipodomys stephensi*) management unit. The units were delineated based on existing habitat and long-term objectives for maintaining or improving habitat for SKR. Dudek researched and developed fire history analysis, vegetation type ecology and responses to wildfire fire behavior, specific response procedures for each management unit, and created response maps for responding fire department personnel.

Tree Encroachment in Meadows of Grand Canyon National Park, National Park Service, North Rim–Grand Canyon National Park, Arizona. Performed tree inventory and destructive sampling of native conifers on the north rim of Grand Canyon National Park. Extensive dendrochronology was performed to determine the age of encroaching trees and the rate of meadow loss.

Park Reforestation Project, 43 City Parks, City of Irvine, California. Utilized available electronic tree information and mapping and performed on-site evaluations to prepare a master park reforestation plan. The goal of the project was to identify parks and appropriate species that would become "signature" trees for each park. The final submittal included individual park plans with proposed planting areas, number of planting vacancies, and recommended species. This information was then used to prepare a grant funding application, and a grant was successfully obtained.

Tree Vandalism Damage Loss Value Appraisal, San Clemente Skate Park, San Clemente, California. Provided a trunk formula method appraisal of several Chinese elm (*Ulmus parvifolia*) trees located within a skate park. The trees were cut at 4 feet by an axe, leaving the moderately sized tree crowns on the ground. The trees were valued so that recovery of lost value would be possible as part of the case settlement.

Hosp Grove WUI Fire Behavior and Recommendation Study, City of Carlsbad Fire Department, California. Conducted a wildfire hazard evaluation of the Hosp Grove, an approximately 80-acre eucalyptus forest in an urban area of Carlsbad. Dudek conducted wildfire behavior modeling to model the potential for a crown fire and based on that outcome, addressed the adjacent home fuel modification requirements and provided a summary with graphical output illustrating our findings and recommendations.

Transportation

Oak Tree Restoration Site Maintenance, El Dorado Department of Transportation, El Dorado County, California. Coordinated and managed an oak tree restoration site maintenance project in El Dorado County. Dudek's subsidiary company provides labor to water the restoration trees and Dudek monitors their conditions on this multi-year project.

State Route 22 Rehabilitation Project–Tree Inventory and Management, Orange County, California. Participated in this project focusing on existing trees along the State Route (SR) 22 right-of-way (ROW). Road widening and other improvements required removal of a large quantity of trees, and Dudek provided tree mapping with GPS with recommendations for relocation and preservation possibilities. The result of Dudek's participation on this project was identification of approximately 60 trees suitable for relocation and inclusion in the post-road improvement landscape.

Highway 125 Expansion Tree Inventory and Management, County of San Diego, California. Worked with project surveyors to locate, identify, and assess trees within a proposed ROW for linear expansion of Highway 125. Approximately 700 trees were evaluated and the potential/recommendation for tree relocation for each tree was provided.

SR 76 Road Widening and Turn Lane Creation–Tree Evaluation, County of San Diego, Fallbrook/Bonsall, California. Provided assessment of five mature California sycamore trees adjacent to SR 76. A proposed widening for turn lane installation required the assessment of potential impacts. As a result of the project, three mature sycamore trees were removed and specified mitigation tree planting on a nearby mitigation area at a 3:1 ratio.

Sycamore and Oak Tree Arborist's Report, SR 241 Transportation Corridor Widening Project, Orange County, California. Conducted on-site and construction plan evaluations to determine the potential tree impacts from bridge widening on the SR 241 Transportation Corridor. Approximately 20 trees were identified as having the potential to be impacted by the project and specific measures were provided to avoid or reduce impacts.

Environmental Review, Arizona Department of Transportation, Northern Arizona. Conducted environmental field reviews for the Arizona Department of Transportation in northern Arizona. Environmental issues that could potentially affect proposed road-related projects were the primary concern.

Union Pacific, Southern Pacific Merger, Union Pacific Railroad, Various Locations throughout Arizona and New Mexico. Performed site assessments for the merger of Union Pacific and Southern Pacific railroads at construction sites in Arizona, Texas, and New Mexico, providing biological information to the project manager to be included in the final report.

Water/Wastewater

Recycled Water Pipeline Installation through Oak Woodlands, Las Virgenes Municipal Water District, Calabasas, California. Supporting Dudek's engineering and planning groups, provided tree inventory and mapping along with analysis of potential tree impacts from placement of a 24-inch underground pipeline near existing oak woodlands. Dudek's analysis resulted in pipeline placement that reduced potential impacts to 37 oak trees to insignificant and a waiver by the California Coastal Commission for further review.

Tree Threats to Buried Water Supply Pipelines Preliminary Study, San Diego County Water Authority, California. Managed a study of tree threats to buried water supply pipelines. The project included an analysis of tree biology and physiology, the subsurface environment, and pipeline or infrastructure condition. Based on these findings, Dudek's certified arborists and foresters made recommendations to the San Diego County Water Authority (Water Authority) regarding evaluation of ROW-encroaching trees as the first phase of a comprehensive tree management plan for the Water Authority's ROW. Understanding what the ROW-encroaching tree population characteristics are (i.e., total number of trees, tree sizes and ages, species presence, and distribution) is the first step to resolving the issue. Once the tree population is better defined, decisions can be made as to which trees are considered high-priority removals and which are considered to present relatively low risk.

Trunk Sewer Diversion Pipeline Project, Irvine Ranch Water District, Irvine, California. Proposed placement of a 30-inch-diameter force main and associated aboveground facilities required an assessment of the proposed project alignment for potential tree impacts. Numerous trees growing throughout the project area were evaluated for potential impact. Impacted trees were identified and mitigation recommendations were provided in an arborist's report.

Water Pipeline Eucalyptus Tree Encroachment Assessment and Construction Monitoring, Santa Ana Canyon Boulevard, Anaheim, California. Managed this project that included the trenching and placement of a 60-inch-diameter pipeline near several median eucalyptus trees. Dudek provided specifications to minimize impacts along with on-site monitoring during soil disturbing activities to ensure the trees' root systems were avoided.

Great Oak Management Plan, Pipeline 6, Metropolitan Water District of Southern California, Pechanga Indian Reservation, Riverside County, California. Evaluated the "Great Oak," the oak tree located on the Pechanga Indian Reservation commonly believed to be several hundred years old and one of the largest in the state. Advised that the tree was likely substantially younger than generally believed and provided analysis of potential impacts from a pipeline that would be constructed within the vicinity of the tree.

Oak Tree Health Assessments, Impact Analysis, and Protection for Storm Drain Improvements, Sycuan Indian Reservation, San Diego County, California. Evaluated potential impacts from site alterations necessary for storm drain improvements in a semi-natural riparian drainage. Permeable fabric and rip-rap placement near several native oak trees required specifications for tree protection. Provided on-site direction for minimizing tree impacts and submitted a specification for preservation of the trees during and following construction.

Oak Tree Encroachment and Protection for Sewer Line Expansion, Upper Chiquita Reservoir, Talega, Orange County, California. Delineated the tree protection zones for several native oak trees within the project vicinity for a proposed sewer line expansion. Where constraints negated the ability to avoid tree protection areas, Dudek prepared specifications for precise limb removals, enabling heavy equipment access within the alignment area. Dudek monitored the limb cutting so that the specifications were clearly communicated and understood and to minimize oak tree impacts.

Oak Tree Protection and Relocation Consulting, Sewer Pipeline Installation Project, Rose Canyon, City of San Diego, California. Provided consultation on methods to reduce impacts from heavy equipment necessary to trench and bury a sewer pipeline through the bottom of Rose Canyon. An additional 15 oak trees located directly within the pipeline alignment were identified for relocation to adjacent, undisturbed areas. Provided monitoring through the establishment period.

River Mountains Tunnel Project, County of Clark, Henderson, Nevada. Performed desert tortoise surveys in the River Mountains of southeastern Nevada prior to construction of a large water supply tunnel. Later served as environmental monitor to oversee activity compliance during geotechnical, seismographic, and exploratory drilling operations.

Sweetwater Reservoir Expansion, Sweetwater Authority, San Diego County, California. Authored the environmental setting section of an environmental assessment for a proposed Sweetwater Reservoir expansion in southern San Diego County.

Flood Control Basin Environmental Assessment, County of Clark, Las Vegas, Nevada. Coordinated multidisciplinary activities on an environmental assessment for a proposed detention basin in Clark County, Nevada.

Douglas Nickles, RPF

SR. FIRE PROTECTION SPECIALIST

Douglas Nickles is a fire protection planner with more than 30 years' experience as a fire marshal, land use planner, environmental planner, and licensed forester. Mr. Nickles specializes in preparing fire protection plans, wildland-urban interface fire management plans, code consulting, and forest and natural resource management plans. He possesses considerable experience in fire and building code life safety regulations, wildland urban interface development project planning and protection and land use planning. He has also served as a Co-Chair for the So Cal Fire Prevention Officer's Wildland Urban Interface Committee. Mr. Nickles previously worked for the City of Glendale Fire Department, where he was responsible for vegetation management, wildland fire hazard mitigation, planning entitlement reviews, fire and building plan check, fire and life safety building inspections, and fire code enforcement. He also has several years of traditional forestry experience working for a forest and land management consulting firm in Northern California.

Education

California Lutheran University
MBA, Business Administration

Humboldt State University
BS, Forestry (Fire Management concentration)

Certifications

Registered Professional Forester (RPF), No. 2135

Wildland Fire Behavior Certificate, County of Los Angeles Fire Department

Archeology Certificate, CAL FIRE

Incident Information Officer Certificate, CAL FIRE

Professional Affiliations

SoCal Fire Prevention Officers Association

Relevant Previous Experience

Glendale Fire Department, Glendale, California. Served as assistant fire marshal**.** Administered all personnel and programs undertaken by the Fire Prevention Bureau including Vegetation Management, Fire and Life Safety inspections, Plan Review and New Construction inspection.

Served as fire prevention coordinator. Managed the Programmatic Inspection Unit with oversight responsibility for multiple programs. Oversee all inspection and regulatory operations and professional staff. Oversee annual fire and life safety inspection program for state mandated and permitted facilities. Make recommendations for enforcement of fire and life safety requirements. Oversaw the Vegetation Management Program.

Served as fire prevention coordinator. Managed the Fire Engineering Unit. Oversaw all plan check operations and professional staff. Evaluate and analyze plans, structures and processes to ensure adequate fire protection and conformance with federal, state and local fire safety laws and regulations. Planning entitlement reviews including Conditional Use Permits, CEQA and Environmental Impact Reports. Interpret fire and life safety laws and regulations and provide technical advice and assistance to the general public and other City departments, architects, contractors, engineers, builders, and owners. Assist with code adoption and enforcement activities. Oversaw the Vegetation Management Program.

Served as urban fire forester. Managed the Vegetation Management Program. Responsibilities included start-up and development of the Vegetation Management Program including administration, inspection procedures and guidelines, preparation of program operations manual, development of policies and procedures, contract management and administration, and department-wide training program. Coordinated establishment of a Firewise Community in Glendale, one of the first seven in the nation.

City of Thousand Oaks, Thousand Oaks, California. Served as associate planner for the open space Joint Powers Authority between the City and Conejo Recreation and Park District. Responsibilities included daily administration of the agency and coordinating administrative support for public meetings. Established and served as support staff for the citizen advisory committee.

Envicom Corporation/PHR Environmental, Calabasas, California. Served as environmental planner/analyst. Prepared environmental impact reports and conducted research, site inspection, development plan preparation, and preparation of due diligence reports for major development projects throughout Southern California.

Interface Management Services, Thousand Oaks, California. As owner, consults part time in resource management, land use planning, fire prevention, fire protection plan preparation, wildland fire safety, vegetation management, oak woodland management, and urban forestry, with an emphasis in wildland-urban interface settings throughout Southern California.

W.M. Beaty and Associates, Redding, California. Served as assistant district forester. Consulted in natural resource and forest management including timber harvesting, wildland fire protection, plantation management, and forest management plans throughout Northern California.

California Department of Forestry and Fire Protection. Served as forestry aide, assigned to Latour Demonstration State Forest in Shasta County assisting with forestry and natural resource management activities. Served as seasonal firefighter for two years in Lassen and Humboldt Counties.

Specialized Training

- Leadership Academy, Society of American Foresters
- California Fire Prevention Institute Annual Conference (multiple), California Chiefs Fire Prevention Officers
- Fire Service Supervision, National Fire Academy
- Incident Information Officer
- Wildland Firefighting
- Wildland Fire Suppression Tactics
- Wildland Fire Behavior
- Intermediate Wildland Fire Behavior
- Introduction to Wildland Fire Behavior Calculations

Awards

Fellow Award, Society of American Foresters, recognizing individuals for long standing service to forestry at the local, state, and national level.

Presidential Field Forester Award, Society of American Foresters, recognizing individuals who have displayed uncommon talent, skill, and innovative methods to achieve a record of excellence.

Matthew Crockett

DEPUTY PROJECT MANAGER

Matthew Crockett is a wildfire planning analyst with 7 years' cumulative experience in the natural resources management field, with expertise in forest science and community wildfire planning. Matthew's relevant work experiences include conducting wildfire hazard assessments, authoring community wildfire protection plans (CWPPs) and fire protection plans (FPPs), conducting private forestry work, and advocating for environmental policy at the State Capital. Matthew also instructs a geographic information system (GIS) course at California Polytechnic State University, San Luis Obispo (Cal Poly San Luis Obispo). His technical skills include GIS analysis, fire behavior modeling, post-fire risk assessment, and carbon accounting. Prior to his work with Dudek, Matthew previously worked for the San Luis Obispo Fire Safe Council as a project manager for community wildfire risk reduction projects.

Education

California Polytechnic State University San Luis Obispo MS, Environmental Sciences and Management

California Polytechnic State University San Luis Obispo BS, Environmental Management and Protection

Professional Affiliations

Association of Environmental Professionals (AEP)

Society of American Foresters (SAF)

Relevant Project Experience

Fuel Treatment Prioritization Web Application, Nevada County, California. Conducted a countywide landscape analysis to identify priority areas for fuel reduction projects based on wildfire hazard, risk reduction potential, and implementation feasibility. Results were integrated into an interactive web tool that enables users to map proposed project areas and evaluate them against key GIS layers to support data-driven planning and prioritization.

CWPP Preparation, Nevada County, California. Supported Nevada County in developing a Countywide CWPP. Created a fine-scale wildland–urban interface map for the County to identify regions where creating adequate defensible space is a high priority.

City of Grass Valley Wildfire Risk Assessment, Grass Valley Fire Department, Grass Valley, California. Worked with the City of Grass Valley Fire Department to develop a fine-scale wildfire hazard and risk assessment for the City and its sphere of influence. Multiple spatial datasets related to wildfire hazard and community wildfire risk were incorporated into a customized GIS model to identify high-risk community areas. The community wildfire risk model map is intended to guide the City and Fire Department's wildfire mitigation efforts through identifying priority community areas for mitigation projects and education and outreach.

Modoc National Forest Fuel Treatment Prioritization, Golden State Natural Resources, Modoc County, California. Created maps identifying priority areas to conduct fuels treatments within pine plantations across the Modoc National Forest. Utilized fire behavior modeling, sensitive biological resources data, and road network data to develop prioritization maps.

City of Calabasas CWPP, City of Calabasas, Calabasas, California. Directed the wildfire risk assessment for the City's communities and critical infrastructure and created a web-based platform to visualize results and support mitigation planning.

