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Fire Protection Plan

CAJALCO COMMERCE CENTER PROJECT

FEBRUARY 2024

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
amsl	above mean sea level
ADA	Americans with Disabilities Act
APN	Assessor's Parcel Number
BTU	British Thermal Unit
CAL FIRE	California Department of Forestry and Fire Protection
CBC	California Building Code
CFA	California Fire Alliance
CFC	California Fire Code
CMU	Concrete Masonry Unit
EV	electric vehicle
FAHJ	Fire Authority Having Jurisdiction
FHSZ	Fire Hazard Severity Zone
FMZ	Fuel Modification Zone
FPP	Fire Protection Plan
FRAP	Fire and Resource Assessment Program
gpm	gallons per minute
IFC	International Fire Code
I-215	Interstate 215
LRA	Local Responsibility Area
mph	miles per hour
NFPA	National Fire Protection Association
PRC	Public Resources Code
Project	Cajalco Commerce Center Project
RCFD	Riverside County Fire Department
ROW	Right-of-way
SF	Square foot
SRA	State Responsibility Area
USGS	United States Geological Survey
VHFHSZ	Very High Fire Hazard Severity Zone
WUI	Wildland Urban Interface

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Executive Summary

This Fire Protection Plan (FPP) has been prepared for the Cajalco Commerce Center (Project), which proposes the development of a 64.97 gross acre property with a light-industrial warehouse building on 44.74 net acres and a public park on approximately 13.35 net acres, along with approximately 6.88 acres of proposed right-of-way (ROW) dedications. The site proposed for development with the warehouse building is located in an unincorporated area in the western portion of Riverside County, California, northwest of Perris, and within an area known as Mead Valley. More specifically, the Project site is located at the southwest corner of Seaton Avenue and Cajalco Road, between Seaton Avenue and Decker Road, while the site proposed for the public park occurs both east and west of Decker Road, approximately 185 feet south of the proposed warehouse building site. The development of the Cajalco Commerce Center will provide substantial improvements to Cajalco Road, Decker Road, and Seaton Avenue. The approximately 64.97-acre site is generally situated west of the 215 freeway, east of Day Street, and South of Cajalco Road; specifically, the project is bounded by Decker Road to the west, Cajalco Road to the north, Seaton Avenue to the East, and by undeveloped land to the south (see Figure 1, Project Location Map; Figure 2, Proposed Site Plan Map).

This FPP provides measures for fire protection that meet the applicable portions of Riverside County Fire Department (RCFD) Technical Policies and Fire Prevention Standards, applicable portions of the Riverside County Municipal Code, Ordinances No. 460 and No. 787.8, and Title 8, Chapter 8.32 – Fire Code, which have adopted the 2022 edition of the California Fire Code (CFC), including Chapter 49, California Code of Regulations, Title 24, Part 9, with amendments. Furthermore, the Project will be consistent with applicable portions of Title 15, Chapter 15.04 – Building Regulations, which adopts the 2022 edition of the California Building Code (CBC), including Chapter 7A based on the 2021 edition of the International Fire Code (IFC) as adopted and amended by RCFD. This FPP evaluates and identifies the potential fire risk associated with the Project's land uses and identifies requirements for water supply, fuel modification and defensible space, access, building ignition and fire resistance, and fire protection systems, among other pertinent fire protection criteria. The purpose of this plan is to generate and memorialize the fire safety requirements and standards of the RCFD/California Department of Forestry and Fire Protection (CAL FIRE), along with project-specific measures based on the site, its intended use, and its fire environment.

This document provides analysis of the site's fire environment and its potential impact on the Project as well as the Project's potential impact on the existing fire protection service. Tasks completed in preparation of this FPP include data review, code review, site fire risk analysis, land use plan review, fire behavior modeling, and site-specific recommendations. Requirements and recommendations herein are based on site-specific fire environment analysis and Project characteristics, and incorporates area fire planning documents, site risk analysis, and standard principles of fire protection planning. As determined during the analysis of this site and its fire environment, the Project, in its current condition, may include characteristics that, under favorable weather conditions, could have the potential to facilitate fire spread. Under extreme conditions, wind-driven wildfires from the east and/or northeast could cast embers onto the property. Once the project development site is fully constructed, the on-site fire potential will be greatly reduced compared to its current condition due to meeting the most recent ignition and ember resistant fire and building codes, interior fire sprinkler systems, non-combustible parking areas, managed landscape areas, requirements for water supply, fire apparatus access, improved accessibility for fire personnel, fuel modification zone implementation, and retaining and screen walls.

It is important to note that the fire safety requirements that will be implemented on this site, including ignition resistant construction standards, along with requirements for water supply, fire apparatus access, fuel modification and defensible space, interior fire sprinklers and fire response travel times were integrated into the code requirements and internal guidelines based on results of post-fire assessments, similar to the After Action Reports that are now prepared after large fire events. When it became clear the specifics of how structures were built, how fire and embers contributed to ignition of structures, what effects fuel modification had on structure ignition, how fast firefighters could respond, and how much (and how reliable) water was available, the Local and State Fire and Building codes were revised appropriately. Riverside County now boasts some of the most restrictive codes for building within Wildland Urban Interface (WUI) areas that focus on preventing structure ignition from heat, flame, and burning embers.

The Project proposes the development of a 1,003,510 square-foot (SF) warehouse building on 44.74 net acres and a public park on approximately 13.35 net acres, along with approximately 6.88 acres of proposed right-of-way (ROW) dedications. The light industrial warehouse building would include 983,510 SF of warehouse space, 10,000 SF of office space, and 10,000 SF of mezzanine space. Office spaces may be located at each of the corners of the building. A total of 76 dock doors are proposed along the north side of the building and a total of 76 dock doors are proposed along the south side of the building. A total of 357 automobile parking spaces are proposed, including 277 standard parking spaces, two (2) Americans with Disabilities Act (ADA) van parking stalls, six (6) ADA standard parking stalls, 49 electric vehicle (EV) capable stalls (without electric vehicle supply equipment [EVSE]), 18 EV capable stalls (with EVSE), one (1) ADA EV van parking stall, two (2) ADA EV standard parking stalls, and two (2) EV ambulatory stalls. Access to the light industrial warehouse building site is proposed via 2 driveways along Decker Road (from north to south, Driveways 1 and 2) and three driveways along Seaton Avenue (from north to south, Driveways 3 through 5). Driveways 1 and 2 along Decker Road, as well as Driveway 4 along Seaton Avenue (i.e., the central driveway along Seaton Avenue), would be restricted to passenger vehicles only. Driveways 3 and 5 along Seaton Avenue (i.e., the northern and southern driveways) would serve both passenger cars and trucks.

As detailed in this FPP, the project's fire protection systems will include a redundant layering of protection methods that have proven to reduce overall fire risk. The fire safety measures included herein, both required and recommended, are performance based and site–specific, considering the project's unique characteristics rather than a prescriptive, one-size-fits-all approach. The fire protection systems are designed to increase building safety, as well as the safety of those occupying the building, reduce the fire risk on site, to minimize risks associated with typical uses, and aid the responding firefighters during an emergency. No singular measure is intended to be relied upon for the site's fire protection, but rather, a system of fire protection measures, methods, and features combine to result in enhanced fire safety, reduced fire potential, and improved safety throughout the Project site.

Based on the results of this FPP's analysis and findings, the following FPP implementation measures will be provided as part of the proposed development plan. These measures are discussed in more detail throughout this FPP.

Implementation Measures:

1. The proposed project buildings will be constructed of ignition resistant[1] construction materials and include National Fire Protection Association (NFPA) 13 consistent automatic fire sprinkler systems based on the latest adopted Building and Fire Codes for occupancy types.

[1] A type of building material that resists ignition or sustained flaming combustion sufficiently to reduce losses from wildland-urban interface conflagrations under worst-case weather and fuel conditions with wildfire exposure of burning embers and small flames, as prescribed in CBC, Chapter 7A and State Fire Marshal Standard 12-7A-5, Ignition-Resistant Materials.

2. Fuel Modification will be provided around the perimeter of all structures, as required by RCFD and will be a minimum of 100 feet wide, with all areas of the project site around structures being converted to either non-combustible paved surfaces or irrigated landscaping.
3. Landscape plantings will utilize plants recommended by the RCFD for use in Fuel Modification Zones (See Appendix E).
4. An aerial fire apparatus access road (i.e., public and private streets) will be provided around the entire warehouse and will provide at least the minimum required unobstructed travel lanes, lengths, turnouts, turnarounds, width and clearances required by applicable codes. Primary access and internal circulation will comply with the requirements of the RCFD.
5. The warehouse building will be equipped with a commercial automatic interior fire sprinkler system meeting NFPA and RCFD requirements for the occupancy type.
6. Water capacity and delivery will provided by a reliable water source for operations and during emergencies requiring extended fire flow.
7. Should future iterations of the project's site plan result in buildings that do not achieve a minimum of 100 feet of defensible space, then alternative materials and methods may be proposed to provide the functional equivalency of a full 100 feet of defensible space. Alternative materials and methods will be to the satisfaction of the RCFD and may include structural hardening enhancements or landscape features, like non-combustible walls.

The following measures shall be implemented by the Project's Property Manager(s). Annual maintenance should occur before May 1st of each year and inspected by RCFD or an approved third party.

1. Maintenance would occur as needed, and the Property Owner would annually hire a third party, RCFD-approved, FMZ inspector to provide annual certification that it meets the requirements of this FPP.
2. The property owner and/or property management company will provide informational brochures at time of occupancy, which will include an outreach and educational role to ensure fire safety measures detailed in this FPP have been implemented and development-wide "Ready, Set, Go![2]" plans prepared.

Fire risk analysis conducted for the project resulted in the determination that wildfire has occurred on and adjacent to and will likely occur near the development area again, however, the project would provide ignition-resistant landscapes and hardscape (irrigated park area with drought-tolerant and low-fuel-volume plants, along with non-combustible parking and driveways surrounding the warehouse building), ignition-resistant structures, and defensible space with the implementation of specified fire safety measures. Based on modeling and analysis of the project area to assess its unique fire risk and fire behavior, it was determined that the Riverside County and CAL FIRE standard of a minimum 100-foot-wide fuel modification zones (FMZs) would help considerably to set the project's structures back from off-site fuels, however, this project proposes to convert all of the land surrounding structures within the project boundary to an FMZ equivalent condition. This area will amount up to approximately 220 feet of on-site fuel modification from the exterior of the proposed warehouse building to the property line for the northern portion of the Project. Furthermore, the 13.5-acre public park will be converted from undeveloped open space land to a fully-irrigated and maintained green area south the warehouse building, further reducing the overall fire risk of the area. The up to 220-foot-wide FMZ along with the fully-irrigated public park, when properly

[2] https://www.readyforwildfire.org/

maintained, will effectively minimize the potential for structure ignition from direct flame impingement or radiant heat within the development. The FMZs for the project would be maintained in perpetuity by the property owner.

Early evacuation for any type of wildfire emergency within the development is the preferred method of providing for occupant and business safety, consistent with the RCFD's current approach for evacuation. As such, the project will formally adopt, practice, and implement a "Ready, Set, Go!" (Riverside County Fire Department 2023) approach to Project site evacuation. The "Ready, Set, Go!" concept is widely known and encouraged by the state of California and most fire agencies, including; Pre-planning for emergencies, including wildfire emergencies, focuses on being prepared, having a well-defined plan, minimizing 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 site uses during periods of fire weather extremes.

This FPP provides a detailed analysis of the project, the potential risk from wildfire, and potential impacts on the RCFD, as well as analysis on meeting or exceeding the requirements of Riverside County. Further, this FPP provides requirements, recommendations, and measures to reduce the risk and potential impacts to acceptable levels, as determined by the RCFD.

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1 Introduction

This Fire Protection Plan (FPP) has been prepared for the proposed Cajalco Commerce Center Project (Project) in Riverside County (County), California, within the City of Perris Sphere of Influence, as well as the March Joint Air Reserve Base Airport Influence Area (Riverside County Planning Department, 2021b). This FPP evaluates the potential impacts resulting from wildland fire hazards associated with the Project's land uses and identifies measures necessary to adequately mitigate those impacts. Additionally, this plan generates and memorializes the fire safety requirements and standards of the Fire Authority Having Jurisdiction (FAHJ), which is the Riverside County Fire Department/CAL FIRE. Requirements, standards, and recommendations are based on Project-specific design features and incorporate input from the Project applicant and the FAHJ.

As part of the assessment, the plan has considered the property location, topography, surrounding combustible vegetation (fuel types), climatic conditions, and fire history for the Project site and the surrounding area. The plan addresses water supply, access, structural ignitability and fire resistive building features, fire protection systems and equipment, impacts to existing emergency services, defensible space, and vegetation management for the Project site and to address potential fire impacts to the surrounding area. The plan identifies and prioritizes areas for hazardous fuel reduction treatments and recommends the types and methods of treatment that will protect structures and essential infrastructures within the Project site. The following tasks were performed toward completion of this plan:

- Gather Project site specific climate, terrain, and fuel data;
- Collect Project site photographs;
- Process and analyze the data using the latest 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 design of proposed infrastructure;
- Analyze the existing emergency response capabilities;
- Assess the potential fire risk posed by the construction and operation of the Project to the Project site and surrounding area; and
- Prepare this FPP detailing how fire risk will be mitigated on the Project site and in the surrounding area through a system of fuel modification, structural ignition resistance enhancements, and fire protection delivery system upgrades.

Field observations were utilized to augment existing digital Project site data in generating the fire behavior models and formulating the recommendations presented in this FPP. Refer to Appendix A for Project site photographs of existing conditions.

1.1 Intent

The intent of this FPP is to provide fire planning guidance and requirements for reducing fire risk and demand for fire protection services associated with the Project. To that end, the fire protection "system" detailed in this FPP includes redundant layering of measures, including pre-planning, fire prevention, fire protection, passive and active suppression, and related measures proven to reduce fire risk. 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 industrial development that includes a future potential residential development as well.

1.2 Applicable Codes/Existing Regulations

This FPP provides measures for fire protection that meet the applicable portions of Riverside County Fire Department (RCFD) Technical Policies and Fire Prevention Standards, applicable portions of the Riverside County Municipal Code, Ordinances No. 460 and No. 787.8, and Title 8, Chapter 8.32 – Fire Code, which have adopted the 2022 edition of the California Fire Code (CFC), including Chapter 49, California Code of Regulations, Title 24, Part 9, with amendments. Furthermore, the Project will be consistent with applicable portions of Title 15, Chapter 15.04 – Building Regulations, which adopts the 2022 edition of the California Building Code (CBC), including Chapter 7A based on the 2021 edition of the International Fire Code (IFC) as adopted and amended by RCFD. Additionally, RCFD references Fire Prevention Standards for informational purposes in clarifying and interpreting provisions of the CFC, National Fire Protection Association (NFPA) and California Public Resources Code (PRC) Division 4, Part 2, Chapter 3, Section 4291 – Fuel Modification Requirements in State Responsibility Areas (SRA) Mountainous, Forest-, Brush-, and Grass-Covered Lands and Local Responsibility Area (LRA) Very High Fire Hazard Severity Zones (VHFHSZs).

Chapter 7A of the CBC addresses structural ignition resistance and reducing ember penetration into structures, a leading cause of structure loss from wildfires (California Building Standards Commission, 2019). Thus, code compliance is an important component of the requirements of the FPP, given the project's wildland-urban interface (WUI) location and fire hazard severity zone designation. The majority of the project site is located within an area considered to be a Local Responsibility Area (LRA) non-very high fire hazard severity zone (VHFHSZ) as designated by the California Department of Forestry and Fire Protection (CAL FIRE). It should be noted that a small area in the southeastern section of the northern portion project site, as well as the southern section of the southern portion of the project site lies within an area considered to be a LRA VHFHSZ as designated by CAL FIRE. When describing the surrounding areas, to the south of the Project site, there are areas designated as VHFHSZ SRA with High and Moderate Fire Hazard Severity Zones (FHSZ) in SRA to the southeast and southwest. Additionally, there are Federal Responsibility Areas (FRA) in the open space to the south (see Figure 3, Fire Hazard Severity Zone Map). It should be noted that CAL FIRE has recently approved the SRA Fire Hazard Severity Zone Maps and are proposed to be effective April 1, 2024, and they currently are in the process of updating and releasing new LRA FHSZ maps as well, with a tentative approval date of late 2024. The review and possible acceptance of FHSZ designations in LRA will be in compliance with California Government Code Sections 51175 through 51189. Fire hazard designations are based on topography, vegetation, and weather, amongst other factors including steep terrain, unmaintained fuels/vegetation, and WUI locations. Projects situated in high and very high FHSZ areas require fire hazard analysis and the application of fire protection measures to create ignition-resistant structures and defensible communities within these WUI locations. High and very high FHSZ designations do not indicate that an area is not safe for development. They do however, indicate that specific fire protection features that minimize structure vulnerability will be required, including Chapter 7A of the California Building Code (CBC) and provisions for maintained fuel modification zones. As described in this FPP, the Project will meet all applicable fire and building code requirements for building in these higher fire hazard areas or meet the intent of the code through the application of project site-specific fire protection measures. These codes have been developed through decades of after fire structure save and loss evaluations to determine what causes building loss 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 2022 CBC (Chapter 7A, Section 701A Scope, Purpose and Application).

1.3 Project Summary

1.3.1 Location

The Project site evaluated within this FPP encompasses 64.97 acres and is located within the western portion of Riverside County, consisting of a 1,003,510 SF warehouse building on 44.74 net acres and a public park on approximately 13.35 net acres, along with approximately 6.88 acres of proposed right-of-way (ROW) dedications. The site proposed for development with the warehouse building is located at the southwest corner of Seaton Avenue and Cajalco Road, between Seaton Avenue and Decker Road, while the site proposed for the public park occurs both east and west of Decker Road, approximately 185 feet south of the proposed warehouse building site. The existing site and surrounding area is shown in Figure 1, Project Location Map. As shown, Riverside County abuts San Bernardino County to the north; Orange County to the west; and San Diego and Imperial Counties to the south. Riverside County is located in an urbanizing area of southern California commonly referred to as the Inland Empire. The Inland Empire is an approximate 28,000 square-mile region comprising western San Bernardino County, western Riverside County, and the eastern reaches of Los Angeles County.

The 64.97-acre Project site that is the subject of this FPP, is located within the Mead Valley community of unincorporated Riverside County, west of Interstate 215 (I-215), south of State Routes 91 and 60, and north of State Route 74. More specifically, and as depicted on Figure 2, the Project site comprises two disjointed parcels of land. The northern portion of the Project site, which is proposed for development with warehouse use as part of the Project, comprises 50.04 gross acres and is located south of Cajalco Road, west of Seaton Avenue, east of Decker Road, and north of Rider Street. The southern portion of the Project site, which is proposed for development with a public park as part of the Project, comprises 14.93 gross acres located both east and west of Decker Road, approximately 185 feet south of the proposed warehouse building site.

1.3.2 Existing and Surrounding Land Uses

The 64.97-gross-acre Project site encompasses Assessor's Parcel Numbers (APNs) 317-080-(003 through 008, 013, 014, 019 through 023, and 027 through 029), 317-090-(002 through 008). The Project site is situated within Township 4 South, Range 4 West, and Section 11 of the Steele Peak, California United States Geological Survey (USGS), 7.5-minute topographic map.

Under existing conditions, the northern portion of the Project site (proposed for development with warehouse use) includes undeveloped land, multiple large-lot single-family residential homes with ancillary structures and outdoor storage, and a commercial structure (Craneology, Inc.). Land uses in the vicinity of the northern portion of the Project site include Cajalco Road to the north, beyond which are undeveloped lands, an existing office use (J&D Multiple Services), agricultural uses, and rural residential uses; Seaton Avenue to the east, beyond which are undeveloped land, several residential structures, a small businesses (JJ Rentals) and associated outdoor storage, and two large warehouse buildings; undeveloped land, the southern portion of the Project site, a Buddhist temple (Huong Sen Buddhist Temple), an existing residence, several ancillary structures, and outdoor storage to the south; and undeveloped lands to the west.

Under existing conditions, the southern portion of the Project site (proposed for development with a public park) includes a mixture of undeveloped land and multiple single-family homes with a variety of ancillary structures and outdoor storage. Land uses in the vicinity of the southern portion of the Project site include undeveloped lands and the northern portion of the Project site to the north; undeveloped land, a Buddhist temple (Huong Sen Buddhist Temple), an existing residence, several ancillary structures, and outdoor storage to the east; undeveloped lands, large-lot single family uses, and several ancillary structures to the south; and large-lot single-family uses with several ancillary structures and outdoor storage to the west, beyond which is undeveloped land. The project site's existing conditions are shown in Appendix A.

1.3.3 Project Description

The Project Applicant is proposing to develop approximately 44.74 net acres of the northern portions of the Project site with one (1) light industrial warehouse building at the southwest corner of Seaton Avenue and Cajalco Road, while the remaining 13.35 net acres in the southern portion of the Project site would be developed as a public park. Section 10.1 of Riverside County Ordinance No. 348, which establishes permitted uses within the I-P zone, allows for industrial uses with approval of an Industrial Park Plot Plan. Accordingly, the plot plan is proposed to allow for the development of an industrial warehouse building and to allow for the future construction of a public park in the southern portions of the site. Figure 2 depicts the conceptual site plan for the Project site. Major components of the plot plan are discussed below.

The proposed light industrial warehouse building would include 983,510 SF of warehouse space, 10,000 SF of office space, and 10,000 SF of mezzanine space for a total of 1,003,510 SF of building area. Office spaces may be located at each of the corners of the building. A total of 76 dock doors are proposed along the north side of the building and a total of 76 dock doors are proposed along the south side of the building. A total of 357 automobile parking spaces are proposed, including 277 standard parking spaces, two (2) ADA van parking stalls, six (6) ADA standard parking stalls, 49 EV capable stalls (without electric vehicle supply equipment [EVSE]), 18 EV capable stalls (with EVSE), one (1) ADA EV van parking stall, two (2) ADA EV standard parking stalls, and two (2) EV ambulatory stalls. Access to the light industrial warehouse building site is proposed via 2 driveways along Decker Road (from north to south, Driveways 1 and 2) and three driveways along Seaton Avenue (from north to south, Driveways 3 through 5). Driveways 1 and 2 along Decker Road, as well as Driveway 4 along Seaton Avenue (i.e., the central driveway along Seaton Avenue), would be restricted to passenger vehicles only. Driveways 3 and 5 along Seaton Avenue (i.e., the northern and southern driveways) would serve both passenger cars and trucks.

As shown on Figure 2 the Project also would accommodate a public park on approximately 13.35 acres in the southwest portion of the Project site along the eastern and western sides of Decker Road. The public park is designed to include play fields, hard surfaces sport courts, a playground, walking paths, dog parks, and other amenities. Access to the park site would be accommodated via a roundabout to be constructed along Decker Road, with two parking lots extending east and west from the roundabout. The parking lots would include a total of 79 standard parking stalls, two ADA van parking stalls, and four standard ADA stalls (85 parking spaces total). The construction of the public park is intended to serve the recreational needs of the local Mead Valley community by providing a variety of amenities.

1.3.3.1 Grading Plans

The northern portions of the Project site would be graded in a manner that largely approximates the site's existing topographic conditions. Manufactured slopes are proposed primarily around the northern and western edges of the

proposed light industrial building site. Within the northwestern corner of this portion of the Project site, a 2:1 (horizontal: vertical) slope is proposed measuring up to 22 feet in height and would be supported by a retaining wall measuring between three to five feet in height. Slopes along the northern side of the proposed warehouse building site would measure up to eight feet in height and would be supported by a retaining wall measuring up to six feet in height. Slopes in the western portion of the warehouse building site would measure up to 13 feet in height and would be supported by a retaining wall measuring up to 9.5 feet in height, with the size of proposed slopes generally decreasing from north to south. No major manufactured slopes are proposed along the eastern portion of the warehouse building site, while the southern edge of the industrial building site would include minimal areas of manufactured slopes and a proposed retaining wall measuring up to 9.5 feet in height.

1.3.3.2 Architectural Design

As previously noted, the building is designed to include 76 dock doors on the southern façade of the building and 76 dock doors on the northern portion of the building, and office uses may be located at each of the four corners of the building. As shown, the building would consist of a concrete tiltup panel building. The building would be painted with a mixture of dark and light grey colors and would be highlighted with areas of green clear glass with clear anodized aluminum mullions, particularly around the proposed office spaces. The heights of the proposed building would be variable and would measure up to a maximum of 44 feet at the corners of the building proposed to include office spaces.

In addition, a majority of the park site would be developed with recreational resources, with structures limited to playground equipment, shade structures, bleachers, etc. However, a recreation building is proposed within the western portion of the western parking lot for the park site. This building would include restrooms, conference rooms, office, a potential store, and recreational areas. The recreational structure is proposed to be of concrete masonry unity (CMU) construction and will include the installation of an NFPA 13-R automatic interior fire sprinkler system and fuel modification around the perimeter of the structure.

1.3.3.3 Circulation Improvements

As previously shown on Figure 2, access to the Project site would be accommodated via Decker Road and Seaton Avenue via Cajalco Road. As part of the Project, improvements would be constructed along roadways abutting the Project site, including Cajalco Road, Seaton Avenue, and Decker Road. The proposed roadway improvements are described below.

- **Cajalco Road.** Under existing conditions, Cajalco Road along the Project site's frontage currently is partially improved as a two-lane roadway with between 40 to 55 feet of existing pavement. As part of the Project, the Project Applicant would dedicate approximately 110 feet of ROW along the Project's frontage and would improve the southern portion of Cajalco Road between Decker Road and Seaton Avenue to its ultimate half-width standard as a 6-Lane Expressway. Improvements planned as part of the Project include the addition of approximately 76 feet of paved travel lanes, and the provision of a 34-foot-wide landscaped parkway with an 8-foot-wide curb-separated sidewalks. Ultimate improvements to the northern portions of this road segment are expected to occur in the future in conjunction with future development of lands located on the north side of Cajalco Road.
- **Seaton Avenue.** Under existing conditions, Seaton Avenue along the Project site's frontage includes approximately 16 to 30 feet of paved travel lanes. As part of the Project, the segment of Seaton Avenue

between Cajalco Road and the southern Project boundary would be improved to its ultimate half-width standard as a Secondary Highway. Improvements proposed as part of the Project would include an additional 46 feet of travel lanes, along with curb, gutter, and an 18-foot-wide landscaped parkway with a five-foot-wide curb-separated sidewalk. Ultimate improvements to the eastern half of this segment of Seaton Avenue are anticipated to occur in conjunction with future development along the eastern side of this roadway.

- **Decker Road.** Under existing conditions, Decker Road exists as an unimproved informal roadway along the western boundary of the Project site, and no ROW previously has been dedicated along this segment of Decker Road. As part of the Project, the segment of Decker Road between the southwest corner of the warehouse building site and Cajalco Road would be improved to its ultimate half-width standard as a Secondary Highway. Improvements to this segment of Decker Road would include the dedication of 70 feet of ROW, 44 feet of pavement, and an 18-foot-wide landscaped parkway with a five-foot curb-separated sidewalk. The portion of Decker Road between the southwest corner of the warehouse building site and the southerly terminus of Decker Road would be improved to its fullwidth standard as a Secondary Highway. Improvements to this segment of Decker Road would include the dedication of 100 feet of ROW, 64 feet of travel lanes, curb, gutter, and 18-foot-wide landscaped parkways along each side of the road that include five-foot-wide curb-separated sidewalks. The roundabout proposed in the park site would be constructed within an approximate 200-foot-wide ROW, with two 30-foot-wide driveway access points along the east and west side of the roundabout that would provide access to the two parking lots for the proposed park. A cul-de-sac would be constructed at the southern terminus of the roadway within the proposed park site. Ultimate improvements to the western half of this roadway (i.e., adjacent to the warehouse building site) are anticipated to occur in conjunction with future development along the western edge of this roadway.
- **Driveways.** As previously noted, access to the light industrial warehouse building site is proposed via 2 driveways along Decker Road (from north to south, Driveways 1 and 2) and three driveways along Seaton Avenue (from north to south, Driveways 3 through 5). Driveways 1 and 2 along Decker Road, as well as Driveway 4 along Seaton Avenue (i.e., the central driveway along Seaton Avenue) would be restricted to passenger vehicles only. Driveways 3 and 5 along Seaton Avenue (i.e., the northern and southern driveways) would serve both passenger cars and trucks. Driveway 3 ultimately may or may not be constructed, and if constructed would be restricted to right-in/right-out access only through the construction of a raised median along this portion of Seaton Avenue. All other driveways (Driveways 1, 2, 4, and 5) would afford full turn movements into and out of the Project site.

1.3.3.4 Walls and Fencing

As part of the Project, a 14-foot-tall combination wall is proposed along the northern edge of the truck court along the north side of the building, which would include a retaining wall at the base of the wall measuring up to six feet in height, with the remaining portion of the wall consisting of concrete screen walls. Along the southern edge of the truck court to the south of the building, concrete screen walls measuring up to 23.5 feet in height are proposed. In addition, and as previously noted, several retaining walls also are proposed to support site grading, and would include a retaining wall measuring between three to five feet in height near the northwest corner of the light industrial building site, a retaining wall along the northern site boundary measuring up to six feet in height, a retaining wall along the southern boundary of the light industrial building site measuring up to 9.5 feet in height, and a retaining wall along the western edge of the light industrial building site measuring up to 13 feet in height.

All retaining walls have been designed such that they would not be prominently visible from Cajalco Road, Seaton Avenue, or Decker Road.

