

APPENDIX 4.9 - 3

FIRE PROTECTION PLAN

Fire Protection Plan

Anaheim Hills Festival Project

APRIL 2025

Prepared for:

SHEA PROPERTIES

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1 Introduction

This Fire Protection Plan (FPP) has been prepared for the proposed Anaheim Hills Festival Specific Plan Amendment Project (Project) in Anaheim, an incorporated city in Orange County, California. The purpose of the FPP is to evaluate the potential impacts resulting from wildland fire hazards and identify the measures necessary to adequately mitigate those risks to a level consistent with Anaheim Fire and Rescue (AFR) thresholds. Additionally, this FPP establishes and memorializes the fire safety requirements of the Fire Authority Having Jurisdiction (FAHJ), which is AFR. Requirements and recommendations detailed in the FPP are based on Project site-specific characteristics, applicable code requirements, and input from the Project's applicant, planners, engineers, and architects, as well as the AFR.

As part of the assessment, the FPP has considered the fire risk presented by the development site, including the property location and its topography, geology, surrounding combustible vegetation (fuel types), climatic conditions, fire history, and the proposed land use. At the time this FPP was prepared, the adopted Local Responsibility Area maps indicate that the Project is not located within a VHFHSZ, refer to Figure 1a. However, on March 24, 2025, the Office of the State Fire Marshal (OSFM) released the 2025 Recommended Local Responsibility Area Fire Hazard Severity Zone Map for Southern California. The draft map reflects a change to the Project site, with the majority of the Project (8.26-acres) is located within a Very High Fire Hazard Severity Zone (VHFHSZ) and a small portion on the eastern side designated as a High Fire Hazard Severity Zone (2.17-acres) within a Local Responsibility Area, refer to Figure 1b. The draft map is currently under review and has not yet been adopted; therefore, the content of the map is subject to change. In response to the updated maps, the Project will comply with defensible space, ignition resistant construction and access requirements for development in a VHFHSZ (i.e., Chapter 7A of the California Building Code and Chapter 49 of the California Fire Code). The FPP addresses water supply, access, structural ignitability, and ignition resistive building features, fire protection systems, and equipment, and impacts to existing emergency services.

The property is located within the jurisdiction of the AFR and thus the FPP addresses AFR's response capabilities and response travel time to and within the proposed Project site, along with projected funding for facility improvements and fire service maintenance.

The following tasks were performed toward completion of this FPP:

- Gather site-specific climate, terrain, and fuel data;
- Collect site photographs¹;
- Process and analyze the data using the latest geographic information system (GIS) technology;
- Predict fire behavior using scientifically based fire behavior models, comparisons with actual wildfires in similar terrain and fuels, and experienced judgment;
- Analyze and guide the design of proposed infrastructure;
- Analyze the existing emergency response capabilities;
- Assess the risk associated with the Project site;

¹ Field observations were used to augment existing digital site data in generating the fire behavior models and formulating the recommendations presented in the FPP. Refer to Appendix A, Representative Site Photographs, for site photographs of existing site conditions.

- Evaluate nearby firefighting and emergency medical response resources; and
- Prepare the FPP detailing how fire risk will be mitigated through a system fire protection delivery system upgrades.

1.1 Applicable Codes/Existing Regulations

This FPP demonstrates that the Project development will comply with applicable portions of Anaheim Fire & Rescue Specifications and Requirements and applicable portions of the Anaheim Municipal Code, Title 16, Chapter 16.08, which adopts the 2022 edition of the California Fire Code (CFC) with amendments. Furthermore, the Project will be consistent with applicable portions of Anaheim Municipal Code, Title 15 – Building and Housing, which adopts the 2022 edition of the California Building Code (CBC). 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.

As identified in the recently released 2025 Recommended Local Responsibility Area Fire Hazard Severity Zone Map for Southern California (OSFM 2025), the majority of the Project Site is designated as a Very High Fire Hazard Severity Zone (VHFHSZ) within a Local Responsibility Area (LRA). The Project therefore must conform to the codes strictly applying to properties within a VHFHSZ, as indicated by the California Department of Forestry and Fire Protection (CAL FIRE).

Fire hazard designations are based on topography, vegetation, and weather, among other factors with more hazardous sites, including steep terrain, unmaintained fuels/vegetation, and WUI locations. Projects situated in 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. HFHSZ/VHFHSZ designations do not, in and of themselves, indicate that it is unsafe to build in these areas. As described in this FPP, the Project will meet all applicable fire and building code requirements 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 improving former structural vulnerabilities through construction techniques and materials so that the buildings are resistant to ignitions from direct flames, heat, and embers.