Los Angeles County Integrated Wildfire Safety Program, County of Los Angeles Department of Regional Planning, Los Angeles, California. Served as a supporting analyst and identified communities and critical infrastructure at risk from wildfire throughout Los Angeles County based on integrated wildfire hazard modeling.

Santa Barbara County Foothill Communities CWPP, Santa Barbara County Fire Department, Santa Barbara, California. Served as the lead GIS and fire behavior analyst. Created mapping layers related to fire behavior, community wildfire risk, and priority project areas. Mapping data was compiled into a StoryMap to effectively display complex data to the public.

Los Altos Hills County Fire District CWPP, Los Altos Hills County Fire District, Los Altos Hills, California. Supported the Los Altos Hills County Fire District in developing a districtwide CWPP coinciding with the greater Santa Clara County CWPP update. Created a wildfire hazard model of the district using fine scale vegetation data at a 5-meter resolution. The wildfire hazard map was used to rank community wildfire risk by evacuation zones and identified priority areas for roadside fuel treatment along evacuation routes. The wildfire hazard model was used to identify critical infrastructure and Highly Valued Resources and Assets at greater risk from wildfire. Unique locations were mapped and recorded to identify where mitigation efforts could be prioritized to protect critical infrastructure and assets.

Monterey CWPP, Monterey Fire District, Monterey, California. Served as the lead analyst and performed a Qualitative Wildfire Risk Assessment using IFTDSS to identify communities at risk from wildfire within the Cities of Monterey, Carmel By-The-Sea, and Pacific Grove. Additionally, ember threat was modelled in the Plan Area using FlamMap to identify areas experiencing the greatest impacts from falling embers. Model results were utilized to prioritize areas for wildfire mitigation projects related to vegetation management and community education. Mapping data was incorporated into a customized StoryMap to provide a user-friendly experience.

CHRISTOPHER A. DICUS, Ph.D.

Professor, Wildland Fire & Fuels Management
California Polytechnic State University
San Luis Obispo, California, U.S.A.

EDUCATION

Louisiana State University: Doctor of Philosophy, Forestry [Silviculture emphasis]
Utah State University: Master of Science, Forestry [Fire Ecology emphasis]
Louisiana Tech University: Bachelor of Science (*Summa cum laude)*, Forestry-Wildlife

PROFESSIONAL EXPERIENCE

Professor, Wildland Fire & Fuels Management – Natural Resources Mgmt. & Environmental Sciences Dept., California Polytechnic State University, San Luis Obispo, CA, September 2001-2013; September 2016-present.

- **Pertinent Courses Taught**
  - **NR-204: Wildland Fire Control**
  - **NR-305: Forest Ecology**
  - **NR-307: Fire Ecology**
  - **NR-308: Fire & Society**
  - **NR-312: Technology of Wildland Fire Management**
  - **NR-340: Wildland Fire Management**
  - **NR-365: Silviculture**
  - **NR-455: Wildland-Urban Interface Fire Protection**
  - **UNIV-339: Disaster Resistant Sustainable Communities**

Interim Associate Dean, Research & Graduate Programs – College of Agriculture, Food & Environmental Sciences**,** California Polytechnic State University, San Luis Obispo, CA, September 2015-August 2016.

Faculty Fellow to the Provost – Office of the Provost & Executive Vice President for Academic Affairs, California Polytechnic State University, San Luis Obispo, CA, Sept. 2013-September 2015.

AWARDS & HONORS

- Lead author on manuscript listed as 1 of 13 "Best Papers 2005-2015", *Fire Ecology* journal (2015)
- College of Agriculture, Food & Environmental Sciences Outstanding Researcher Award (2011)
- Distinguished Alumnus of the Year, Louisiana Tech University School of Forestry (2006)
- Phi Beta Delta Honor Society for International Scholars
- Phi Kappa Phi Honor Society

PROFESSIONAL LEADERSHIP

- **Association for Fire Ecology** (an international scientific society)
  - President (2018-2021)**;** Board of Directors (2006-2021)
- **California Fire Science Consortium**
  - Coordinator, Wildland-urban Interface Module (2011-present)
- **San Luis Obispo County FireSafe Council**
  - Board of Directors (2002-present)
- **Wildland-Urban Interface F.I.R.E. Institute**
  - Principle Investigator (2020-present)
- **Society of American Foresters**
  - Chair, Los Padres Chapter (2003-2010)

LITIGATION CASE HISTORY

Expert Witness in Litigation (by date of initial engagement)

- 2022: Rancho de Dias Alegres LLC, S-M Timber Farm 2, L.C., Aks 15, L.C., and AKS Ranch-15 Limited Partnership v. United States, for plaintiff
- 2021: Village Communities, LLC v. County of San Diego, for plaintiff
- 2021: Porter v. Debenedetto, for defendant
- 2020: [Insurers] v. Calpine Corporation, for defendant
- 2019: GSN Capital, LLC and Dave Zortman v. Shoshone City & Rural Fire District, for defendant
- 2019: Douglas et al. v. McCutchan et al., for plaintiff
- 2018: Alberta Motor Association Insurance Company v. Everest Reinsurance Company, for defendant
- 2018: [Insurers] v. Boeing Corporation, for defendant
- 2018: New Mexico Pension Fund v. PG&E, for plaintiff
- 2017: Ruffino v. United States, for defendant
- 2013: [Insurers] v. Asplundh Tree Expert Company, for defendant
- 2012: Aspen Insurance UK Limited v. Swiss RE Europe SA (UK branch), for defendant
- 2011: [Residents] v. Victoria (Australia) Department of Sustainability & Environment, for defendant

Technical Reports Submitted for Litigation

- **Dicus, C.A.** 2021. Wildfire hazard & risk at the proposed Lilac Hills Ranch, San Diego County, California. Technical report submitted to the United States District Court, Southern District of California.
- **Dicus, C.A.** 2021. Rebuttal to expert report of Chief Tony Mecham. Technical report submitted to the United States District Court, Southern District of California.
- **Dicus, C.A.** 2019. Fire Spread and structural loss during the 2016 Fort McMurray Wildfire. Technical report submitted to Court of Queen's Bench of Alberta (Canada).
- **Dicus, C.A.** 2019. Fire Spread and Loss During the 2017 Lagoon Fire, Shoshone, Idaho. Technical report submitted to the District Court of the Fifth Judicial District of the State of Idaho.
- **Dicus, C.A.** 2019. Potential fire risk posed by eucalyptus trees bordering 1950 Alexander Valley Road, Healdsburg, California. Technical report submitted to the Superior Court of California, County of Sonoma.
- **Dicus, C.A.** 2018. Implementation of pile and burn treatments to reduce wildfire risk near South Lake Tahoe, California. Technical report submitted to the U.S. Department of Justice.
- **Dicus, C.A.** 2012. Effects of fuel loading and building construction on the risk of bushfire loss to private property. Technical Report submitted to the Supreme Court of Victoria, Australia. 66p.

Testimony in Deposition/Court Proceedings

- 2022: Village Communities, LLC v. County of San Diego (California)
  - Re: Fire risk and mitigation in a proposed residential/commercial development
- 2021: GSN Capital, LLC and Dave Zortman v. Shoshone City & Rural Fire District (Idaho)
  - Re: Fire spread/behavior and timing of fire losses
- 2021: Porter v. Debenedetto (California)
  - Re: Combustion of pile burns
- 2019: Alberta Motor Association Insurance Company v. Everest Reinsurance Company (Alberta, Canada)
  - Re: Fire spread/behavior and timing of losses
- 2013: [Insurers] v. Asplundh Tree Expert Company (Texas)
  - Re: Fire spread/behavior and timing of losses

OTHER CONSULTING ENGAGEMENTS

Technical Reports Submitted to Clients/Government Entities

- **Dicus, C.A.** 2021. Review & Assessment: Risk of wildfire losses at Harmony Grove Village South. Technical report submitted to client.
- **Dicus, C.A.** 2020. Categorizing surface fuel models in Marin County, California. Technical report submitted to Marin County Fire Department.
- **Dicus, C.A.** 2020. Potential wildfire behavior & effects at Yellow Pine Solar Project: Comparison of two vegetation management options. Technical report submitted to US Bureau of Land Management.
- **Dicus, C.A.** 2020. Review & Assessment: Newland Sierra Fire Protection Plan. Technical report submitted to client.
- **Dicus, C.A.**, 2019. Lilac Hills Ranch Wildfire Risk Assessment. Technical report submitted to client.
- California Governor's Office of Emergency Services. 2018. State of California Multi-Hazard Mitigation Plan. (**C.A. Dicus** responsible for Chapter 8, Fire Hazards: Risks and Mitigation).
- **Dicus, C.A.** 2017. Potential impacts to coast live oak stands following defensible space at 3300 Kanan Dume Road. Technical report submitted to Los Angeles County Department of Regional Planning.
- **Dicus, C.A.** 2017. Rebuttal to Staff Comments: Potential impacts to coast live oak stands following defensible space at 3300 Kanan Dume Road. Technical report submitted to Los Angeles County Department of Regional Planning.
- 2016. Conn, W.D., C.K. Nuworsoo, **C.A. Dicus**, K.C. Topping, and D. Tuner. Single Access Subdivisions Assessment Project: Developing a planning tool for evaluating proposed developments accessible by dead end roads. Technical report submitted to Cal Fire and the California Board of Forestry & Fire Protection.
- California Emergency Management Agency. 2012. California Adaptation Planning Guide: Planning for Adaptive Communities. 60pp. (**C.A. Dicus** responsible for portions involving wildfire)
- California Emergency Management Agency. 2012. California Adaptation Planning Guide: Defining Local & Regional Impacts. 94pp. (**C.A. Dicus** responsible for portions involving wildfire)
- California Emergency Management Agency. 2012. California Adaptation Planning Guide: Understanding Regional Characteristics. 114 pp. (**C.A. Dicus** responsible for portions involving wildfire)
- California Emergency Management Agency. 2012. California Adaptation Planning Guide: Identifying Adaptation Strategies. 68 pp. (**C.A. Dicus** responsible for portions involving wildfire)
- **Dicus, C.A.** 2011. Fire Hazard & Mitigation for Stadium Park, Atascadero, California. Technical Report submitted to the City of Atascadero. 73p.
- California Emergency Management Agency. 2010. State of California Multi-Hazard Mitigation Plan. (**C.A. Dicus** responsible for Chapter 5.4, Wildfire Hazards, Vulnerability and Risk Assessment).

Testimony before Government Entities

- 2020: San Diego County Planning Commission
- 2018: Los Angeles County Department of Regional Planning
- 2017: Los Angeles County Department of Regional Planning
- 2016: California Board of Forestry & Fire Protection
- 2011: Atascadero (California) City Council
- 2005: California Board of Forestry & Fire Protection

SCIENTIFIC ENGAGEMENTS

Scientific Manuscripts (since 2009)

- **Dicus, C.A.** 2021. AFE, IAWF share common goals for diversity, education, cooperation. Wildfire Magazine.
- **Dicus, C.A.**, and K. Osborne. 2015. How fuel treatment types, locations, and amounts impact landscape-scale fire behavior and carbon dynamics in the Klamath Mountains. Pgs. 50-59 *In* Keane, Robert E.; Jolly, Matt; Parsons, Russell; Riley, Karin. 2015. Proceedings of the large wildland fires conference; May 19-23, 2014; Missoula, MT. Proc. RMRS-P-73. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 345 p.
- **Dicus, C.A.**, and K. Jacobson. 2014. Fine fuel dynamics following selection-harvest in Sequoia sempervirens. Pgs. 323-321 *In* Wade DD & Fox RL (Eds.), Robinson ML (Comp) (2014) 'Proceedings of 4th Fire Behavior and Fuels Conference', 1-4 July 2013, St. Petersburg, Russia.
- **Dicus, C.A.**, N.C. Leyshon, and D. Sapsis. 2014. Temporal changes to fire risk in disparate WUI communities in southern California, USA. Pgs. 969-978 *In* Viegas, D.X (Ed.). Advances in Forest Fire Research. University of Coimbra Press. ISBN 978-989-26-0884-6.
- **Dicus, C.A.**, T. Korman, C. Grant, D. Madrzykowski, F. Mowrer, C. Pascual, and D. Turner. 2013. Investigating the capabilities and limitations of compressed air foam systems for structural firefighting. Fire Engineering 166(7):65-69.
- **Dicus, C.A.** 2013. The burning question: Why is fire season becoming worse? California Forests Quarterly 2:2-3.
- Osborne, K., **C.A. Dicus**, C. Isbell, A. Ager, D. Weise, and M. Landram. 2011. Effect of landscape-level fuel treatments on carbon emissions and storage over a 50 yr time cycle. In Wade, D.D.; Robinson, M.L. (eds) Proceedings of the 3rd Fire Behavior and Fuel Conference, Oct. 25-29,2010, Spokane, Washington, USA. International Association of Wildland Fire, Birmingham, Alabama, USA. 5 p.
- **Dicus, C.A.** 2009. Changes to simulated fire behavior and societal benefits after two levels of thinning in a mixed-conifer wildland-urban interface community. Proceedings of the Royal Society of Queensland 115:37-44.
- **Dicus, C.A.** 2009. Fire on the landscape: Current policies and changing climate lead to higher costs, more severe wildfire. California Forests 13(2):16-17.
- **Dicus, C.A.**, K. Delfino, and D.R. Weise. 2009. Predicted fire behavior and societal benefits in three eastern Sierra Nevada vegetation communities. Fire Ecology 5(1):61-58.
- Kobziar, L., M. Rocca, **C.A. Dicus**, P. Morgan, N. Sugihara, A. Thode, and M. Varner. 2009. Challenges to educating the next generation of wildland fire professionals in the United States. Journal of Forestry 107(7):339-345.

Scientific Presentations

150+ oral presentations and 20+ posters presented at international, national, regional, and local conferences. Invited talks include oral presentations in 10 foreign countries, including Australia (×5), Portugal, France (x2), Italy, Finland, Russia, China, Japan, Thailand, and El Salvador. Selected oral presentations follow (others available upon request).

- **Dicus, C.A.**, R.D. Uribe, R.A. White, and S.R. Rein. 2022. Factors impacting home loss during a wind-driven wildfire in a Mediterranean ecosystem. Fire Across Boundaries: Connecting Science & Management Conference. Florence, Italy October 4-7.

- **Dicus, C.A.**, A. Meeder, and T. O'Rourke. 2022. Impacts to greenhouse gas emissions following fuel treatments in California Forests. International Fire Behavior & Fuels Conference. Pasadena, California, May 23-27.
- **Dicus, C.A.** 2022. Groundbreaking approaches for WUI fire mitigation in California. Wildfire Management Summit 2022 (Institute for Defense & Government Advancement). San Francisco, CA, April 25-26.
- **Dicus, C.A.** 2021. "Electrical utilities and wildfire in California". Foundations for Improving Resilience in the Energy Sector Against Wildfire on Alaskan Lands (FIREWALL). Virtual webinar and expert panel, September 15.
- **Dicus, C.A.** 2020. "Do I stay or do I go??? Shelter in Place vs. Evacuation". National Preparedness Month Webinars, Part 2: Wildfire Preparedness. Virtual webinar and expert panel, September 9.
- **Dicus, C.A.** 2019. Keynote Address – "California Ablaze: Is this (all of our) New Normal?" International Fire Behavior & Fuels Conference. Marseille, France, April 29-May 3.
- **Dicus, C.A.** 2018. Keynote Address – "The California Fire Experience: The good, the bad, and the downright tragic". Australian Bushfire Building Conference and Community Forum. Leura, Australia, September 6-7.
- **Dicus, C.A.** 2017. "On how to prevent and protect against wildfires". Tai'an, China, September 7-9.
- Dicus, C.A. 2017. "A global perspective on the ecology & management of wildfires". International Week, *Seinäjoki* University of Applied Sciences, *Seinäjoki, Finland, February 13-17.*
- **Dicus, C.A.**, N.C. Leyshon, and D. Sapsis. 2016. "Assessing WUI fire risk: A spatial analysis". International Fire Behavior & Fuels Conference, Melbourne, Australia, April 11-15.
- Dicus, C.A., N.C. Leyshon, and D.B. Sapsis. 2014. "Temporal changes to fire risk in disparate WUI communities in southern California, USA". International Conference on Forest Fire Research. Coimbra, Portugal, November 14-18.