1.3.3.5 Water Supply

Under existing conditions, there is an existing 18-inch water main within Cajalco Road and an 8-inch water line within Seaton Avenue along the Project site's frontages with these roadways. As part of the Project, a potable water line is proposed to extend on site between the northeast corner of the light industrial building and the existing 8-inch water main located within Seaton Avenue. For fire water service, two additional water lines are proposed on site that would connect to the existing 8-inch water line in Seaton Avenue near the southeast and northeast corners of the proposed light industrial building site. A series of water lines also are proposed along the site's perimeter to provide fire water service to the proposed fire hydrants. A proposed water main (at least 8 inches in diameter) would be installed within Decker Road to provide water service to the proposed public park.

1.3.3.6 Projected Employment

Based on employment generation rates specified in Appendix E to the Riverside County General Plan, Light Industrial land uses generate approximately one employee per 1,030 SF of building area (Riverside County Planning Department 2021). Accordingly, the 1,003,510 SF of light industrial building area proposed as part of the Project would generate approximately 974 new, recurring jobs (1,003,510 SF ÷ 1,030 SF/employee = 974.3 employees). A nominal number of employees also would be generated by the proposed public park site due to maintenance activities at the park.

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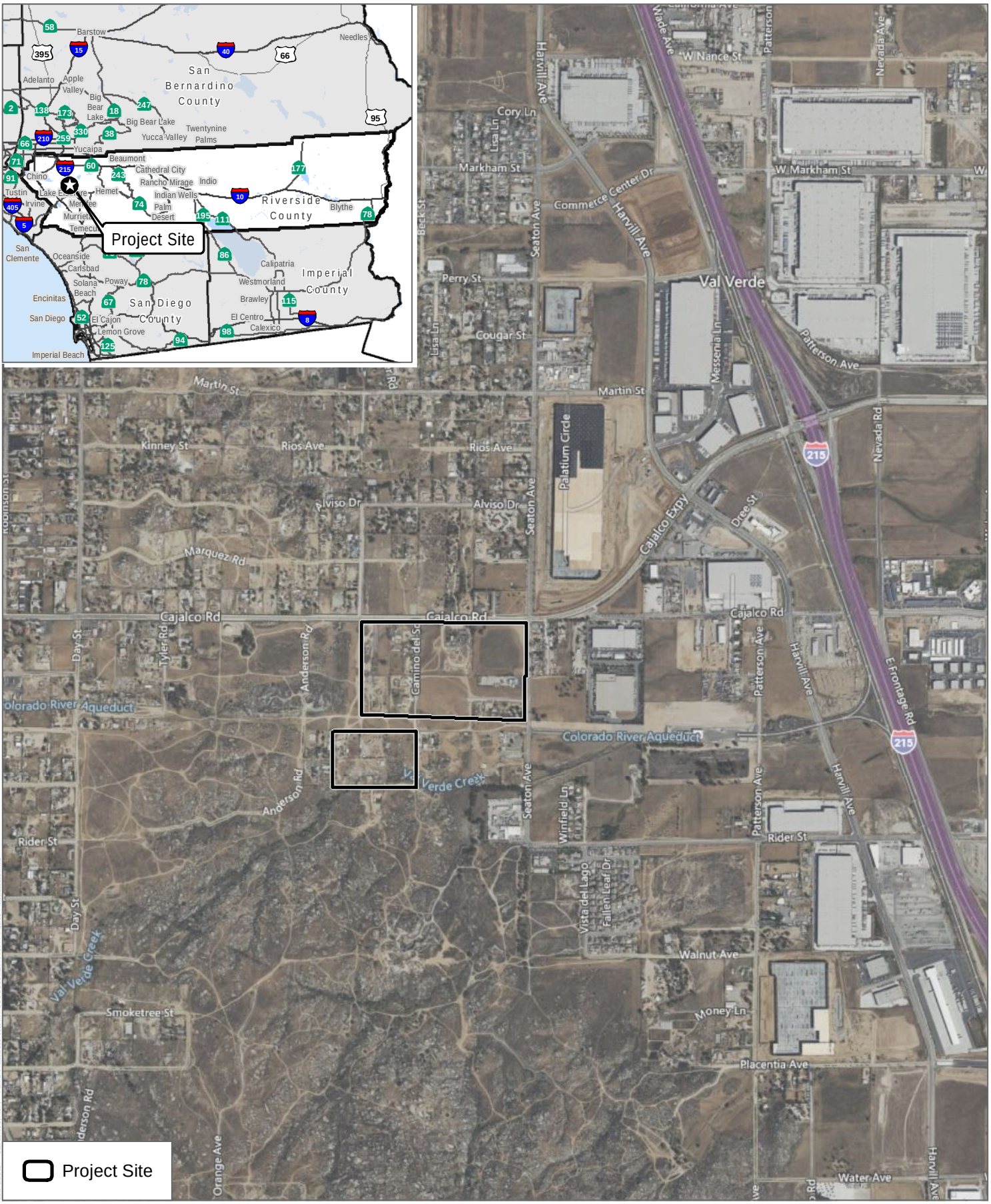

SOURCE: BING IMAGERY SERVICE 2023

DUDEK

0 750 1,500 Feet

FIGURE 1

Project Location

Fire Protection Plan for the Cajalco Commerce Center Project

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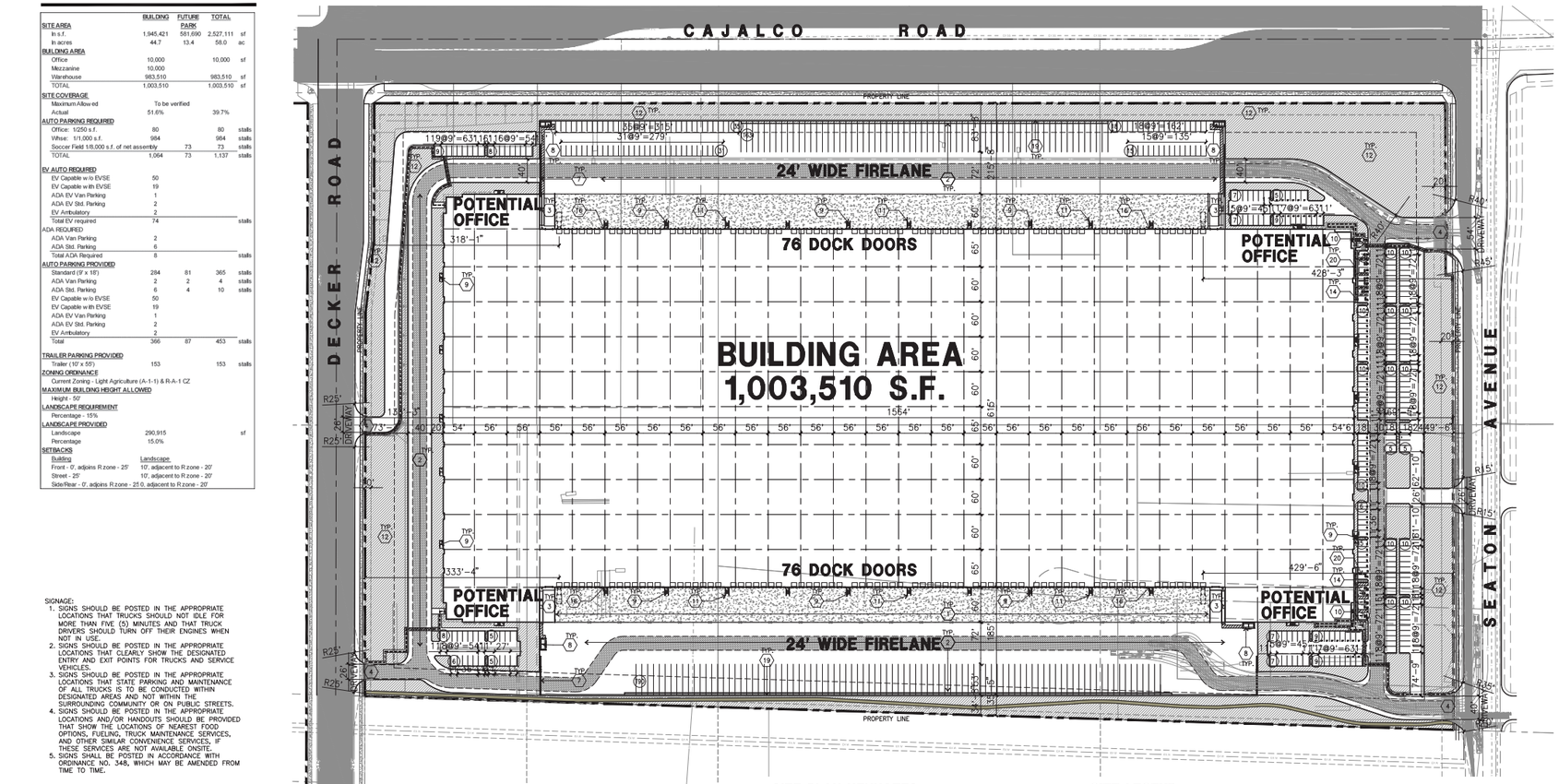
TABULATION

	BUILDING	FUTURE PARK	TOTAL	
SITE AREA				
In s.f.	1,945,421	581,690	2,527,111	sf
In acres	44.7	13.4	58.0	ac
BUILDING AREA				
Office	10,000		10,000	sf
Mezzanine	10,000			
Warehouse	983,510		983,510	sf
TOTAL	1,003,510		1,003,510	sf
SITE COVERAGE				
Maximum Allowed	To be verified			
Actual	51.6%		39.7%	
AUTO PARKING REQUIRED				
Office: 1/250 s.f.	80		80	stalls
Whse: 1/1,000 s.f.	984		984	stalls
Soccer Field 1/8,000 s.f. of net assembly		73	73	stalls
TOTAL	1,064	73	1,137	stalls
EV AUTO REQUIRED				
EV Capable w/o EVSE	50			
EV Capable w/ith EVSE	19			
ADA EV Van Parking	1			
ADA EV Std. Parking	2			
EV Ambulatory	2			
Total EV required	74			stalls
ADA REQUIRED				
ADA Van Parking	2			
ADA Std. Parking	6			
Total ADA Required	8			stalls
AUTO PARKING PROVIDED				
Standard (9' x 18')	284	81	365	stalls
ADA Van Parking	2	2	4	stalls
ADA Std. Parking	6	4	10	stalls
EV Capable w/o EVSE	50			
EV Capable w/ith EVSE	19			
ADA EV Van Parking	1			
ADA EV Std. Parking	2			
EV Ambulatory	2			
Total	366	87	453	stalls
TRAILER PARKING PROVIDED				
Trailer (10' x 55')	153		153	stalls
ZONING ORDINANCE				
Current Zoning - Light Agriculture (A-1-1) & R-A-1 CZ				
MAXIMUM BUILDING HEIGHT ALLOWED				
Height - 50'				
LANDSCAPE REQUIREMENT				
Percentage - 15%				
LANDSCAPE PROVIDED				
Landscape	290,915			sf
Percentage	15.0%			
SETBACKS				
	Building	Landscape		
Front - 0', adjoins R zone - 25'		10', adjacent to R zone - 20'		
Street - 25'		10', adjacent to R zone - 20'		
Side/Rear - 0', adjoins R zone - 25.0, adjacent to R zone - 20'				

SIGNAGE:
1. SIGNS SHOULD BE POSTED IN THE APPROPRIATE LOCATIONS THAT TRUCKS SHOULD NOT IDLE FOR MORE THAN FIVE (5) MINUTES AND THAT TRUCK DRIVERS SHOULD TURN OFF THEIR ENGINES WHEN NOT IN USE.
2. SIGNS SHOULD BE POSTED IN THE APPROPRIATE LOCATIONS THAT CLEARLY SHOW THE DESIGNATED ENTRY AND EXIT POINTS FOR TRUCKS AND SERVICE VEHICLES.
3. SIGNS SHOULD BE POSTED IN THE APPROPRIATE LOCATIONS THAT STATE PARKING AND MAINTENANCE OF ALL TRUCKS IS TO BE CONDUCTED WITHIN DESIGNATED AREAS AND NOT WITHIN THE SURROUNDING COMMUNITY OR ON PUBLIC STREETS.
4. SIGNS SHOULD BE POSTED IN THE APPROPRIATE LOCATIONS AND/OR HANDOUTS SHOULD BE PROVIDED THAT SHOW THE LOCATIONS OF NEAREST FOOD OPTIONS, FUELING, TRUCK MAINTENANCE SERVICES, AND OTHER SIMILAR CONVENIENCE SERVICES, IF THESE SERVICES ARE NOT AVAILABLE ONSITE.
5. SIGNS SHALL BE POSTED IN ACCORDANCE WITH ORDINANCE NO. 348, WHICH MAY BE AMENDED FROM TIME TO TIME.



SITE PLAN KEYNOTES

1. HEAVY BROOM FINISH CONC. PAVEMENT,
2. ASPHALT CONCRETE PAVING
3. CONCRETE RAMP W/ 42" HIGH CONCRETE TILT-UP GUARD WALL ON BOTH SIDES OF RAMP.
4. DRIVEWAY APRONS
5. BIKE RACK
6. 14' HIGH CONCRETE TILT-UP SCREEN WALL
7. SLIDING GATE W/ KNOX-PAD. PROVIDE RAPID ENTRY SYSTEM. LOCK PER FIRE DEPARTMENT STANDARDS PER DRIVEWAY.
8. TRASH ENCLOSURE
9. EXTERIOR CONCRETE STAIR
10. OUTDOOR EMPLOYEE BREAK PATIO
11. CONCRETE FILLED GUARD POST 6" DIA. U.N.O. 42" H.
12. LANDSCAPE. SEE "L" DWGS. LANDSCAPE AREAS INDICATED BY SHADED PATTERN.
13. ACCESSIBLE ENTRY SIGN
14. ACCESSIBLE PARKING STALL SIGN
15. APPROXIMATE LOCATION OF THE TRANSFORMER AND GENERATOR
16. EXTERIOR DOWNSPOUT WITH 2 OVERFLOW SCUPPERS.
17. RETAINING WALL, PER STRUCTURAL PLANS
18. NOT USED
19. 14' HIGH SCREEN WALLS
20. CONCRETE WALKWAY
21. ACCESSIBLE CONCRETE RAMP
22. 12" CONCRETE STEP-OUT.
23. 6' HIGH TUBE STEEL FENCE.

SITE LEGEND

- LANDSCAPED AREA
- CONCRETE PAVING SEE "C" DWGS. FOR THICKNESS
- STANDARD PARKING STALL (9' X 18')
- ACCESSIBLE PARKING STALL (9' X 18')
- TRAILER PARKING STALL STALL (10' X 55')
- PATH OF TRAVEL
- PROPERTY LINE
- DETENTION BASIN SEE CIVIL PLANS
- BUILDING SETBACK
- FUTURE EV PARKING STALL (9' X 18')
- AMBULATORY EV STALL (10' X 18')
- FIRE ACCESS LANE
- 6' HIGH TUBE STEEL FENCE

NOTES:
TRUCK CIRCULATION OFF-SITE TO AND FROM FREEWAY SHOULD ALSO DISCOURAGE USE OF SEATON TO THE SOUTH THAT WOULD CIRCULATE PAST RESIDENTIAL AREAS. SIGNAGE WOULD BE EXPECTED AT MINIMAL, BUT OTHER DESIGN FEATURES TO DISCOURAGE OR PREVENT TRUCK ACCESING SOUTH ON SEATON MAY BE APPROPRIATE.

ALL ROOF MOUNTED EQUIPMENT WILL BE SCREENED BY THE BUILDING PARAPET FROM GROUND LEVEL VIEWS WITHIN 1,320 FEET OF THE BUILDING.

SIGNS TO BE POSTED IN THE APPROPRIATE LOCATIONS THAT TRUCK SHOULD NOT IDLE FOR MORE THAN FIVE (5) MINUTES AND THAT TRUCK DRIVERS SHOULD TURN OFF THEIR ENGINES WHEN NOT IN USED.

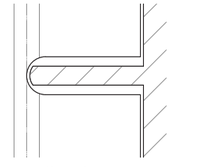
FIRE SPRINKLER SYSTEM TO BE PROVIDED.

ON-SITE SPEED BUMPS SHALL NOT BE ALLOWED EXCEPT AT SECURITY/ENTRY GATES. TRUCK LOADING BAYS AND DRIVE AISLES SHALL BE DESIGNED TO MINIMIZE TRUCK NOISE.

ALL LIGHTING USED IN CONJUNCTION WITH A WAREHOUSE/DISTRIBUTION FACILITY OPERATIONS, SHALL BE DIRECTED DOWN INTO THE INTERIOR OF THE SITE AND NOT SPILL OVER ONTO ADJACENT PROPERTIES.

OVERALL SITE PLAN (A) scale: 1"=80'-0"

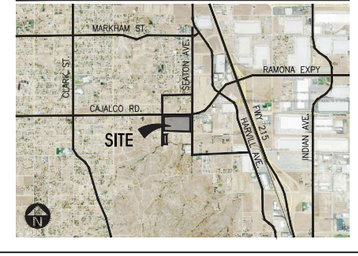
SCALE: 1" = 80'-0"
0 80' 160' 240'
TRUE NORTH



PLANTING FINGER (TYP.) (B) scale: 1/8"=1'-0"

SCALE: 1/8" = 1'-0"
0 8' 16' 24'
TRUE NORTH

Aerial Map



SOURCE: HPA ARCHITECTURE 2023

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FIGURE 2
Site Plan
Fire Protection Plan for the Cajalco Commerce Center Project

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Project Boundary
City Limits
Parcels
Local Responsibility Area
Very High
State Responsibility Area
Very High
High

DECKER RD
NORA DR
SEATON AVE
PATTERSON AVE
WEBSTER AVE
RAMONA EXY
NEVADA AVE
Perris
CAJALCO RD
CAJALCO EXY
A ST
MORGAN ST
215
DAY ST
CLARK ST
RIDER ST
OLD ELSINORE RD
PATTERSON AVE
EAST FRONTAGE RD
MACK ST
PLACENTIA ST

SOURCE: PARCELS- RIVERSIDE COUNTY GIS; FIRE DATA- CALFIRE (APPROVED 2009)

DUDEK

0 500 1,000 Feet

Document Path: Z:\Projects\U157500\MAPDOC\DOCUMENT\Fire\FPP\Figure3_Fire Hazard Severity Zones.mxd

FIGURE 3

Fire Hazard Severity Zones

Fire Protection Plan for the Cajalco Commerce Center Project

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2 Project Site Risk Analysis

2.1 Field Assessment

A field assessment of the Cajalco Commerce Center Project area was conducted on November 9, 2023 in order to confirm/acquire Project site information, document existing conditions, and to determine potential actions for addressing the protection of the Project's structures. While on the Project site, Dudek's Fire Protection Planner assessed the area's topography, natural vegetation and fuel loading, surrounding land use and general susceptibility to wildfire. Among the field tasks that were completed are:

- Vegetation estimates and mapping refinements.
- Fuel load analysis.
- Topographic features documentation.
- Photograph documentation.
- Confirmation/verification of hazard assumptions.
- Off-site adjacent, property fuels and topographic conditions.
- Surrounding land use confirmations.
- Necessary fire behavior modeling data collection.
- Ingress/egress documentation.
- Nearby Fire Station reconnaissance

Field observations were utilized to augment existing Project site data in generating the fire behavior models and formulating the recommendations detailed in this report.

2.2 Project Site Characteristics and Fire Environment

Fire environments are dynamic systems and include many types of environmental factors and Project 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 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. It is important to note that wildland fire may transition to urban fire if structures are receptive to ignition. Structure ignition depends on a variety of factors and can be prevented through a layered system of protective features including fire resistive landscapes directly adjacent to 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 Project site is necessary to understand the potential for fire within and around the Project site.

The following sections discuss the Project site characteristics, local climate, and fire history within and surrounding the Project site. The following sections discuss the characteristics of the Project site at a regional scale. The intent of evaluating conditions at this macro-scale is providing a better understanding of the regional fire environment, which is not constrained by property boundary delineations.

2.2.1 Topography

Topography influences fire risk by affecting fire spread rates. Typically, steep terrain results in faster fire spread up-slope and slower fire spread down-slope in the absence of wind. Flat terrain tends to have little effect on fire spread, resulting in fires that are driven by wind. The project site is relatively flat with the highest points being approximately 1,605 feet above mean sea level (amsl) in the northwestern corner of the project and the southwestern corner of the portion of the Project dedicated to the future public park. The lowest point is approximately 1,560 feet amsl at the northeastern corner of the project. The site is near the western edge of the San Jacinto Valley Watershed and generally slopes to the northeast at an approximate average slope of one to two percent, though there is greater variation within the site. Mostly undeveloped, rocky, shallow, rolling hills exist to the south with higher elevations and steeper slopes in the Gavilan Hills to the southwest. The most dominant geographic feature in the vicinity of the Project is the Santa Ana Mountain range approximately 13 miles to the southwest. Hilly, open space also exists around Lake Perris approximately 5 miles east-northeast of the Project.

2.2.2 Climate

Throughout southern California, and specifically at the Project site, climate has a large influence on fire risk. The climate of Mead Valley in Riverside County is typical of a Mediterranean area, with warm, dry summers and cool, wet winters. Average high temperatures (average annuals) range from around 64° F in November and December and up to 90°F during the summer months. Precipitation has been averaging just over 10 inches and typically occurs between November and March. The average hourly wind speed ranges between 5 mph and 7 mph. The prevailing wind direction is an on-shore flow from the west (Weather Spark, 2023).

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. Fires can be a significant issue during summer and fall, before the rainy period, especially during dry Santa Ana wind events. Although Santa Ana events can occur anytime of the year, they generally occur during the autumn months, although the last few years have resulted in spring (April - May) and summer events. Santa Ana winds may gust up to 75 miles per hour (mph) or higher. This phenomenon markedly increases the wildfire danger and intensity in the Project area by drying out and preheating vegetation (fuel moisture of less than 5% for 1-hour fuels is possible) as well as accelerating oxygen supply, and thereby, making possible the burning of fuels that otherwise might not burn under cooler, moister conditions.

The prevailing wind pattern is from the west (on-shore), but the presence of the Pacific Ocean causes a diurnal wind pattern known as the land/sea breeze system. During the day, winds are from the west–southwest (sea), and at night winds are from the northeast (land). The highest wind velocities are associated with downslope, canyon, and Santa Ana winds.

2.2.3 Vegetation

2.2.3.1 Fuels (Vegetation)

Understanding the vegetation present on the Project site is valuable because when analyzing fire behavior, the vegetation is the fuel which is one of the three factors that contribute to fire behavior along with topography and weather. A biological technical report was prepared by Glenn Lukos Associates, Inc. that mapped the different vegetation present on the site and offsite where road improvements are planned as part of the Project. The Project site supports the following vegetation/land use types: Disturbed/Developed, Nonnative Grassland, Ornamental, Disturbed Southern Willow Scrub, and Disturbed Riversidian Sage Scrub. Table 1 provides a summary of the vegetation types and their corresponding acreage. Descriptions of each vegetation type follow the table (Biological Technical Report, Glenn Lukos Associates, Inc., December 2023). A Vegetation/Land Use Map is attached as Figure 4. Photographs depicting the Project site are shown in Appendix A. The vegetation cover types were assigned corresponding fuel models for use during Project site fire behavior modeling. Section 3 describes the fire modeling conducted for the Project Area.

Table 1: Summary of the Cajalco Commerce Center Vegetation/Land Use Types

Vegetation/Land Use Type	Inside Criteria Cells (Acres)	Outside Criteria Cells (Acres)	Total (Acres)	Percent of Project Site (%)
Disturbed/Developed	39.54	10.74	50.28	60.00
Non-native Grasslands	26.60	1.77	28.37	33.86
Ornamental	0.39	0.73	1.12	1.34
Disturbed Southern Willow Scrub	0.21	0.00	0.21	0.25
Disturbed Riversidian Sage Scrub	3.80	0.00	3.80	4.54
Total	**70.54**	**13.24**	**83.78**	**100.0**

Disturbed/Developed

The majority of the Project site consists of approximately 50.28 acres of disturbed/developed lands. These areas consist of residential single-family homes, paved driveways, equestrian and stock facilities, a heavy equipment business, and an RV storage lot. The Project site is also interweaved with dirt roads, adjacent open lots, and debris piles (e.g., trash, concrete refuse, etc.). The majority of the dirt roads and lots are routinely maintained, but do include areas of non-native (ruderal) vegetation during certain times of the year; as well as several depressions/road ruts that inundate with water, as was the case during the biological study. Ruderal plant species observed included London rocket (Sisymbrium irio), red-stemmed filaree (Erodium cicutarium), cheeseweed (Malva parviflora), common fiddleneck (Amsinckia intermedia), ripgut grass (Bromus diandrus), and Russian thistle (Salsola australis). These plant species were also dominant in the adjacent open fields (nonnative grasslands).

Non-native Grasslands

The Project site supports approximately 28.37 acres of non-native grasslands. These areas occur within the northern and central portions of the site between the disturbed/developed areas and along the dirt access roads. This plant community is dominated by non-native ruderal species including common fiddleneck, foxtail brome

(Bromus madritensis susp. Rubens), ripgut grass, Russian thistle, bare barley (Hordeum murinum), Mediterranean grass (Schismus barbatus), slender wild oat (Avena barbata), stink net (Oncosiphon piluliferum), summer mustard (Hirschfeldia incana), and red-stemmed filaree (Erodium cicutarium).

Ornamental

The Project site supports approximately 1.12 acres of ornamental vegetated areas. These areas are located adjacent to paved boulevards and sidewalks near Cajalco Road in the northern portion of the site where Peruvian pepper trees (Schinus mole) and Mexican fan palms (Washingtonia robusta) occur. A row of Italian cypress trees (Cupressus sempervirens) are present within the heavy equipment rental business, and a group of European olive tres (Olea europaea) occur along Rider Street in the southern offsite road improvements.

Disturbed Southern Willow Scrub

The Project site supports approximately 0.21 acre of disturbed southern willow scrub in the southern portion of the Project site within a remnant portion of an unnamed ephemeral stream. This area is dominated by a mix of native and non-native vegetation, which in the past may have supported a primarily native riparian corridor through the site, but has been impacted and disturbed by surrounding development, encampments, and hydrology modifications. None-the-less, a small portion is comprised of black willow (*Salix gooddingii*) and mule fat (*Baccharis salicifolia*). Also present in the understory and surrounding uplands was a small area of native scrub vegetation which included California sagebrush (*Artemisia californica*), deerweed (*Acmispon glaber*), miniature lupine (*Lupinus bicolor*), and California buckwheat (*Eriogonum fasciculatum*). Non-native trees were also dominate within this portion of the Project site, which included tree tobacco (*Nicotiana glauca*), castor bean (*Ricinis communis*), and tamarisk (*Tamarix ramosissima*).

Disturbed Riversidian Sage Scrub

The Project site supports approximately 3.80 acre of disturbed Riversidian sage scrub within the southwest portion of the site. These areas were historically left un-maintained due to the rocky outcrops that occur sporadically throughout this community and have prevented historic agriculture and/or grazing activities. Thus, the rocky topography has allowed the native Riversidean sage scrub community to persist in areas adjacent to disturbed and/or non-native grasslands that were historically farmed or grazed. Native sage scrub species observed in between the rocky areas were California sagebrush, California buckwheat, deerweed, scarlet monkeyflower (Erythranthe cardinalis), coastal prickly pear (Opuntia littoralis), and annuals such as miniature lupine, Pomona milk vetch (Astragalus pomonensis), ripgut grass, stink-net, and common fiddleneck.

2.2.4 Vegetation Dynamics

The vegetation characteristics described above are used to model fire behavior, discussed in Section 3.0 of this FPP. 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 ignite or spread as quickly as light, flashy grass fuels.

As described, vegetation plays a significant role in fire behavior, and is an important component to the fire behavior models discussed in this report. A critical factor to consider is the dynamic nature of vegetation communities. Fire presence and absence at varying cycles or regimes disrupts plant succession, setting plant communities to an earlier state where less fuel is present for a period of time as the plant community begins its succession again. In summary, high frequency fires tend to convert shrublands to grasslands or maintain grasslands, while fire exclusion tends to convert grasslands to shrublands, over time. In general, biomass and associated fuel loading will increase over time, assuming that disturbance (fire, or grading) or fuel reduction efforts are not diligently implemented. 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 fuel modification zones on-site. The fuel modification zones on the Project site will consist of irrigated and maintained landscapes paved loading docks, parking stalls, and driveways, and a fully-irrigated public park. Vegetated areas in the FMZ will consist of manufactured slopes, irrigated and maintained landscapes including the public park area, which results in reduced fire ignition, spread rates, and intensity. Conditions adjacent to the Project's footprint (outside the fuel modification zones), where the wildfire threat will exist post-development, are classified as low to medium fuel loads due to the dominance of moderate-load chaparral and coastal sage scrub vegetation intermixed with sage scrub-grass fuels.

2.2.5 Fire History

Fire history is an important component of an FPP. Fire history data provides valuable information regarding fire spread, fire frequency, most vulnerable areas, and significant ignition sources, amongst others. In turn, this understanding of why fires occur in an area and how they typically spread can then be used for pre-planning and designing defensible communities.

Fire history represented in this FPP uses the Fire and Resource Assessment Program (FRAP) database. FRAP summarizes fire perimeter data dating to the late 1800s, but is incomplete due to the fact that it only includes fires over 10 acres in size and has incomplete perimeter data, especially before the mid-20th century (Syphard and Keeley 2016). However, the data does provide a summary of recorded fires and can be used to show whether large fires have occurred in the Project area, which indicates whether they may be possible in the future.