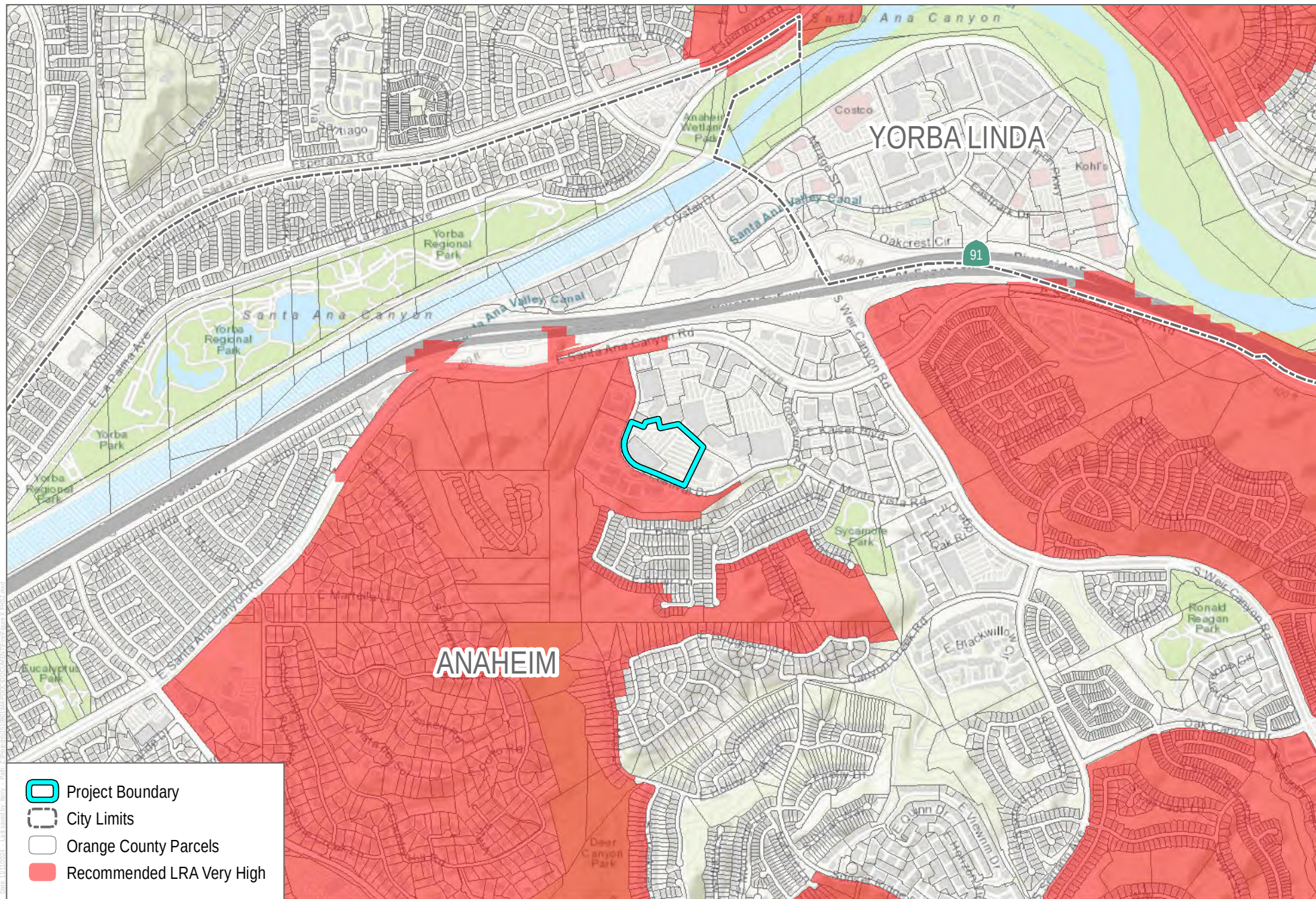
1.2 Project Summary

1.2.1 Location

The Project site is in the Anaheim Hills area of the City of Anaheim (City) in Orange County, California. The Anaheim Hills area is predominately residential, with commercial and office uses along major corridors. The Project site is within the existing 85.7-acre Anaheim Hills Festival Shopping Center. The Festival Shopping Center, inclusive of the Project site, is located south of State Route 91 (SR 91) and is generally bounded by East Santa Ana Canyon Road to the north and Roosevelt Road to the east.