Mass Media Presentations

Presentations and interviews in video, TV, radio, and print formats. Selected presentations follow (others available upon request).

- Examples of video presentations
  - 2021: Loopsider English (France). Wildfires are spiraling out of proportion in the US. Available at https://www.facebook.com/watch/?v=186618086851028&ref=sharing.
  - 2020: Seeker Media and Nissan. Watch how scientists in California are using prescribed burns to prevent more disastrous wildfires. Available at https://www.facebook.com/SeekerMedia/videos/250434539461491/UzpfSTcwMDA4MDE2MDozMDYwNjExMjk0OTk0MTQ6MTA6MDoxNTg4MzE2Mzk5Oi03MDg2Njc1MjI0NDIyMjY4OTAz/.
  - 2019: The New Yorker. Building for resilience in California's fire-prone future. Available at https://www.newyorker.com/culture/culture-desk/building-for-resilience-in-californias-fire-prone-future.

- Examples of media outlets in which I've been featured (others available upon request)
  - TV
    - BBC (United Kingdom)
    - FOX Weather (USA)
    - KABC (Sacramento)
    - Fox 11 (Los Angeles)
    - TRT World (Turkey)
    - RT America (Russia)
  - Radio
    - NPR Weekend Edition (Washington, D.C.)
    - KNX (Los Angeles)
    - KABC (San Francisco)
    - KABC (Australia)
    - Global News Canada
  - Print
    - Time Magazine
    - USA Today
    - New York Times
    - Los Angeles Times
    - The Hill
    - National Geographic

OTHER SIGNIFICANT PROFESSIONAL ACCOMPLISHMENTS:

- **Certified Senior Fire Ecologist**

- **California Registered Professional Forester**

- **Steering/Program Committee:**
  - 2022: Association for Fire Ecology/Pau Costa Wildland Fire Conference; Florence, Italy
  - 2021: Ninth International Fire Ecology & Management Congress; Virtual
  - 2020: Association for Fire Ecology/Pau Costa Foundation Webinar Series; Virtual
  - 2019: Eighth International Fire Ecology & Management Congress, Tucson, Arizona
  - 2018: The Fire Continuum Conference: Preparing for the Future of Wildland Fire. Missoula, Montana
  - 2010 Australia – United States Joint Research Symposium: Fire in the Interface; Melbourne & Canberra, Australia

- **Fire Behavior Technical Specialist** on major wildland fires
  - 2009 La Brea Fire (89,489 acres)
  - 2007 Zaca Fire (240,207 acres)
  - 2006 Day Fire (162,700 acres)
  - 2004 Gaviota Fire (7,440 acres)

- **Federal Training Courses**
  - S-490: Advanced Fire Behavior
  - S-493: FARSITE (which is a GIS-based fire behavior modeling course)
  - S-125: Fire Operations in the Wildland Urban Interface
  - Forest Vegetation Simulator (which focused on the Fire and Fuels Extension)

- **Honorary Research Associate**
  - Univ. of Tasmania School of Geography & Environmental Studies (Australia) – March-June 2009

Appendix B

Photographs of the Site and Surrounding Area

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0 5,000 10,000 20,000 Feet

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

Photo 7

Photo 8

Photo 9

Photo 10

Photo 11

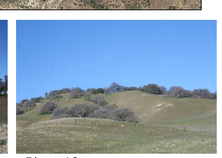
Photo 12

Photo 13

Photo 14

Photo 15

Photo 16

Photo 17

Photo 18

Photo 19

Photo 20

Photo 21

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Photo 24

Photo 25

Photo 26

Photo 27

Photo 28

Photo 29

Photo 30

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Photo 35

Photo 36

Photo 37

Photo 38

Photo 39

Photo 40

Photo 41

Photo 42

Photo 43

Photo 44

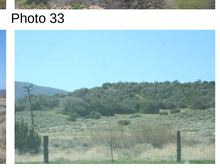


Photo 45

Photo 46

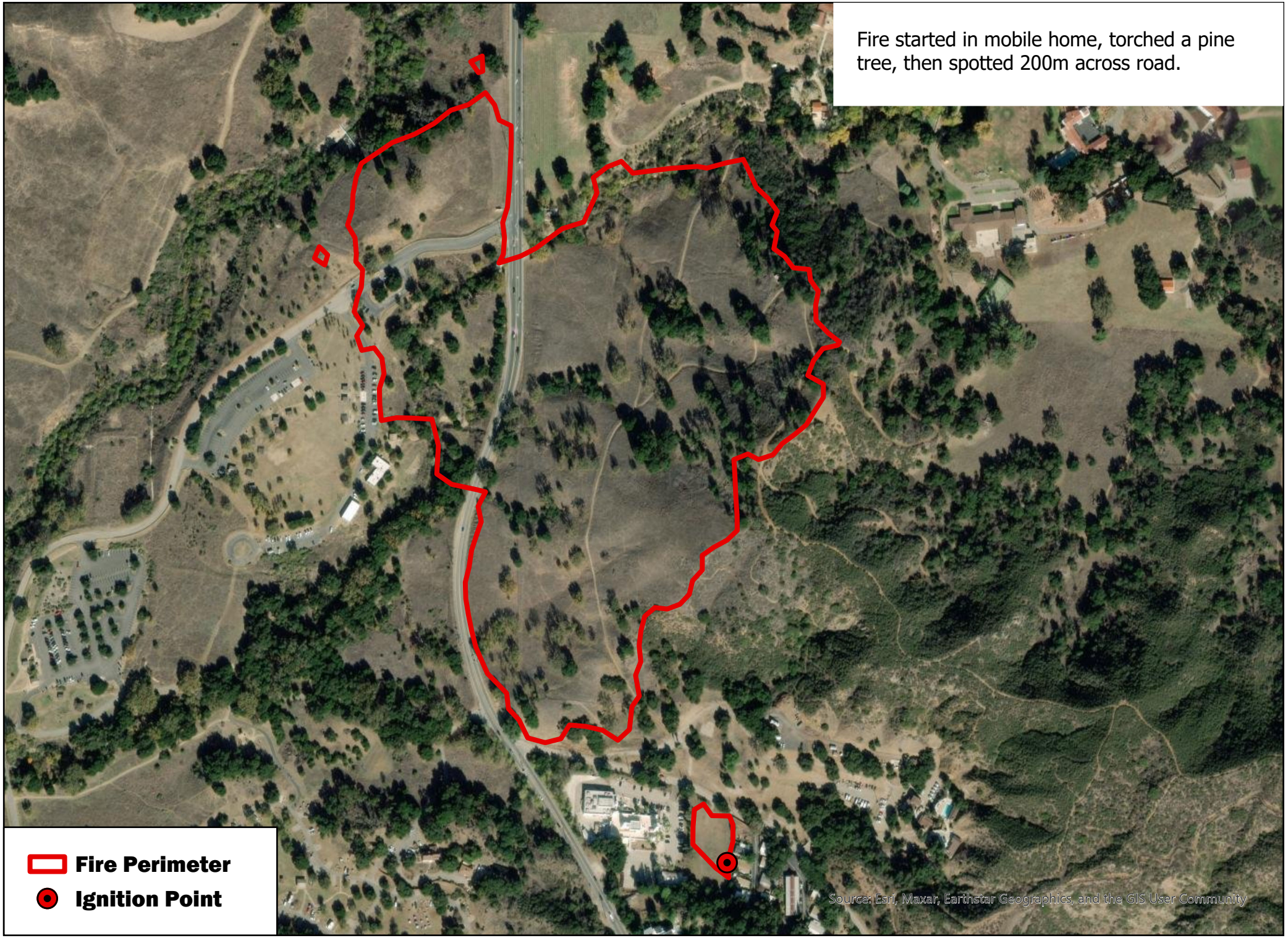
Photo 47

Photo 48

DUDEK

Appendix C

Historic Wildfires Caused by Structure Fires



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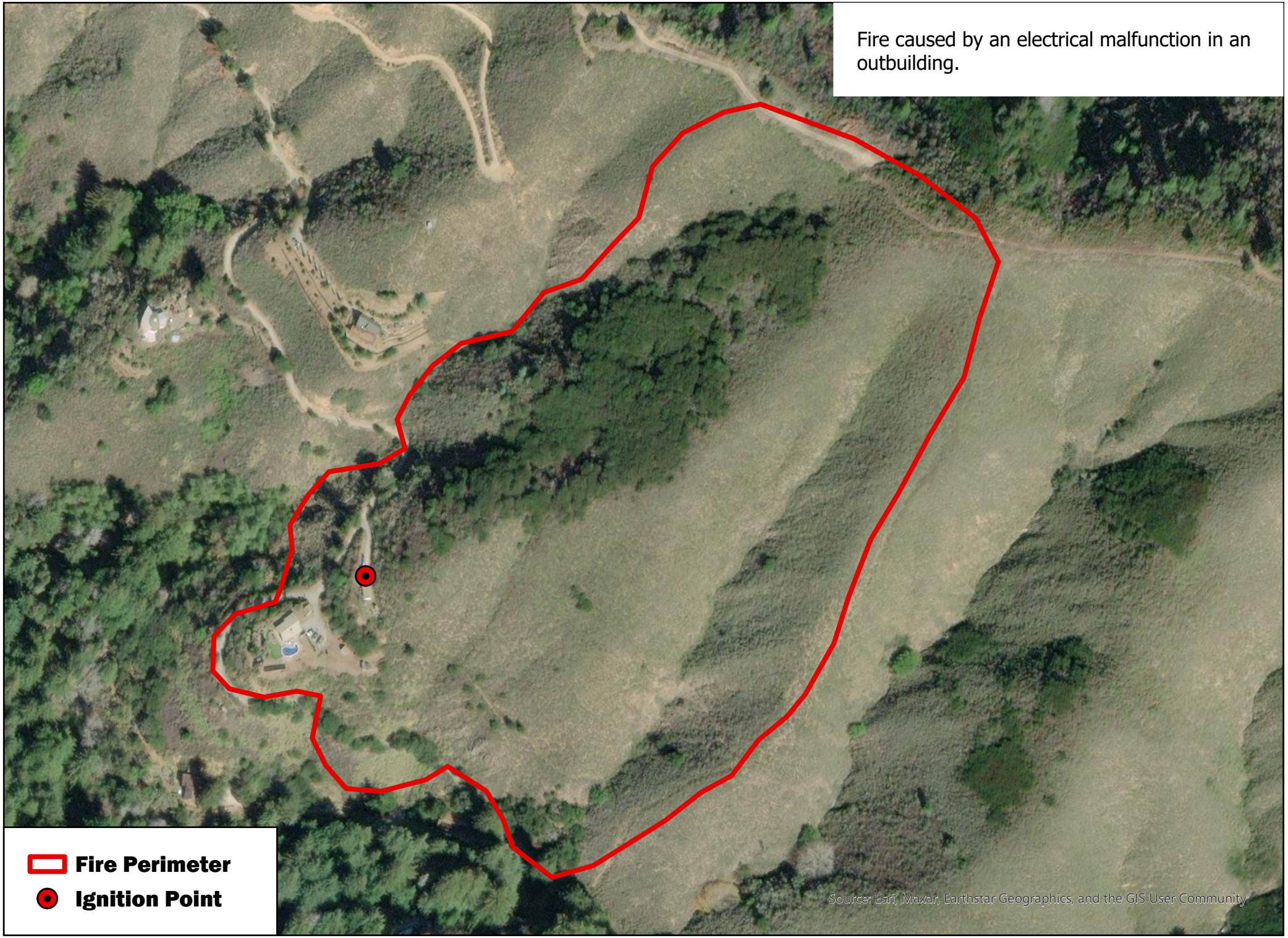
Source: CAL FIRE FRAP, 2022



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Source: CAL FIRE FRAP, 2022

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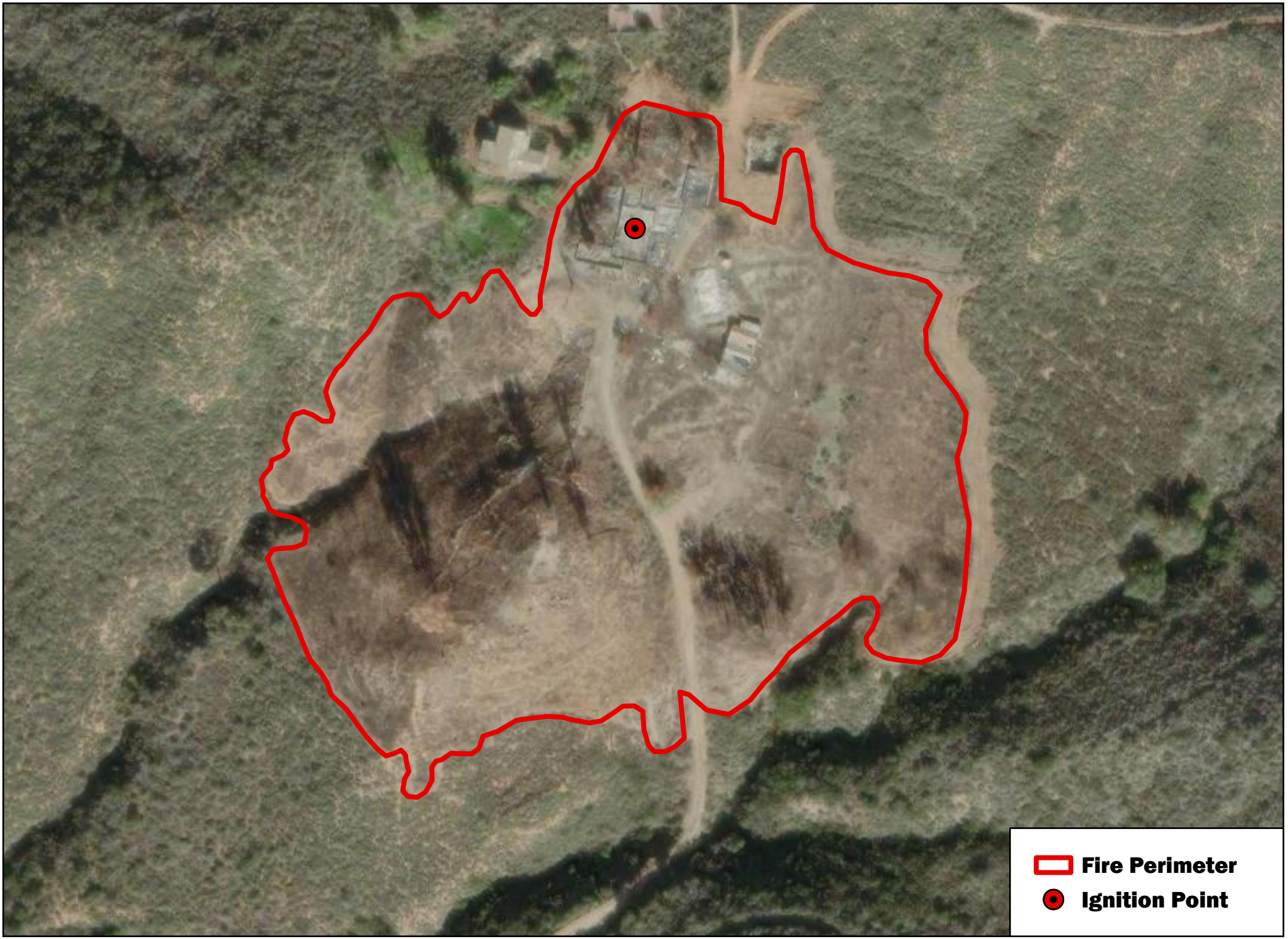
Source: CAL FIRE FRAP, 2022