According to available data from the CAL FIRE in the FRAP database, there have been 52 fires that have burned within 5 miles of the site since the beginning of the historical fire data record. Recorded wildfires within 5 miles range from approximately 13 acres to approximately 16,447 acres (Cerrito Fire) and the average fire size is approximately 1,303 acres. The 2014 Mine Fire (approximately 19 acres) is the most recent fire and the most recent significant fire was the 2004 Cerrito Fire. There has been only one fire on record that has burned on the site, with that being the 1995 Seaton Fire which burned approximately 127 acres. The portion of the Project site that was burned was the western portion of the area planned for the public park. The 1992 Orange Fire (approximately 268 acres) burned within approximately 500 feet of the southern portion of the Project site. RCFD may have data regarding smaller fires (other fires less than 10 acres) that have occurred on-site that have not been included herein. Fire history for the general vicinity of the Project site is illustrated in Appendix B, Project Vicinity Fire History Map.

Based on an analysis of the fire history data set, specifically, the years in which the fires burned, the average interval between wildfires within 5 miles of the site was calculated to be approximately every one to two years with intervals ranging between 0 (multiple fires in the same year) to 11 years. Based on the analysis, it is expected that there will be wildland fires within 5 miles of the site at least every 11 years and on average, every one or two years, as

observed in the fire history record. Based on fire history, wildfire risk for the site is associated primarily with an on-shore wind driven wildfire burning or spotting on-site from the south and southwest.

2.3 Analysis of Wildfire Risk from Adding New Development

Humans (i.e., human related activities or human created features, services (i.e., powerlines and electrical equipment), or processes) are responsible for the majority of California wildfires (Syphard et al. 2007, 2008; Romero-Calcerrada et al. 2008). Certain human activities result in sparks, flames, or heat that may ignite vegetative fuels without proper prevention measures in place. These ignitions predominantly occur as accidents, but may also be purposeful, such as in the case of arson. Equipment and powerlines cause a significant number of fires in Riverside County. After that, roadways are a particularly high source for wildfire ignitions due to high usage and vehicle-caused fires (catalytic converter failure, overheated brakes, dragging chains, tossed cigarette, and others) (Romero-Calcerrada et al. 2008)). In Southern California, the population living at, working in, or traveling through the wildland urban interface is vast and provides a significant opportunity for ignitions every day. However, it is a relatively rare event when a wildfire occurs, and an even rarer event when a wildfire escapes initial containment efforts. Approximately 90 to 95% of wildfires are controlled below 10 acres (CAL FIRE 2019; Santa Barbara County Fire Department 2019).

Research indicates that the type of contained development project like the Cajalco Commerce Center Project, are not associated with increased vegetation ignitions. Syphard and Keeley (2015) summarize all wildfire ignitions included in the CALFIRE FRAP database dating back over 100 years. They found that equipment-caused fires were by far the most numerous – and these also accounted for most of the area burned – followed closely by the area burned by powerline fires. Ignitions classified as equipment caused frequently resulted from exhaust or sparks from power saws or other equipment with gas or electrical motors, such as lawn mowers, trimmers or tractors and associated with lower density housing. Ignitions were more likely to occur close to roads and structures, and at intermediate density land uses and structure densities.

Development density directly influences susceptibility to fire because in construction projects like the Cajalco Commerce Center, there is one interface (the Project perimeter) with the wildlands whereas lower density development creates more structural exposure to wildlands, less or no ongoing landscape maintenance (an intermix rather than interface), and consequently more difficulty for limited fire resources to protect well-spaced buildings. The intermix includes development amongst the unmaintained fuels whereas the proposed Project converts all fuels within the footprint and provides a wide, managed fuel modification zone separating buildings from unmaintained fuel and creating a condition that makes defense easier. Syphard and Keeley go on to state that “The WUI, where housing density is low to intermediate is an apparent influence in most ignition maps,” further enforcing the conclusion that lower density housing poses a higher ignition risk than higher density development. They also state that “Development of low-density, exurban housing may also lead to more homes being destroyed by fire” (Syphard et al. 2013). A vast wildland urban interface already exists in the area adjacent to and within the footprint of the Project, dominated by older, more fire-vulnerable structures, constructed before stringent fire code requirements were imposed, with varying levels of maintained fuel modification buffers. As discussed in detail throughout this FPP, the Project is ignition resistant and designed to include professionally managed and maintained fire protection components, modern fire code compliant safety features and retaining and screening walls that will greatly reduce the hazard of fire spreading from the wildlands to the Project or from the Project to the adjacent wildlands. The conversion of the land within the current Project footprint to the proposed condition will reduce the number of structures and their associated ignition potential from the dangerous state of low density

housing described by Syphard and Keeley to an ignition-resistant warehouse building with a fully irrigated park to the south, and perimeter fuel modification. Therefore, the development of the Project would not be expected to materially increase the risk of vegetation ignitions and would rather be expected to reduce ignition potential from the area's current condition.

Moreover, frequent fires and lower density housing growth may lead to the expansion of highly flammable exotic grasses that can further increase the probability of ignitions (Keeley et al. 2012). This is not the case with the Proposed Project as the landscapes are managed and maintained to remove exotic fuels that may establish over time.

As discussed above, research indicates that it is less likely for higher density developments to be impacted by wildfires than lower density developments. The same protections that starve wildfire of fuels and minimize or prevent wildfire from transitioning into a contained, fuel-converted Project, such as Cajalco Commerce Center also serve to minimize or prevent on-site fires from transitioning into the wildlands. Customized project FMZs are crucial as the strategic design and placement of fuels treatments can disrupt or slow 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 facility or away from within a facility. 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 structures exposed to fire can decrease from 51% to 16% (Braziunas et al., 2021). Moreover, when FMZs are designed properly, they not only protect structures 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 diversity, and lower levels of invasive beetles. (Safford et al., 2009.) At a minimum, managing defensible space can reduce risk across multiple scales by damping fire risk, reducing the impact of fire, and in turn reducing annual fire risk. (Braziunas et al., 2021.)

Further, the requirement that both the warehouse structure and the park facility structure will include interior fire sprinklers significantly reduces the likelihood that a building fire spreads to the point of flashover, where a structure will burn beyond control and produce embers. Interior sprinklers are very efficient, keeping fires to the room of origin, or extinguishing the fire before the responding firefighters arrive. Similarly, the irrigated fuel modification zones are positioned throughout the Project. Irrigated zones include plants with high internal moisture and spacing between plants and plant groups that 1) make it difficult to ignite and 2) make it difficult for fire to spread plant to plant. Further, much of the project area will be converted to non-combustible paved surfaces where no fires can ignite or spread. Lastly, the additional humans on the site result in fast detection of fires and fast firefighter response, a key in limiting the growth of fires beyond the incipient stage.

2.4 Off-site Wildfire Impacts

It is a relatively rare event when a wildfire occurs, and an even rarer event when a wildfire escapes initial containment efforts. Approximately 90 to 95% of wildfires are controlled below 10 acres (CAL FIRE 2019). Studies (Keeley & Syphard 2018; Syphard et al. 2007; Syphard & Keeley 2015) show the ignition resistance and fire safety awareness of the Project and its population influences the likelihood of fire ignitions and the potential for fire to spread off-site

into adjacent wildland fuels and negatively impact existing communities. As the research indicates, humans can drive wildfire ignition risk, but not discussed, they can also reduce it. When fire protection is implemented at the parcel level and leverages ignition resistant building materials, infrastructure improvements, and landscape design the wildfire risk can be significantly reduced in the surrounding environment (Newman et al., 2013). When wildfire is planned for and incorporated into the building design, such as with the Project, it can not only withstand wildfire, but prevent it. This prevention benefits the Project and the surrounding areas by reducing the landscape level fire risk. Further, given the Project's multi-scaled approach to fire protection, it is unlikely that the Project would be a significant source of ignitions and result in increased off-site impacts related to wildfire, as discussed herein.

Common ignition sources in southern California are related to powerlines and vehicles (Keeley & Syphard, 2018). Powerlines-based ignitions are a concern with respect to off-site wildfire impacts. The remaining highest likelihood of vegetation ignitions in the Project area would be related to existing Cajalco Road, I-215, and other roads used by Project employees. However, the Project provides roadside fuel modification through irrigated landscaping along Cajalco Road to the north, Decker Road to the west, and Seaton Avenue to the east. Ongoing maintenance of these irrigated landscapes will continue in perpetuity as part of the Project. These efforts reduce or minimize the ability for a vehicle related spark, catalytic converter failure, or other ignition source to ignite and spread fire from the roadsides towards the Project. The Project is not expected to significantly increase the already known fire risk associated with roads and in fact the Project- and road-adjacent fuel modification would aid in reducing the preexisting risk. Interior roadways such as the driveways, parking and loading areas, and the fire access lane are also not expected to result in significant vehicle ignitions. The on-site roadways would comply with all fire department access requirements, and be encompassed by the ignition-resistant construction of the building, non-combustible paved surfaces, irrigated landscaping, and block retaining and screen walls. Therefore, even if ignition were to occur on the Project site, it is highly unlikely, and less likely than current conditions, that it would spread beyond the Project site due to the level of hardscape, the fully irrigated park area to the south, and proposed fuel modification zones.

Reducing WUI exposure can address protection of a wide range of highly valued resources and can offer protection to critical resources, habitat communities, and landscapes (Scott et al., 2016). Despite the potential for more frequent fire ignitions from developments, when developments are planned accordingly, such as the Project, the fuel availability and fuel continuity decrease, while the probability of fire suppression increases (Fox et al., 2018). This is a result of planned alterations to fuel, increased ignition resistant construction, enhanced fire protection features, higher wildfire risk awareness, and maintenance of fire protection features. The dual benefit of building a fire-hardened project, like the Cajalco Commerce Center, 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.

2.4.1 Firefighter Response

As discussed below in Section 4 the Project is not anticipated to have a negative impact on response capacity. Further, the on-site roads would be able to provide sufficient access for fire apparatus in a high-risk area. The Project also provides water supply and fire flow which are critical resources in firefighting. The Project defensible space areas will allow firefighters to safely position themselves at the development edge and begin tactical protection efforts (Warziniack et al., 2019). This allows firefighters to not only readily protect structures and reduce the likelihood of building ignition but also gives them a safe position to respond to offsite wildfires. Using the Project's fire protection features firefighters would be able to use the Project as a tactical resource for protecting open space areas, whether it be from an on-site or off-site fires. The Project would create additional access for fire

apparatuses that were not previously existing. Enhancing firefighters' ability to respond to an incident increases their ability to suppress a fire whether on-site or off-site. The presence of on-site fire resources increases response capacity and could be the difference between a small fire or a full conflagration.

2.4.2 Ignition Resistant/Noncombustible Construction

The WUI fire problem is structures lacking ignition resistant features (i.e., ember resistant vents, interior fire sprinkler systems); therefore, the best mitigation is to reduce the likelihood of building ignition occurring (Zhou, 2013). Structural characteristics play a large role in whether a building burns, which is important in WUI environments as structures also serve as fuel (Gorte, 2011). The benefit of structure-based mitigation is that it not only lowers the on-site risk but also lowers the risk of wildfire across a landscape (Mockrin et al., 2020). In WUI areas, this is because structures are also fuels that can spread a fire into open space. With the incorporation of ignition-resistant construction, the likelihood of structural ignition occurring within the Project area is minimized. The Project will provide concrete buildings that are non-combustible from direct wildfire flames, heat, and embers. This lowers the threat from on-site fires impacting off-site areas as the structures themselves are very unlikely to act as fuel. The Project includes vent coverings to prevent ember penetration and the Project buildings will also include NFPA 13 commercial 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. Commercial sprinklers are structure protection level sprinklers that have an extremely high success rate of controlling or suppressing interior structure fires. 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.

Structure design, such as the Project's, is crucial in protecting an area against wind-driven fires. The Project not only incorporates necessary codes to prevent structural ignition but exceeds them (e.g., up to 220-foot paved/irrigated Fuel Modification Zone, Multiple concrete/block screen and retaining walls); thus, lowering the probability of ignition and offsite impacts even more. The Project provides features that not only prevent fire intrusion but prevent structures fires from escaping into off-site areas. This allows the Project to not only protect the immediate area but the surrounding environment.

2.4.3 Shelter in Place Capability

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. According to common Emergency Operations Plan language, shelter-in-place is an approach that has been used and is actively contemplated for emergencies, including wildfires. Shelter-in-place advises people to stay secure at their current location.

Consistent with the Project's approach, this tactic shall only be used if an evacuation will cause a higher potential for loss of life. Consideration should be given to assigning incident personnel to monitor the safety of citizens remaining in place. The concept of shelter-in-place is an available option in those instances where physical evacuation is impractical. This procedure is particularly effective for concrete commercial buildings. Sheltering-in-place provides a safe haven within the impacted area.

This Fire Protection Plan provides significant evaluation and conclusions regarding the shelter-in-place capability of the Project's buildings. Among other things, the Project has been designed to include ignition-resistant structures with the use of non-combustible construction materials (e.g., concrete), effective defensible space and fuel management zones, ember protection, and other redundant structure, infrastructure, building code, and water supply and flow requirements established as containing adequate protective features to act as temporary shelters during wildfires. The constructed warehouse could be utilized for temporary refuge during a wildfire.

Sheltering-in-place also has many advantages because it can be implemented immediately, allowing people to remain in familiar surroundings. 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. It is not anticipated that any wildfire related shelter-in-place action would require longer than a few hours of on-site refuge.

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 with most new development that incorporate ignition resistant construction, wide fuel modification zones, ember protection, and fire defensibility throughout, responding fire and law enforcement personnel will be able to direct persons to temporarily refuge on-site in the rare situation where shelter-in-place is determined to be safer than evacuating.

Shelter-in-place at this location will also be an option available to emergency managers during a wildfire event. A shelter-in-place plan will be prepared and provided to all on-site personnel outlining the actions to take if a shelter in place notification is provided by emergency management sources.

The Project buildings will be constructed of concrete which is non-combustible and highly resistant to heat. Because of the concrete/ignition resistant construction, fuel modification zone setbacks and the type of lower fire intensity vegetative fuels in the vicinity of the site, sheltering in place is considered to be a safe option if a fast-moving wildfire precludes complete evacuation of the Project site. The heat flux produced by the nearest unmaintained vegetative fuels is not at a high enough temperature to ignite a concrete building even if it is directly next to the building. In this case, the heat would dissipate rapidly in the provided building setbacks that all exceed the required width and the concrete structure would be capable of absorbing any residual heated air that may intersect with the buildings. The primary concern is anticipated to be with smoke and air quality rather than exposure to flames and heated air. Measures to safely refuge persons within the building and minimize smoke and air quality issues would be enacted in this scenario. For example, when wildfire ignites, it is common for HVAC systems to be turned off and they can be fitted with sensors that turn them off automatically when smoke is detected. This minimizes the potential for drafting smoke through the ventilation system into the buildings.

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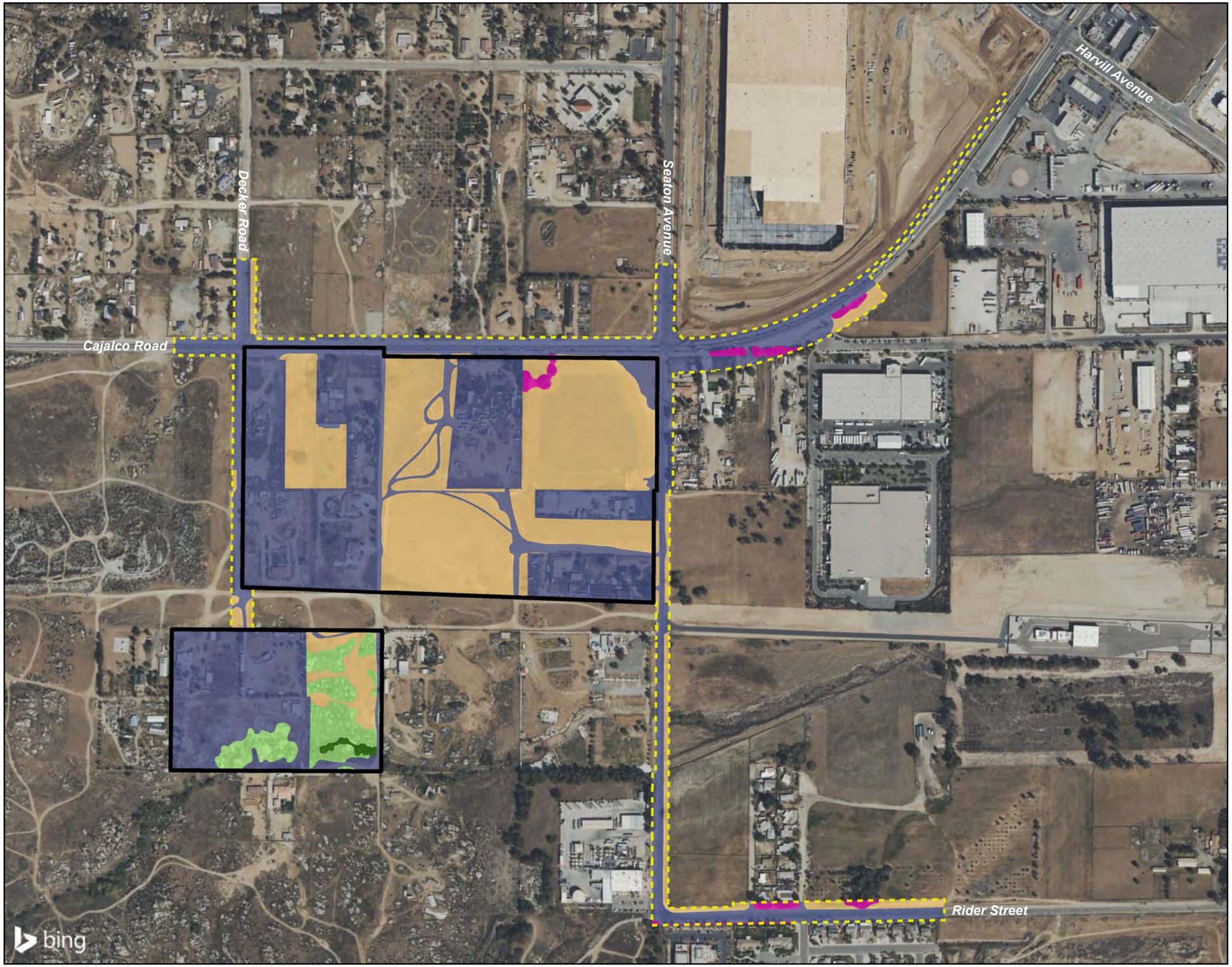

Project - Onsite

Project - Offsite

Disturbed Southern Willow Scrub

Disturbed Riversidian Sage Scrub

Non-Native Grassland

Ornamental

Disturbed/Developed

N

0 225 450 900

Feet

1 inch = 450 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: B. Gale, GLA
Date Prepared: November 16, 2023

CAJALCO COMMERCE CENTER

Vegetation Map

GLENN LUKOS ASSOCIATES

Exhibit 4

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3 Anticipated Fire Behavior

3.1 Fire Behavior Modeling

Following field data collection efforts and available data analysis, fire behavior modeling was conducted to document the type and intensity of fire that would be expected adjacent to the Project site given characteristic features such as topography, vegetation, and weather. Dudek utilized BehavePlus software package version 6 (Andrews, Bevins, and Seli 2008) to analyze potential fire behavior around the perimeter of the Project site, with assumptions made for the pre- and post-Project slope and fuel conditions. As is customary for this type of analysis, four scenarios were evaluated, including two summer, onshore weather condition (southwest and west of the project site) and two extreme fall, offshore weather condition (north/northeast and east/southeast of the project site). Results are provided below and a more detailed presentation of the BehavePlus analysis, including fuel moisture and weather input variables, is provided in Appendix C. BehavePlus modeling is described below followed by the fire spread modeling details.

3.2 Fire Behavior Modeling Analysis

An analysis utilizing the BehavePlus software package was conducted to evaluate fire behavior variables and to objectively predict flame lengths, intensities, and spread rates for four modeling scenarios. These fire scenarios incorporated observed fuel types representing the dominant on-site and off-site vegetation on land to the north, east-southeast, southwest, and west, in addition to slope gradients, and wind and fuel moisture values derived from the closest Remote Automated Weather Station (RAWS) weather data sets (Clark RAWS) for both the 50th percentile weather (summer, on-shore winds) and the 97th percentile weather (fall, off-shore winds). Modeling scenario locations were selected to better understand different fire behavior that may be experienced on or adjacent to the Project site.

To support the fire behavior modeling efforts conducted for this FPP, the different vegetation types observed within and adjacent to the project site were classified into the aforementioned numeric fuel models. As is customary for this type of analysis, the terrain and fuels within and adjacent to the project area were used for determining flame lengths and fire spread. It is these fuels that would have the potential to affect the project's structures from a radiant and convective heat perspective as well as from direct flame impingement. Fuel beds, including non-native grasslands with sparce areas of shrubs, are adjacent to the proposed project development site. These fuel types can produce flying embers that may affect the project, but defenses will have been built into the structures to prevent ember penetration. 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). Table 2 provides a description of the fuel models observed in the vicinity of the site that were subsequently used in the analysis for this Project. Modeled areas include low-load non-native grassland ground fuels (Fuel Model: Gr2) found throughout and adjacent to the project site, as well as low- to- moderate-load shrubs intermixed with the non-native grasses (Fuel Models: Gs1 and Gs2). A total of four fire modeling scenarios were completed for the site. These sites were selected based on the possible likelihood of fire approaching from these directions during a Santa Ana wind-driven fire event (fire scenarios 1 and 2) and an on-shore weather pattern (fire scenarios 3 and 4). Dudek also conducted modeling of the site for post-Fuel Modification Zones' (FMZ) recommendations for this project (Refer to Table 2 for post-FMZ fuel model descriptions). Fuel modification includes establishment of irrigated/drought tolerant landscapes and

hardscape areas on the periphery of the warehouse and park recreation buildings as well as interior landscape requirements. For modeling the post-FMZ treatment condition, fuel model assignments were re-classified as non-burnable for the non-combustible parking areas and Zone 0 areas, and for FMZ A (Fuel Model FM8) as applicable.

Table 2. Fuel Models Used for Fire Behavior Modeling

Fuel Model	Description	Location of Fuel Models	Fuel Bed Depth (Feet)
Existing Conditions			
GR2	Low-load, Dry climate grasses	Represents the areas with a longer interval between weed abatement where vegetation has had a chance to grow and cure.	1.0 ft.
GS1	Low-load, Dry climate grass-shrubs	Represents the sparser grass-shrub vegetation located in and adjacent to the Project site with little maintenance.	0.9 ft.
GS2	Moderate-load, Dry climate grass-shrubs	Represents the slightly higher load grass-shrub vegetation located adjacent to the Project site with little or no maintenance.	1.5 ft.
Post-Development Conditions			
FM8	Compact Litter	Fuel Modification Zones 0 and 1: irrigated landscape throughout the Project site	0.2 ft.
NB	Non-burnable	Parking lot areas and roadways throughout the development.	0 ft.

Note:

1. Listed fuel bed depths are a reflection of the fuel models that best depict the vegetation in and around the Project site and not an exact measure of local vegetation (Anderson 1982; Scott & Burgan 2005).

The results of fire behavior modeling analysis for pre- and post-Project conditions are presented in Tables 3 and 4, respectively. Identification of modeling run (fire scenarios) locations is presented graphically in Figure 5, BehavePlus Fire Behavior Analysis Map.

3.3 Fire Behavior Modeling Efforts

As mentioned, the BehavePlus fire behavior modeling software package was utilized in evaluating anticipated fire behavior adjacent to the Proposed Project site. Four focused analyses were completed for both the existing project site conditions and the post project conditions, each assuming worst-case fire weather conditions for a fire approaching the project site from the northwest, north/northeast, east, southeast, and west/southwest. The results of the modeling effort included anticipated values for surface fires flame length (feet), rate of spread (mph), fireline intensity (Btu/ft/s), and spotting distance (miles). 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 2008). 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 (Rothermel and Rinehart 1983). Spotting distance is the distance a firebrand or ember can travel down wind and ignite receptive fuel beds. Five fire modeling scenario locations were selected to

better understand the different fire behavior that may be experienced on or adjacent the site based on slope and fuel conditions; these five fire scenarios are explained in more detail below:

Fire Scenario Locations and Descriptions:

- Scenario 1. Fire flaming front approaching from the north-northeast toward the northern project boundary with 14 mph sustained northern winds with up to 50 mph gusts.
  - Existing conditions:
    - Offsite: A combination of short, sparse dry climate grass and low- to moderate-load dry climate grass.
    - Onsite: A combination of low-load dry climate grass, short, sparse dry climate grass, and low-load grass-shrub vegetation.
  - Post-Project conditions: Cajalco Road with improvements, irrigated landscaping, an up to 6-foot retaining wall and 8-foot screen wall, paved semi-truck parking, and loading areas, and a fire access lane.
- Scenario 2. Fire flaming front approaching from the east-southeast toward the south and east boundaries of the property with 14 mph sustained east-southeastern winds with up to 50 mph gusts.
  - Existing conditions:
    - Offsite: A combination of short, sparse dry climate grass and low- to moderate-load dry climate grass.
  - Onsite: A combination of short, sparse dry climate grass and low- to moderate-load dry climate grass.
  - Post-Project conditions: Seaton Road with improvements, irrigated landscaping, paved parking areas, and a fire access lane.
- Scenario 3. Fire flaming front approaching from the southwest toward the southern boundary of the property with 9 mph sustained southeastern on-shore winds.
  - Existing conditions:
    - Offsite: A combination of short, sparase dry climate grass, low-load dry climate grass, low- to moderate-load grass-shrub vegetation.
    - Onsite: Short-sparse dry climate grass and low-load dry climate grass
  - Post-Project conditions: The park with irrigated landscaping, and paved parking. Decker road with improvements including the cul-de-sac at the southern terminus, and the southern boundary of the warehouse site featuring a retaining wall and screen wall totaling up to 23 and a half feet in height, irrigated landscaping, paved semi-truck parking and loading areas, and a fire access lane.
- Scenario 4. Fire flaming front approaching from the west-northwest toward the west and northwest portions do the property with 9 mph sustained on-shore western winds.
  - Existing conditions:
    - Offsite: A combination of short, sparase dry climate grass, low-load dry climate grass, low- to moderate-load grass-shrub vegetation.
    - Onsite: Short-sparse dry climate grass and low-load dry climate grass with areas of low-load grass-shrub vegetation

- Post-Project conditions: Decker Road with improvements, irrigated landscaping, a paved driveway and a fire access lane.

3.4 Fire Behavior Modeling Results

The results presented in Tables 3 and 4 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. For planning purposes, the averaged worst-case fire behavior is the most useful information for conservative fuel modification design. Model results should be used as a basis for planning only, as actual fire behavior for a given location will be affected by many factors, including unique weather patterns, small-scale topographic variations, or changing vegetation patterns.

As presented in Table 3, wildfire behavior under extreme Santa Ana conditions through the non-maintained grass/grass-shrub dominated fuels within and adjacent to the Project site can support low to moderate fire behavior, a high rate of spread, and spotting distances of approximately a quarter of a mile when supported by 14 mph sustained winds. When winds gust up to 50 mph, fire behavior can be heightened from low to extreme with high to very high rates of spread and spotting distances of up to over a mile. The differences in fire behavior and spread rates between fuel types in these scenarios highlights the importance of weed abatement. The short-sparse dry climate grasses are most representative of areas that have recently been treated and under real-world conditions after treatment, the area may not even facilitate fire spread. Even under conservative fire behavior numbers, a hand crew would be able to operate in post-treatment conditions even in the presence of 50 mph gusts and hose lays or aerial support would have heightened effectiveness. This is in contrast to areas with less frequent or no weed abatement where the short, sparse grasses are allowed to grow to low-load dry climate grass or low-load grass-shrub elevation where a hand crew would not be able to provide suppression efforts under gusts or sustained winds. However, dozers may still be effective under these conditions.

While extreme Santa Ana conditions would increase fire behavior for fires approaching from the north and east, most of the fire history in the vicinity of the project has been in the open space areas to the south and west where a wind-driven fire heading toward the Project site would be fanned by milder on-shore winds (Figure 5). The expected threat of wildfires approaching the Project site from the west and southwest was modeled by scenarios 3 and 4 and the short, sparse to low-load grass and low- to moderate-load grass-shrub vegetation only support low fire behavior, low rates of spread, and spotting distances of approximately a tenth of a mile (Table 3). Given the mild fire behavior in these areas, a hand crew would be able to provide direct attack to a fire and given the many dirt roads/trails and rock outcroppings, they would be able to tie into these noncombustible features to increase the speed of handline production and contain the fire.

As presented in Table 4, Fire Behavior Modeling Results for Post-Project Conditions, Dudek conducted modeling of the Project site for post-Project fuel conditions for the Project. The FMZs include fire friendly and maintained landscaping on the periphery of the Project and within the proposed park area. For modeling the post-Project conditions, fuel model assignments were re-classified for the landscaping as listed in Table 4. A worst-case fire under gusty Santa Ana winds and low fuel moistures (Scenario 2) is expected to have low fie behavior with low to moderate rates of spread and spotting distances up to half a mile when gusts occur. These are conservative approaches with the fie behavior of the planned irrigated landscaping likely being best represented by the FM8 fuel model which had low fire behavior and did not facilitate fire spread except for in the presence of gusts where the spread rate was still low. The reduced fire behavior of post-development conditions not only directly reduce the hazard to the Project, but

also enable enhanced suppression efforts by the RCFD to even further decrease the hazard. This is not taking into account the many other features of the project which will mitigate the ignition potential from radiant and convective heat or embers.

Table 3: RAWS BehavePlus Fire Behavior Model Results – Existing Conditions

Fire Scenario	Flame Length[1] (feet)	Fireline Intensity[1] (Btu/ft./sec)	Spread Rate[1] (mph[2])	Spot Fire[1] (Miles)
Scenario 1: 3% slope; Fall off–shore winds (97th percentile), 14 mph sustained winds w/ 50 mph gusts N of the site[3]				
Short, sparse grass (GR1)	3.7 (4.0)	100 (115)	0.6(0.7)	0.2 (0.5)
Low-load grasses (GR2)	8.9 (18.0)	662 (3,037)	1.3 (6.2)	0.3 (1.3)
Low-load grass-shrub (GS1)	6.1 (14.0)	292 (1,763)	0.5 (3.0)	0.3 (1.1)
Scenario 2: 2% slope; Fall off–shore winds (97th percentile), 14 mph sustained winds w/ 50 mph gusts E-SE of the site[3]				
Short, sparse grass (GR1)	3.7 (4.0)	100 (115)	0.6(0.7)	0.2 (0.5)
Low-load grasses (GR2)	8.9 (18.0)	662 (3,037)	1.3 (6.2)	0.3 (1.3)
Low-load grass-shrub (GS1)	6.1 (14.0)	292 (1,763)	0.5 (3.0)	0.3 (1.1)
Scenario 3: 5% slope; Summer on–shore winds (50th percentile), 9 mph sustained winds SW of the site				
Short, sparse grass (GR1)	1.8	20	0.2	0.1
Low-load grasses (GR2)	4.3	136	0.4	0.1
Low-load grass-shrub (GS1)	3.0	61	0.1	0.1
Moderate-load grass-shrub (GS2)	4.3	138	0.2	0.1
Scenario 4: 4% slope; Summer on–shore winds (50th percentile), 9 mph sustained winds W of the site				
Short, sparse grass (GR1)	1.8	20	0.2	0.1
Low-load grasses (GR2)	4.3	136	0.4	0.1
Low-load grass-shrub (GS1)	3.0	61	0.1	0.1
Moderate-load grass-shrub (GS2)	4.3	138	0.2	0.1

Note:

1. Wind-driven surface fire.
2. MPH=miles per hour.
3. Spotting distance from a wind driven surface fire; it should be noted that the wind mph in parenthesis represent peak gusts of 50 mph

Table 4: RAWS BehavePlus Fire Behavior Model Results – Post Project Conditions

Fire Scenario	Flame Length [1] (feet)	Fireline Intensity[1] (Btu/ft./sec)	Spread Rate[1] (mph[2])	Spot Fire[1] (Miles)
Scenario 1: 2% slope; Summer on–shore winds (50th percentile), 9 mph sustained winds				
Fuel modification zones 0 and 1 (FM8)	1.0	5	0.0	0.1
Non-burnable	N/A	N/A	N/A	N/A
Scenario 2: 2% slope; Fall off–shore winds (97th percentile), 14 mph sustained winds with 50 mph gusts [3]				
Fuel modification zones 0 and 1 (FM8)	1.7 (3.0)	19 (62)	0.0 (0.2)	0.1 (0.4)
Non-burnable	N/A	N/A	N/A	N/A

Note:

1. Wind-driven surface fire.
2. MPH=miles per hour.
3. Spotting distance from a wind driven surface fire; it should be noted that the wind mph in parenthesis represent peak gusts of 50 mph

It should be noted that the results presented in Tables 3 and 4 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; rather, the models provide a worst-

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

3.4.1 Park Area Fire Behavior

Due to similar inputs to the commercial portion of the project, fire behavior around the park is expected to be similar to that around the commercial site. Vegetation and topography is similar around both portions of the project site and the climate is the same. Given that those three inputs are all of the determiners of fire behavior, it will be the same. However, given the park area would be directly adjacent to the open space area to the south. This means that the most expected fire scenario for that portion, even more so than the commercial portion, would be fire Scenario 3. This would be a fire driven by the prevailing on-shore wind and would be likely to occur during average weather conditions and fuel moistures, but could also occur during drier conditions which would result in heightened fire behavior. Flame lengths around the park could range from approximately 4 feet during average conditions up to approximately 9 feet during extreme conditions and 18 feet in the presence of 50 mph Santa Ana gusts.

3.5 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. Wildfire in this Mediterranean-type ecosystem ultimately affects the structure and functions of vegetation communities (Keeley 1984) and will continue to have a substantial and recurring role (Keeley and Fotheringham 2003). Supporting this are the facts that 1) native landscapes, from forest 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. Based on this research, the anticipated growing population of western Riverside County WUI areas, and the regions fire history, it can be anticipated that periodic wildfires may start on, burn onto, or spot into the Project site. The most common type of fire anticipated in the vicinity of the Project area is a wind-driven fire from the southwest moving through the annual grasses and sage scrub shrubs found in the Motte Rimrock Reserve and surrounding open space south of the Project site.

Therefore, it will be critical that the latest fire protection technologies, developed through intensive research and real-world wildfire observations and findings by fire professionals, for both ignition resistant construction and for creating defensible space in the ever-expanding WUI areas, are implemented and enforced. The Project, once developed, would not facilitate wildfire spread and would reduce projected flame lengths to levels that would be manageable by firefighting resources for protecting the Project site's structures, especially given the ignition resistance of the structures and the planned ongoing maintenance of the entire Project site landscape.

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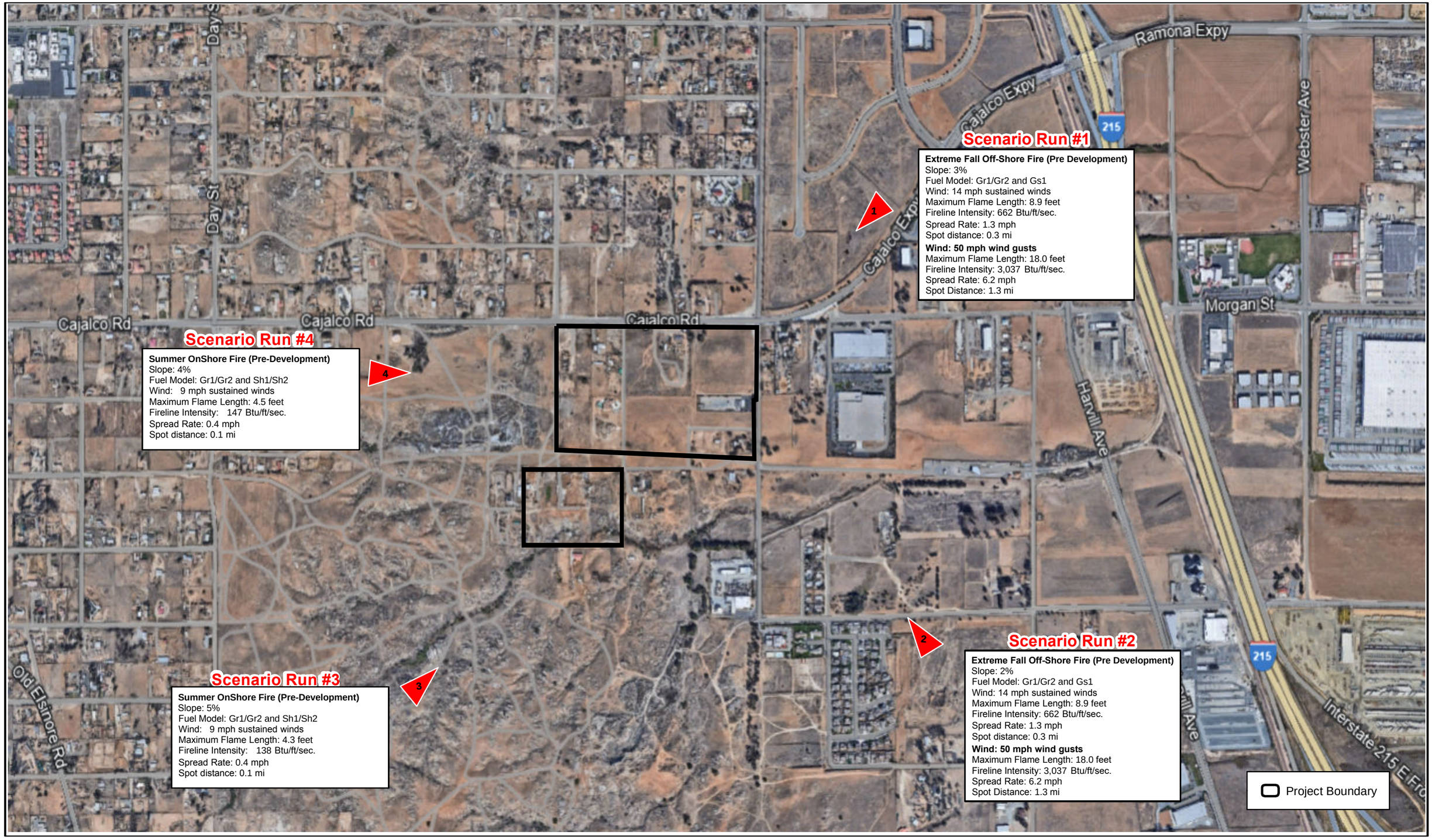

SOURCE: AERIAL-GOOGLE EARTH IMAGERY SERVICE

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FIGURE 5

BehavePlus Analysis Map

Fire Protection Plan for the Cajalco Commerce Center Project

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4 Emergency Response and Service

The following sections analyze the project in terms of current RCFD/CAL FIRE Fire Service capabilities and resources to provide Fire Protection and Emergency Services. The analysis that follows examines the ability of the existing nearby RCFD/CAL FIRE fire stations to adequately serve the proposed project site. Response times were evaluated using project build-out conditions. It was assumed that the shortest access route to the warehouse building and park area and its structure would be utilized.

4.1 Emergency Response Fire Facilities

The Project is located within the Riverside County Fire Department jurisdictional response area. The County of Riverside contracts with CAL FIRE to provide emergency services as the RCFD. Regionally, RCFD provides fire, emergency medical, and rescue services from 95 stations (RCFD 2023a). The Department serves over 1.6 million residents throughout 20 cities and all unincorporated portions of Riverside County (U.S. Census Bureau, 2022)[3]. Figure 6 illustrates the station locations and Table 5 provides a summary of the location, equipment, and staffing levels for the four closest existing RCFD/CAL FIRE Stations. The Project site lies within Battalion 1 response area. RCFD Fire Station 59 would provide the initial response to the Project site and RCFD Station 90 is within approximately 4 miles of the project site and would be available to provide a secondary response to the site, if needed. It should also be noted that the 2016 report prepared for the RCFD by TriData LLC recommended three new stations be built near the Project in the Cajalco Planning Area, but none have been constructed thus far. That 2016 report was utilized in reporting the following station staffing information. The closest access point to the warehouse building and public park area for all stations mentioned other than Station 59 is via driveway 5, the southernmost driveway on Seaton Ave.

RCFD/CAL FIRE Station No. 59, located at 21510 Pinewood Street, Perris, California is the closest RCFD/CAL FIRE station and would provide initial response to the project site. RCFD/CAL FIRE Station 59 is staffed 24/7 by a three-person Engine Company consisting of a Captain, an engineer, and a firefighter, and is equipped with a Type 1 Engine as well as an unstaffed, reserve Type 1 engine. Type 1 engines have a minimum of a 500-gallon water tank and 1,500 gallons per minute (gpm) of pumping capacity. The nearest access to the commercial area for Station 59 would be via driveway 2, the southernmost driveway on Decker Road.

The second closest station is RCFD/CAL FIRE Station 90 which is located at 333 Placentia Avenue, Perris, California. Station 90 is also staffed 24/7 by a four-person Engine Company with a Captain, an Engineer, and two firefighter-paramedics, and is equipped with one 75-foot aerial ladder truck, one Type 1 engine, and a squad and breathing support unit, but only the ladder truck is staffed.

The third closest station is RCFD/CAL FIRE Station 1 which is located at 210 West San Jacinto Avenue, Perris, California. Station 1 is also staffed 24/7 by two three-person Engine Companies with a Captain, an Engineer, and a firefighter-paramedic, and is equipped with three Type 3 engines (only two of which are staffed), two dozers, two dozer tenders, and one water tender.

[3] Population served by RCFD was calculated by subtracting populations of cities in Riverside County not serviced by RCFD (Blythe, Cathedral City, Corona, Hemet, Murrieta, Palm Springs, and Riverside) from the population of the County of Riverside.

The fourth closest station is RCFD/CAL FIRE Station 101 which is located at 105 S. F Street, Perris, California. Station 101 is also staffed 24/7 by a three-person Engine Company with a Captain, an Engineer, and a firefighter-paramedic, and is equipped with a Type 1 engine.

Table 5. Closest RCFD/CAL FIRE Responding Stations Summary

Station	Location	Equipment	Staffing*
RCFD Station 59	21510 Pinewood Street, Perris, CA	(2) Type 1 Engine	One staffed Type 1 engine; three staff total (1 Captain, 1 Engineer, 1 Firefighter-Paramedic)
RCFD Station 90	333 Placentia Avenue, Perris, CA	(1) 75-Foot Aerial Ladder Truck (1) Type 1 Engine (1) Paramedic Squad Truck (1) Breathing Support Unit	One staffed Ladder four staff total (1 Captain, 1 Engineer, 2 Firefighter-Paramedics)
RCFD Station 1 (RCFD Headquarters)	210 West San Jacinto Avenue, Perris, CA	(3) Type 3 Engines (2) Type 2 Dozers (2) Dozer Tenders (1) Water Tender	Two staffed Type 3 engines; (2 Captains, 2 Engineers, 2 Firefighter-Paramedics). 11 staff total.
RCFD Station 101	105 S. F Street, Perris, CA	(1) Type 1 Engine	One staffed Type 1 engine; three staff total (1 Captain, 1 Engineer, 1 Firefighter-Paramedic)

Source: * Staffing levels and equipment from Riverside County Fire Department, Operational, Standards of Cover, and Contract Fee Analysis prepared by TriData LLC. in March of 2016.

Within the area's emergency services system, fire and emergency medical services are also provided by other agencies. Generally, each agency is responsible for structural fire protection and wildland fire protection within their area of responsibility. However, mutual aid agreements enable non-lead fire agencies to respond to fire emergencies outside their district boundaries. In the Project area, fire agencies cooperate under a statewide master mutual aid agreement for wildland fires. There are also mutual aid agreements in place with neighboring fire agencies and typically include interdependencies that exist among the region's fire protection agencies for structural and medical responses but are primarily associated with the peripheral "edges" of each agency's boundary.

4.1.1 Emergency Response Travel Time Coverage

According to the RCFD 2016 TriData Report[4], units should travel to calls within the defined response time goal for the appropriate population density classification 80 percent of the time. In an effort to understand fire department response capabilities, Dudek conducted an analysis of the travel-time response coverage from the closest responding RCFD Fire Stations (Fire Station 59 being the closest). The response time analysis was conducted using travel distances that were derived from Google road data and Project development plan data. Travel times were calculated applying the distance at speed limit formula (T=(D/S) * 60, where T=time, D=distance in miles, and S=speed in MPH) as well as the nationally recognized Insurance Services Office (ISO) Public Protection Classification Program's Response Time Standard formula (T=0.65 + 1.7 D, where T= time and D = distance) for comparison. The

ISO response travel time formula discounts speed for intersections, vehicle deceleration, and acceleration, and does not include turnout time. Tables 6 (6a and 6b) and 7 (7a and 7b) present tabular results of the emergency response time analysis using the distance at speed formula and the ISO formula, respectively.

Table 6A. Project Commercial Area Emergency Response Analysis using Speed Limit Formula

Station	Travel Distance to Project Entrance	Travel Time to Project Entrance[1]	Maximum Travel Distance[2]	Maximum Travel Time	Total Response Time[3]
RCFD Station 59	1.7 miles	2 minutes 55 seconds	2.1 miles	3 minutes 36 seconds	5 minutes 36 seconds
RCFD Station 90	3.1 miles	5 minutes 19 seconds	3.6 miles	6 minutes 10 seconds	8 minutes 10 seconds
RCFD Station 1	4.7 miles	8 minutes 3 seconds	5.2 miles	8 minutes 55 seconds	10 minutes 55 seconds
RCFD Station 101	4.8 miles	8 minutes 14 seconds	5.3 miles	9 minutes 5 seconds	11 minutes 5 seconds

Table 6B. Project Park Area Emergency Response Analysis using Speed Limit Formula

Station	Travel Distance to Project Entrance	Travel Time to Project Entrance[1]	Maximum Travel Distance[2]	Maximum Travel Time	Total Response Time[3]
RCFD Station 59	1.8 miles	3 minutes 5 seconds	1.9 miles	3 minutes 15 seconds	5 minutes 15 seconds
RCFD Station 90	4.0 miles	6 minutes 51 seconds	4.1 miles	7 minutes 1 second	9 minutes 1 second
RCFD Station 1	5.6 miles	9 minutes 36 seconds	5.7 miles	9 minutes 46 seconds	11 minutes 46 seconds
RCFD Station 101	5.8 miles	9 minutes 57 seconds	5.9 miles	10 minutes 7 seconds	12 minutes 7 seconds

Notes:

1. Assumes travel distance and time to the closest entrance into either the commercial area (Table 6A) or park area (Table 6B) for the respective fire station. Also assumes application of the distance at speed limit formula (T=(D/S) * 60, where T=time, D=distance in miles, and S=speed in MPH), a 35 mph travel speed, and does not include turnout time.
2. Assumes travel distance and time to the furthest point within the project development area from the respective fire station, and application of the distance at speed limit formula (T=(D/S) * 60, where T=time, D=distance in miles, and S=speed in MPH), a 35 mph travel speed, and does not include turnout time.
3. Emergency response time target thresholds include travel time to furthest point within the project development area from fire station, and application of the distance at speed limit formula (T=(D/S) * 60, where T=time, D=distance in miles, and S=speed in MPH) a 35 mph travel speed along with dispatch and turnout time, which can add an additional two minutes to travel time.

Table 7A. Project Commercial Area Emergency Response Analysis using ISO Formula

Station	Travel Distance to Commercial Entrance	Travel Time to Commercial Entrance[1]	Maximum Travel Distance[2]	Maximum Travel Time	Total Response Time[3]
RCFD Station 59	1.7 miles	3 minutes 32 seconds	2.1 miles	4 minutes 13 seconds	6 minutes 13 seconds
RCFD Station 90	3.1 miles	5 minutes 55 seconds	3.6 miles	6 minutes 46 seconds	8 minutes 46 seconds
RCFD Station 1	4.7 miles	8 minutes 38 seconds	5.2 miles	9 minutes 29 seconds	11 minutes 29 seconds
RCFD Station 101	4.8 miles	8 minutes 49 seconds	5.3 miles	9 minutes 40 seconds	11 minutes 40 seconds

Table 7B. Project Park Area Emergency Response Analysis using ISO Formula

Station	Travel Distance to Park Entrance	Travel Time to Park Entrance[1]	Maximum Travel Distance[2]	Maximum Travel Time	Total Response Time[3]
RCFD Station 59	1.8 miles	3 minutes 43 seconds	1.9 miles	3 minutes 53 seconds	5 minutes 53 seconds
RCFD Station 90	4.0 miles	7 minutes 27 seconds	4.1 miles	7 minutes 37 seconds	9 minutes 37 seconds
RCFD Station 1	5.6 miles	10 minutes 10 seconds	5.7 miles	10 minutes 20 seconds	12 minutes 20 seconds
RCFD Station 101	5.8 miles	10 minutes 31 seconds	5.9 miles	10 minutes 41 seconds	12 minutes 41 seconds

Notes:

- Assumes travel distance and time to the closest entrance into either the commercial area (Table 7A) or park area (Table 7B) . Also assumes application of the ISO formula, T=0.65+1.7(Distance), a 35 mph travel speed, and does not include turnout time.
- Assumes travel distance and time to the furthest point within the project development area from the respective fire station, and application of the ISO formula, T=0.65+1.7(Distance), a 35 mph travel speed, and does not include turnout time.
- Emergency response time target thresholds include travel time to furthest point within the project development area from fire station, and application of the ISO formula, T=0.65+1.7(Distance), a 35 mph travel speed along with dispatch and turnout time, which can add an additional two minutes to travel time.

RCFD/CAL FIRE Station No. 59 is approximately 1.7 miles from the southernmost western entrance, Driveway 2, into the commercial area off Decker Road and approximately 2.2 miles from the farthest portions of the commercial portion of the Project site. Station 59 could respond to the southernmost western entrance to the commercial area, Driveway 2, within approximately 3 minutes and 32 seconds travel time and to an incident within the farthest portion of the commercial area of the project site approximately 4 minutes 13 seconds travel time. Station 59 could respond to the entrance to the park area of the project site within approximately 3 minutes and 43 seconds of travel time.

The RCFD/CAL FIRE Station 90 is the next closest station that could respond to the project site. Station 90 is located approximately 3.1 miles from the southeastern entrance, Driveway 5, into the commercial area off Seaton Avenue

and approximately 3.6 miles from the farthest portions of the project site. Station 90 could respond to Driveway 5 within approximately 5 minutes and 55 seconds travel time and to an incident within the farthest portions of the commercial area of the project site within approximately 6 minutes 46 seconds travel time. Station 90 could respond to the entrance to the park area of the project site within approximately 7 minutes and 27 seconds of travel time.

The RCFD/CAL FIRE Station 1 is the third closest station that could respond to the project site. Station 1 is located approximately 4.7 miles from the southeastern entrance, Driveway 5, into the commercial area off Seaton Avenue and approximately 5.2 miles from the farthest portions of the commercial portion of the project site. Station 1 could respond to Driveway 5 within approximately 8 minutes and 38 seconds travel time and to an incident within the farthest portions of the commercial portion of the project site within approximately 9 minutes 29 seconds travel time. Station 1 could respond to the entrance to the park area of the project site within approximately 10 minutes and 10 seconds of travel time.

The RCFD/CAL FIRE Station 101 is the fourth closest station that could respond to the project site. Station 101 is located approximately 4.8 miles from the southeastern entrance, Driveway 5, into the commercial area off Seaton Avenue and approximately 5.3 miles from the farthest portions of the commercial portion of the project site. Station 101 could respond to Driveway 5 within approximately 8 minutes and 49 seconds travel time and to an incident within the farthest portions of the commercial portion of the project site within approximately 9 minutes 40 seconds travel time. Station 101 could respond to the entrance to the park area of the project site within approximately 10 minutes and 31 seconds of travel time.

On March 7, 2017, the Riverside County Board of Supervisors (Board) received and filed RCFD's "Alternative Staffing Model Recommendation." The Alternative Staffing Model Recommendation was fiscally driven and developed by RCFD due to funding difficulties to retain 3-person engine companies. The RCFD FY 17-18 Service Alternatives report, dated March 7, 2017, recommends the following response times based on four Board Approved Land Use Classifications as described in Table 8:

Table 8. Land Use Classification Information with Staffing/Time Response Standards

Land Classification	Population Density	Fire Staffing Characteristics	Response Time
HEAVY URBAN	>700 per square mile	Land use includes large commercial and industrial complexes, large business parks, high-rise and wide rise community centers and high-density residential dwelling units of 10 to 20 units per acre.	5:00 minutes, 90% of the time
URBAN	>500 per square mile	Land use includes large commercial and industrial complexes, large business parks, high-rise and wide rise community centers and high-density residential dwelling units of 8 to 20 units per acre.	6:30 minutes, 90% of the time
RURAL	100 to 500 per square mile	Light industrial zones, small community centers and residential dwelling unit density of 2 to 8 units per acre.	10:30 minutes, 90% of the time

OUTLYING	<100 per square mile	Areas of rural mountain and desert, agricultural uses, small scale commercial, industrial and manufacturing, service commercial, medium industrial and low density residential dwelling units; 1 dwelling unit per acre to 1 dwelling unit per 5 acres.	17:30 minutes, 90% of the time

Source: Riverside County Fire Department FY 17-18 Service Alternatives. March 7, 2017.

Emergency response time target thresholds include travel time along with dispatch and turnout time, which can add two minutes to travel time. RCFD Fire Station 59 would provide an initial response as the closest existing RCFD fire station. As indicated in Table 6 and Table 7, the total response time from Station 59 to the furthest point within the commercial portion of the project development does conform to the response time standard of 6 minutes and 30 seconds for "Urban" areas, which the Project is assumed to fall under, and is estimated to arrive within approximately 5 minutes and 36 seconds (Speed Limit Formula) or 6 minutes and 13 seconds (ISO Formula). The total response time of Station 59 to the park portion of the project also conforms to the RCFD response time standard with total travel time estimate of 5 minutes and 15 seconds (Speed Limit Formula) or 5 minutes and 53 seconds (ISO Formula). All response calculations are based on an average response speed of 35 mph, consistent with nationally recognized National Fire Protection Association (NFPA) 1710. Based on these calculations, the Project's calculated response time from the closest fire station would achieve faster times than the requirement for "Urban" areas.

4.2 Estimated Calls and Demand for Service from the Project

Determining the potential impact associated with the Project's estimated population increase is required in order to compare how many additional calls may be realized and determine what effects they may have on the available response resources. The estimated incident call volume of the Project is based on a conservatively calculated estimate from the maximum potential number of additional persons that would be expected on site. Emergency call volumes related to typical projects, such as new residential developments, can be reliably estimated based on the historical per-capita call volume from a particular fire jurisdiction.

Emergency call volumes related to typical projects, such as new industrial developments, can be reliably estimated based on the historical per-capita call volume from a particular fire jurisdiction. The RCFD documented 183,893 total incidents for 2021 generated by a service area total population of approximately 1,674,024 persons in 20 cities and all unincorporated communities within Riverside County (RCFD,2021; U.S. Census Bureau, 2022). The County's per capita annual call volume is approximately 110 calls per 1,000 persons. The resulting per capita call volume is 0.11.

Using the data above, the estimated annual emergency call volume for the warehouse portion of the Project site was calculated. The conceptual estimate is based off of the square footage of the warehouse associated with the Project and per-square-footage job production for light industrial land usage per Appendix E of the Riverside County General Plan. The Project's Environmental Impact Report estimates the total number of permanent jobs to be 974. The number on-site at any given time may likely be half the estimated employee population, due to staggered employee shifts and transient use. Based on this information, the total maximum estimated total population (which includes employees and transient use) of the Project site at any given time, is projected to be approximately 487 persons. Using the RCFD's estimated call volume, the Project's estimated working population at any given time is

calculated to generate up to 54 calls per year (approximately one call per week). Most of the calls from the Project are expected to be medical-related calls; consistent with typical emergency call statistics. The estimated incident call volume at buildout from the Project is based on a conservative estimate of the maximum potential number of persons on site at any given time (considered a "worst case" scenario).

Table 9. Calculated Call Volume Associated with the Warehouse Portion of the Project

Emergency Calls per 1,000 (County Data)	Estimated Working Population	Avg. No. Calls per Year (487\1,000) x 110	Avg. No. Calls per Day (54/365)
110	+/-487	54	0.15

In addition to the estimated employee population within the warehouse portion of the Project site, this FPP also analyzed the estimated annual emergency call volume for those using the public park area. The Project's Traffic Analysis estimated 748 trips generated daily for the park site and the site plan provides 85 parking stalls. According to the Bureau of Transportation Statistics, the average 'Vehicle Occupancy Per Vehicle Mile by Daily Trip Purposes' for social and recreational purposes was 2.05 people (United States Department of Transportation – Bureau of Transportation Statistics, Table A-14). Based on the worst-case scenario that all 85 parking stalls are occupied, the total number of people occupying the park area would be 170 persons. Using the RCFD's estimated call volume, the Project's estimated park going population at any given time is calculated to generate up to an additional 19 calls per year (approximately little over one call per month). As is the case for the warehouse building, most of the calls from the Project are expected to be medical-related calls; consistent with typical emergency call statistics. The estimated incident call volume at buildout from the Project is based on a conservative estimate of the maximum potential number of persons occupying the park areas at any given time (considered a "worst case" scenario).

Table 10. Calculated Call Volume Associated with the Proposed Public Park

Emergency Calls per 1,000 (County Data)	Estimated Working Population	Avg. No. Calls per Year (170\1,000) x 110	Avg. No. Calls per Day (19/365)
110	+/-170	19	0.05

4.2.1 Response Capability Impact Assessment

The available firefighting and emergency medical resources in the vicinity of the Project site include an assortment of fire apparatus and equipment considered fully capable of responding to the type of fires and emergency medical calls potentially occurring within the Project site. In 2021 Station 59, the primary responding station for the Project, responded to over approximately 2,879 incidents with an approximate call volume of 7 to 8 calls a day (RCFD 2021 Annual Report, 2021).

The Cajalco Commerce Center is projected to create approximately 974 jobs with approximately 487 people present at any point in time. Furthermore, it's estimated that the proposed public park area will generate 748 daily trips and the site plan provides 85 parking stalls, which based on the worst-case scenario that all 85 parking stalls are occupied, the total number of people occupying the park area would be 170 persons. The Project's estimated

working population at any given time is conservatively projected to add up to 54 calls per year (approximately one call per week) and the Project's estimated park going population at any given time is calculated to generate up to an additional 19 calls per year (approximately little over one call per month), which would be mostly medical and within Station 59's first-in response jurisdiction. The addition of approximately 73 total Project related calls per year is not a substantial impact given Station 59's annual call volume of 2,879 calls per year. A busy suburban fire station would run 10 or more calls per day. An average station runs about 5 calls per day. The level of service demand for the Project site will not substantially raise the overall call volume. Station 59 would respond to an additional approximately 73 calls per year, although the number will likely be lower than that based on the conservative nature of the population and calls per capita data used in this estimate.