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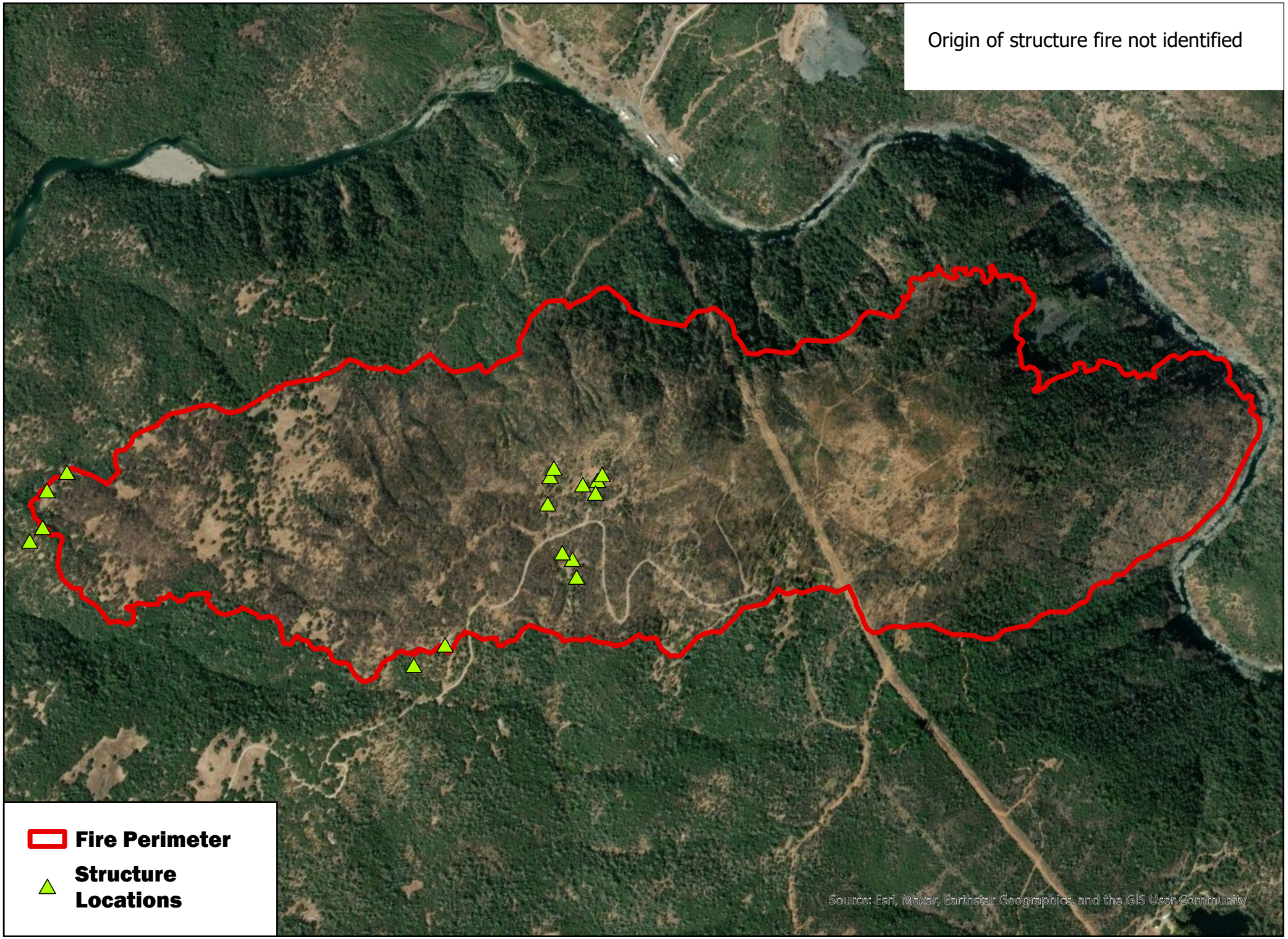

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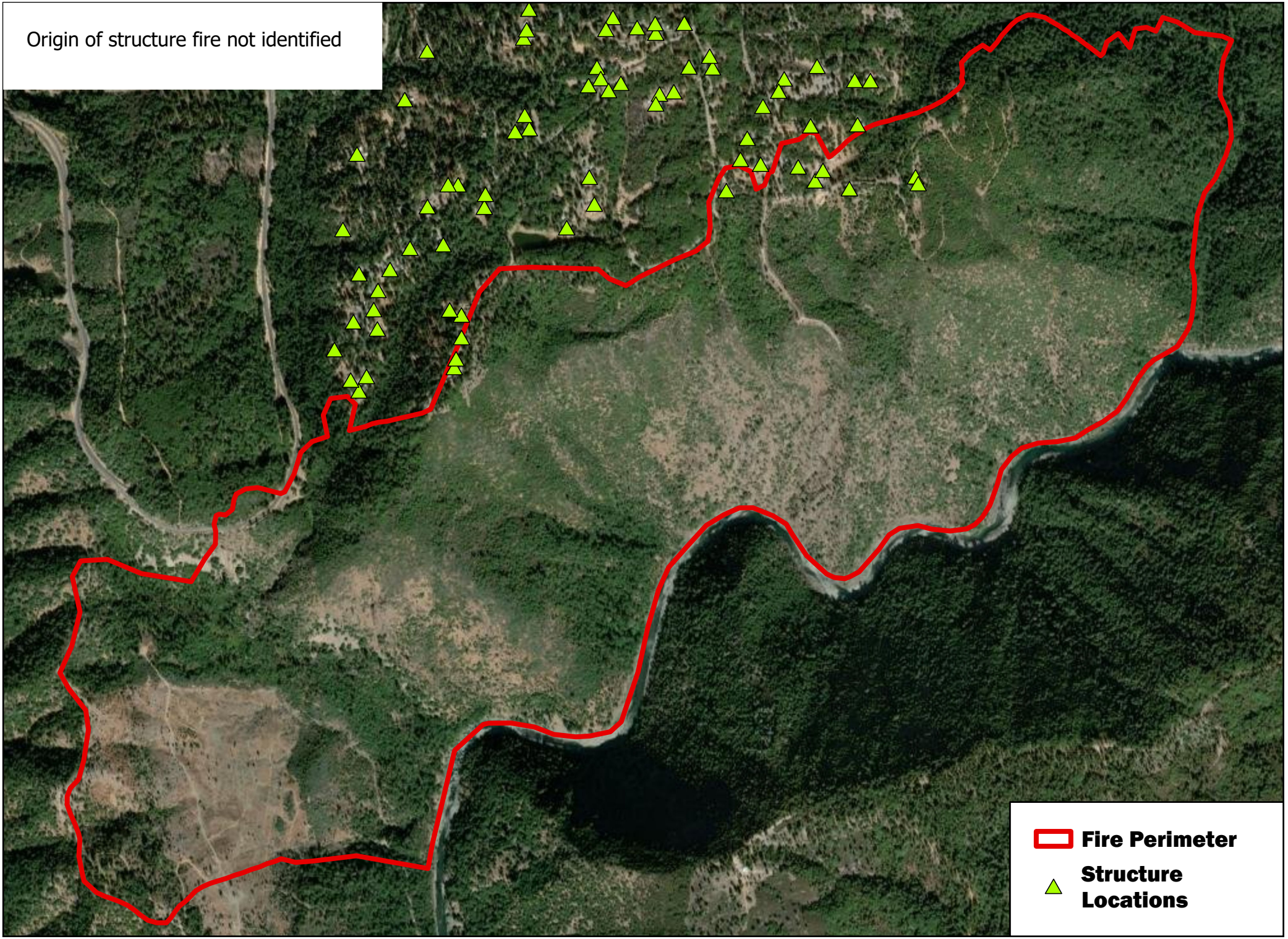

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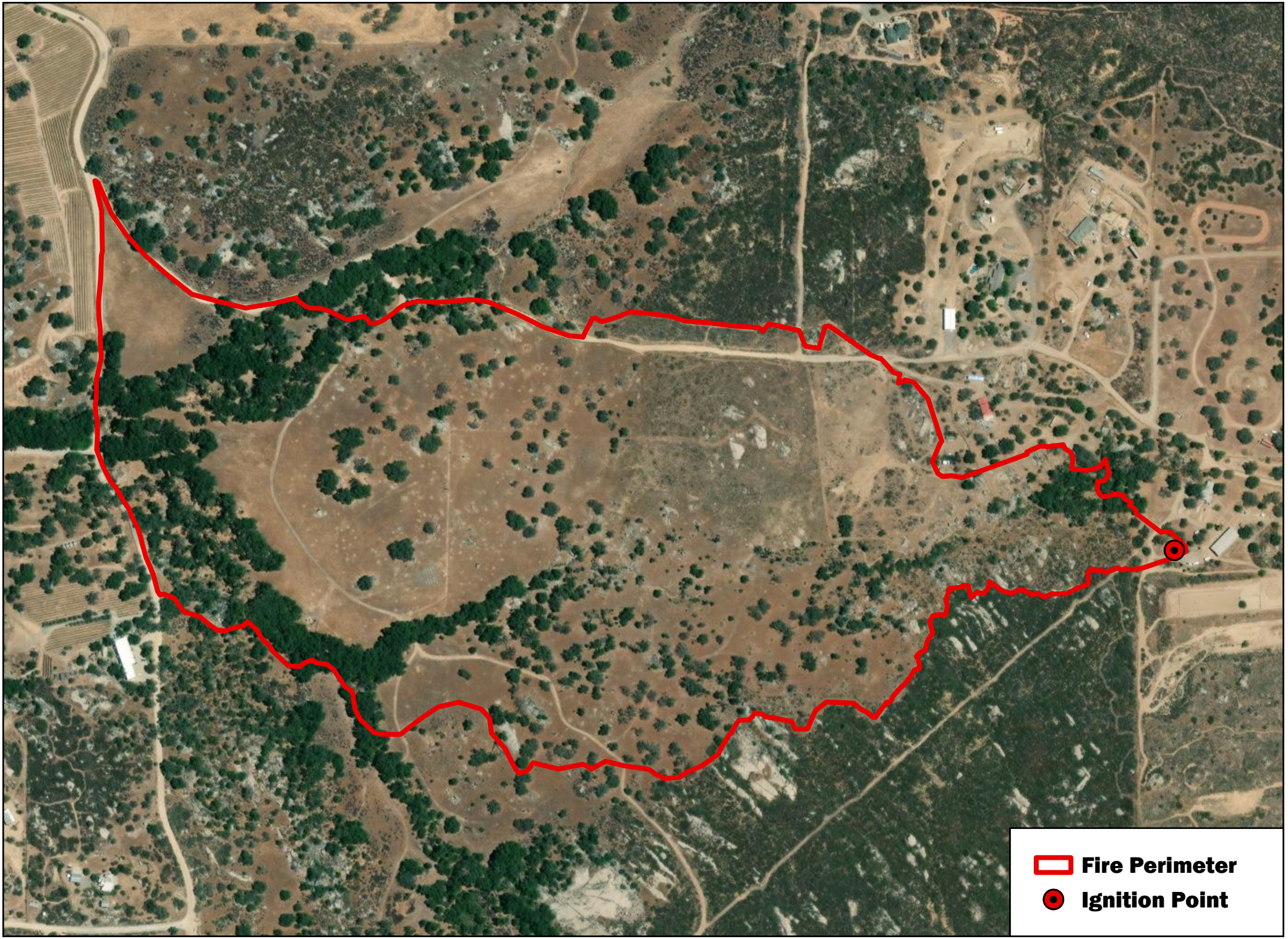
Source: CAL FIRE FRAP, 2022



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Source: CAL FIRE FRAP, 2022

Appendix D

Centennial Wildfire Risk Reduction Measures

Code Required Fire Safety Features

Feature No.	Description
1	**Proximity to Fire Stations.** The Project is within LA County Fire's response time goals for initial response. The overall call volume has a less than significant impact on the planned response capacity. Response capacity would be enhanced by three on-site fire stations within the community that will provide a fast response throughout the Project Area.
2	**Ignition Resistant Construction.** All structures within the Project will be constructed of ignition-resistant construction materials consistent with wildfire protection building construction requirements contained in the Los Angeles Building Code including Los Angles Building Code Title 26 Chapter 7A, Los Angeles County Residential Code Section R327, and Los Angeles County Reference Standards Code Chapter 12-7A. These requirements include ignition resistance construction and are a key component in preventing structural ignition *(Section 3.5 Structural Ignition Resistance Regulatory Requirements).*
3	**Automatic Interior Fire Sprinklers.** Per LA County Fire Code all structures of any occupancy type within the Project will be equipped with an NFPA 13, 13R, and 13D automatic sprinkler system. Automatic sprinklers prevent ember generation by structure fires, isolate fires to the point of origin, and limit fires from spreading within the building. *(Section 3.6.3 Automatic Fire Sprinkler System)*
4	**Fuel Modification Zones.** Per State Fire Code Section 4906 defensible space shall be maintained around all within and structures in all unincorporated land designated as SRA. Consistent with PRC 4290, SRA Fire Safe Regulations, California Code of Regulation Title 14 Division 1.4 Chapter 7 Subchapter 2 Section 1270, and Los Angeles County Fire Code Title 32 Section 4908.1 the Project will provide at least 100 feet from the exterior of structures toward the undeveloped wildland areas that are divided into a 30-foot wide irrigation Zone A and a 70 foot wide thinning Zone B. In addition to compliance with the County's fuel modification regulations, the Project would provide additional restrictions in the Zone 0 area (0-5 feet from structures). Although Zone 0 regulations are not currently mandated, they are expected to be codified in 2026. The Project will be designed and constructed in compliance with the applicable Zone 0 requirements in effect at the time of build-out. This will be enforced through LACoFD approval of Fuel Modification Plans (LA County Fire Code 4906.3). The FMZs reduce fire intensity and flame lengths from fires in wildland areas advancing towards structures or vice versa. *(Section 3.2 of WSP Defensible space and Vegetation Management Regulatory Requirements)*
5	**Roadside Fuel Modification Zones.** The internal roadways will be maintained with a minimum of 20 feet to 50 feet total width of vegetation clearance that is clear to the sky to allow for fire apparatus access and prevent vehicle-based ignitions. All flammable vegetation or other combustible growth shall be removed on each side of the roadway for a minimum of 10 feet per County Fire Code Title 32 Section 325.10*. (Section 3.3.1 Roadway Fuel Modification Zones)*
6	**Fire Access infrastructure Conditions.** All Project access will be consistent with County Roadway Standards defined in Title 21 and the 2020 CFC Section 503. Typical interior roads will have a minimum width of 24 feet width of unobstructed access. Private or public streets that provide fire apparatus access to buildings three stories or more in height shall be improved to 30 feet unobstructed width. All interior residential streets will be designed to accommodate a minimum of 75,000-lb. fire apparatus load. Fire apparatus access roads shall not exceed 15 percent in grades. Dead-end roads and cul-de-sacs will comply with Title 21 to ensure fire apparatus access.