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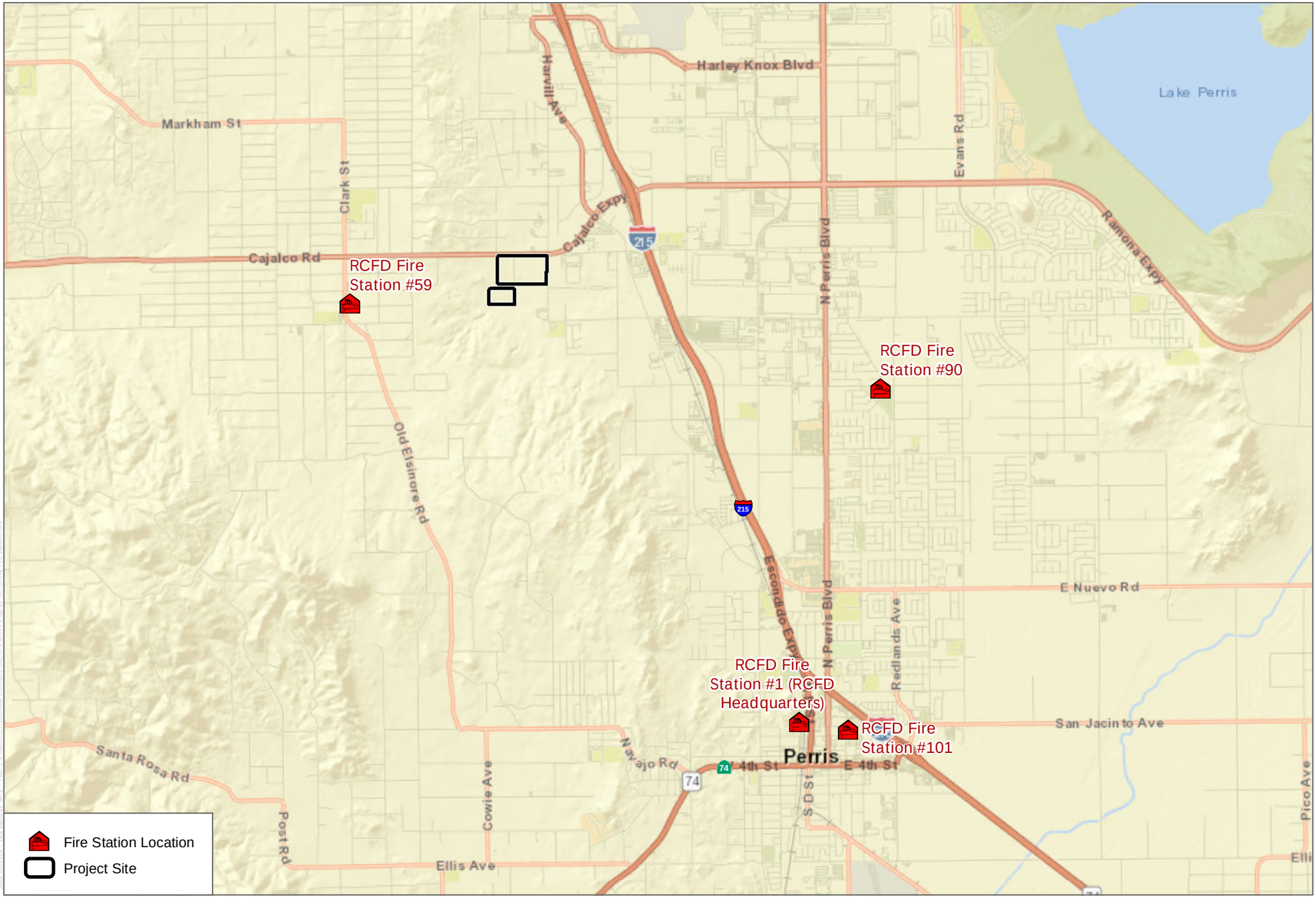

SOURCE: BASEMAP - ESRI MAPPING SERVICE; RIVERSIDE COUNTY GIS DATA

DUDEK

0 2,500 5,000 Feet

FIGURE 6

RCFD/CAL Fire Stations Locations

Fire Protection Plan for the Cajalco Commerce Center Project

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5 Fire Safety Requirements- Infrastructure, Building Ignition Resistance, and Defensible Space

This FPP demonstrates that the Project development would comply with applicable portions of Riverside County Fire Department Technical Policies and Fire Prevention Standards and applicable portions of the Riverside County Municipal Code, Ordinances No. 460 and No. 787-8 and Title 8, Chapter 8.32 – Fire Code, which adopts the 2022 edition of the California Fire Code (CFC), including Chapter 49, California Code of Regulations, Title 24, Part 9, with amendments. Furthermore, the Project will be consistent with applicable portions of Title 15, Chapter 15.04 – Building Regulations, which adopts the 2022 edition of the California Building Code (CBC), including Chapter 7A based on the 2021 edition of the International Fire Code (IFC) as adopted and amended by RCFD, which governs the building, infrastructure, and defensible space requirements detailed in this FPP. The Project would also be subject to the provisions of section 4291 of the Public Resources Code regarding brush clearance standards around structures, the Riverside County Fire Department (Cal Fire) Defensible Space guidelines, and RCFD guidelines for Fuel Modification Plans. The Project will meet or exceed applicable codes or will provide alternative materials and/or methods. While these standards will provide a high level of protection to structures within the development, there are no guarantees that compliance with these standards will prevent damage or destruction of structures by fire in all cases. The following summaries highlight important fire protection features.

Prior to bringing combustible materials onto the Project site, utilities shall be in place, fire hydrants operational, an approved all-weather roadway, or an approved road surface alternative in place, and interim fuel modification zones established and approved.

A response map update, including roads and fire hydrant locations, in a format compatible with current RCFD mapping shall be provided to RCFD.

5.1 Fire Apparatus Access

Access to the light industrial warehouse building site is proposed via 2 driveways along Decker Road (from north to south, Driveways 1 and 2) and three driveways along Seaton Avenue (from north to south, Driveways 3 through 5). Driveways 1 and 2 along Decker Road, as well as Driveway 4 along Seaton Avenue (i.e., the central driveway along Seaton Avenue) would be restricted to passenger vehicles only. Driveways 3 and 5 along Seaton Avenue (i.e., the northern and southern driveways) would serve both passenger cars and trucks. Driveway 3 ultimately may or may not be constructed, and if constructed would be restricted to right-in/right-out access only through the construction of a raised median along this portion of Seaton Avenue. All other driveways (Driveways 1, 2, 4, and 5) would afford full turn movements into and out of the Project site.

Project site access, including road widths and connectivity, will comply with the requirements of the Road Circulation and Design Guidelines and the 2022 CFC, Section 503, as adopted by the Riverside County Municipal Code, Title 8, Chapter 8.32 – Fire Code (including amendments to Section 503.2.1). Additionally, an adequate water supply and approved paved access roadways shall be installed prior to any combustibles being brought onsite and will include:

- Section 503.2.1 of the CFC is deleted in its entirety and replaced with the following:
  - Fire apparatus access roads shall have an unobstructed width of not less than 24 feet, exclusive of shoulders, except for approved security gates in accordance with Section 503.6 and an unobstructed vertical clearance of not less than 13 feet 6 inches.
- Interior circulation streets, driveways, and parking lot roadways that are considered roadways for traffic flow through the Project site will meet fire department access requirements when serving the proposed structures (Section 503.2.1).
- All access roads and driveways shall comply with access road standards of not less than 24 feet, unobstructed widths and are capable of supporting an imposed load of at least 75,000 pounds.
- Any roads that have traffic lights shall have approved traffic pre-emption devices (Opticom) compatible with devices on the Fire Apparatus.
- 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 (CFC 503.1.1).
- Further, there must be a walkway approved by the RCFD leading from fire apparatus access roads to exterior openings (CFC 504.1).
- Roadway design features (e.g., speed bumps, humps, speed control dips, planters, and fountains) that could interfere with emergency apparatus response speeds and required unobstructed access road widths will not be installed or allowed to remain on roadways without approval of an RCFD official.
- Given the project is required by CFC D104.1-D104.2 to have at least two access points, those access points shall be placed a distance apart equal to not less than one half of the length of the maximum overall diagonal dimension of the lot or area to be served, measured in a straight line between accesses (D104.3).
- Vertical clearance of vegetation (lowest-hanging tree limbs), along all roadways will be maintained at clearances of 13 feet, 6 inches to allow fire apparatus passage.
- Access roads shall be completed and paved prior to issuance of building permits and prior to the occurrence of combustible construction.

5.1.1 Roads

All fire access roads associated with the Project will be in compliance with the County of Riverside Road Standards and Standard Specifications, the 2022 California Fire Code, Section 503, as adopted by the Riverside County Municipal Code, Title 8, Chapter 8.32 – Fire Code (including amendments to Section 503.2.1), County Ordinance 787.10, RCFD Technical Policies and Standards, and all other applicable codes. Section 503.2.1 of the CFC is deleted in its entirety and replaced with the following:

- Fire apparatus access roads shall have an unobstructed width of not less than 24 feet, exclusive of shoulders, except for approved security gates in accordance with Section 503.6 and an unobstructed vertical clearance of not less than 13 feet 6 inches.

5.1.2 Maximum Dead-End Road Length

There are no dead end fire apparatus access roads planned for the warehouse at the northern end of the Project. The dead end at Decker Road in the park portion of the Project is addressed in Section 5.1.1.5 and Section 6. The

fire access lane around the warehouse is continuous around the entirety of the building perimeter. A cul-de-sac is planned at the southern terminus of Decker Road at the planned public park. Given that the cul-de-sac is over 750 feet from Cajaclco Road, it will require special approval from RCFD. Dead-end roads between 150 feet and 750 feet in length require a 96-foot diameter cul-de-sac or other approved method of fire apparatus turnaround (CFC Section D103.4). All dead-end fire access road included at any phase of the project shall comply with the following:

- Given that the Project is located in a VHFHSZ, no dead-end road shall exceed 660 feet in length without special approval from RCFD (RCFD Technical Policies & Standards: Commercial Access).
- For development within the SRA and within the LRA VHFHSZ, dead-end fire apparatus access roads in excess of 150 feet in length shall be provided with a bulb turnaround at the terminus measuring a minimum of 48 feet outside radius and 16 feet inside radius. Parallel parking around the perimeter of the bulb is acceptable provided the bulb outside turning radius is increased by 8 feet. In-lieu of a bulb, a hammer-head type turnaround is acceptable where the top of the "T" dimension is 120 feet with the stem in the center. Additional turnaround designs may be acceptable as approved by the OFM. For development within the SRA and within the LRA VHFHSZ, turnarounds shall be provided at a maximum of 1320 feet intervals along the dead end fire apparatus access road (CFC Section D103.4; RCFD Technical Policies & Standards: Commercial Access).

5.1.3 Surface and Grade

Fire access roads must be able to support fully loaded fire engines and be of a subtle enough grade to facilitate their travel. The surface and grade of all fire apparatus access roads associated with the Project comply with the following:

- All roads comply with access road standards of the capability of supporting an imposed load of at least 75,000 pounds (CFC Section D102.1).
- Road surfaces will be constructed to be hard surfaced (with either aggregate cement or asphalt paving materials) providing an all-weather driving surface (CFC Section 503.2.3).
- Unless otherwise approved, the grade of a fire apparatus access road shall not exceed 10 percent and the cross slope shall not exceed 2.5 percent (CFC Section D103.2;RCFD Technical Policies & Standards: Commercial Access).
- The angles of approach and departure for fire apparatus access roads shall be a maximum of 6 percent grade change for 25 feet of approach/departure (RCFD Technical Policies & Standards: Commercial Access).
- The fire access road will comply with the minimum required turning radius of a fire apparatus access road including the required turning radius of 74 feet outside radius and 50 feet inside radius (RCFD Technical Policies & Standards: Commercial Access).

5.1.4 Road Width and Clearance

Fire apparatus access roads must be of an appropriate width and clearance to facilitate the ingress and egress of engines. The width and clearance of fire access roads associated with the Project comply with the following requirements:

- Fire apparatus access roads shall have an unobstructed width of not less than 24 feet, exclusive of shoulders, and an unobstructed vertical clearance of not less than 13 feet 6 inches. If a center median is present, the required unobstructed width of not less than 24 feet shall be provided on one or both sides of the median. If provided on one side of the median then the opposite side shall have an unobstructed width of not less than 14 feet. At development entrances where there is a Guard Booth separating an entry and an exit access, each access lane may be a minimum of 14 feet wide for the length of the Guard Booth as approved by the OFM (CFC 503.2.1, Ord. 787.10).
- Parallel parking is permitted on both sides of a required fire apparatus access road when the clear width (face of curb to face of curb) is a minimum of 36 feet. Parallel parking is permitted on one side of a required fire apparatus access road when the clear width is a minimum of 30 feet (face of curb to face of curb) (RCFD Technical Policies & Standards: Commercial Access).

  White the Code calls for an additional 8 feet of road width be added to fire apparatus access roads that are utilized for loading and unloading or passenger pickup and drop-off, the loading and unloading areas of the warehouse are set to the side of the fire access road and therefore the additional provision is not necessary (Ordinance 787.10).

5.1.5 Aerial Fire Apparatus Access Roads

Aerial fire apparatus access roads meeting the requirements below exist on the western and eastern sides of the warehouse building planned in the northern portion of the project.

- Where the vertical distance between the grade plane and the highest roof surface exceeds 30 feet, approved aerial fire apparatus access roads shall be provided (CFC Section D105.1).
  - Exceptions to this requirement include buildings of Type IA, Type IB or Type IIA construction equipped throughout with an automatic sprinkler system in accordance with CFC Section 903.3.1.1 and having fire fighter access through an enclosed stairway with a Class I standpipe from the lowest level of fire department vehicle access to all roof surfaces, but must be approved by an RCFD official.
- Aerial fire apparatus access roads shall have a minimum unobstructed width of 26 feet, exclusive of shoulders, in the immediate vicinity of the building or portion thereof (CFC Section D105.2).
- One or more of the required aerial fire apparatus access routes shall be located not less than 15 feet and not greater than 30 feet from the building, and shall be positioned parallel to one entire side of the building. The side of the building on which the aerial fire apparatus access road is positioned shall be approved by the fire code official (CFC Section D105.3).
- Overhead utility and power lines shall not be located over the aerial fire apparatus access road or between the aerial fire apparatus road and the building. Other obstructions shall be permitted to be placed with the approval of the fire code official (CFC Section D105.4).

5.1.6 Fire Lane Marking

Where necessary, fire lane signs shall be posted on both sides of fire apparatus access roads that are 20 to 26 feet wide (D103.6.1). Fire lane signs shall be posted on one side of fire apparatus access roads more than 26 feet wide and less than 32 feet wide (D103.6.2). For vehicle access gates located across required fire apparatus access

roadways, signs may be required on both sides of the vehicle access gate(s). Under circumstances where parking is not permitted along a fire access road, the no parking area will be identified with appropriate signage or painting of the curb (RCFD Technical Policies & Standards: Commercial Access). These no parking identifiers will be in compliance with the following requirements:

Painted Curb

Where approved by OFM, curbing shall be painted red and shall also be provided with "NO PARKING – FIRE LANE – CVC 22500.1" painted on top of the curb in minimum 3" white lettering at a spacing of 30 feet on center. Where no curb exists, minimum 8-inch red painted striping at the edge of the fire apparatus access road with "NO PARKING – FIRE LANE – CVC 22500.1" in white lettering centered within the stripe at a spacing of 30 feet on center is acceptable (RCFD Technical Policies & Standards: Commercial Access).

Signs

- All signs shall state, "NO PARKING – FIRE LANE – CVC 22500.1" and have a minimum dimension of 12 inches wide by 18 inches high and have red lettering on a white retroreflective background. Signs shall be made of durable material, installed on a sturdy metal pole and have no less than a 7-foot clearance from the bottom of the sign to finish grade (RCFD Technical Policies & Standards: Commercial Access).

- Signs shall be posted at a spacing not to exceed 50 feet when installed on one side of the fire apparatus access road and at a spacing not to exceed 100 feet when installed on both sides of the fire apparatus access road. Consideration for curved roads and obstructions may require reduced spacing intervals. Signs shall be installed to ensure a clear view of the signs (RCFD Technical Policies & Standards: Commercial Access).

5.1.7 Park Area Access

Access to the park portion of the Cajalco Commerce Center project will be via Decker Road. As part of the Project, the segment of Decker Road between the southwest corner of the warehouse building site and Cajalco Road would be improved to its ultimate half-width standard as a Secondary Highway. Improvements to this segment of Decker Road would include the dedication of 70 feet of ROW, 44 feet of pavement, and an 18-foot-wide landscaped parkway with a five-foot curb-separated sidewalk. The portion of Decker Road between the southwest corner of the warehouse building site and the southerly terminus of Decker Road would be improved to its fullwidth standard as a Secondary Highway. Improvements to this segment of Decker Road would include the dedication of 100 feet of ROW, 64 feet of travel lanes, curb, gutter, and 18-foot-wide landscaped parkways along each side of the road that include five-foot-wide curb-separated sidewalks. The park will be in compliant with all fire access requirements previously mentioned and summarized throughout Section 5.1, with the exception of maximum dead-end road lengths. As discussed with the RCFD and described in Section 6, alternative measures are proposed to meet the intent and purpose of the code.

5.1.8 Gates

Multiple gates are proposed within the Project. The proposed gates are planned to be sliding gates with a Knox-Pad, rapid entry system, and locks per RCFD standards per driveway. Access gates will comply with County Fire Code (Section 503.6) and RCFD Technical Policies & Standards: Commercial Access. Public roads shall not be

gated, per the County Fire Code. Gates on private roads, such as those on the warehouse access ways, shall comply with County standards for security gates, namely:

- Security gates obstructing a required fire apparatus access road shall be a minimum of one foot wider than the fire apparatus access road on each side. Gates serving fire apparatus access roads 24 feet or wider are not required to open more than 24 feet unless required to clear turning apparatus (RCFD Technical Policies & Standards: Commercial Access).
- Gates shall be of the horizontal swing, horizontal slide, vertical lift or vertical pivot type. Construction of gates shall be of materials that allow manual operation by one person. (CFC Section D103.5).
- Manual gates shall not be locked unless a Knox Padlock or Knox Box containing the key to the lock is installed in an approved location on the approach side of the gate. If there is a potential for fire apparatus to approach the locked gate from both sides, the Knox Padlock or Knox Box shall be accessible from both sides or a Knox Box shall be installed on both sides of the gate (RCFD Technical Policies & Standards: Commercial Access).
- For vehicle access gates located across required fire apparatus access roadways, no parking signs may be required on both sides of the vehicle access gate(s) (RCFD Technical Policies & Standards: Commercial Access).
- A New Section 503.6.1 is added to Section 503.6 of the CFC to read as follows:
    - Automatic Opener. New motorized gates shall be provided with means to be automatically opened remotely by emergency vehicles in accordance with RCFD Standards and Policies, as may be amended from time to time.
        - Exception: Gates serving individual on- and two-family dwelling parcels.
- The operator of the building shall immediately notify the fire code official and provide the new key where a lock is changed or rekeyed. The key to such lock shall be secured in the key box (CFC Section 506.2).

Motorized Gates

- New motorized gates shall be provided with access to gate equipment or another method to open the gate if there is a power failure. A pedestrian gate, if used to provide access, shall be a minimum 3 feet wide and provided with a Knox Box/Padlock if locked (RCFD Technical Policies & Standards: Commercial Access).
- New motorized gates shall be provided with optical receiver(s) to remotely open the gate when approached by emergency vehicle and Key Switch (with the ability to be locked open) on the right side of the gate to permit opening via RCFD Knox key. Automatic openers shall be installed to be initiated by Riverside County Fire Department apparatus (clear view/adequate height of receiver) and keep the gate open for at least 30 seconds. A satisfactory function test witnessed by an RCFD official is required prior to final acceptance. A non-exhaustive list of RCFD compatible optical receiver manufacturers includes Federal Signal, Whelen, and Tomar (RCFD Technical Policies & Standards: Commercial Access).
- Electric gate operators, where provided, shall be listed in accordance with UL 325. Gates intended for automatic operation shall be designed, constructed and installed to comply with the requirements of ASTM F2200 (CFC Section 503.6).

5.1.9 Driveways

Any structure that is 150 feet or more from a common street in the development shall have a paved fire apparatus access road meeting the specifications:

- Grades shall be less than 15% without providing Portland cement base with heavy broom finish and in no case, greater than 20%
- Approved provisions for turning around fire apparatus.
- Driveways serving two or fewer structures shall be 16 feet wide unobstructed and have a fire apparatus turnaround. Driveways serving more than two structures shall be 24 feet unobstructed.

5.1.10 Premises Identification

Identification of roads and structures will comply with RCFD Technical Policies and Standards for Premises Identification, as follows:

- All buildings shall have approved address numbers, building numbers or approved building identification placed in a position that is plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Address numbers shall be Arabic numbers or alphabetic letters. Numbers shall be the commercial minimum of 12 inches for buildings up to 25 feet in height, and 24 inches in height for buildings exceeding 25 feet in height. Address numbers will have a minimum stroke width of 0.5 inch.
- Suite numbers or letters must be a minimum of 6” in height.
- Where access is by means of a private road and the building cannot be viewed from the public way, a monument, pole or other sign or means shall be used to identify the structure.
- In multi-tenant buildings, businesses shall post the business name and suite number on back doors as well as the front.
- All addressing must be adequately illuminated to be visible from the street at all hours.
- Will be clearly visible from public roadway. Will be located at the driveway entrance. A permanent monument will be provided for the address, in any of the following ways:
  - Attached to a permanent fence at the driveway entrance
  - Address on a metal plate attached to a pole buried in 18” x 18” concrete base.
  - Block, brick, or rock stands no less than 3 feet in height and one foot in width.
- The address at the permanent monument will have a minimum 3-inch letter height, 3/8 stroke, and be reflectorized, contrasting with the background colors of the sign. Addresses will be displayed horizontally.
- Streets will have street names posted on non-combustible street signposts; letters/numbers will be per RCFD standards.
- Temporary street signs shall be installed on all street corners within the Project prior to the placing of combustible materials on-site. Permanent signs shall be installed prior to occupancy of buildings.

5.1.11 Ongoing Infrastructure Maintenance

The Cajalco Commerce Center Owner/Property Management Company shall be responsible for long term funding and maintenance of internal private roads, fire protection systems (including fire sprinklers), and fuel modification areas.

5.1.12 Pre-Construction Requirements

Prior to bringing lumber or combustible materials onto the site, site improvements within the active development area shall be in place, including utilities, operable fire hydrants, an approved, temporary roadway surface, and fuel modification zones established. These features will be approved by the fire department or their designee prior to combustibles being brought on-site. A pre-construction meeting between the builder and the fire department is recommended.

5.2 Ignition Resistant Construction and Fire Protection Systems

All new structures within the Project site will be constructed to Fire Code standards. Each of the proposed buildings will comply with the construction requirements of the Fire Code, Section 4905, as well as the enhanced ignition-resistant construction standards of the County Building Codes (Chapter 7A). While these standards will provide a high level of protection to structures in this development and should reduce or eliminate the need to order evacuations, there are no guarantees that compliance with these standards will prevent damage or destruction of structures by fire in all cases. Appendix D provides a summary of the requirements for ignition resistant construction.

There are three primary concerns for structure ignition: 1) radiant and/or convective heat, 2) burning embers, and 3) direct flame contact (NFPA 1144 2008, IBHS 2008, and others). Burning embers have been a focus of building code updates for at least the last decade, and new structures in the Wildland Urban Interface (WUI) built to these codes have proven to be very ignition resistant. Likewise, radiant and convective heat impacts on structures have been minimized through the Chapter 7A exterior fire ratings for walls, windows and doors. Additionally, provisions for modified fuel areas separating wildland fuels from structures have reduced the number of fuel-related structure losses. As such, most of the primary components of the layered fire protection system provided the project are required by the RCFD but are worth listing because they have been proven effective for minimizing structural vulnerability to wildfire and, with the inclusion of required interior fire sprinklers for extinguishing interior fires, should embers succeed in entering a structure. Even though these measures are now required by the latest Building and Fire Codes, at one time, they were used as mitigation measures for buildings in WUI areas, because they were known to reduce structure vulnerability to wildfire. These measures performed so well, they were adopted into the code. All new structures will be constructed to County standards. Each of the proposed buildings will comply with the enhanced ignition-resistant construction standards that address the requirements for roofs, eaves, exterior walls, vents, appendages, windows, and doors and result in hardened structures that have been proven to perform at high levels (resist ignition) during the typically short duration of exposure to burning vegetation from wildfires.

5.2.1 Water Supply

Under existing conditions, there is an existing 18-inch water main within Cajalco Road and an 8-inch water line within Seaton Avenue along the Project site's frontages with these roadways. As part of the Project, a potable water

line is proposed to extend on site between the northeast corner of the light industrial building and the existing 8-inch water main located within Seaton Avenue. For fire water service, two additional water lines are proposed on site that would connect to the existing 8-inch water line in Seaton Avenue near the southeast and northeast corners of the proposed light industrial building site. A series of water lines also are proposed along the site's perimeter to provide fire water service to the proposed fire hydrants. A proposed water main (at least 8 inches in diameter) would be installed within Decker Road to provide water service to the proposed public park.

The water supply for the Project will be capable of supplying the required fire flow for fire protection and sized according to the applicable codes and design standards. An RCFD official will be notified prior to a water supply test or provided with approved documentation before approval of the water supply system (CFC Section 507.4).

5.2.2 Hydrants

Fire Hydrants shall be located along fire access roadways and adjacent to each structure, as determined by the RCFD Fire Marshal and current fire code requirements to meet operational needs. Fire Hydrants will be consistent with applicable codes and Design Standards. More specifically:

- Hydrant type and locations shall be subject to RCFD approval and shall be located on the normal fire apparatus response side of the road.
- Hydrants shall have one 4-inch outlet and two 2.5-inch outlets. Prior to issuance of building permits, the appropriate number of fire hydrants and their specific locations, approved by the County Fire Marshal, will be identified and they will be constructed accordingly.
- Prior to the issuance of building permits, the applicant shall submit to the County plans demonstrating a water system capable of handling the fire flow requirements.
- Fire service laterals, valves, and meters will be installed on site as required by the County Fire Marshal.
- Reflective blue dot hydrant markers shall be installed in the street to indicate location of the hydrant.
- Crash posts will be provided where needed in on-site areas where vehicles could strike fire hydrants, fire department connections, etc.
- A three-foot clear space (free of ornamental landscaping and retaining walls) shall be maintained around the circumference of all fire hydrants.
- On site hydrants will be in place and serviceable early in the construction process.

5.2.3 Fire Sprinklers

All structures, of any occupancy type, will be protected by an automatic, internal fire sprinkler system. Fire sprinklers systems shall be in accordance with RCFD, and National Fire Protection Association (NFPA) Standard 13 (Per CFC Section 903.2). Fire sprinkler plans for each structure will be submitted and reviewed by RCFD for compliance with the applicable fire and life safety regulations, codes, and ordinances as well as the RCFD Technical Policies and Standards for fire protection systems.

As amended within the Riverside County Municipal Code, Chapter 8.32 – Fire Code, Section 903.2 of the CFC is deleted in its entirety and replaced with the following:

- 903.2 When required. In all new buildings and structures which are 3,600 square feet or greater, an approved automatic sprinkler system shall be provided regardless of occupancy classification. Where the Sections 903.2.1-903.2.21 of the CFC require more restrictive requirements than those listed below, the more restrictive requirements shall take precedence.
- Exception: Unless required elsewhere in this code or the California Building Code (CBC), automatic fire sprinkler systems shall not be required for the following:
  - Detached Group U occupancies used for agricultural purposes constructed in accordance with the California Building Code.
  - Detached non-combustible equestrian arena shade canopies that are open on all sides and used for riding only - no commercial, assembly or storage uses.
  - Detached fabric or non-combustible shade structures that are open on all sides and used to shade playground equipment, temporary storage of vehicles and dining areas with no cooking.
  - Where determined by the Fire Chief that no major life safety hazard exists, and the fuel load does not pose a significant threat to firefighter safety or to other structures or property, automatic fire sprinklers may be exempted.
- One- and two-family dwellings shall have an automatic fire sprinkler system regardless of square footage in accordance with the California Residential Code. Fire sprinkler systems shall be installed in mobilehomes, manufactured homes and multifamily manufactured homes with two dwelling units in accordance with Title 25 of the California Code of Regulations.
- The following exceptions in the California Fire Code shall not be allowed:
  - Exception in Section 903.2.3.
  - Exception in Section 903.2.11.3.

5.3 Defensible Space and Vegetation Management

5.3.1 Defensible Space and Fuel Modification Zone (FMZ) Requirements

WUI fire protection requires a systems approach, which includes the components of infrastructure and water, structural safeguards (addressed in the FPP), and adequate defensible space setbacks. This section provides defensible space details for the Cajalco commerce Center Project.

An important component of a fire protection system for this Project is the provision for ignition-resistant landscapes. A fuel modification zone (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 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 WUI exposed structures. Therefore, the fuel modification area is an important part of the fire protection system designed for this site. A typical landscape/fuel modification installation requires a 100-foot-wide fuel modification zone from the exposed sides of a structure extending outwards towards the project boundary/undeveloped areas. Based on the Project's site and grading plans, the entire warehouse facility portion of the Project site achieves 100 feet of FMZ

and the proposed public park area will be maintained in an FMZ equivalent manner, included fully-irrigated grass areas along with non-combustible parking and sidewalk areas. The proposed park recreation structure located in the western portion of the public park area will include a full 100 feet of on-site FMZ around the north, south, and east perimeters of the building, however, the western side of the building achieves up to approximately 85 feet of on-site fuel modification. The remaining approximately 15 feet of fuel modification will be provided by the adjacent single-family residential lots that are located directly adjacent to the western property boundary. Furthermore, the proposed park recreation structure will be non-combustible CMU block wall construction. The Cajalco Commerce Center's Conceptual Fuel Modification Plan (Figure 7) conceptually illustrates the up to 100-foot-wide FMZ Plan proposed for the Project site which consists of one zone; a 100-foot-wide Zone 1 (including a 5-foot Ember-Resistant Zone 0) that includes a combination of fully-irrigated landscape with RCFD approved plant species and non-combustible roadways/driveways and hardscape areas. Within Zone 1 is an Ember-Resistant Zone extending from the exterior wall surface of the buildings to 5-feet on a horizontal plane around the entire perimeter of the structures. Within this zone, all combustible material shall be removed. Landscape within the remaining portion of the Zone 1 FMZ area of the Development Footprint will minimally meet Zone 1 standards and will include areas that will be maintained by the Project's Property Manager and by the private property owners, as detailed below. The project will also include a minimum 20-foot wide roadside FMZ for portions of the Project's roadways that are adjacent to naturally vegetated areas.

Cohen (1995) performed structure ignition fire research studies that suggest, as a rule-of-thumb, larger flame lengths and widths require wider fuel modification zones to reduce structure ignition. For example, valid Structure Ignition Assessment Modeling results indicate that a 20-foot-high flame has minimal radiant heat to ignite a structure (bare wood) beyond 33 feet (horizontal distance). Whereas, a 70-foot-high flame requires about 130 feet of clearance to prevent structure ignitions from radiant heat (Cohen and Butler 1996). For this fire study example, bare wood was used, which is more combustible unlike the non-combustible concrete ignition-resistant construction of the Project. For the Project, assuming 18-foot flame lengths, the minimum 100 feet of on-site fuel modification is more than sufficient.

Based on the modeled extreme weather flame lengths for the Project site once developed and FMZs are in place, wildfire flame lengths are projected to be approximately between 1.7 to 4.0 feet high in the areas of the Project Footprint. The adjacent low- to moderate-load non-native grasslands and grass-shrub vegetation would obviously remain unaltered and retain the fire behavior of existing conditions. This can be altered when neighboring property owners perform weed abatement. 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. For the Project's current configuration, the FMZ widths between the exterior of the structures and the naturally vegetated open space areas beyond the property boundary achieves between a minimum of 100 feet of on- and off-site equivalent FMZ around the proposed public park recreational structure to code-exceeding approximately 135 feet of onsite fuel modification and up to approximately 220 feet of FMZ for the entirety of the warehouse building portion of the Project site. Therefore, the prescribed minimum 100-foot-wide FMZ is adequate in providing enough set-back from volatile fuels so that radiant heat and direct flame impingement is minimized or eliminated, providing firefighters "defensible" space in which they can work. The warehouse structure and proposed public park structure will include up to 100 feet of FMZ or FMZ equivalent (i.e. off-site adjacent equivalent, non-combustible pavement, rock, and/or maintained landscape).

5.3.2 Riverside County/Cal Fire Defensible Space/Fuel Modification Zone Standards

Defensible space, coupled with property hardening, is essential to improve a building's chance of surviving a wildfire. Defensible space is the buffer created between a building and the grass, trees, shrubs, or any wildland area that surround it. This space is needed to slow or stop the spread of wildfire and it helps protect buildings from catching fire—either from embers, direct flame contact or radiant heat. Proper defensible space also provides firefighters a safe area to work in, to defend the building. The purpose of this section is to document RCFD's standards and make them available for reference. RCFD's/Riverside County Fire Codes are consistent with the 2022 California Fire Code (Section 4907 — Defensible Space), Government Code 51175 – 51189, and Public Resources Code 4291, which require that fuel modification zones be provided around every building that is designed primarily for human habitation or use within a SRA or a LRA VHFHSZ.

As mentioned above, a typical fuel modification installation requires a 100-foot-wide fuel modification zone consisting of a 5- foot-wide ignition resistant Zone 0, a 25-foot-wide irrigated Zone 1 and a 70-foot wide thinning Zone 2 measured from the exterior of the building extending outwards towards undeveloped areas. Based on modeling and analysis of the project area to assess its unique fire risk and fire behavior, it was determined that the Riverside County and CAL FIRE standard of a minimum 100-foot-wide FMZs would help considerably to set the project's structures back from off-site fuels, however, this project proposes to convert all of the land within the project boundary to an FMZ equivalent condition consisting of irrigated and maintained landscape, as well as non-combustible pavement and hardscape areas. This area will amount up to approximately 220 feet of on-site fuel modification from the exterior of the proposed warehouse building to the property line and a minimum of 100 feet of on- and off-site equivalent FMZ around the proposed public park recreational structure. The up to 220-foot-wide FMZ, when properly maintained, along with other fire hazard reducing features, will effectively minimize the potential for structure ignition from direct flame impingement or radiant heat within the project area. Assembly Bill 3074, passed into law in 2020, requires a third zone for defensible space. This law requires the Board of Forestry and Fire Protection to develop the regulation for a new ember-resistant zone (Zone 0) within 0 to 5 feet of the home by January 1, 2023, however, changes to the Zone 0 requirements are still being made and final approval and adoption of Zone 0 are likely to occur in 2024. The intensity of wildfire fuel management for a traditional FMZ varies within the 100-foot perimeter of a structure, with more intense fuels' reduction occurring closer to a structure. A Fuel Modification Plan shall be reviewed and approved by a RCFD Fire Safety Specialist for consistency with defensible space and fire safety guidelines. The Project's Conceptual Fuel Modification Plan (Figure 7) conceptually displays a non-combustible/fully-irrigated FMZ area for the Project site.

To ensure long-term identification and maintenance, a fuel modification area shall be identified by a permanent zone marker meeting the approval of RCFD. 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. This applies only to the on-site FMZ areas and would not be provided off-site on roadways and similar landscapes that are providing FMZ equivalent. FMZs will be maintained on at least an annual basis or more often as needed to maintain the fuel modification buffer function.

5.3.3 Project-Specific Fuel Modification Zones

The fuel modification planned as part of the Project will be code-exceeding in its widths and characteristics. Both portions of the Project, commercial and park, from the exterior of the buildings to the property lines will be either irrigated landscaping or non-combustible paved surfaces in the form of roads, walkways, parking areas, and loading and unloading areas. These paved surfaces will vary in their distance from the structures, but meet the requirements for Zone 0 and exceed the requirements for Zones 1 and 2 given their non-combustible nature. Given that the paved areas will be code compliant, the landscaping requirements for each zone are described below. These standards are pursuant to the codes referenced in Section 5.4.1 and spacing requirements are also well described in the General Guidelines for Creating Defensible Space published by CAL FIRE in 2006.

Zone 0: Ember-Resistant Zone – Non-combustible (from exterior structure wall to 5 feet)

The Ember-Resistant Zone is applicable site-wide and is measured from the exterior wall of the structure outward to 5-feet (horizontal). The ember-resistant zone is designed to keep fire or embers from igniting materials that can spread the fire to the structure. This zone shall be constructed of continuous hardscape or non-combustible materials acceptable to the FAHJ. Removal of combustible materials surrounding the exterior wall area and maintaining area free of combustible materials. The use of mulch and other combustible materials shall be prohibited.

The Ember-Resistant Zone includes the following key components:

- The use of hardscaping like gravel, pavers, concrete, and other non-combustible materials. No combustible bark or mulch.
- Remove all dead and dying weeds, grass, plants, shrubs, trees, branches, and vegetative debris (leaves, needles, cones, bark, etc.); check the roofs gutters, decks, porches, and stairways.
- Remove and/or maintain all tree branches within 10 feet of the roof or side of the building.
- Limit plants in this area to low growing, nonwoody, properly watered and maintained plants.
- Relocate pallets, firewood and lumber to be a minimum 30 feet or more from the structure.
- Replace combustible fencing, gates, and other structures within this zone to non-combustible materials.
- Vegetation shall be limited to heights not exceeding 18 inches.
- Vegetation shall be irrigated.
- Relocate garbage and recycling containers outside this zone when possible.
- Relocate vehicles outside this zone when possible.

Zone 1: Lean, Clean and Green Zone – Fully irrigated zone extending from Zone 0 outward to the property line and/or up to 100 feet from the exterior of structure.

Zone 1 extends up to 100 feet from four industrial buildings and/or up to the property line, whichever is closer. (It should be noted, once implemented as part of the project, Zone 1 requirements will likely extend a minimum 30 feet from the proposed future residential structures as well, however, the residential component of the project was an analyzed as part of this scope of work. Once the location of the future proposed residential structures have been

determined, a fuel modification plan will be created for those structures as well). Zone 1 shall consist of a combination of planting low growth, drought tolerant and fire resistive plant species and paved/non-combustible surfaces and hardscapes. Zone 1 includes the following key components:

- Irrigated by the automatic or manual system to maintain healthy, high moisture content, fire-resistant vegetation.
- Remove all dead plants, grass, and weeds.
- Maintain the removal of dead or dry leaves around the structures, off the roofs, and out of the rain gutters, as applicable.
- Trim trees regularly to keep branches a minimum of 10 feet from other trees.
    - Exception: Due to the low fire threat of shade cover trees within the non-combustible parking lot area surrounding the Industrial Building, it's recommended that the tree canopy spacing may exceed the 10-foot separation requirement between drip lines at maturity within the Industrial Building parking lot areas in order to meet the Parking Lot - 50% canopy shading requirement.
- Relocate pallets, firewood and lumber to be a minimum 30 feet or more from the structure unless completely covered in a fire-resistant material.
- Create separation between trees, shrubs, and items that could catch fire such as patio furniture, wood piles, and swing sets.
- Landscaping and vegetation in this zone shall consist primarily of green lawns, ground covers (not exceeding 4 inches in height), and spaced shrubs and trees. No shrubs shall exceed 6 feet in height.
- Plants in Zone 1 shall be inherently highly fire-resistant and spaced appropriately, Plants shall be on the approved fuel modification plant list (Appendix D) or given special approval by an RCFD official.
- New trees shall be planted and maintained so that the tree's drip line at maturity is a minimum of 10 feet from any combustible structure.
- Create horizontal space between shrubs and trees. Horizontal spacing depends on the slope of the land and the heigh of the shrubs or trees. Given that the development will generally be less than 20% slopes, horizontal spacing should be 2x's the height of shrubs and trees should be separated so that their drip lines at maturity are a minimum of 10 feet apart.
    - Exception: Due to the low fire threat of shade cover trees within the non-combustible parking lot area surrounding the Industrial Building, it's recommended that the tree canopy spacing may exceed the 10-foot separation requirement between drip lines at maturity within the Industrial Building parking lot areas in order to meet the Parking Lot - 50% canopy shading requirement.
- Create vertical spacing between grass, shrubs and trees. Vertical spacing includes removing all branches at least 6 feet from the ground and/or at least maintaining at least 3x the height of a shrubs separation from the lowest tree branch or 10 feet, whichever is greater. Lack of vertical space can allow a fire to move from the ground to the brush to the treetops like a ladder, leading to more intense fire closer to the structure.

- Prohibited plant species (Appendix D) shall not be planted within any fuel modification zone for the Project.
- Vines and climbing plants shall not be allowed on any structure.

5.3.3.1 Park Area Fuel Modification

As indicated above, the entirety of the park area, as is the case with the commercial area, will be covered in either hardscape, or irrigated landscaping that is to the standards of the RCFD fuel modification requirements summarized above. The irrigation will maintain high fuel moisture content for all plants and grass. This will lead to minimal fire behavior as modeled for post-project conditions. The landscaping of the park area will exceed fuel modification standards in characteristics and width in all areas except for the western side of the sole park structure that is planned to be constructed west of the western parking lot. The western side of the park structure achieves up to 100 feet of on-site and off-site equivalent fuel modification. Furthermore, the park structure will be constructed of non-combustible CMU block.

5.3.4 Ongoing Infrastructure/FMZ Maintenance

Vegetation management, i.e., assessment of fuel modification zone condition and removal of dead and dying and undesirable species; as well as thinning as necessary to maintain specified plant spacing and fuel densities, shall be completed annually by May 1 of each year and more often as needed for fire safety. The interim period vegetation management will be funded by the Project developer and shall be conducted by their contractor. The Project developer shall be responsible for all vegetation management throughout the development, in compliance with the Project FPP that is consistent with requirements. The Project Developer or Property Manager would annually hire a third party, RCFD-approved, FMZ inspector to provide annual certification that it meets the requirements of this FPP.

The permanent FMZ required for the Project will be maintained by the developer who will be responsible for FMZ vegetation management once the Project is built out and the adjacent areas are developed. The Owner or Property Manager will be responsible for streetscape and public area vegetation management in perpetuity.

On-going/as-needed fuel modification zone maintenance during the interim period while the Project is built out and adjacent parcels are developed, which may be one or more years, will include necessary measures for consistency with the FPP, including:

- Removal or thinning of undesirable combustible vegetation and replacement of dead or dying landscaping.
- Maintaining ground cover at a height not to exceed 18 inches. Annual grasses and weeds shall be maintained at a height not to exceed four inches.
- Removing accumulated plant litter and dead wood. Debris and trimmings produced by thinning and pruning should be removed from the site or chipped and evenly dispersed in the same area to a maximum depth of three inches.
- Maintaining manual and automatic irrigation systems for operational integrity and programming. Effectiveness should be regularly evaluated to avoid over or under-watering.
- Complying with these FPP requirements on a year-round basis. Annual inspections are conducted following the natural drying of grasses and fine fuels, between the months of May and June, depending on precipitation during the winter and spring months.

Maintenance of FMZ's and Defensible Space is an important component for the long-term fire safety of the Project. maintenance obligations will be as follows:

- All future plantings shall be in accordance with RCFD/CAL FIRE Fuel modification requirements.
- The RCFD will review landscape plans and provide corrections where necessary so that they are in compliance with RCFD standards.
- Changing landscaping in common areas or individual lots will be reviewed by the RCFD and approved prior to installation.

5.3.5 Prohibited 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 Undesirable Plant List (Appendix E) are unacceptable from a fire safety standpoint and will not be planted on the site or allowed to establish opportunistically within fuel modification zones or landscaped areas.

5.3.6 Construction Phase Vegetation Management

Vegetation management requirements shall be implemented at commencement and throughout the construction phase. Vegetation management shall be performed pursuant to the FAHJ on all building locations prior to the start of work and prior to any import of combustible construction materials. Adequate fuel breaks shall be created around all grading, site work, and other construction activities in areas where there is flammable vegetation.

5.4 Pre-Construction Requirements

Per Riverside County Fire Department and CAL FIRE, a fuel modification plan (refer to Figure 7) 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. An on-site inspection must be conducted by the RCFD and final approval of the fuel modification plan issued prior to a certificate of occupancy being granted by the building code official.

As an additional consultant recommendation, prior to bringing lumber or combustible materials onto the Project site, improvements within the active development area shall be in place, including utilities, operable fire hydrants, an approved, temporary roadway surface, and fuel modification zones established.

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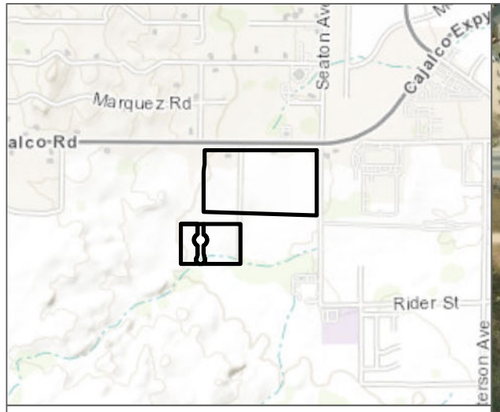


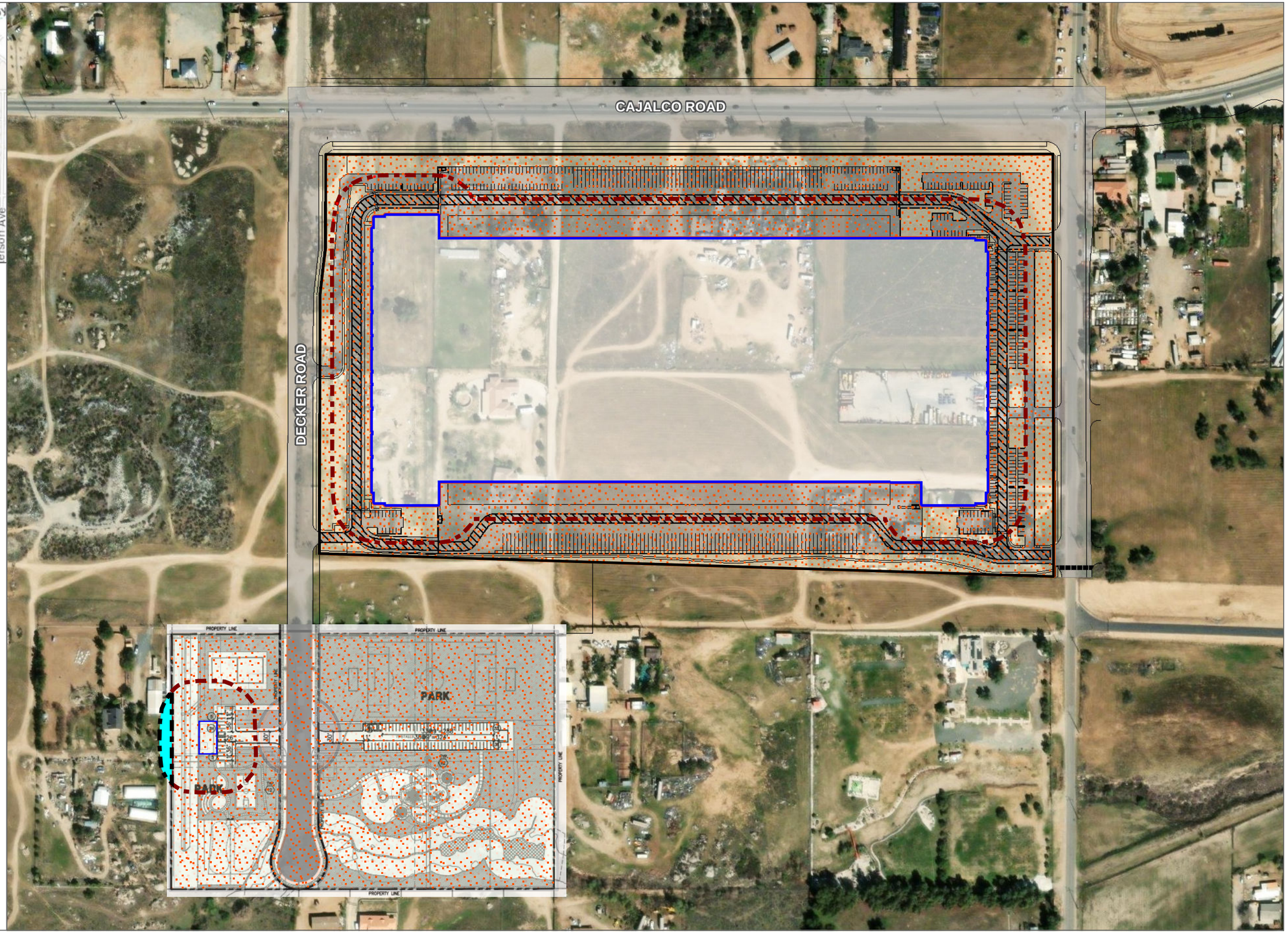
Property Site

Land Use

- Development
- Building Footprint
- Park
- Roadway/Parking Lot
- FireLane_24ftwide

Fuel Modification Zone

- Zone 0
- 100-Ft Fuel Modification Zone Buffer
- On-site Fuel Modification Equivalent
- Off-site Fuel Modification Zone Equivalent



SOURCE: AERIAL-ESRI IMAGERY SERVICE 2023; DEVELOPMENT-HPA ARCHITECTURE 2023

DUDEK

0 125 250 Feet

FIGURE 7

Fuel Modification Plan

Fire Protection Plan for the Cajalco Commerce Center Project

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6 Alternative Measures for Non-Conforming Dead-End Road and Defensible Space

As mentioned previously, when located in a VHFHSZ, no dead=end road is allowed to exceed 660 feet in length without special approval from RCFD (RCFD Technical Policies & Standards: Commercial Access). Decker Road provides access to the western side of the warehouse in the commercial portion of the project and the park to the south. In order to provide access to the park portion of the project, Decker Road must exceed the dead-end road length maximum established by the RCFD. Due to site constraints, it is not feasible to provide an additional access road to the park that would create a circulatory element and reduce the dead-end length of Decker Road.

The second area of non-conformance to the fire code within the Project is the defensible space around the sole building in the park area. The building is just west of the western portion of the parking lot for the park and the exterior of the building is approximately 80 feet from the western boundary of the park. As mentioned previously, the RCFD requires 100 feet of defensible space around all structures, but this is not able to be achieved due to the proximity of the building to the Project boundary.

In order to meet the intent of the dead-end road length maximum and defensible space requirements the park area of the project will meet all other fire code requirements as well as provide code-exceeding measures. The alternatives presented below are offered as suitable measures to meet the intent and purpose of the codes not being met as enabled by California Fire Code Sections 1.11.2.4, 104.9, and 104.10. Measures included in the development of the park area to meet the intent of the dead end road length maximum and defensible space codes include:

6.1 Alternative Measures and Justification

1. Any structure within the proposed park area of the project will be code compliant, ignition resistive, and fully-sprinklered in compliance with applicable portions of the Riverside County Code, as well as with Chapter 7A of the 2022 edition of the California Building Code (CBC); Chapter 49 of the 2022 edition of the California Fire Code (CFC), as adopted and amended by the County in Ordinance no. 787;

2. Inclusion of a 5-foot-wide ember-resistant Zone 0 in fuel modification around all structures that does not include any flammable vegetation or materials. The characteristics of the ember-resistant Zone 0 shall comply with those summarized in Section 5.3.2. This zone will act as a last line of defense between a wildfire and the structure as it removes continuity of fuels around the structure. With this zone in place, an ignition of a structure due to conductive heating is unlikely and would likely have to occur due to ember cast, radiant, or convective heating. However, any ignition is unlikely given the planned concrete masonry unit (CMU) construction of the building.

3. The building will exceed the ignition resistant construction standards of CBC Chapter 7A. The structure will be completed with CMU construction. The increased ignition resistance of the building materials maker up for the approximately 20-foot deficiency in defensible space from the RCFD requirement. As mentioned previously, a 20-foot-high flame has minimal radiant heat to ignite a structure (bare wood) beyond 33 feet (horizontal distance) (Cohen and Butler 1996). The maximum projected flame length during extreme (97th percentile) weather and fuel conditions and a 50 mph Santa Ana gust was approximately 18 feet. This means the defensible space provided around the park structure will be more than double the distance necessary to avoid building ignition for bare wood and the building will be of Type 1 construction. **CODE EXCEEDING MEASURE.**

4. Similar to the commercial area of the project, the entirety of the park will either be covered in hardscape or irrigated landscaping to the standards of fuel modification zones as summarized in Section 5.3.2. This means the entire approximately 13.35 acres of park area will be made to be a fuel modification zone equivalent condition. As indicated in this report, the FMZs and additional fire protection measures proposed for the Project provide equivalent or superior wildfire buffer but are not standard zones. **CODE EXCEEDING MEASURE.**

5. Decker Road will be enhanced with widths, surface, grade, and clearances meeting or exceeding the standards established by the RCFD and Riverside County Street Design Standards. As mentioned previously, the segment of Decker Road between the southwest corner of the warehouse building site and Cajalco Road would be improved to its ultimate half-width standard as a Secondary Highway. Improvements to this segment of Decker Road would include the dedication of 70 feet of ROW, 44 feet of pavement, and an 18-foot-wide landscaped parkway with a five-foot curb-separated sidewalk. The portion of Decker Road between the southwest corner of the warehouse building site and the southerly terminus of Decker Road would be improved to its fullwidth standard as a Secondary Highway. Improvements to this segment of Decker Road would include the dedication of 100 feet of ROW, 64 feet of travel lanes, curb, gutter, and 18-foot-wide landscaped parkways along each side of the road that include five-foot-wide curb-separated sidewalks. An RCFD approved cul-de-sac turnaround would be included at the southern terminus of Decker Road. The increased width of the roadway would aid in evacuating all park visitors as quickly as possible in the event of a wildfire. **CODE EXCEEDING MEASURE.**

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7 Wildfire Education Program

The business owners of the Cajalco Commerce Center will be provided a proactive educational component disclosing the potential wildfire risk and this report's requirements. This educational information must include maintaining the landscape and structural components according to the appropriate standards and embracing a "Ready, Set, Go!" stance on evacuation (RCFD, 2020)[5]. Additionally, management of on-site entities occupying the site's structures will be required to register for emergency alerts via the Alert RivCo messaging system (Register | Registration Portal (genasys.com). Personnel and employees will be strongly encouraged to also register to receive emergency alerts.

[5] https://www.readyforwildfire.org/

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8 Conclusion

This FPP for the Cajalco Commerce Center provides guidance for vegetation maintenance for the landscaped areas on the Project site. As described, vegetation maintenance measures will be provided on all landscaped areas of the proposed Project. The requirements and recommendations provided in this FPP have been designed specifically for the Project. This analysis and its fire protection justifications are supported by fire science research, results from previous wildfire incidents, and fire agencies that have approved these concepts. While the dead-end length of Decker Road and the defensible space around the park area structure do not explicitly meet the requirements of the RCFD, the Project design features, including paved roads and parking stalls, retaining and screen walls, building construction and a fully irrigated landscape, would provide a level of safety beyond a 100-foot wide FMZ and satisfy the intent of the codes that are not explicitly met. The Project is considered to represent a low wildfire risk to its occupants based on its ability to provide for evacuations.

Ultimately, it is the intent of this FPP to guide the fire protection efforts for the Project in a comprehensive manner. Implementation of the measures detailed in this FPP will reduce the risk of wildfire spreading onto the site and/or an on-site fire spreading from the development footprint into surrounding areas and will improve the ability of firefighters to fight fires on the Project property and neighboring properties and resources, irrespective of the cause or location of ignition.

It must be noted that during extreme fire conditions, there are no guarantees that a given structure will not be exposed to wildfire or embers. Precautions and minimizing actions identified in this report are designed to reduce the likelihood that fire will impinge upon the Project's assets or threaten its visitors. Additionally, there are no guarantees that fire will not occur in the area or that fire will not damage property or cause harm to persons or their property. Implementation of the required enhanced construction features provided by the applicable codes and the fuel modification requirements provided in this FPP will reduce the Project site's vulnerability to wildfire and help to limit the spread of fire from the Project site to surrounding areas. It will also help accomplish the goal of this FPP to assist firefighters in their efforts to defend structures.

It is recommended that the Cajalco Commerce Center maintain a conservative approach to fire safety. This approach must include maintaining the landscape and structural components according to the appropriate standards and embracing a "Ready, Set, Go!" stance on evacuation. The Project is not to be considered a shelter-in-place development. However, the fire agencies and/or law enforcement officials may, during an emergency, as they would for any new development providing the layers of fire protection as the Project, determine that it is safer to temporarily refuge employees or visitors on the Project site. When an evacuation is ordered, it will occur according to pre-established evacuation decision points or as soon as notice to evacuate is received, which may vary depending on many environmental and other factors. Fire is a dynamic and somewhat unpredictable occurrence, and it is important for anyone living at the WUI to educate themselves on practices that will improve safety.

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Appendix A

Representative Project Photograph Log

Photograph 1: Overview photograph of the vegetation at the northeastern portion of the Project. Photograph taken from the southwestern side of the intersection of Cajalco Road and Seaton Avenue facing southwest.

Photograph 2: Overview photograph of the vegetation and weed abated area at the northeastern portion of the Project. Photograph taken from the southwestern side of the intersection of Cajalco Road and Seaton Avenue facing west-southwest.

Photograph 3: Overview photograph of lots adjacent to the northeastern portion of the Project. Photograph taken from the southwestern side of the intersection of Cajalco Road and Seaton Avenue facing north-northeast.

Photograph 4: Overview photograph area of the vegetation on the lot adjacent to the northeastern portion of the Project site. Photograph taken from the southeastern side of the intersection of Cajalco Road and Seaton Avenue facing south-southeast.

Photograph 5: Overview photograph of the vegetation southeast of the Project site. Photograph taken on Seaton Avenue approximately 1,650 feet south of Cajalco Road facing east.

Photograph 6: Overview photograph of the area directly south of the eastern portion of the northern portion of the Project. Photograph taken on Seaton Avenue approximately 1,250 feet south of Cajalco Road facing west.

Photograph 7: Overview photograph of a patch of trees and treated surface fuels adjacent to the southeastern portion of the northern portion of the Project. Photograph taken on Seaton Avenue approximately 1,250 feet south of Cajalco Road facing northeast.

Photograph 8: Overview photograph of an undeveloped lot within the western end of the northern portion of the Project. Photograph taken on Seaton Avenue approximately 850 feet south of Cajalco Road facing west.

Photograph 9: Overview photograph of the area directly to the east of the eastern side of the northern portion of the Project. Photograph taken on Seaton Avenue approximately 850 feet south of Cajalco Road facing east.

Photograph 10: Overview photograph of vegetation directly south of the northern portion of the Project site and the eastern end of the southern portion of the Project site in the backgrouond. Photograph taken on Camino Del Sol at the southern edge of the northern portion of the Project site facing southwest.