Code Required Fire Safety Features

Feature No.	Description
	Per the Subdivision Ordinance, each tentative map application and approved tentative map must demonstrate that Project internal circulation system, site access, road dimensions, road connectivity, and other standards related to fire apparatus access are consistent with all applicable County's roadway and fire code standards.
7	**Water Availability.** Water capacity and delivery will provide for a reliable water source for operations and during emergencies requiring extended fire flow. Water supply will be consistent with County Title 20, Section 20.16.060 for fire flow and fire hydrant requirements within a VHFHSZ. *(Section 3.6.1 Water Supply and Section 3.6.1 Hydrants)*
8	**Ember Resistant Zone** Although not currently required by law, the Project will also include an Ember Resistant Zone (ERZ) within Zone A, consistent with PRC 4291 to include more intense fuels reduction within the immediate vicinity of structures.[1] The ERZ is from the 5 feet of a structure and includes the area under and around all attached decks. The ERZ forces on preventing structure ignition via ember showers by reducing/eliminating all combustible within this zone. *(Section 3.2 of WSP Defensible space and Vegetation Management Regulatory Requirements)*
9	**Underground Utilities.** As required by the County's subdivision ordinance, all tentative map applications must depict the location of proposed utility easements. As required by applicable standards, all of the Project's horizontal utilities, including but not limited electric transmission lines, will be installed underground to significantly reduce the potential for equipment-related fire starts.
10	**Construction Fire Prevention Plan.** As required by Chapter 33 of the CFC, Prior to any construction activities, a detailed Construction Fire Prevention Plan (CFPP) shall be implemented for the Project and submitted to the County of Los Angeles for review and approval prior to the issuance of the first grading permit. The CFPP shall designate fire safety measures to reduce the possibility of fires during construction activities, including fire watch during hot works and heavy machinery activities (e.g., welding), spark arrestors on all equipment, water supply via hose lines attached to hydrants, or a water tender pursuant to County Fire requirements, red flag period restrictions, and mandatory on-site fire resources. Employees would be presented with basic prevention fire training upon employment, and the on-site safety officer and/or supervisor/foreman shall maintain documentation of training. Training shall consist of the Project WSP requirements, review of Occupation Safety and Health Administration (OSHA) Fire Protection and Prevention, proper response and notification of a fire, and the use of fire extinguishing equipment. A site safety officer shall be responsible for the implementation of the CWSP, ensuring fire control equipment are maintained in good working conditions, monitoring combustibles onsite, conducting fire safety surveys, posting fire rules in an area visible to employees, stopping work activities that pose a fire hazard or are not in compliance with the CFPP, and reporting all fire ignited on-site to County Fire. County Fire shall review site fire safety conditions prior to the commencement of construction activities.

[1] Assembly Bill 3074, passed into law in 2020, which requires a third zone for defensible space and amends PRC 4291. The amendment requires the Board of Forestry and Fire Protection to develop the regulation for the new ember-resistant zone (ERZ) within 0 to 5 feet of a structure by January 1, 2023. CAL FIRE currently recommends the implementation of an ERZ. In anticipation of the ERZ requirements becoming codified in PRC 4291, the ERZ has been included in the defensible space requirements for the Project. The above listed requirements are based on the current recommendations for creating an ERZ detailed on CAL FIRE Defensible Space website (https://www.fire.ca.gov/programs/communications/defensible-space-prc-4291/). These requirements will be reviewed and updated once the Board of Forestry and Fire Protection updates the regulations for the ERZ in PRC 4291.FIRE Defensible Space website (https://www.fire.ca.gov/programs/communications/defensible-space-prc-4291/). These requirements will be reviewed and updated once the Board of Forestry and Fire Protection updates the regulations for the ERZ in PRC 4291.

Code Required Fire Safety Features

Feature No.	Description
11	**Pre-Construction Requirements.** As required by Chapter 33 of the CFC, The applicant shall submit site improvement plans to County Fire prior to the issuance of the building permits. Prior to bringing lumber or combustible materials related to residential and nonresidential building construction onto the Project Site, site improvements within the active development area shall be in place, including utilities, operable fire hydrants, and an approved, temporary roadway surface and fuel modification zones shall be established. Combustible materials may be utilized onsite prior to stated site improvements as needed for providing the improvements (e.g., wood forms for cast-in-place concrete) or for infrastructure construction prior to utilities being installed (e.g. operable fire hydrants). County Fire shall review site fire safety conditions prior to the commencement of building activities.
12	**Annual Fuel Modification Maintenance.** As required by Los Angeles County Fire Code 4908.1, all vegetation management with the FMZs and common areas shall be completed annually by May 1 of each year. Vegetation management may be completed more often for fire safety if determined necessary by County Fire. The Project HOA or equivalent entity shall be responsible for the annual maintenance of all vegetation management within the Fuel Modification Zones (FMZs) in the common areas ensuring compliance with LACoFD fuel modification guidelines. Property owners will be responsible for maintaining the Ember Resistant Zone (ERZ) and any fuel modification within their property. The annual maintenance would be managed and maintained by the Project HOA through a qualified contractor that shall be required to meet fire safety requirements regarding equipment, the timing of maintenance, and fire suppression capabilities. Maintenance activities would include but not be limited to removing dead and dying material, removing undesirable plant species, and conducting thinning activities to maintain adequate spacing requirements. The Project HOA or similar entity shall be responsible for ensuring the long-term funding and ongoing compliance with all provisions of the WSP including, vegetation planting, fuel modification of the perimeter areas, vegetation management on all common areas including roadsides, and open space areas under their control. The Project HOA shall be responsible for the implementation of the annual FMZ maintenance subject to ongoing enforcement by County Fire. The HOA or and County Fire would enforce the vegetation management requirements detailed in the WSP and such requirements would be made a part of deed encumbrances and CC&Rs for each lot, as appropriate. Documentation, as part of the inspection report per Recommended Measure -4, on maintenance activities detailing the FMZS, maintenance operation, and consistency with current County brush clearance requirements shall be submitted to County Fire Bush Clearance Program.
13	**Landscape Plan.** As required by LA County Fire code 4906.3, the Project Applicant/Developer shall develop a Landscaping Plan for review and approval by the County Biologist for each tentative map application submittal.
14	**Confirmation of Code Compliance.** At the building permit and site plan review stage of Project development, the County will confirm that all building plans comply with all applicable codes. The Project shall comply with applicable portions of Title 30, 32, and 33 of the Los Angeles County Code at the time of building permit and site plan review. The Project would also be subject to the provisions of Section 4291 of the Public Resources Code regarding brush clearance standards around structures and the Los Angeles County Fire Department guidelines for Fuel Modification Plans. The Project is required to comply with all future code updates as development proceeds. Code compliance shall also be confirmed by County building inspectors prior to issuance of certificates of occupancy.

Climate Resolve Settlement Agreement Requirements

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
1	**HOA Wildfire Education Program.** The Project residents and occupants shall be provided with ongoing education regarding wildfire, the WSP, and the Wildfire Evacuation Plan. The education program would support fire safety, evacuation practices, and fire safety features designed for the community. The Centennial Wildfire Education Program would provide target outreach to residents and occupants living in a fire risk area and would be a layered approach to maintaining high wildfire risk awareness that includes active and passive features. Contents of the educational program would be reviewed and approved by County Fire before printing and distribution. The Project HOA or similar entity shall be responsible for the ongoing funding and maintenance of the wildfire education program. The educational program shall consist of the following: 1. **Bi-annual email and mailers:** Residents and occupants will be provided with bi-annual emails and mailers in May and in August. Mailers would be sent to each property address and property owners would receive digital copies. Property owners would be highly encouraged to share this information with tenants should they choose to rent their property. The mailers and emails would include information such as reminders about annual defensible space inspections, maintaining the Ember Resistant Zone (ERZ), how to prepare for wildfire season, evacuation information, and how to prevent wildfires. There would also be links to various resources on where to get trusted information such as County Fire, 211 LA County, and Ready LA County. 2. **Website:** There shall be a dedicated community website with more detailed information and resources about wildfire awareness and prevention. The website would serve as a centralized resource for the fire education program and include information from the WSP. The website will also have fire watch and red flag warning alerts, as well as information	During Operation	HOA	Centennial Monitoring Group

Climate Resolve Settlement Agreement Requirements

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
	on restrictions during fire weather conditions. Residents will also be able to use the website to sign up for an annual residential defensible space inspection from the HOA Fire Committee. 3. **Community workshops and webinars:** Two times a year there shall be either in-person or virtual community workshops. The goal of the workshops would be to cover various fire topics more in-depth. For example, this could include having a County Fire representative come to meet the community, a workshop on how to make a go-bag, a workshop on how to make a residential evacuation plan, or how to maintain the home ignition zone. 4. **New resident packet:** All residents and new residents in the future shall also be presented with wildfire awareness and safety package upon purchase or rental of a home. This would also be given to businesses as part of their employee training program. Within the package will be a memory stick with the evacuation plan, a list of fire protection features, information on the regional fire hazard, prohibited activities in fire risk areas, how to build a go-bag, and a list of agencies and resources for receiving trusted information. 5. **Emergency alert campaign:** Residents and businesses would be encouraged to sign up for Alert LA County. Alert LA County is the mass notification system for emergency alerts, weather alerts, health notifications, building alerts, and other updates from County, State, and Federal agencies. The campaign shall occur annually and encourage residents to sign up for Alert La County. Reminders would also be sent out in the bi-annual mailers and emails, on the community website, in the workshops, and in the new resident package. 6. **Fire watch groups:** Within the community, there shall also be volunteer fire watch groups. These would be residents or businesses who volunteer to participate in a fire watch group			

Climate Resolve Settlement Agreement Requirements

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
	for the community. During red flag warning days, this group would be responsible for reminding businesses and residents of fire-safe practices and restrictions. During red flag warning days, the fire watch group would also maintain vigilance of potential fires and would be trained on procedures for alerting County Fire in the event of a fire. 7. **HOA fire safety committee:** The fire safety committee shall be responsible for overseeing the maintenance of community-wide fire protection features. Residents would be able to report fire hazards or hazardous fuel conditions to the HOA committee for remediation. The committee will be responsible for the coordination of the 3rd party Fuel Modification Zone (FMZ) inspections and the volunteer residential defensible space inspections. The committee shall also be responsible for organizing and coordinating an annual education workshop on how to maintain the ERZ. The committee shall also be responsible for the creation and distribution of the educational program for the Project. The committee would serve as a communication link between County Fire and the community.			
2	**Enhanced Wildfire Prevention and Protection Measures.** In addition to commitments that ensure Centennial will be a Net Zero GHG Project, Climate Resolve and Centennial have mutually agreed to make certain additional commitments to fund wildfire prevention, protection, and response activities within the Project, and to fund grants to improve wildfire prevention, protection, and response activities in nearby communities. See Section 7.7 of the WSP for a complete description of the requirements outlined in the settlement agreement.	During Operation	Applicant	Centennial Monitoring Group
3	**Master HOA Enforcement of CC&Rs Through Monetary Penalties.** To promote enforcement of the CC&Rs, the governing documents of the Master HOA shall vest the governing board of the Master HOA with authority to impose fines on any homeowner who violates any provision of the CC&R related to Fire Safety Requirements, and	Project Operations	HOA	Centennial Monitoring Group

Climate Resolve Settlement Agreement Requirements

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
	shall establish a schedule of reasonable monetary penalties to be assessed by the Master HOA against any homeowner that violates any provision of the CC&Rs related to Fire Safety Requirements. The required schedule of monetary penalties shall also be included as part of a general CC&R enforcement policy to be adopted and administered by the governing board of the Master HOA, which policy shall describe in detail the steps to be followed in enforcing the Master HOA governing documents and CC&Rs. As provided in California Civil Code Section 5855, no fine shall be assessed against a homeowner for violating a provision of the CC&Rs related to Fire Safety Requirements unless and until the Master HOA first conducts a hearing on the alleged violation. At least ten days' advance notice must be provided to the relevant homeowner of the date and time of the hearing, the general nature of the allegation of rules violation against such homeowner and informing such homeowner that they have the right to attend such hearing and to address the governing board.			
4	Master HOA Ongoing Maintenance. The governing documents of the Master HOA shall provide that the Master HOA is responsible for the long-term funding and ongoing maintenance of private roads and fire protection systems, including fire sprinklers and private fire hydrants. The Master HOA governing documents shall also provide that the Master HOA is responsible for the long-term funding and implementation of all fuel modification vegetation management in Project common areas, including but not limited to roadsides (including a minimum of 20 feet clearance on each side of roads within the Project development footprint adjacent to open space areas), open space and landscape areas, and fuel modification zones. In addition, the Master HOA shall establish a reverse 9-1-1 system capable of contacting every listed telephone number in the community by computer at a rate of at least 250 calls per minute.	Project Operations	HOA	Centennial Monitoring Group

Climate Resolve Settlement Agreement Requirements

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
5	**Fire Protections Education Committee.** The governing documents of the Master HOA shall establish a Fire Protection Education Committee (FEPC) The purpose of the FEPC shall be to (i) promote education programs and tools that provide information to Project homeowners about the Project's overall Fire Safety Requirements and about each homeowner's individual obligations thereunder; (ii) promote education programs and tools that provide information about wildland fire ecology, management, protection, and prevention; and (iii) coordinate with the LACoFD and other stakeholders to identify opportunities for improvement in all areas of wildland fire communication, education, protection, and prevention. See Section 7.23 for a complete description of this measure.	Project Operations	HOA	Centennial Monitoring Group
6	**Third-Party Compliance Inspectors.** To confirm that the Project's fuel management zones and landscape areas are being maintained according to the Fire Safety Requirements and the LACoFD's fuel modification guidelines, the Master HOA shall obtain a fuel management zone inspection and report from a qualified LACoFD-approved third-party inspector in May/June of each year certifying that vegetation management activities throughout the Project site have been timely and properly performed. If the third-party inspector determines that a fuel management zone or landscape area is not compliant with all applicable fire-safety standards, the Master HOA shall have a specified period, not to exceed sixty days, to correct any noted issues so that a re-inspection can occur and certification can be achieved. Annual inspection fees may be subject to the current Fire Department Fee Schedule.	Project Operations	HOA	Centennial Monitoring Group

Wildfire Risk Reduction Mitigation Measures

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
MM 3-7 (2019 EIR)	**Emergency Response Plan.** The Project Applicant/Developer shall prepare an Emergency Response Plan for the Project, which shall be updated as needed for each Tentative Map and shall be submitted to the County for review and approval. The Project Applicant/Developer shall be responsible for distributing the current Emergency Response Plan to each purchaser or tenant of each property within Centennial and shall distribute the Plan to all landowners through the Transportation Management Agency (TMA).	Tentative Map Stage	Applicant	County Fire and County Sherrif
MM 3-8 (2019 EIR)	**Traffic Control Plan.** The Project Applicant/Developer shall prepare a Traffic Control Plan in accordance with the California Manual on Uniform Traffic Control Devices (MUTCD). The Traffic Control Plan shall be reviewed and approved by the California Department of Transportation (Caltrans), and all construction activities in the public right-of-way shall comply with the approved Traffic Control Plan to the satisfaction of Caltrans. Documentation of Caltrans approval shall be provided to the County for any Tentative Map involving construction within SR-138 right-of-way.	Construction Permits	Applicant	Caltrans
MM 7-13 (2019 EIR)	**Landscape Plan.** The Project Applicant/Developer shall develop a Landscaping Plan for review and approval by the County Biologist. The Landscaping Plan shall be (1) prepared by a qualified biologist, (2) submitted to the County for approval with each tentative map, (3) provided to builders, (4) provided to future project occupants as described in the Specific Plan, and (5) include a plant palette composed of non-invasive species that are adapted to the conditions found on the Project site and do not require high irrigation rates. The Landscaping Plan will also include a list of invasive plant species prohibited from being planted on the Project site. In addition, retail sales of these invasive plant species will be prohibited at any businesses (nurseries) located within the Project site. Landscape plans shall encourage planting of local natives typical of native vegetation within ten miles of the Project site.	Construction Permit and During Operations	Applicant and HOA	County Department of Regional Planning

Wildfire Risk Reduction Mitigation Measures

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
MM 7-21 (2019 EIR)	Implementation Plan. In order to ensure that no direct impacts to Significant Ecological Area (SEA) 17 occur, brush clearance zones shall be contained within the current Project impact boundary and no overlap with the adjacent SEA 17 shall occur. Vegetation management for fire abatement purposes is not authorized in SEA areas. An Implementation Plan, including fire risk abatement measures (including but not limited to vegetation management) required to comply with State and County fire prevention and response legal requirements, shall be submitted as part of the tentative tract map for portions of the Project site that border an SEA or mitigation preserve area. The Plan shall include: (a) a summary of applicable State and County fire risk abatement requirements; (b) a prohibition on the use of vegetation clearance within SEA 17 or mitigation preserve areas. The Plan shall be submitted to the County for approval with the first tentative map, and shall be updated to include new or modified State or County fire risk abatement requirements as part of each subsequent tentative tract map submittal.	Tentative Map Stage	Applicant	County Department of Regional Planning
MM 10-5 (2019 EIR)	Construction Traffic Control Plan. The Project Applicant/Developer shall submit Traffic Management Plans to the County for review and approval. The Traffic Management Plans shall describe traffic-control measures that shall be implemented to maintain traffic flow in all directions, including where utilities and other improvements are being implemented in existing roadways. The Traffic Management Plans shall identify the following: construction haul routes; duration and location of lane closures; location of parking for the public and construction workers during construction phases; use of flag persons; and any pedestrian-related impacts to sidewalks and intersection crossings. The Traffic Management Plan shall be implemented during all stages of Project construction that generate traffic impacts.	Construction Permits	Applicant	County Department of Public Works

Wildfire Risk Reduction Mitigation Measures

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
MM 11-3 (2019 EIR)	**Ban on Wood Burning Fireplaces.** The Project's plans and specifications shall prohibit wood-burning fireplaces as required by SCAQMD Rule 445 in single-family residences throughout the entire Project site, including residences that are 3,000 or more feet about mean sea level at which the SCAQMD prohibition would otherwise not apply. Natural gas fireplaces shall be limited to a total of 13,954. These requirements shall be posted on the community intranet and shall be clearly described and distributed to home buyers through their home purchase contracts and CC&Rs.	Construction Permits	Applicant	County Department of Regional Planning And/or County Department of Public Works Building Inspectors
MM 16-2 (2019 EIR)	**Developer Fees.** The Project Applicant/Developer shall pay developer fees in effect at the time of construction permit approval, in accordance with the LACFD Developer Fee Program until such time the Project Applicant/Developer has conveyed an approved, operational fire station to the LACFD. As an alternative to fee payment, the Developer Fee Program allows the LACFD and the Project Applicant/Developer to agree on a program whereby the Project Applicant/Developer would provide land and would construct and equip the fire stations required for the Project in exchange for a credit towards the Project's fee payments.	Construction Permits	Applicant	County Fire
MM 16-3 (2019 EIR)	**Construct and Equip Fire Stations.** The Project Applicant/Developer shall provide, convey title, and shall construct and equip to the specifications and requirements of LACFD, for up to four new Fire Stations to the LACFD. The approved final plans and specifications for the Project shall identify location of the fire stations. The timing for the construction of the on-site fire stations shall be established by the LACFD dependent upon the phasing of development, with the first on-site fire station operational no later than the time the 1,000th dwelling unit is built on site.	Final Map Stage	Applicant	County Fire
MM 16-4 (2019 EIR)	**Law Enforcement Facilities Mitigation Fee.** The Project Applicant/Developer shall pay Law Enforcement Facilities Mitigation Fee (LEFMF) to the Los Angeles County Sheriff's Department (LASD) pursuant to the requirements established in County Ordinance No. 2008-0033. The amount of fees to be paid would be determined	Construction Permits; Certificate of Occupancy; Completion of First	Applicant	County Sheriff

Wildfire Risk Reduction Mitigation Measures

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
	based on the established fee in Section 22.74.030 of the County Code. The Project incorporates a temporary "store front" sub-station, followed by construction of a permanent LASD Station included on the Project site, in lieu of a portion of the LEFMF, as allowed under Section 22.74.090 (Consideration in Lieu of Fee) of the County Code. Costs associated with the construction of the temporary "store front" sub-station and permanent LASD Station would be credited against the LEFMF. Prior to completion of the permanent LASD Station, the "store front" sub-station may be located on site in Village 1 on the north side of the SR-138. This temporary sub-station shall be properly outfitted in accordance with applicable occupancy requirements of the LASD for such "store front" facilities and shall be operational prior to the approval of the first certificate of occupancy for the first phase of Project development. The Centennial Land Use Plan identifies a conceptual location for one LASD Station in the Business Park area on the Project site north of the SR-138. The permanent LASD Station shall be constructed immediately following completion of the first phase of development. The LASD shall have final approval over the temporary sub-station and permanent LASD Station site locations.	Development Phase		
WILD-1 (RPDEIR)	**Construction Fire Prevention Plan.** Prior to the issuance of grading or building permits, the project proponent/operator shall develop and implement a Construction Fire Prevention Plan for use during construction. The project proponent/operator shall submit the plan, along with maps of the project site and access roads, to the Los Angeles County Fire Department for review and approval. A copy of the approved Construction Fire Prevention Plan shall be submitted to the Department of Regional Planning. The Construction Fire Prevention Plan shall provide standard protocols and approaches for reducing the potential of ignitions for typical construction site activities, including, but not limited to, the following:	Construction Permits	Applicant	County Fire; County Department of Regional Planning

Wildfire Risk Reduction Mitigation Measures

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
	A. Emergency notification and evacuation procedures. B. Designation of a Site Safety Officer whole shall understand the CFPP and its mandates for fire prevention, fire suppression, and evacuation and shall have authority to stop project work activities that pose a fire hazard or are not in compliance with the approved CFPP. C. Vehicles shall be equipped with specified fire prevention equipment. D. All internal combustion engines, both stationary and mobile, shall be equipped with spark arresters. E. Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials. F. Red Flag Warning Weather and Hot Work restrictions. G. Fire rules shall be posted on the project bulletin board at the contractor's field office and areas visible to employees. H. Procedures shall be established for minimizing potential ignition, including, but not limited to, vegetation clearing and management, parking requirements/restrictions, idling restrictions, smoking restrictions, and proper use of gas-powered equipment. I. Personnel shall be trained in the practices of the CFPP relevant to their duties. Construction and maintenance personnel shall be trained and equipped to extinguish small fires to prevent them from growing into more serious threats. J. The project proponent/operator shall restrict the use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to days when the Los Angeles County Fire Department Daily Fire Danger Rating is low. When the above tools are used, water tanks equipped with hoses, fire rakes, and axes shall be easily accessible to personnel.			

Wildfire Risk Reduction Mitigation Measures

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
WILD-2 (RPDEIR; Superseded 2019 EIR MM 3-9)	**Fuel Modification Plan.** The Project Applicant/Developer shall prepare a Fuel Modification Plan demonstrating compliance with the County Fire Code Title 32 and shall provide all new residents and business owners with recorded Covenants, Conditions, and Restrictions (CC&Rs) or disclosure statements that identify the responsibilities for maintaining the fuel modification zone(s) on their property, as defined in the approved Fuel Modification Plan. The CC&Rs or disclosure statements prepared by the Project Applicant/Developer shall be submitted to the County to confirm that new property owners would be informed of their responsibilities for maintaining the fuel modification zone(s) on their property.	Tentative Map Stage	Applicant	County Fire; County Department of Regional Planning
WILD-3 (RPDEIR)	**Fire-Safe Landscaping.** Consistent with the Specific Plan's Green Development Program and Hillside Design Guidelines, the Project shall implement fire-safe landscaping techniques consistent with the Specific Plan's plant palette to reduce fire risks to biological resources and human safety in fuel modification zones. The Project shall include landscaping in the Open Space Zone dominated by native and/or drought tolerant trees, shrubs and ground cover, taking into consideration fuel modification requirements, such as using plants that are fire resistant and avoid plants with characteristics that make them more readily combustible such as plants with oils, wax or resin content, plants that accumulate dead material or shed bark, and/or plants that grow rapidly. Plants selected will be consistent with LACFD Planting Guideline regarding prohibited species and appropriate plant spacing with respect to zone location.	Tentative Map Stage	Applicant	County Department of Regional Planning

Wildfire Risk Reduction Mitigation Measures

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
WILD-4 (RDEIR)	**Ban on Outdoor Fire Pits and Fireplaces.** The Project's plans and specifications shall prohibit outdoor fire pits and outdoor freestanding fireplaces throughout the Project site. This requirement will be enforced at the time of building permit issuance and site plan review. Compliance with this Fire Safety Requirement shall also be confirmed by County building inspectors prior to issuance of certificates of occupancy for each single-family home.	Construction Permits	Applicant	County Department of Public Works Building and Safety
WILD-5 (RPDEIR)	**Operational Emergency Response Enforcement.** The Project Applicant/Developer shall submit the Emergency Response Plan required by MM 3-7 to the Fire Department and/or County Sheriff's Department and California Department of Forestry and Fire for review and approval. The Emergency Response Plan shall utilize existing information from Los Angeles County Office of Emergency Management, coordinate with County emergency planners, and provide site specific procedures for various emergency situations including wildfire. The Property CC&Rs shall require future residential and commercial property owners associations to develop and implement an emergency preparation and response plan, including shelter-in-place and evacuation plans as well as first aid and emergency electric power supplies	Tentative Map Stage	Applicant	County Fire; County Sheriff; County Department of Regional Planning; CalFIRE

Specific Plan Wildfire Risk Reduction Requirements				
14	**Fire-safe Sign Requirements.** As required by the Specific Plan, no sign shall be installed, relocated, or maintained so as to prevent free ingress to or egress from any door, window, or fire escape. In addition, no sign of any kind shall be attached to a standpipe or fire escape, except those signs required by other applicable codes or ordinances. This requirement will be enforced at the time of building permit issuance and site plan review. Compliance with this Fire Safety Requirement shall also be confirmed by County building inspectors prior to issuance of certificates of occupancy for each single-family home. During project operation, this Fire Safety Requirement shall be enforced by the Master HOA.	Building Permit Stage of Site Plan Review	HOA	Centennial Monitoring Group
15	**Master HOA Formation and CC&R Recordation.** Per the Specific Plan, a non-profit Master HOA shall be formed, and the Master HOA's declaration of conditions, covenants, and restrictions (CC&Rs) will be recorded after the recordation of the Project's first final subdivision map consisting of one or more residential lots and prior to the date of the first transfer of any residential lot to a person other than the subdivider. As additional final maps are approved and recorded, the Project area covered by those maps will be annexed by the Master HOA to ensure that control of development and implementation of the CC&Rs can be maintained. Per the Specific Plan and the MMRP, the applicant for a final map shall submit to the Department of Regional Planning the form of CC&Rs so that it may confirm that new homeowners will be informed about their responsibilities under the Fire Safety Requirements. Per Title 32 of the County Code, a copy of the recorded CC&Rs describing the fuel modification requirements must be provided to the LACoFD's Forestry Division. See Section 7.20 for a complete description of this measure.	Project Operations	Applicant	Centennial Monitoring Group
16	**Community Forester.** In accordance with the Specific Plan, the Master HOA shall hire a Community Forester who is trained in urban forestry, arboriculture, horticulture, or landscape architecture to undertake tree management responsibilities. The Community Forester will also coordinate FMZs 3rd party inspections on the Project site. The Community Forester is required to developing a policy for managing public trees on the Project site and educating Project residents about the importance of trees in	Project Operations	HOA	Centennial Monitoring Group

Specific Plan Wildfire Risk Reduction Requirements				
	the community and is responsible for implementing the Project's fire-resistant landscape plan. The Specific Plan further requires the Community Forester to develop programs that involve community organizations and residents in tree preservation, planting and tree care so as to ensure that community trees are, among other things, maintained in accordance with all Fire Code access requirements. Per the Specific Plan, the Community Forester must also prepare an annual tree management plan and implement programs to improve the communities tree canopy in a manner that complies with all Fire Code and LAFCD requirements. In addition, the Specific Plan requires the Community Forester to maintain the Project's fire-resistant plant palette and to consult with the County's staff biologist regarding proposed revisions to the community plant palette described in the Specific Plan. However, the LAFCD shall have final approval over the final plant palette for fuel modification zones and modifications thereto.			
Additional Requirements				
23	**Community Wildfire Evacuation Plan:** The Project shall formally adopt, practice, and implement a "Ready!, Set!, Go!" approach to evacuation through the creation of a Wildland Fire Evacuation Plan (WFEP) for the Project. The WFEP would be based on standard evacuation planning used by the Los Angeles County Office of Emergency Services and provide residents and occupants with potential egress route information and procedures. The WFEP would be provided to the Centennial residents and commercial tenants and posted on the community website. The WFEP would be reviewed by residents at least annually through organized meetings and educational outreach by the HOA, Community Services District, or other means. Every ten years the WFEP will be reviewed and updated by the HOA or similar entity based on current land use, evacuation polies, and regulations. The WFEP will be available for review and input from County Fire and County sheriff.	Project Operations	HOA	HOA

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Appendix K

Centennial Risk Reduction Measures

Code Required Fire Safety Features

Feature No.	Description
1	**Proximity to Fire Stations.** The Project is within LA County Fire's response time goals for initial response. The overall call volume has a less than significant impact on the planned response capacity. Response capacity would be enhanced by three on-site fire stations within the community that will provide a fast response throughout the Project Area.
2	**Ignition Resistant Construction.** All structures within the Project will be constructed of ignition-resistant construction materials consistent with wildfire protection building construction requirements contained in the Los Angeles Building Code including Los Angles Building Code Title 26 Chapter 7A, Los Angeles County Residential Code Section R327, and Los Angeles County Reference Standards Code Chapter 12-7A. These requirements include ignition resistance construction and are a key component in preventing structural ignition *(Section 3.5 Structural Ignition Resistance Regulatory Requirements).*
3	**Automatic Interior Fire Sprinklers.** Per LA County Fire Code all structures of any occupancy type within the Project will be equipped with an NFPA 13, 13R, and 13D automatic sprinkler system. Automatic sprinklers prevent ember generation by structure fires, isolate fires to the point of origin, and limit fires from spreading within the building. *(Section 3.6.3 Automatic Fire Sprinkler System)*
4	**Fuel Modification Zones.** Per State Fire Code Section 4906 defensible space shall be maintained around all within and structures in all unincorporated land designated as SRA. Consistent with PRC 4290, SRA Fire Safe Regulations, California Code of Regulation Title 14 Division 1.4 Chapter 7 Subchapter 2 Section 1270, and Los Angeles County Fire Code Title 32 Section 4908.1 the Project will provide at least 100 feet from the exterior of structures toward the undeveloped wildland areas that are divided into a 30-foot wide irrigation Zone A and a 70 foot wide thinning Zone B. In addition to compliance with the County's fuel modification regulations, the Project would provide additional restrictions in the Zone 0 area (0-5 feet from structures). Although Zone 0 regulations are not currently mandated, they are expected to be codified in 2026. The Project will be designed and constructed in compliance with the applicable Zone 0 requirements in effect at the time of build-out. This will be enforced through LACoFD approval of Fuel Modification Plans (LA County Fire Code 4906.3). The FMZs reduce fire intensity and flame lengths from fires in wildland areas advancing towards structures or vice versa. *(Section 3.2 of WSP Defensible space and Vegetation Management Regulatory Requirements)*
5	**Roadside Fuel Modification Zones.** The internal roadways will be maintained with a minimum of 20 feet to 50 feet total width of vegetation clearance that is clear to the sky to allow for fire apparatus access and prevent vehicle-based ignitions. All flammable vegetation or other combustible growth shall be removed on each side of the roadway for a minimum of 10 feet per County Fire Code Title 32 Section 325.10*. (Section 3.3.1 Roadway Fuel Modification Zones)*
6	**Fire Access infrastructure Conditions.** All Project access will be consistent with County Roadway Standards defined in Title 21 and the 2020 CFC Section 503. Typical interior roads will have a minimum width of 24 feet width of unobstructed access. Private or public streets that provide fire apparatus access to buildings three stories or more in height shall be improved to 30 feet unobstructed width. All interior residential streets will be designed to accommodate a minimum of 75,000-lb. fire apparatus load. Fire apparatus access roads shall not exceed 15 percent in grades. Dead-end roads and cul-de-sacs will comply with Title 21 to ensure fire apparatus access.