Photograph 11: Overview photograph of the south-central area of the northern portion of the Project site. Photograph taken from Camino Del Sol facing east-southeast.

Photograph 12: Overview photograph of the north-central area of the northern portion of the Project site. Photograph taken from Camino Del Sol facing northeast.

Photograph 13: Overview photograph of the fuels in the open space west of the northern portion of the Project site. Photograph taken on Decker Road at the southwestern corner of the northern portion of the Project site facing northwest.

Photograph 14: Overview photograph of the terrain and fuels west of the northern portion of the Project site with the western edge of the northern portion of the Project site in the background. Photograph taken approximately 600 feet west of the southwestern corner of the northern portion of the Project site facing northeast.

Photograph 15: Overview photograph of the terrain and fuels west of the northern portion of the Project site. Photograph taken approximately 600 feet west of the southwestern corner of the northern portion of the Project site facing northwest.

Photograph 16: Overview photograph of the terrain and fuels of the open space southwest of the Project. Photograph taken approximately 600 feet west of the southwestern corner of the northern portion of the Project site facing south-southwest.

Photograph 17: Photograph of the northwestern corner of the northern portion of the Project site. Photograph taken from the intersection of Decker Road and Cajalco Road facing southeast

Photograph 18: Photograph of the surface fuels west of the northern portion of the Project site. Photograph taken from the intersection of Decker Road and Cajalco Road facing southwest

Photograph 19: Photograph of the western side of the northern edge of the Project along Cajalco Road. Photograph taken from the intersection of Cajalco Road and Decker Road facing east-southeast.

Photograph 20: Photograph of the fuels and border of treated and untreated fuels west of the Project site. Photograph taken from the intersection of Oakwood Street and Day Street facing east-southeast.

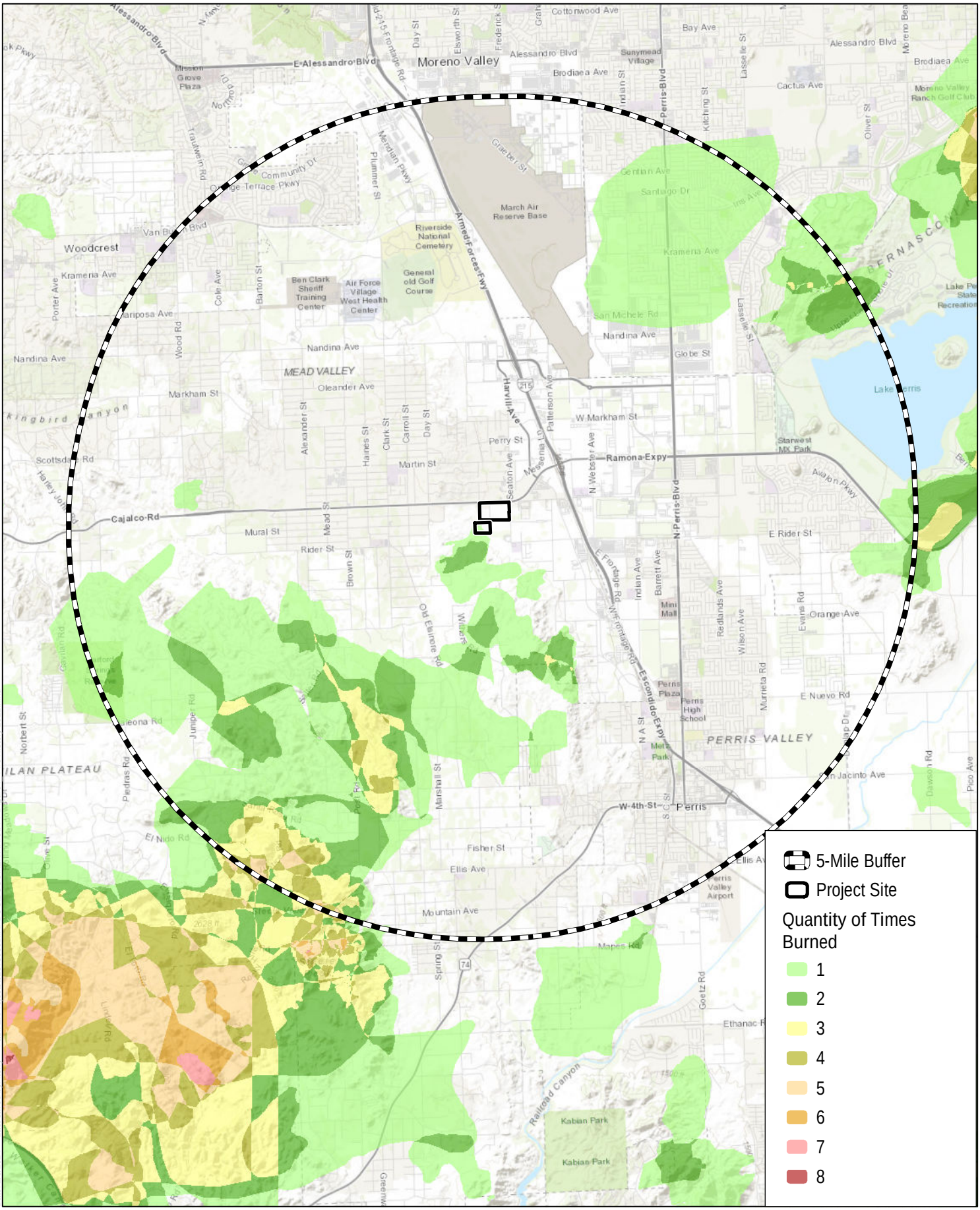
Photograph 21: Photograph of the open space southwest of the Project site. Photograph taken from Day Street south of Rider Street facing southeast.

Photograph 22: Photograph of the southeastern corner of the southern Portion of the Project site. Photograph taken from Camino Del Sol approximately 2,250 feet south of Cajalco Road facing northwest.

Photograph 23: Photograph of the open space south of the project site. Photograph taken from Camino Del Sol approximately 2,250 feet south of Cajalco Road facing south-southeast.

Photograph 24: Photograph of the open space south of the project site. Photograph taken from Camino Del Sol approximately 2,250 feet south of Cajalco Road facing south-southwest.

Appendix B
Fire History Map



SOURCE: BASE MAP- ESRI MAPPING SERVICE; FIRE DATA-CALFIRE 2022

DUDEK

APPENDIX B

Fire History Map

Fire Protection Plan for the Cajalco Commerce Center Project

Appendix C

BehavePlus Fire Behavior Analysis Summary

FIRE BEHAVIOR MODELING SUMMARY
CAJALCO COMMERCE CENTER, RIVERSIDE COUNTY, CALIFORNIA

1 BehavePlus Fire Behavior Modeling History

Fire behavior modeling has been used by researchers for approximately 50+ years to predict how a fire will move through a given landscape (Linn 2003). The models have had varied complexities and applications throughout the years. One model has become the most widely used as the industry standard for predicting fire behavior on a given landscape. That model, known as "BEHAVE", was developed by the U. S. Government (USDA Forest Service, Rocky Mountain Research Station) and has been in use since 1984. Since that time, it has undergone continued research, improvements, and refinement. The current version, BehavePlus 6.0, includes the latest updates incorporating years of research and testing. Numerous studies have been completed testing the validity of the fire behavior models' ability to predict fire behavior given site specific inputs. One of the most successful ways the model has been improved has been through post-wildfire modeling (Brown 1972, Lawson 1972, Sneeuwjagt and Frandsen 1977, Andrews 1980, Brown 1982, Rothermel and Rinehart 1983, Bushey 1985, McAlpine and Xanthopoulos 1989, Marsden-Smedley and Catchpole 1995, Grabner et. al. 1997, Alexander 1998, Grabner et al. 2001, Arca et al. 2005). In this type of study, Behave is used to model fire behavior based on pre-fire conditions in an area that recently burned. Real-world fire behavior, documented during the wildfire, can then be compared to the prediction results of Behave and refinements to the fuel models incorporated, retested, and so on.

Fire behavior modeling conducted on this site includes a relatively high-level of detail and analysis which results in reasonably accurate representations of how wildfire may move through available fuels on and adjacent to the property. Fire behavior calculations are based on site-specific fuel characteristics supported by fire science research that analyzes heat transfer related to specific fire behavior. To objectively predict flame lengths, spread rates, and fireline intensities, this analysis incorporated predominant fuel characteristics, slope percentages, and representative fuel models observed on site. The BehavePlus fire behavior modeling system was used to analyze anticipated fire behavior key areas within and adjacent to the Project site. 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 judgment, coupled with a validated fire behavior modeling system, results in useful and accurate fire prevention planning information. To be used effectively, the basic assumptions and limitations of BehavePlus must be understood.

- First, it must be realized that the fire model describes fire behavior only in the flaming front. The primary driving force in the predictive calculations is dead fuels less than one-quarter inch in diameter. These are the fine fuels that carry fire. Fuels greater than one inch have little effect while fuels greater than three inches have no effect on fire behavior.
- Second, the model bases calculations and descriptions on a wildfire spreading through surface fuels that are within six feet of the ground and contiguous to the ground. Surface fuels are often classified as grass, brush, litter, or slash.
- Third, the software assumes that weather and topography are uniform. However, because wildfires almost always burn under non-uniform conditions, length of projection period and choice of fuel model must be carefully considered to obtain useful predictions.

- Fourth, the BehavePlus fire behavior computer modeling system was not intended for determining sufficient fuel modification zone/defensible space widths. However, it does provide the average length of the flames, which is a key element for determining "defensible space" distances for minimizing structure ignition.

Although BehavePlus has some limitations, it can still provide valuable fire behavior predictions which can be used as a tool in the decision-making process. In order to make reliable estimates of fire behavior, one must understand the relationship of fuels to the fire environment and be able to recognize the variations in these fuels. Natural fuels are made up of the various components of vegetation, both live and dead, that occur on a site. The type and quantity will depend upon the soil, climate, geographic features, and the fire or other disturbance 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. Fire behavior is affected by seven principal fuel characteristics: fuel loading, size and shape, compactness, horizontal continuity, vertical arrangement, moisture content, and chemical properties.

2 Modeling Inputs

Dudek utilized the BehavePlus software package to analyze fire behavior potential for the proposed development site in the City of Banning, Riverside County, California. As is customary for this type of analysis, five scenarios were evaluated, including two summer, onshore weather condition (west, and southwest of the site) and two extreme fall, offshore weather condition (north and east-southeast of the site). The Project site currently has varying land uses including residential, commercial, agriculture, and some undeveloped land with gently sloping non-native grassland/shrubland areas across the northeast sloping site. With that said, fuels and terrain within and adjacent to the development area could produce flying embers that may affect the project, but defenses will be built into the structures to prevent ember penetration and to extinguish fires that may result from ember penetration. It is the fuels directly adjacent to and within fuel modification zones that could have the potential to affect the project's structures from a radiant and convective heat perspective as well as from direct flame impingement, however, the buildings are surrounded by irrigated landscape and hardscape areas. BehavePlus software requires site-specific variables for surface fire spread analysis, including fuel type, fuel moisture, wind speed, and slope data. The output variables used in this analysis include flame length (feet), rate of spread (feet/minute), fireline intensity (BTU/feet/second), and spotting distance (miles). The following provides a description of the input variables used in processing the BehavePlus models for the Proposed Project site. In addition, data sources are cited and any assumptions made during the modeling process are described.

2.1 Vegetation (Fuels)

The seven fuel characteristics help define the 13 standard fire behavior fuel models and the five custom fuel models developed for Southern California (Anderson 1982; Weise & Regelbrugge 1997). According to the model classifications, fuel models used in BehavePlus have been classified into four groups, based upon fuel loading (tons/acre), fuel height, and surface to volume ratio. Observation of the fuels in the field (on site) determines which fuel models should be applied in BehavePlus. The following describes the distribution of fuel models among general vegetation types for the standard 13 fuel models and the custom Southern California 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 development of 40 new fire behavior fuel modelsdeveloped for use in BehavePlus modeling efforts (Scott & Burgan 2005). 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:

- 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

To support the fire behavior modeling efforts conducted for the Project's Fuel Modification Plan (see Figure 6), a Dudek Fire Protection Planner analyzed the different vegetation types observed on and adjacent to the site and were classified into the aforementioned numeric fuel models. As is customary for this type of analysis, the terrain and fuels directly adjacent to the site and proposed fuel modification zones (FMZ) are used for determining flame lengths and fire spread.

Table 1. Existing Fuel Model Characteristics

Fuel Model Assignment	Vegetation Description	Location	Fuel Bed Depth (Feet)
GR1	Short, Sparse Dry Climate Grass	Represents areas in and around the Project site that have recently received weed abatement.	0.4 ft.
GR2	Low-load, Dry climate grasses	Represents the areas with a longer interval between weed abatement where vegetation has had a chance to grow and cure.	1.0 ft.
GS1	Low-load, Dry climate grass-shrubs	Represents the sparser grass-shrub vegetation located in and adjacent to the Project site with little maintenance.	0.9 ft.
GS2	Moderate-load, Dry climate grass-shrubs	Represents the slightly higher load grass-shrub vegetation located adjacent to the Project site with little or no maintenance.	1.5 ft.

Table 2. Post-development Fuel Model Characteristics

Fuel Model Assignment	Vegetation Description	Location	Fuel Bed Depth (Feet)[1]
FM8	Compact Litter	Fuel Modification Zones 0 and 1: irrigated landscape throughout the Project site	0.2 ft.
GR1	Short, Sparse Dry Climate Grass	Fuel Modification Zone 2: Thinned landscape throughout the Project site	0.4 ft.
NB	Non-burnable	Parking lot areas and roadways throughout the development.	0 ft.

Note:

1. Listed fuel bed depths are a reflection of the fuel models that best depict the vegetation in and around the Project site and not an exact measure of local vegetation (Anderson 1982; Scott & Burgan 2005).

2.2 Topography

Topography influences fire risk by affecting fire spread rates. Typically, steep terrain results in faster fire spread up-slope and slower fire spread down-slope in the absence of wind. Flat terrain tends to have little effect on fire spread, resulting in fires that are driven by wind. The project site is relatively flat with the highest points being approximately 1,605 feet above mean sea level (amsl) in the northwestern corner of the project and the southwestern corner of the portion of the Project dedicated to the future public park. The lowest point is approximately 1,560 feet asml at the northeastern corner of the project. The site generally slopes to the northeast at an approximate average slope of one to two percent, though there is greater variation within the site. Mostly undeveloped, rocky, shallow, rolling hills exist to the south with higher elevations and steeper slopes in the Gavilan Hills to the southwest. The most dominant geographic feature in the vicinity of the Project is the Santa Ana Mountain range approximately 13 miles to the southwest. Hilly, open space also exists around Lake Perris approximately 5 miles east-northeast of the Project. As seen in Appendix B, there has been a history of fires in these locations as the lack of development translates to a greater availability and continuity of natural vegetation/fuels.

2.3 Weather Analysis

Historical weather data for the Riverside County region was utilized in determining appropriate fire behavior modeling inputs for the Project area. 50th and 97th percentile moisture values were derived from a Remote Automated Weather Station (RAWS) and utilized in the fire behavior modeling efforts conducted in support of this report. Weather data sets from the Clark RAWS (ID number 045624)[1] were utilized in the fire modeling runs.

RAWS fuel moisture and wind speed data were processed utilizing the Fire Family Plus software package to determine atypical (97th percentile) and typical (50th percentile) weather conditions. Data from the RAWS was evaluated from August 1 through November 30 for each year between 2000 and 2021 (extent of available data record) for 97th percentile weather conditions and from June 1 through September 30 for each year between 2000 and 2021 for 50th percentile weather conditions.

Following analysis in Fire Family Plus, fuel moisture information was incorporated into the Initial Fuel Moisture file used as an input in BehavePlus. Wind speed data resulting from the Fire Family Plus analysis was also

[1] Clark RAWS Station Latitude and Longitude: 33° 52’ 37”, -117° 18’ 14”

determined. Initial wind direction and wind speed values for the five BehavePlus runs were manually entered during the data input phase. The input wind speed and direction is roughly an average surface wind at 20 feet above the vegetation over the analysis area. Table 3 summarizes the wind and weather input variables used in the Fire BehavePlus modeling efforts.

Table 3: Variables Used for Fire Behavior Modeling

Model Variable	Summer Weather (50th Percentile)	Peak Weather (97th Percentile)
Fuel Models	GR1, GR2, GS1	GR1, GR2, GS1, GS 2
1 h fuel moisture	5%	1%
10 h fuel moisture	6%	2%
100 h fuel moisture	12%	6%
Live herbaceous moisture	45%	30%
Live woody moisture	90%	60%
20 ft. wind speed	9 mph (sustained winds)	14 mph (sustained winds); wind gusts of 50 mph
Wind Directions from north (degrees)	225 and 270	0 and 110
Wind adjustment factor	0.4	0.4
Slope	4% to 5%	2% to 3%

3 Fire Behavior Modeling Efforts

As mentioned, the BehavePlus fire behavior modeling software package was utilized in evaluating anticipated fire behavior adjacent to the Proposed Project site. Four focused analyses were completed for the existing project site conditions and two were completed for the post project conditions, each assuming worst-case fire weather conditions for a fire approaching the project site from the north, east-southeast, southwest, and west. The results of the modeling effort included anticipated values for surface fires flame length (feet), rate of spread (mph), fireline intensity (Btu/ft/s), and spotting distance (miles). 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 2008). 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 (Rothermel and Rinehart 1983). Spotting distance is the distance a firebrand or ember can travel down wind and ignite receptive fuel beds. Four fire modeling scenario locations were selected to better understand the different fire behavior that may be experienced on or adjacent the site based on slope and fuel conditions; these four fire scenarios are explained in more detail below:

Fire Scenario Locations and Descriptions:

- Scenario 1. Fire flaming front approaching from the north-northeast toward the northern project boundary with 14 mph sustained northern winds with up to 50 mph gusts.
  - Existing conditions:

  - Offsite: A combination of short, sparse dry climate grass and low- to moderate-load dry climate grass.
  - Onsite: A combination of low-load dry climate grass, short, sparse dry climate grass, and low-load grass-shrub vegetation.
- Post-Project conditions: Cajalco Road with improvements, irrigated landscaping, an up to 6-foot retaining wall and 8-foot screen wall, paved semi-truck parking and loading areas, and a fire access lane.

- Scenario 2. Fire flaming front approaching from the east-southeast toward the south and east boundaries of the property with 14 mph sustained east-southeastern winds with up to 50 mph gusts.
  - Existing conditions:
    - Offsite: A combination of short, sparse dry climate grass and low- to moderate-load dry climate grass.
  - Onsite: A combination of short, sparse dry climate grass and low- to moderate-load dry climate grass. Post-Project conditions: Seaton Road with improvements, irrigated landscaping, paved parking areas, and a fire access lane.
- Scenario 3. Fire flaming front approaching from the southwest toward the southern boundary of the property with 9 mph sustained southeasternon-shore winds.
  - Existing conditions:
    - Offsite: A combination of short, sparase dry climate grass, low-load dry climate grass, low- to moderate-load grass-shrub vegetation.
    - Onsite: Short-sparse dry climate grass and low-load dry climate grass
  - Post-Project conditions: The park with irrigated landscaping, and paved parking. Decker road with improvements including the cul-de-sac at the southern terminus, and the southern boundary of the warehouse site featuring a retaining wall and screen wall totaling up to 23 and a half feet in height, irrigated landscaping, paved semi-truck parking and loading areas, and a fire access lane.
- Scenario 4. Fire flaming front approaching from the west toward the south/southwest boundary of the property with 9 mph onshore western winds.
  - Existing conditions:
    - Offsite: A combination of short, sparase dry climate grass, low-load dry climate grass, low- to moderate-load grass-shrub vegetation.
    - Onsite: Short-sparse dry climate grass and low-load dry climate grass with areas of low-load grass-shrub vegetation
  - Post-Project conditions: Decker Road with improvements, irrigated landscaping, a paved driveway and a fire access lane.

4 Fire Behavior Modeling Results

The results presented in Tables 4 and 5 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. For planning purposes, the averaged worst-case fire behavior is the most useful information for conservative fuel modification design. Model results should be used as

a basis for planning only, as actual fire behavior for a given location will be affected by many factors, including unique weather patterns, small-scale topographic variations, or changing vegetation patterns.

Based on the BehavePlus analysis result presented below and in scenarios one and two in Table 4, wildfire behavior under extreme Santa Ana conditions through the non-maintained grass/grass-shrub dominated fuels within and adjacent to the Project site can support low to moderate fire behavior, a high rate of spread, and spotting distances of approximately a quarter of a mile when supported by 14 mph sustained winds. When winds gust up to 50 mph, fire behavior can be heightened to low to extreme with high to very high rates of spread and spotting distances of up to over a mile. The differences in fire behavior and spread rates between fuel types in these scenarios highlights the importance of weed abatement. The short-sparse dry climate grasses are most representative of areas that have recently been treated and under real-world conditions after treatment, the area may not even facilitate fire spread. Even under conservative fire behavior numbers, a hand crew would be able to operate in post-treatment conditions even in the presence of 50 mph gusts and hose lays or aerial support would have heightened effectiveness. This is in contrast to areas with less frequent or no weed abatement where the short, sparse grasses are allowed to grow to low-load dry climate grass or low-load grass-shrub elevation where a hand crew would not be able to provide suppression efforts under gusts or sustained winds. However, dozers may be still be effective under these conditions.

While extreme Santa Ana conditions would increase fire behavior for fires approaching from the north and east, most of the fire history in the vicinity of the project has been in the open space areas to the south and west where a wind-driven fire heading toward the Project site would be fanned by milder on-shore winds (Figure 6). The expected threat of wildfires approaching the Project site from the west and southwest was modeled by scenarios 3 and 4 and the short, sparse to low-load grass and low- to moderate-load grass-shrub vegetation only support low fire behavior, low rates of spread, and spotting distances of approximately a tenth of a mile (Table 4). Given the mild fire behavior in these areas, a hand crew would be able to provide direct attack to a fire and given the many dirt roads/trails and rock outcroppings, they would be able to tie into these noncombustible features to increase the speed of handline production and contain the fire.

As presented in Table 5, Fire Behavior Modeling Results for Post-Project Conditions, Dudek conducted modeling of the Project site for post-Project fuel conditions for the Project. The FMZs include fire friendly and maintained landscaping on the periphery of the Project and within the proposed park area. For modeling the post-Project conditions, fuel model assignments were re-classified for the landscaping as listed in Table 5. A worst-case fire under gusty Santa Ana winds and low fuel moistures (Scenario 2) is expected to have low fie behavior with low to moderate rates of spread and spotting distances up to half a mile when gusts occur. These are conservative approaches with the fie behavior of the planned irrigated landscaping likely being best represented by the FM8 fuel model which had low fire behavior and did not facilitate fire spread except for in the presence of gusts where the spread rate was still low. The reduced fire behavior of post-development conditions not only directly reduce the hazard to the Project, but also enable enhanced suppression efforts by the RCFD to even further decrease the hazard. This is not taking into account the many other features of the project which will mitigate the ignition potential from radiant and convective heat or embers.

Table 4: RAWS BehavePlus Fire Behavior Model Results – Existing Conditions

Fire Scenarios	Flame Length[1] (feet)	Fireline Intensity[1] (BTU/feet/second)	Spread Rate[1] (mph)	Spotting Distance[1] (miles)
Scenario 1: 3% slope; Fall off–shore winds (97th percentile), 14 mph sustained winds with 50 mph gusts N of the site ([2])				
Short, sparse grass (GR1)	3.7 (4.0)	100 (115)	0.6(0.7)	0.2 (0.5)
Low-load grasses (GR2)	8.9 (18.0)	662 (3,037)	1.3 (6.2)	0.3 (1.3)
Low-load grass-shrub (GS1)	6.1 (14.0)	292 (1,763)	0.5 (3.0)	0.3 (1.1)
Scenario 2: 2% slope; Fall off–shore winds (97th percentile), 14 mph sustained winds with 50 mph gusts E-SE of the site ([2])				
Short, sparse grass (GR1)	3.7 (4.0)	100 (115)	0.6(0.7)	0.2 (0.5)
Low-load grasses (GR2)	8.9 (18.0)	662 (3,037)	1.3 (6.2)	0.3 (1.3)
Low-load grass-shrub (GS1)	6.1 (14.0)	292 (1,763)	0.5 (3.0)	0.3 (1.1)
Scenario 3: 5% slope; Summer on–shore winds (50th percentile), 9 mph sustained winds SW of the site				
Short, sparse grass (GR1)	1.8	20	0.2	0.1
Low-load grasses (GR2)	4.3	136	0.4	0.1
Low-load grass-shrub (GS1)	3.0	61	0.1	0.1
Moderate-load grass-shrub (GS2)	4.3	138	0.2	0.1
Scenario 4: 4% slope; Summer on–shore winds (50th percentile), 9 mph sustained winds W of the site				
Short, sparse grass (GR1)	1.8	20	0.2	0.1
Low-load grasses (GR2)	4.3	136	0.4	0.1
Low-load grass-shrub (GS1)	3.0	61	0.1	0.1
Moderate-load grass-shrub (GS2)	4.3	138	0.2	0.1

Note:

1. Wind-driven surface fire.
2. Spotting distance from a wind driven surface fire; it should be noted that the wind mph in parenthesis represent peak gusts of 50 mph.

Table 5: RAWS BehavePlus Fire Behavior Model Results – Post Project Conditions

Fire Scenarios	Flame Length[1] (feet)	Fireline Intensity[1] (BTU/feet/second)	Spread Rate[1] (mph)	Spotting Distance[1] (miles)
Scenario 1: 2% slope; Summer on–shore winds (50th percentile), 9 mph sustained winds				
Fuel modification zone 1 (FM8)	1.0	5	0.0	0.1
Fuel modification zone 2 (GR1)	1.8	20	0.2	0.1
Non-burnable	N/A	N/A	N/A	N/A
Scenario 2: 2% slope; Fall off–shore winds (97th percentile), 14 mph sustained winds with 50 mph gusts (2)				
Fuel modification zone 1 (FM8)	1.7 (3.0)	19 (62)	0.0 (0.2)	0.1 (0.4)
Fuel modification zone 2 (GR 1)	3.7 (4.0)	100 (115)	0.6 (0.7)	0.2 (0.5)
Non-burnable	N/A	N/A	N/A	N/A

Note:

1. Wind-driven surface fire.
2. Spotting distance from a wind driven surface fire; it should be noted that the wind mph in parenthesis represent peak gusts of 50 mph.

The following describes the fire behavior variables (Heisch and Andrews 2010) as presented in Tables 4 and 5:

Surface Fire:

- Flame Length (feet): The flame length 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.
- Fireline Intensity (Btu/ft/s): Fireline intensity is the heat energy release per unit time from a one-foot wide section of the fuel bed extending from the front to the rear of the flaming zone. Fireline intensity is a function of rate of spread and heat per unit area, and is directly related to flame length. Fireline intensity and the flame length are related to the heat felt by a person standing next to the flames.
- Surface Rate of Spread (mph): Surface rate of spread is the "speed" the fire travels through the surface fuels. Surface fuels include the litter, grass, brush and other dead and live vegetation within about 6 feet of the ground.

The information in Table 6 presents an interpretation of the outputs for five fire behavior variables as related to fire suppression efforts. The results of fire behavior modeling efforts are presented in Tables 4 and 5. Identification of modeling run locations is presented graphically in Figure 6 of the FPP.

Table 6: Fire Suppression Interpretation

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

Appendix D

Ignition-Resistant Construction Requirements

As of the date of this fire protection plan, the following are the requirements for ignition resistant construction for The proposed Project, including requirements under Chapter 7A of the California Building Code (CBC). In addition, exterior building construction including roofs, eaves, exterior walls, doors, windows, decks, and other attachments must meet the most current CBC Chapter 7A ignition resistance requirements at the time of building permit application.

1. All structures will be built with a Class A roof assembly, including a Class A roof covering. Roofs shall have a roofing assembly installed in accordance with its listing and the manufacturer's installation instructions.
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 fire stopped with approved materials or have one layer of minimum 72 pound mineral-surfaced non-perforated cap sheet complying with ASTM D 3909 installed over the combustible decking. However, openings on barrel tiles or similar roof coverings, must be fire stopped (bird stopped) with approved materials to prevent the accumulation of debris, bird nests, etc. between the tiles and decking material.
3. When provided, exposed valley flashings shall be not less than 0.019-inch (No. 26 galvanized sheet gage) corrosion-resistant metal installed over a minimum 36-inch-wide underlayment consisting of one layer of minimum 72 pound mineral-surfaced non-perforated cap sheet complying with ASTM D 3909 running the full length of the valley.
4. All rain gutters, down spouts and gutter hardware shall be constructed from metal or other non-combustible material to prevent wildfire ignition along eave assemblies.
5. All chimney, flue or stovepipe openings attached to a fireplace, stove, or other solid or liquid fuel burning equipment or device shall be equipped with an approved spark arrester. An approved spark arrester is defined as a device intended to prevent sparks from escaping into the atmosphere and constructed of nonflammable materials, having a 12-gauge minimum thicknesses with openings no greater than ½ inch, or other alternative material the Fontana Fire Protection District determines to provide equal or better protection. It shall be installed to be visible for the purposes of inspection and maintenance.
6. The exterior surface materials shall be non-combustible, including hard or ignition resistant, such as stucco. In all construction, exterior walls shall extend from the top of the foundation to the roof and terminate at 2-inch nominal solid blocking between rafters at all roof overhangs, or in the case of enclosed eaves, terminate at the enclosure.
7. All eaves, fascias, and soffits will be enclosed (boxed) with non-combustible materials. This shall apply to the entire perimeter of each structure. Eaves of heavy timber construction are not required to be enclosed as long as attic venting is not installed in the eaves. For the purposes of this section, heavy timber construction shall consist of a minimum of 4"x 6" rafter tails.
8. Paper-faced insulation shall be prohibited in attics or ventilated spaces.
9. Automatic interior fire sprinklers for commercial buildings shall be installed according to the National Fire Protection Association (NFPA) 13 requirements.
10. Roof vents, dormer vents, gable vents, foundation ventilation openings, ventilation openings in vertical walls, or other similar ventilation openings shall be louvered and covered with 1/16-inch, noncombustible, corrosion-resistant metal mesh or other approved material that offers equivalent protection.
11. Attic or foundation ventilation louvers or ventilation openings in vertical walls shall not exceed 144 square inches per opening and shall be covered with 1/16" inch mesh corrosion-resistant metal screen or other

approved material that offers equivalent protection. Ventilation louvers and openings may be incorporated as part of access assemblies.