Code Required Fire Safety Features

Feature No.	Description
	Per the Subdivision Ordinance, each tentative map application and approved tentative map must demonstrate that Project internal circulation system, site access, road dimensions, road connectivity, and other standards related to fire apparatus access are consistent with all applicable County's roadway and fire code standards.
7	**Water Availability.** Water capacity and delivery will provide for a reliable water source for operations and during emergencies requiring extended fire flow. Water supply will be consistent with County Title 20, Section 20.16.060 for fire flow and fire hydrant requirements within a VHFHSZ. *(Section 3.6.1 Water Supply and Section 3.6.1 Hydrants)*
8	**Ember Resistant Zone** Although not currently required by law, the Project will also include an Ember Resistant Zone (ERZ) within Zone A, consistent with PRC 4291 to include more intense fuels reduction within the immediate vicinity of structures.[1] The ERZ is from the 5 feet of a structure and includes the area under and around all attached decks. The ERZ forces on preventing structure ignition via ember showers by reducing/eliminating all combustible within this zone. *(Section 3.2 of WSP Defensible space and Vegetation Management Regulatory Requirements)*
9	**Underground Utilities.** As required by the County's subdivision ordinance, all tentative map applications must depict the location of proposed utility easements. As required by applicable standards, all of the Project's horizontal utilities, including but not limited electric transmission lines, will be installed underground to significantly reduce the potential for equipment-related fire starts.
10	**Construction Fire Prevention Plan.** As required by Chapter 33 of the CFC, Prior to any construction activities, a detailed Construction Fire Prevention Plan (CFPP) shall be implemented for the Project and submitted to the County of Los Angeles for review and approval prior to the issuance of the first grading permit. The CFPP shall designate fire safety measures to reduce the possibility of fires during construction activities, including fire watch during hot works and heavy machinery activities (e.g., welding), spark arrestors on all equipment, water supply via hose lines attached to hydrants, or a water tender pursuant to County Fire requirements, red flag period restrictions, and mandatory on-site fire resources. Employees would be presented with basic prevention fire training upon employment, and the on-site safety officer and/or supervisor/foreman shall maintain documentation of training. Training shall consist of the Project WSP requirements, review of Occupation Safety and Health Administration (OSHA) Fire Protection and Prevention, proper response and notification of a fire, and the use of fire extinguishing equipment. A site safety officer shall be responsible for the implementation of the CWSP, ensuring fire control equipment are maintained in good working conditions, monitoring combustibles onsite, conducting fire safety surveys, posting fire rules in an area visible to employees, stopping work activities that pose a fire hazard or are not in compliance with the CFPP, and reporting all fire ignited on-site to County Fire. County Fire shall review site fire safety conditions prior to the commencement of construction activities.

[1] Assembly Bill 3074, passed into law in 2020, which requires a third zone for defensible space and amends PRC 4291. The amendment requires the Board of Forestry and Fire Protection to develop the regulation for the new ember-resistant zone (ERZ) within 0 to 5 feet of a structure by January 1, 2023. CAL FIRE currently recommends the implementation of an ERZ. In anticipation of the ERZ requirements becoming codified in PRC 4291, the ERZ has been included in the defensible space requirements for the Project. The above listed requirements are based on the current recommendations for creating an ERZ detailed on CAL FIRE Defensible Space website (https://www.fire.ca.gov/programs/communications/defensible-space-prc-4291/). These requirements will be reviewed and updated once the Board of Forestry and Fire Protection updates the regulations for the ERZ in PRC 4291.FIRE Defensible Space website (https://www.fire.ca.gov/programs/communications/defensible-space-prc-4291/). These requirements will be reviewed and updated once the Board of Forestry and Fire Protection updates the regulations for the ERZ in PRC 4291.

Code Required Fire Safety Features

Feature No.	Description
11	**Pre-Construction Requirements.** As required by Chapter 33 of the CFC, The applicant shall submit site improvement plans to County Fire prior to the issuance of the building permits. Prior to bringing lumber or combustible materials related to residential and nonresidential building construction onto the Project Site, site improvements within the active development area shall be in place, including utilities, operable fire hydrants, and an approved, temporary roadway surface and fuel modification zones shall be established. Combustible materials may be utilized onsite prior to stated site improvements as needed for providing the improvements (e.g., wood forms for cast-in-place concrete) or for infrastructure construction prior to utilities being installed (e.g. operable fire hydrants). County Fire shall review site fire safety conditions prior to the commencement of building activities.
12	**Annual Fuel Modification Maintenance.** As required by Los Angeles County Fire Code 4908.1, all vegetation management with the FMZs and common areas shall be completed annually by May 1 of each year. Vegetation management may be completed more often for fire safety if determined necessary by County Fire. The Project HOA or equivalent entity shall be responsible for the annual maintenance of all vegetation management within the Fuel Modification Zones (FMZs) in the common areas ensuring compliance with LACoFD fuel modification guidelines. Property owners will be responsible for maintaining the Ember Resistant Zone (ERZ) and any fuel modification within their property. The annual maintenance would be managed and maintained by the Project HOA through a qualified contractor that shall be required to meet fire safety requirements regarding equipment, the timing of maintenance, and fire suppression capabilities. Maintenance activities would include but not be limited to removing dead and dying material, removing undesirable plant species, and conducting thinning activities to maintain adequate spacing requirements. The Project HOA or similar entity shall be responsible for ensuring the long-term funding and ongoing compliance with all provisions of the WSP including, vegetation planting, fuel modification of the perimeter areas, vegetation management on all common areas including roadsides, and open space areas under their control. The Project HOA shall be responsible for the implementation of the annual FMZ maintenance subject to ongoing enforcement by County Fire. The HOA or and County Fire would enforce the vegetation management requirements detailed in the WSP and such requirements would be made a part of deed encumbrances and CC&Rs for each lot, as appropriate. Documentation, as part of the inspection report per Recommended Measure -4, on maintenance activities detailing the FMZS, maintenance operation, and consistency with current County brush clearance requirements shall be submitted to County Fire Bush Clearance Program.
13	**Landscape Plan.** As required by LA County Fire code 4906.3, the Project Applicant/Developer shall develop a Landscaping Plan for review and approval by the County Biologist for each tentative map application submittal.
14	**Confirmation of Code Compliance.** At the building permit and site plan review stage of Project development, the County will confirm that all building plans comply with all applicable codes. The Project shall comply with applicable portions of Title 30, 32, and 33 of the Los Angeles County Code at the time of building permit and site plan review. The Project would also be subject to the provisions of Section 4291 of the Public Resources Code regarding brush clearance standards around structures and the Los Angeles County Fire Department guidelines for Fuel Modification Plans. The Project is required to comply with all future code updates as development proceeds. Code compliance shall also be confirmed by County building inspectors prior to issuance of certificates of occupancy.

Climate Resolve Settlement Agreement Requirements

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
1	**HOA Wildfire Education Program.** The Project residents and occupants shall be provided with ongoing education regarding wildfire, the WSP, and the Wildfire Evacuation Plan. The education program would support fire safety, evacuation practices, and fire safety features designed for the community. The Centennial Wildfire Education Program would provide target outreach to residents and occupants living in a fire risk area and would be a layered approach to maintaining high wildfire risk awareness that includes active and passive features. Contents of the educational program would be reviewed and approved by County Fire before printing and distribution. The Project HOA or similar entity shall be responsible for the ongoing funding and maintenance of the wildfire education program. The educational program shall consist of the following: 1. **Bi-annual email and mailers:** Residents and occupants will be provided with bi-annual emails and mailers in May and in August. Mailers would be sent to each property address and property owners would receive digital copies. Property owners would be highly encouraged to share this information with tenants should they choose to rent their property. The mailers and emails would include information such as reminders about annual defensible space inspections, maintaining the Ember Resistant Zone (ERZ), how to prepare for wildfire season, evacuation information, and how to prevent wildfires. There would also be links to various resources on where to get trusted information such as County Fire, 211 LA County, and Ready LA County. 2. **Website:** There shall be a dedicated community website with more detailed information and resources about wildfire awareness and prevention. The website would serve as a centralized resource for the fire education program and include information from the WSP. The website will also have fire watch and red flag warning alerts, as well as information	During Operation	HOA	Centennial Monitoring Group

Climate Resolve Settlement Agreement Requirements

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
	on restrictions during fire weather conditions. Residents will also be able to use the website to sign up for an annual residential defensible space inspection from the HOA Fire Committee. 3. **Community workshops and webinars:** Two times a year there shall be either in-person or virtual community workshops. The goal of the workshops would be to cover various fire topics more in-depth. For example, this could include having a County Fire representative come to meet the community, a workshop on how to make a go-bag, a workshop on how to make a residential evacuation plan, or how to maintain the home ignition zone. 4. **New resident packet:** All residents and new residents in the future shall also be presented with wildfire awareness and safety package upon purchase or rental of a home. This would also be given to businesses as part of their employee training program. Within the package will be a memory stick with the evacuation plan, a list of fire protection features, information on the regional fire hazard, prohibited activities in fire risk areas, how to build a go-bag, and a list of agencies and resources for receiving trusted information. 5. **Emergency alert campaign:** Residents and businesses would be encouraged to sign up for Alert LA County. Alert LA County is the mass notification system for emergency alerts, weather alerts, health notifications, building alerts, and other updates from County, State, and Federal agencies. The campaign shall occur annually and encourage residents to sign up for Alert La County. Reminders would also be sent out in the bi-annual mailers and emails, on the community website, in the workshops, and in the new resident package. 6. **Fire watch groups:** Within the community, there shall also be volunteer fire watch groups. These would be residents or businesses who volunteer to participate in a fire watch group			

Climate Resolve Settlement Agreement Requirements

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
	for the community. During red flag warning days, this group would be responsible for reminding businesses and residents of fire-safe practices and restrictions. During red flag warning days, the fire watch group would also maintain vigilance of potential fires and would be trained on procedures for alerting County Fire in the event of a fire. 7. **HOA fire safety committee:** The fire safety committee shall be responsible for overseeing the maintenance of community-wide fire protection features. Residents would be able to report fire hazards or hazardous fuel conditions to the HOA committee for remediation. The committee will be responsible for the coordination of the 3rd party Fuel Modification Zone (FMZ) inspections and the volunteer residential defensible space inspections. The committee shall also be responsible for organizing and coordinating an annual education workshop on how to maintain the ERZ. The committee shall also be responsible for the creation and distribution of the educational program for the Project. The committee would serve as a communication link between County Fire and the community.			
2	**Enhanced Wildfire Prevention and Protection Measures.** In addition to commitments that ensure Centennial will be a Net Zero GHG Project, Climate Resolve and Centennial have mutually agreed to make certain additional commitments to fund wildfire prevention, protection, and response activities within the Project, and to fund grants to improve wildfire prevention, protection, and response activities in nearby communities. See Section 7.7 of the WSP for a complete description of the requirements outlined in the settlement agreement.	During Operation	Applicant	Centennial Monitoring Group
3	**Master HOA Enforcement of CC&Rs Through Monetary Penalties.** To promote enforcement of the CC&Rs, the governing documents of the Master HOA shall vest the governing board of the Master HOA with authority to impose fines on any homeowner who violates any provision of the CC&R related to Fire Safety Requirements, and	Project Operations	HOA	Centennial Monitoring Group

Climate Resolve Settlement Agreement Requirements

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
	shall establish a schedule of reasonable monetary penalties to be assessed by the Master HOA against any homeowner that violates any provision of the CC&Rs related to Fire Safety Requirements. The required schedule of monetary penalties shall also be included as part of a general CC&R enforcement policy to be adopted and administered by the governing board of the Master HOA, which policy shall describe in detail the steps to be followed in enforcing the Master HOA governing documents and CC&Rs. As provided in California Civil Code Section 5855, no fine shall be assessed against a homeowner for violating a provision of the CC&Rs related to Fire Safety Requirements unless and until the Master HOA first conducts a hearing on the alleged violation. At least ten days' advance notice must be provided to the relevant homeowner of the date and time of the hearing, the general nature of the allegation of rules violation against such homeowner and informing such homeowner that they have the right to attend such hearing and to address the governing board.			
4	Master HOA Ongoing Maintenance. The governing documents of the Master HOA shall provide that the Master HOA is responsible for the long-term funding and ongoing maintenance of private roads and fire protection systems, including fire sprinklers and private fire hydrants. The Master HOA governing documents shall also provide that the Master HOA is responsible for the long-term funding and implementation of all fuel modification vegetation management in Project common areas, including but not limited to roadsides (including a minimum of 20 feet clearance on each side of roads within the Project development footprint adjacent to open space areas), open space and landscape areas, and fuel modification zones. In addition, the Master HOA shall establish a reverse 9-1-1 system capable of contacting every listed telephone number in the community by computer at a rate of at least 250 calls per minute.	Project Operations	HOA	Centennial Monitoring Group

Climate Resolve Settlement Agreement Requirements

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
5	**Fire Protections Education Committee.** The governing documents of the Master HOA shall establish a Fire Protection Education Committee (FEPC) The purpose of the FEPC shall be to (i) promote education programs and tools that provide information to Project homeowners about the Project's overall Fire Safety Requirements and about each homeowner's individual obligations thereunder; (ii) promote education programs and tools that provide information about wildland fire ecology, management, protection, and prevention; and (iii) coordinate with the LACoFD and other stakeholders to identify opportunities for improvement in all areas of wildland fire communication, education, protection, and prevention. See Section 7.23 for a complete description of this measure.	Project Operations	HOA	Centennial Monitoring Group
6	**Third-Party Compliance Inspectors.** To confirm that the Project's fuel management zones and landscape areas are being maintained according to the Fire Safety Requirements and the LACoFD's fuel modification guidelines, the Master HOA shall obtain a fuel management zone inspection and report from a qualified LACoFD-approved third-party inspector in May/June of each year certifying that vegetation management activities throughout the Project site have been timely and properly performed. If the third-party inspector determines that a fuel management zone or landscape area is not compliant with all applicable fire-safety standards, the Master HOA shall have a specified period, not to exceed sixty days, to correct any noted issues so that a re-inspection can occur and certification can be achieved. Annual inspection fees may be subject to the current Fire Department Fee Schedule.	Project Operations	HOA	Centennial Monitoring Group