12. No attic ventilation openings or ventilation louvers shall be permitted in soffits, in eave overhangs, between rafters at eaves, or in other overhanging areas.
13. All fences and gate assemblies (fences, gates, and fence posts) attached or within five feet of a structure shall be of non-combustible material or pressure-treated exterior fire-retardant wood.
14. All projections (exterior balconies, decks, patio covers, unenclosed roofs and floors, and similar architectural appendages and projections) or structures less than five feet from a building shall be of non-combustible material, one-hour fire resistive construction on the underside, heavy timber construction, pressure-treated exterior fire- retardant wood or ignition resistant construction. When such appendages and projections are attached to exterior fire- resistive walls, they shall be constructed to maintain same fire-resistant standards as the exterior walls of the structure.
15. Accessory structures attached to buildings with habitable spaces and projections shall be in accordance with Chapter 7A of the CBC.
16. Detached accessory structures located less than 50 feet from a building containing habitable space shall be constructed in accordance with Chapter 7A of the CBC.
    - ***Exception:*** *Accessory structures less than 120 square feet in floor area located at least 30 feet from a building containing a habitable space.*
17. Exterior doors shall be approved non-combustible construction, solid core wood and shall conform to the performance requirements of standard SFM 12-7A-1 or shall be of approved noncombustible construction, or solid core wood having stiles and rails not less than 1⅜ inches thick with interior field panel thickness no less than 1¼ inches thick, or shall have a fire-resistance rating of not less than 20 minutes when tested according to National Fire Protection Association (NFPA) 252.
18. All glass or other transparent, translucent or opaque glazing materials, that is used in exterior windows, including skylights, or exterior glazed door assemblies shall be constructed of multipane glazing with one tempered pane meeting the requirements of Section 2406 (2016 CBC) Safety Glazing. .
19. Vinyl window assemblies are deemed acceptable if the windows have the following characteristics:
    - Frame and sash are comprised of vinyl material with welded corners
    - Metal reinforcements in the interlock area
    - Glazed with insulating glass, annealed or tempered (one layer of which must be tempered glass).
    - Frame and sash profiles are certified in AAMA Lineal Certification Program.
    - Certified and labeled to ANSI/AAMA/NWWDA 101/LS2-97 for Structural Requirements.

Appendix E

County of Riverside California Prohibited and Acceptable Plant List

Undesirable Plant List
For Fuel Modification Projects in San Diego, Riverside, and Orange Counties

	Botanical Name	Common Name	Plant Form
1.	Acacia species •	Acacia	Shrub/Tree
2.	Adenostoma fasciculatum	Chamise	Shrub
3.	Adenostoma sparsifolium	Red Shank	Shrub/Tree
4.	Artemisia californica	California Sagebrush	Shrub
5.	Bamboos	Bamboo	Shrub
6.	Cedrus species	Cedar	Tree
7.	Cupressus species	Cypress	Tree
8.	Eriogonum fasciculatum	Common Buckwheat	Shrub
9.	Eucalyptus species	Eucalyptus	Shrub/Tree
10.	Juniperus species	Junipers	Succulent
11.	Pennisetum	Fountain Grass	Ground cover
12.	Pinus species	Pines	Tree
13.	Rosmarinus species	Rosemary	Shrub
14.	Salvia species • •	Sage	Shrub

- • Except:
  Acacia redolens desert carpet (Desert Carpet ground cover)
- • • Except:
  Salvia colubariae (chia)
  Salvia sonomensis (Creeping Sage)

Recommended Plant List
For Fuel Modification Projects in San Diego, Riverside, and Orange Counties

	Code	Botanical Name	Common Name	Plant Form
1.	**W**	Abelia x grandiflora	Glossy Abelia	Shrub
2.	□	Acacia redolens desert carpet	Desert Carpet	Shrub
3.	□	Acer macrophyllum	Big Leaf Maple	Tree
4.	**X**	Achillea millefolium	Common Yarrow	Low shrub
5.	**W**	Achillea tomentosa	Wooly Yarrow	Low shrub
6.	**X**	Aeonium decorum	Aeonium	Ground cover
7.	**X**	Aeonium simsii	ncn	Ground cover
8.	**W**	Agave attenuata	Century Plant	Succulent
9.	**W**	Agave shawii	Shaw's Century Plant	Succulent
10.	**N**	Agave victoriae-reginae	ncn	Ground cover
11.	**X**	Ajuga reptans	Carpet Bugle	Ground cover
12.	**W**	Alnus cordata	Italian Alder	Tree
13.	□	Alnus rhombifolia	White Alder	Tree
14.	**N**	Aloe aborescens	Tree Aloe	Shrub
15.	**N**	Aloe aristata	ncn	Ground cover
16.	**N**	Aloe brevifolia	ncn	Ground cover
17.	**W**	Aloe vera	Medicinal Aloe	Succulent
18.	**W**	Alyogyne huegelii	Blue Hibiscus	Shrub
19.	□	Ambrosia chamissonis	Beach Bur-Sage	Perennial
20.	□	Amorpha fruticosa	Western False Indigobush	Shrub
21.	**W**	Anigozanthus flavidus	Kangaroo Paw	Perennial accent
22.	□	Antirrhinum nuttalianum ssp. nuttalianum	ncn	Subshrub
23.	**X**	Aptenia cordifolia x 'Red Apple'	Red Apple Aptenia	Ground cover
24.	**W**	Arbutus unedo	Strawberry Tree	Tree
25.	**W**	Arctostaphylos 'Pacific Mist'	Pacific Mist Manzanita	Ground cover
26.	**W**	Arctostaphylos edmundsii	Little Sur Manzanita	Ground cover
27.	□	Arctostaphylos glandulosa ssp.glandulosa	Eastwood Manzanita	Shrub
28.	**W**	Arctostaphylos hookeri 'Monterey Carpet'	Monterey Carpet Manzanita	Low shrub

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= Plant species native to Riverside, Orange and San Diego Counties. Acceptable in all fuel modification (wet or dry zones) in all locations.

N = Plant species acceptable on a limited basis (maximum 30% of the area at time of planting) in wet fuel modification zones adjacent to native open space reserve lands. Acceptable in all other fuel modification locations and zones.

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	Code	Botanical Name	Common Name	Plant Form
29.	**N**	Arctostaphylos pungens	ncn	Shrub
30.	**N**	Arctostaphylos refugioensis	Refugio Manzanita	Shrub
31.	**W**	Arctostaphylos uva-ursi	Bearberry	Ground cover
32.	**W**	Arctostaphylos x 'Greensphere'	Greensphere Manzanita	Shrub
33.	**N**	Artemisia caucasica	Caucasian Artemisia	Ground cover
34.	**X**	Artemisia pycnocephaia	Beach Sagewort	Perennial
35.	**X**	Atriplex canescens	Four-Wing Saltbush	Shrub
36.	**X**	Atriplex lentiformis ssp. Breweri	Brewer Saltbush	Shrub
37.	□	Baccharis emoryi	Emory Baccharis	Shrub
38.	**W** □	Baccharis pilularis ssp. Consanguinea	Chaparral Bloom	Shrub
39.	**X**	Baccharis pilularis var. pilularis "Twin Peaks #2'	Twin Peaks	Ground cover
40.	□	Baccharis salicifolia	Mulefat	Shrub
41.	**N**	Baileya multiradiata	Desert Marigold	Ground cover
42.	**W**	Beaucarnea recurvata	Bottle Palm	Shrub/Small tree
43.	**N** □	Bougainvillea spectabilis	Bougainvillea	Shrub
44.	**N** □	Brahea armata	Mexican Blue Palm, Blue Hesper Palm	Palm
45.	**N** □	Brahea brandegeei	San Jose Hesper Palm	Palm
46.	**N** □	Brahea edulis	Guadalupe Palm	Palm
47.	□	Brickellia californica	ncn	Subshrub
48.	**W** □	Bromus carinatus	California Brome	Grass
49.	□	Camissonia cheiranthifolia	Beach Evening Primrose	Perennial subshrub
50.	**N**	Carissa macrocarpa	Green Carpet Natal Plum	Ground cover/Shrub
51.	**X**	Carpobrotus chilensis	Sea Fig Ice Plant	Ground cover
52.	**W**	Ceanothus gloriosus 'Point Reyes'	Point Reyes Ceanothus	Shrub

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	Code	Botanical Name	Common Name	Plant Form
53.	**W**	Ceanothus griseus "Louis Edmunds'	Louis Edmunds Ceanothus	Shrub
54.	**W**	Ceanothus griseus horizontalis	Yankee Point	Ground Cover
55.	**W**	Ceanothus griseus var. horizontalis	Carmel Creeper Ceanothus	Shrub
56.	**W**	Ceanothus griseus var. horizontalis "Yankee Point"	Yankee Point Ceanothus	Shrub
57.	□	Ceanothus megacarpus	Big Pod Ceanothus	Shrub
58.	**W**	Ceanothus prostratus	Squaw carpet ceanothus	Shrub
59.	□	Ceanothus spinosus	Green bark ceanothus	Shrub
60.	**W**	Ceanothus verrucosus	Wart-Stem Ceanothus	Shrub
61.	**W**	Cerastium tomentosum	Snow-in-summer	Ground cover/shrub
62.	**W**	Ceratonia siliqua	Carob	Tree
63.	**W**	Cercis occidentalis	Western Redbud	Tree/shrub
64.	**X**	Chrysanthemum leucanthemum	Oxeye Daisy	Groundcover
65.	**W**	Cistus crispus	ncn	Shrub
66.	**W**	Cistus hybridus	White Rockrose	Shrub
67.	**W**	Cistus incanus	ncn	Shrub
68.	**W**	Cistus incanus ssp. corsicus	ncn	Shrub
69.	**W**	Cistus salviifolis	Sageleaf Rockrose	Shrub
70.	**W**	Cistus x purpureus	Orchid Rockrose	Shrub
71.	**W**	Citrus species	Citrus	Tree
72.	□	Clarkia bottae	Showy Fairwell to Spring	Annual
73.	□	Cneoridium dumosum	Bushrue	Shrub
74.	□	Collinsia heterophylla	Chinese Houses	Annual
75.	**W** □	Comarostaphylis diversifolia	Summer Holly	Shrub
76.	**N**	Convolvulus cneorum	Bush Morning Glory	Shrub

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	Code	Botanical Name	Common Name	Plant Form
77.	**W**	Coprosma kirkii	Creeping Coprosma	Ground cover/Shrub
78.	**W**	Coprosma pumila	Prostrate Coprosma	Low Shrub
79.	□	Coreopsis californica	California Coreopsis	Annual
80.	**W**	Coreopsis lanceolata	Coreopsis	Ground cover
81.	**N**	Correa pulchella	Australian Fuchsia	Ground cover
82.	**W**	Cotoneaster buxifolius	ncn	Shrub
83.	**W**	Cotoneaster congestus 'Likiang'	Likiang Cotoneaster	Ground cover/Vine
84.	**W**	Cotoneaster parneyi	ncn	Shrub
85.	**X**	Crassula lactea	ncn	Ground cover
86.	**X**	Crassula multicava	ncn	Ground cover
87.	**X**	Crassula ovata	Jade Tree	Shrub
88.	**X**	Crassula tetragona	ncn	Ground cover
89.	**W** □	Croton californicus	California Croton	Ground cover
90.	**X**	Delosperma 'alba'	White Trailing Ice Plant	Ground cover
91.	□	Dendromecon rigida	Bush Poppy	Shrub
92.	□	Dichelostemma capitatum	Blue Dicks	Herb
93.	**N**	Distictis buccinatoria	Blood-Red Trumpet Vine	Vine/Climbing vine
94.	**N**	Dodonaea viscosa	Hopseed Bush	Shrub
95.	**X**	Drosanthemum floribundum	Rosea Ice Plant	Ground cover
96.	**X**	Drosanthemum hispidum	ncn	Ground cover
97.	**X**	Drosanthemum speciosum	Dewflower	Ground cover
98.	□	Dudleya lanceolata	Lance-leaved Dudleya	Succulent
99.	□	Dudleya pulverulenta	Chalk Dudleya	Succulent
100.	**W**	Elaeagnus pungens	Silverberry	Shrub
101	□	Encelia californica	California Encelia	Small shrub

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	Code	Botanical Name	Common Name	Plant Form
102.	□ ●	Epilobium canum [Zauschneria californica]	Hoary California Fuchsia	Shrub
103.	□	Eriastrum sapphirinum	Mojave Wooly Star	Annual
104.	**N**	Eriobotrya japonica	Loquat	Tree
105.	□	Eriodictycon crassifolium	Thick-Leaf Yerba Santa	Shrub
106.	□	Eriodictycon trichocalyx	Yerba Santa	Shrub
107.	**W** □	Eriophyllum confertiflorum	ncn	Shrub
108.	**W**	Erythrina species	Coral Tree	Tree
109.	**N**	Escallonia species	Several varieties	Shrub
110.	**W** □	Eschscholzia californica	California Poppy	Flower
111.	**X**	Eschscholzia mexicana	Mexican Poppy	Herb
112.	**N**	Euonymus fortunei	Winter Creeper Euonymus	Ground cover
113.	**N**	Feijoa sellowiana	Pineapple Guava	Shrub/Tree
114.	**N**	Fragaria chiloensis	Wild Strawberry/ Sand Strawberry	Ground cover
115.	□	Frankenia salina	Alkali Heath	Ground cover
116.	**W**	Fremontodendron californicum	California Flannelbush	Shrub
117.	**X**	Gaillardia x grandiflora	Blanketflower	Ground cover
118.	**W**	Galvezia speciosa	Bush Snapdragon	Shrub
119	**W**	Garrya ellipta	Silktassel	Shrub
120.	**X**	Gazania hybrids	South African Daisy	Ground cover
121.	**X**	Gazania rigens leucolaena	Trailing Gazania	Ground cover
122.	□	Gilia capitata	Globe Gilia	Perennial
123.	**W**	Gilia lepthantha	Showy Gilia	Perennial
124.	**W**	Gilia tricolor	Bird's Eyes	Perennial
125.	**W**	Ginkgo biloba	Maidenhair Tree	Tree
126.	□	Gnaphalium californicum	California Everlasting	Annual
127.	**W**	Grewia occidentalis	Starflower	Shrub
128.	□	Grindelia stricta	Gum Plant	Ground cover

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	Code	Botanical Name	Common Name	Plant Form
129.	**N □**	Hakea suaveolens	Sweet Hakea	Shrub
130.	**W**	Hardenbergia comptoniana	Lilac Vine	Shrub
131.	**N**	Helianthemum mutabile	Sunrose	Ground cover/Shrub
132.	□	Helianthemum scoparium	Rush Rose	Shrub
133.	□	Heliotropium curassavicum	Salt Heliotrope	Ground cover
134.	**X**	Helix canariensis	English Ivy	Ground cover
135.	**W**	Hesperaloe parviflora	Red Yucca	Perennial
136.	□ □	Heteromeles arbutifolia	Toyon	Shrub
137.	**X**	Hypericum calycinum	Aaron's-Beard	Shrub
138.	**N**	Iberis sempervirens	Edging Caandytuft	Ground cover
139.	**N**	Iberis umbellatum	Globe Candytuft	Ground cover
140.	□	Isocoma menziesii	Coastal Goldenbush	Small shrub
141.	□	Isomeris arborea	Bladderpod	Shrub
142.	**W**	Iva hayesiana	Poverty Weed	Ground cover
143.	**N**	Juglans californica	California Black Walnut	Tree
144.	□	Juncus acutus	Spiny Rush	Perennial
145.	□	Keckiella antirrhinoides	Yellow Bush Penstemon	Subshrub
146.	□	Keckiella cordifolia	Heart Leaved Penstemon	Subshrub
147.	□	Keckiella ternata	Blue Stemmed Bush Penstemon	Subshrub
148.	**W**	Kniphofia uvaria	Red Hot Poker	Perennial
149.	**W**	Lagerstroemia indica	Crape Myrtel	Tree
150.	**W**	Lagunaria patersonii	Primrose Tree	Tree
151.	**X**	Lampranthus aurantiacus	Bush Ice Plant	Ground cover
152.	**X**	Lampranthus filicaulis	Redondo Creeper	Ground cover
153.	**X**	Lampranthus spectabilis	Trailing Ice Plant	Ground cover
154.	**W**	Lantana camara cultivars	Yellow Sage	Shrub
155.	**W**	Lantana montevidensis	Trailing Lantana	Shrub
156.	□	Lasthenia californica	Dwarf Goldfields	Annual

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	Code	Botanical Name	Common Name	Plant Form
157.	**W**	Lavandula dentata	French Lavendar	Shrub
158.	**W**	Leptospermum laevigatum	Australian Tea Tree	Shrub
159.	**W**	Leucophyllum frutescens	Texas Ranger	Shrub
160.	□	Leymus condensatus	Giant Wild Rye	Large grass
161.	**N**	Ligustrum japonicum	Texas Privet	Shrub
162.	**X**	Limonium pectinatum	ncn	Ground cover
163.	**X**	Limonium perezii	Sea Lavender	Shrub
164.	**W** □	Liquidambar styraciflua	American Sweet Gum	Tree
165.	**W**	Liriodendron tulipifera	Tulip Tree	Tree
166.	**X**	Lonicera japonica 'Halliana'	Hall's Japanese Honeysuckle	Vining shrub
167.	□	Lonicera subspicata	Wild Honeysuckle	Vining shrub
168.	**X**	Lotus corniculatus	Bird's Foot Trefoil	Ground cover
169.	□	Lotus heermannii	Northern Woolly Lotus	Perennial
170.	□	Lotus scoparius	Deerweed	Shrub
171.	**W**	Lupinus arizonicus	Desert Lupine	Annual
172.	**W**	Lupinus benthamii	Spider Lupine	Annual
173.	□	Lupinus bicolor	Sky Lupine	Flowering annual
174.	□	Lupinus sparsiflorus	Loosely Flowered Annual Lupini/Coulter's Lupine	Annual
175.	**W**	Lyonothamnus floribundus ssp. asplenifolius	Fernleaf Ironwood	Tree
176.	**W**	Macadamia Integrifolia	Macadamia Nut	Tree
177.	**W**	Mahonia aquifolium 'Golden Abundance'	Golden Abundance Oregon Grape	Shrub

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178.	**W**	Mahonia nevinii	Nevin Mahonia	Shrub
179.	□	Malacothamnus fasciculatus	Chaparral Mallow	Shrub
180.	**X**	Malephora luteola	Trailing Ice Plant	Ground cover
181.	**W**	Maytenus boaria	Mayten Tree	Tree
182.	**W**	Melaleuca nesophila	Pink Melaleuca	Shrub
183.	**N**	Metrosideros excelsus	New Zealand Christmas Tree	Tree
184.	□ ●	Mimulus species	Monkeyflower	Flower
185.	□	Mirabilis californica	Wishbone Bush	Perennial
186.	**N**	Myoporum debile	ncn	Shrub
187.	**N**	Myoporum insulare	Boobyalla	Shrub
188.	**W**	Myoporum parvifolium	ncn	Ground cover
189.	**W**	Myoporum 'Pacificum'	ncn	Shrub
190.	□	Nassella [stipa] lepida	Foothill needlegrass	Ground cover
191.	□	Nassella [stipa] pulchra	Purple needlegrass	Ground cover
192.	□	Nemophila menziesii	Baby Blue Eyes	Annual
193.	**X**	Nerium oleander	Oleander	Shrub
197.	□	Oenothera hookeri	California Evening Primrose	Flower
198.	**W**	Oenothera speciosa	Showy Evening Primrose	Perennial
199.	**X**	Ophiopogon japonicus	Mondo Grass	Ground cover
200.	□ ●	Opuntia littoralis	Prickly Pear	Cactus
201.	□ ●	Opuntia oricola	Oracle Cactus	Cactus
202.	□ ●	Opuntia prolifera	Coast Cholla	Cactus
203.	**W**	Osmanthus fragrans	Sweet Olive	Shrub
204.	**X**	Osteospermum fruticosum	Trailing African Daisy	Ground cover
205.	**X**	Parkinsonia aculeata	Mexican Palo Verde	Tree
206.	**W**	Pelargonium peltatum	Ivy Geranium	Ground cover

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	Code	Botanical Name	Common Name	Plant Form
207.	**X**	Penstemon species	Beard Tongue	Shrub
208.	**W**	Photinia fraseri	ncn	Shrub
209.	**W**	Pistacia chinensis	Chinese Pistache	Tree
210.	**X**	Pittosporum undulatum	Victorian Box	Tree
211.	□	Plantago erecta	California Plantain	Annual
212.	● ●	Plantago insularis	Woolly Plantain	Annual
213.	**X**	Plantago sempervirens	Evergreen Plaintain	Ground cover
214.	**W**	Platanus racemosa	California Sycamore	Tree
215.	**W**	Plumbago auriculata	Plumbago Cape	Shrub
216.	□	Populus fremontii	Western Cottonwood	Tree
217.	**X**	Portulacaria afra	Elephant's Food	Shrub
218.	□	Potentilla glandulosa	Sticky Cinquefoil	Subshrub
219.	**X**	Potentilla tabernaemontanii	Spring Cinquefoil	Ground cover
220.	**X**	Prunus caroliniana	Carolina Cherry Laurel	Shrub/Tree
221.	□	Prunus ilicifolia ssp. ilicifolia	Holly Leaved Cherry	Shrub
222.	**X**	Prunus lyonii	Catalina Cherry	Shrub/Tree
223.	**N**	Punica granatum	Pomegranate	Shrub/Tree
224.	**W**	Puya species	Puya	Succulent/shrub
225.	**W**	Pyracantha species	Firethorn	Shrub
226.	□	Quercus agrifolia	Coast Live Oak	Shrub
227.	□ □ ●	Quercus berberdifolia	California Scrub Oak	Shrub
228.	□ □ ●	Quercus dumosa	Coastal Scrub Oak	Shrub
229.	**X**	Quercus engelmannii	Engelmann Oak	Tree

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	Code	Botanical Name	Common Name	Plant Form
230.	**X**	Quercus suber	Cork Oak	Tree
231.	**X**	Rhamnus alaternus	Italian Buckthorn	Shrub
232.	□	Rhamnus californica	California Coffee Berry	Shrub
233.	□	Rhamnus crocea	Redberry	Shrub
234.	□	Rhamnus crocea ssp. ilicifolia	Hollyleaf Redberry	Shrub
235.	**N**	Rhaphiolepis species	Indian Hawthorn	Shrub
236.	□	Rhus integrifolia	Lemonade Berry	Shrub
237.	**N**	Rhus lancea	African Sumac	Tree
238.	□ □	Rhus ovata	Sugarbush	Shrub
239.	□	Ribes aureum	Golden Currant	Shrub
240.	□	Ribes indecorum	White Flowering Currant	Shrub
241.	□	Ribes speciosum	Fuchsia Flowering Gooseberry	Shrub
242.	**W**	Ribes viburnifolium	Evergreen Currant	Shrub
243.	□ •	Romneya coulteri	Matilija Poppy	Shrub
244.	**X**	Romneya coulteri 'White Cloud'	White Cloud Matilija Poppy	Shrub
245.	**W** □	Rosmarinus officinalis	Rosemary	Shrub
246.	**W** □	Salvia greggii	Autumn Sage	Shrub
247.	**W** □	Salvia sonomensis	Creeping Sage	Ground cover
248.	□	Sambucus mexicana	Mexican Elderberry	Tree
249.	**W**	Santolina chamaecyparissus	Lavender Cotton	Ground cover
250.	**W**	Santolina virens	Green Lavender Cotton	Shrub
251.	□	Satureja chandleri	San Miguel Savory	Perennial
252.	□	Scirpus acutus	Hard-Stem Bulrush	Perennial
253.	□	Scirpus californicus	California Bulrush	Perennial

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	Code	Botanical Name	Common Name	Plant Form
254.	**X**	Sedum acre	Goldmoss Sedum	Ground cover
255.	**X**	Sedum album	Green Stonecrop	Ground cover
256.	**X**	Sedum confusum	ncn	Ground cover
257.	**X**	Sedum llineare	ncn	Ground cover
258.	**X**	Sedum x rubrotinctum	Pork and Beans	Ground cover
259.	**X**	Senecio serpens	ncn	Ground cover
260.	□	Sisyrinchium bellum	Blue-Eyed Grass	Ground cover
261.	□	Solanum douglasii	Douglas Nightshade	Shrub
262.	□	Solanum xantii	Purple Nightshade	Perennial
263.	**W**	Stenocarpus sinuatus	Firewheel Tree	Tree
264.	**W**	Strelitzia nicolai	Giant Bird of Paradise	Perennial
265.	**W**	Strelitzia reginae	Bird of Paradise	Perennial
266.	□	Symphoricarpos mollis	Creeping Snowberry	Shrub
267.	**W**	Tecoma stans [Stenolobium stans]	Yellow Bells	Shrub/Small tree
268.	**X**	Tecomaria capensis	Cape Honeysuckle	Ground cover
269.	**N**	Teucrium chamaedrys	Germander	Ground cover
270.	**N**	Thymus serpyllum	Lemon Thyme	Ground cover
271.	**N**	Trachelospermum jasminoides	Star Jasmine	Shrub
272.	□	Trichostema lanatum	Woolly Blue-Curls	Shrub
273.	**X**	Trifolium hirtum 'Hyron'	Hyron Rose Clover	Ground cover
274.	**X**	Trifolium fragiferum 'O'Connor's'	O'Connor's Legume	Ground cover
275.	□	Umbellularia californica	California Laurel	Tree
276.	□	Verbena lasiostachys	Western Vervain	Perennial

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	Code	Botanical Name	Common Name	Plant Form
277.	**N**	Verbena peruviana	ncn	Ground cover
278.	**X**	Verbena species	Verbena	Ground cover
279.	**X**	Vinca minor	Dwarf Periwinkle	Ground cover
280.	□	Vitis girdiana	Desert Wild Grape	Vine
281.	**X**	Vulpia myuros 'Zorro'	Zorro Annual Fescue	Grass
282.	**W**	Westringia fruticosa	ncn	Shrub
283.	**W**	Xanthorrhoea species	Grass Tree	Perennial accent/ Shrub
284.	**W**	Xylosma congestum	Shiny Xylosma	Shrub
285.	**X**	Yucca species	Yucca	Shrub
286.	□	Yucca whipplei	Yucca	Shrub

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QUALIFICATION STATEMENTS FOR SELECT PLANT SPECIES

□ = Plant species acceptable on a limited use basis:

2. Acacia redolens desert carpet

May be used in the upper 1/2 of fuel modification zone 2 (30 to 70 feet). The plants may be planted at 8 feet on center minimum spacing in meandering zones not to exceed a mature width of 24 feet or a mature height of 24 feet.

43. Bougainvillea spectabilis [procumbent varities]

Procumbent to mounding varieties may be used in the mid fuel modification zone 2 (30 to 70 feet). The plants may be planted in clusters at 6 feet once center spacing not to exceed 8 plants per cluster. Mature spacing between individual plants or clusters shall be 30 feet minimum.

44. Brahea armata
45. Brahea brandegeei
46. Brahea edulis

May be used in the upper and mid fuel modification zone 2 (30 to 70 feet). The plants shall be used as single specimens with mature spacing between palms of 30 feet minimum.

129. Hakea suaveolens

May be used in the mid fuel modification zone 2 (30-70 feet). The plants shall be used as single specimens with mature spacing between plants of 30 feet minimum.

136. Heteromeles arbutifolia

May be used in the mid to lower fuel modification zone 2 (30 to 70 feet). The plants may be planted in clusters of up to 3 plants per cluster. Mature spacing between individual plants or cluster shall be 30 feet minimum.

164. Liquidambar styraciflua

May be used in the mid to lower fuel modification zone 2 (30 to 70 feet). The plant shall be used as single specimens with mature spacing between trees at 30 feet minimum.

227. Quercus berberdifolia

228. Quercus dumosa

May be used in the mid to lower fuel modification zone 2 (30 to 70 feet). The plants may be planted in clusters of up to 3 plants per cluster. Mature spacing between individual plants or clusters shall be 30 feet minimum.

238. Rhus ovata

May be used in the mid to lower fuel modification zone 3 (30 to 70 feet) within inland areas only. The plants may be planted in clusters of up to 3 plants per cluster. Mature spacing between individual plants or clusters shall be 30 feet minimum.

245. Romarinus officinalis

246. Salvia greggii

247. Salvia sonomensis

May be used in the mid to upper fuel modification zone 2 (30 to 70 feet). The plants may be planted in clusters of up to 3 plants per cluster. Mature spacing between individual plants or clusters shall be 15 feet minimum.