Wildfire Risk Reduction Mitigation Measures

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
MM 3-7 (2019 EIR)	**Emergency Response Plan.** The Project Applicant/Developer shall prepare an Emergency Response Plan for the Project, which shall be updated as needed for each Tentative Map and shall be submitted to the County for review and approval. The Project Applicant/Developer shall be responsible for distributing the current Emergency Response Plan to each purchaser or tenant of each property within Centennial and shall distribute the Plan to all landowners through the Transportation Management Agency (TMA).	Tentative Map Stage	Applicant	County Fire and County Sherrif
MM 3-8 (2019 EIR)	**Traffic Control Plan.** The Project Applicant/Developer shall prepare a Traffic Control Plan in accordance with the California Manual on Uniform Traffic Control Devices (MUTCD). The Traffic Control Plan shall be reviewed and approved by the California Department of Transportation (Caltrans), and all construction activities in the public right-of-way shall comply with the approved Traffic Control Plan to the satisfaction of Caltrans. Documentation of Caltrans approval shall be provided to the County for any Tentative Map involving construction within SR-138 right-of-way.	Construction Permits	Applicant	Caltrans
MM 7-13 (2019 EIR)	**Landscape Plan.** The Project Applicant/Developer shall develop a Landscaping Plan for review and approval by the County Biologist. The Landscaping Plan shall be (1) prepared by a qualified biologist, (2) submitted to the County for approval with each tentative map, (3) provided to builders, (4) provided to future project occupants as described in the Specific Plan, and (5) include a plant palette composed of non-invasive species that are adapted to the conditions found on the Project site and do not require high irrigation rates. The Landscaping Plan will also include a list of invasive plant species prohibited from being planted on the Project site. In addition, retail sales of these invasive plant species will be prohibited at any businesses (nurseries) located within the Project site. Landscape plans shall encourage planting of local natives typical of native vegetation within ten miles of the Project site.	Construction Permit and During Operations	Applicant and HOA	County Department of Regional Planning

Wildfire Risk Reduction Mitigation Measures

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
MM 7-21 (2019 EIR)	Implementation Plan. In order to ensure that no direct impacts to Significant Ecological Area (SEA) 17 occur, brush clearance zones shall be contained within the current Project impact boundary and no overlap with the adjacent SEA 17 shall occur. Vegetation management for fire abatement purposes is not authorized in SEA areas. An Implementation Plan, including fire risk abatement measures (including but not limited to vegetation management) required to comply with State and County fire prevention and response legal requirements, shall be submitted as part of the tentative tract map for portions of the Project site that border an SEA or mitigation preserve area. The Plan shall include: (a) a summary of applicable State and County fire risk abatement requirements; (b) a prohibition on the use of vegetation clearance within SEA 17 or mitigation preserve areas. The Plan shall be submitted to the County for approval with the first tentative map, and shall be updated to include new or modified State or County fire risk abatement requirements as part of each subsequent tentative tract map submittal.	Tentative Map Stage	Applicant	County Department of Regional Planning
MM 10-5 (2019 EIR)	Construction Traffic Control Plan. The Project Applicant/Developer shall submit Traffic Management Plans to the County for review and approval. The Traffic Management Plans shall describe traffic-control measures that shall be implemented to maintain traffic flow in all directions, including where utilities and other improvements are being implemented in existing roadways. The Traffic Management Plans shall identify the following: construction haul routes; duration and location of lane closures; location of parking for the public and construction workers during construction phases; use of flag persons; and any pedestrian-related impacts to sidewalks and intersection crossings. The Traffic Management Plan shall be implemented during all stages of Project construction that generate traffic impacts.	Construction Permits	Applicant	County Department of Public Works

Wildfire Risk Reduction Mitigation Measures

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
MM 11-3 (2019 EIR)	**Ban on Wood Burning Fireplaces.** The Project's plans and specifications shall prohibit wood-burning fireplaces as required by SCAQMD Rule 445 in single-family residences throughout the entire Project site, including residences that are 3,000 or more feet about mean sea level at which the SCAQMD prohibition would otherwise not apply. Natural gas fireplaces shall be limited to a total of 13,954. These requirements shall be posted on the community intranet and shall be clearly described and distributed to home buyers through their home purchase contracts and CC&Rs.	Construction Permits	Applicant	County Department of Regional Planning And/or County Department of Public Works Building Inspectors
MM 16-2 (2019 EIR)	**Developer Fees.** The Project Applicant/Developer shall pay developer fees in effect at the time of construction permit approval, in accordance with the LACFD Developer Fee Program until such time the Project Applicant/Developer has conveyed an approved, operational fire station to the LACFD. As an alternative to fee payment, the Developer Fee Program allows the LACFD and the Project Applicant/Developer to agree on a program whereby the Project Applicant/Developer would provide land and would construct and equip the fire stations required for the Project in exchange for a credit towards the Project's fee payments.	Construction Permits	Applicant	County Fire
MM 16-3 (2019 EIR)	**Construct and Equip Fire Stations.** The Project Applicant/Developer shall provide, convey title, and shall construct and equip to the specifications and requirements of LACFD, for up to four new Fire Stations to the LACFD. The approved final plans and specifications for the Project shall identify location of the fire stations. The timing for the construction of the on-site fire stations shall be established by the LACFD dependent upon the phasing of development, with the first on-site fire station operational no later than the time the 1,000th dwelling unit is built on site.	Final Map Stage	Applicant	County Fire
MM 16-4 (2019 EIR)	**Law Enforcement Facilities Mitigation Fee.** The Project Applicant/Developer shall pay Law Enforcement Facilities Mitigation Fee (LEFMF) to the Los Angeles County Sheriff's Department (LASD) pursuant to the requirements established in County Ordinance No. 2008-0033. The amount of fees to be paid would be determined	Construction Permits; Certificate of Occupancy; Completion of First	Applicant	County Sheriff

Wildfire Risk Reduction Mitigation Measures

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
	based on the established fee in Section 22.74.030 of the County Code. The Project incorporates a temporary "store front" sub-station, followed by construction of a permanent LASD Station included on the Project site, in lieu of a portion of the LEFMF, as allowed under Section 22.74.090 (Consideration in Lieu of Fee) of the County Code. Costs associated with the construction of the temporary "store front" sub-station and permanent LASD Station would be credited against the LEFMF. Prior to completion of the permanent LASD Station, the "store front" sub-station may be located on site in Village 1 on the north side of the SR-138. This temporary sub-station shall be properly outfitted in accordance with applicable occupancy requirements of the LASD for such "store front" facilities and shall be operational prior to the approval of the first certificate of occupancy for the first phase of Project development. The Centennial Land Use Plan identifies a conceptual location for one LASD Station in the Business Park area on the Project site north of the SR-138. The permanent LASD Station shall be constructed immediately following completion of the first phase of development. The LASD shall have final approval over the temporary sub-station and permanent LASD Station site locations.	Development Phase		
WILD-1 (RPDEIR)	**Construction Fire Prevention Plan.** Prior to the issuance of grading or building permits, the project proponent/operator shall develop and implement a Construction Fire Prevention Plan for use during construction. The project proponent/operator shall submit the plan, along with maps of the project site and access roads, to the Los Angeles County Fire Department for review and approval. A copy of the approved Construction Fire Prevention Plan shall be submitted to the Department of Regional Planning. The Construction Fire Prevention Plan shall provide standard protocols and approaches for reducing the potential of ignitions for typical construction site activities, including, but not limited to, the following:	Construction Permits	Applicant	County Fire; County Department of Regional Planning

Wildfire Risk Reduction Mitigation Measures

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
	A. Emergency notification and evacuation procedures. B. Designation of a Site Safety Officer whole shall understand the CFPP and its mandates for fire prevention, fire suppression, and evacuation and shall have authority to stop project work activities that pose a fire hazard or are not in compliance with the approved CFPP. C. Vehicles shall be equipped with specified fire prevention equipment. D. All internal combustion engines, both stationary and mobile, shall be equipped with spark arresters. E. Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials. F. Red Flag Warning Weather and Hot Work restrictions. G. Fire rules shall be posted on the project bulletin board at the contractor's field office and areas visible to employees. H. Procedures shall be established for minimizing potential ignition, including, but not limited to, vegetation clearing and management, parking requirements/restrictions, idling restrictions, smoking restrictions, and proper use of gas-powered equipment. I. Personnel shall be trained in the practices of the CFPP relevant to their duties. Construction and maintenance personnel shall be trained and equipped to extinguish small fires to prevent them from growing into more serious threats. J. The project proponent/operator shall restrict the use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to days when the Los Angeles County Fire Department Daily Fire Danger Rating is low. When the above tools are used, water tanks equipped with hoses, fire rakes, and axes shall be easily accessible to personnel.			

Wildfire Risk Reduction Mitigation Measures

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
WILD-2 (RPDEIR; Superseded 2019 EIR MM 3-9)	**Fuel Modification Plan.** The Project Applicant/Developer shall prepare a Fuel Modification Plan demonstrating compliance with the County Fire Code Title 32 and shall provide all new residents and business owners with recorded Covenants, Conditions, and Restrictions (CC&Rs) or disclosure statements that identify the responsibilities for maintaining the fuel modification zone(s) on their property, as defined in the approved Fuel Modification Plan. The CC&Rs or disclosure statements prepared by the Project Applicant/Developer shall be submitted to the County to confirm that new property owners would be informed of their responsibilities for maintaining the fuel modification zone(s) on their property.	Tentative Map Stage	Applicant	County Fire; County Department of Regional Planning
WILD-3 (RPDEIR)	**Fire-Safe Landscaping.** Consistent with the Specific Plan's Green Development Program and Hillside Design Guidelines, the Project shall implement fire-safe landscaping techniques consistent with the Specific Plan's plant palette to reduce fire risks to biological resources and human safety in fuel modification zones. The Project shall include landscaping in the Open Space Zone dominated by native and/or drought tolerant trees, shrubs and ground cover, taking into consideration fuel modification requirements, such as using plants that are fire resistant and avoid plants with characteristics that make them more readily combustible such as plants with oils, wax or resin content, plants that accumulate dead material or shed bark, and/or plants that grow rapidly. Plants selected will be consistent with LACFD Planting Guideline regarding prohibited species and appropriate plant spacing with respect to zone location.	Tentative Map Stage	Applicant	County Department of Regional Planning

Wildfire Risk Reduction Mitigation Measures

Measure	Description	Implementation Timing	Responsible Party for Implementing	Responsible Party for Monitoring
WILD-4 (RDEIR)	**Ban on Outdoor Fire Pits and Fireplaces.** The Project's plans and specifications shall prohibit outdoor fire pits and outdoor freestanding fireplaces throughout the Project site. This requirement will be enforced at the time of building permit issuance and site plan review. Compliance with this Fire Safety Requirement shall also be confirmed by County building inspectors prior to issuance of certificates of occupancy for each single-family home.	Construction Permits	Applicant	County Department of Public Works Building and Safety
WILD-5 (RPDEIR)	**Operational Emergency Response Enforcement.** The Project Applicant/Developer shall submit the Emergency Response Plan required by MM 3-7 to the Fire Department and/or County Sheriff's Department and California Department of Forestry and Fire for review and approval. The Emergency Response Plan shall utilize existing information from Los Angeles County Office of Emergency Management, coordinate with County emergency planners, and provide site specific procedures for various emergency situations including wildfire. The Property CC&Rs shall require future residential and commercial property owners associations to develop and implement an emergency preparation and response plan, including shelter-in-place and evacuation plans as well as first aid and emergency electric power supplies	Tentative Map Stage	Applicant	County Fire; County Sheriff; County Department of Regional Planning; CalFIRE

Specific Plan Wildfire Risk Reduction Requirements				
14	**Fire-safe Sign Requirements.** As required by the Specific Plan, no sign shall be installed, relocated, or maintained so as to prevent free ingress to or egress from any door, window, or fire escape. In addition, no sign of any kind shall be attached to a standpipe or fire escape, except those signs required by other applicable codes or ordinances. This requirement will be enforced at the time of building permit issuance and site plan review. Compliance with this Fire Safety Requirement shall also be confirmed by County building inspectors prior to issuance of certificates of occupancy for each single-family home. During project operation, this Fire Safety Requirement shall be enforced by the Master HOA.	Building Permit Stage of Site Plan Review	HOA	Centennial Monitoring Group
15	**Master HOA Formation and CC&R Recordation.** Per the Specific Plan, a non-profit Master HOA shall be formed, and the Master HOA's declaration of conditions, covenants, and restrictions (CC&Rs) will be recorded after the recordation of the Project's first final subdivision map consisting of one or more residential lots and prior to the date of the first transfer of any residential lot to a person other than the subdivider. As additional final maps are approved and recorded, the Project area covered by those maps will be annexed by the Master HOA to ensure that control of development and implementation of the CC&Rs can be maintained. Per the Specific Plan and the MMRP, the applicant for a final map shall submit to the Department of Regional Planning the form of CC&Rs so that it may confirm that new homeowners will be informed about their responsibilities under the Fire Safety Requirements. Per Title 32 of the County Code, a copy of the recorded CC&Rs describing the fuel modification requirements must be provided to the LACoFD's Forestry Division. See Section 7.20 for a complete description of this measure.	Project Operations	Applicant	Centennial Monitoring Group
16	**Community Forester.** In accordance with the Specific Plan, the Master HOA shall hire a Community Forester who is trained in urban forestry, arboriculture, horticulture, or landscape architecture to undertake tree management responsibilities. The Community Forester will also coordinate FMZs 3rd party inspections on the Project site. The Community Forester is required to developing a policy for managing public trees on the Project site and educating Project residents about the importance of trees in	Project Operations	HOA	Centennial Monitoring Group

Specific Plan Wildfire Risk Reduction Requirements				
	the community and is responsible for implementing the Project's fire-resistant landscape plan. The Specific Plan further requires the Community Forester to develop programs that involve community organizations and residents in tree preservation, planting and tree care so as to ensure that community trees are, among other things, maintained in accordance with all Fire Code access requirements. Per the Specific Plan, the Community Forester must also prepare an annual tree management plan and implement programs to improve the communities tree canopy in a manner that complies with all Fire Code and LAFCD requirements. In addition, the Specific Plan requires the Community Forester to maintain the Project's fire-resistant plant palette and to consult with the County's staff biologist regarding proposed revisions to the community plant palette described in the Specific Plan. However, the LAFCD shall have final approval over the final plant palette for fuel modification zones and modifications thereto.			
Additional Requirements				
23	**Community Wildfire Evacuation Plan:** The Project shall formally adopt, practice, and implement a "Ready!, Set!, Go!" approach to evacuation through the creation of a Wildland Fire Evacuation Plan (WFEP) for the Project. The WFEP would be based on standard evacuation planning used by the Los Angeles County Office of Emergency Services and provide residents and occupants with potential egress route information and procedures. The WFEP would be provided to the Centennial residents and commercial tenants and posted on the community website. The WFEP would be reviewed by residents at least annually through organized meetings and educational outreach by the HOA, Community Services District, or other means. Every ten years the WFEP will be reviewed and updated by the HOA or similar entity based on current land use, evacuation polies, and regulations. The WFEP will be available for review and input from County Fire and County sheriff.	Project Operations	HOA	HOA

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