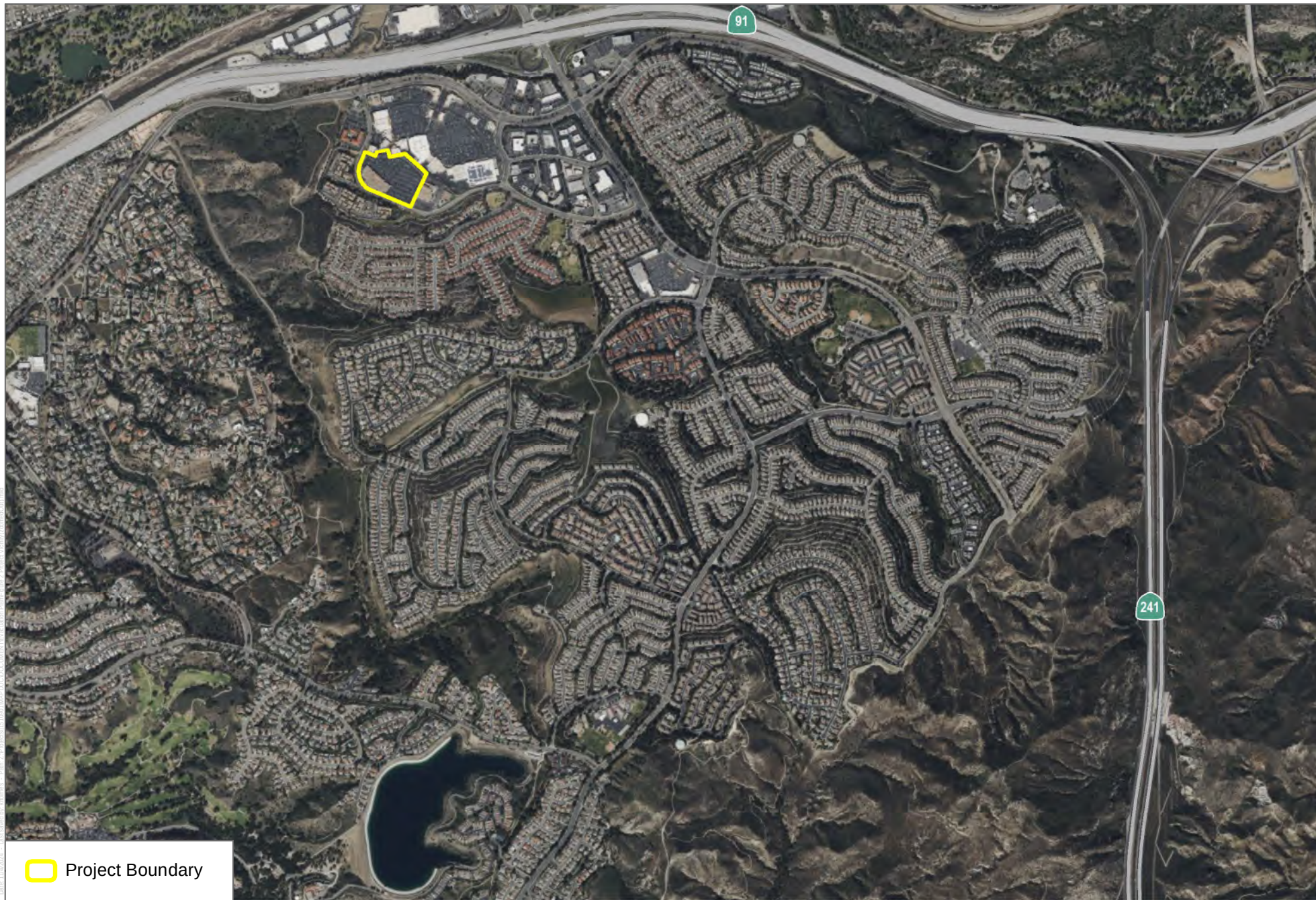
The Project site is located along South Festival Drive on the southwestern portion of the Festival Shopping Center area and south of East Santa Ana Canyon Road. Figure 2, Project Vicinity, depicts the Project site in a regional and local context, respectively. The Project site is approximately 16.2 acres and includes Assessor Parcel Numbers (APNs) 354-451-19 and -32.

Regional access to the site is provided from SR 91 via East Santa Ana Canyon Road. There is currently vehicular access through South Festival Drive. The Project site is approximately 0.15 mile east of Deer Canyon Park Preserve, which is the nearest open space. The majority of the Project site is within a VHFHSZ, with a small portion on the eastern side designated as a HFHSZ. The majority of Deer Canyon Park Preserve is also designated VHFHSZ within an LRA immediately across South Festival Drive to the west.



SOURCE: ESRI MAPPING SERVICE 2024; ORANGE COUNTY 2023; CAL FIRE-ARCGIS ONLINE 2024

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SOURCE: Bing Maps 2023; Open Street Map 2023

FIGURE 2
Project Vicinity
Festival Hills Project - FPP

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1.2.2 Existing Land Use

The Project site is located within the existing Anaheim Hills Festival Shopping Center, which is governed by the Anaheim Hills Festival Specific Plan. Figure 3, Existing Conditions, demonstrates the existing structures. The existing Specific Plan includes four Development Areas within the approximately 85.7-acre property. The existing Development Areas include the following:

1. Development Area 1 (Scenic Commercial): This area fronts Santa Ana Canyon Road and consists of approximately 66,100 square feet of commercial uses on approximately 8.4 acres.
2. Development Area 2 (Retail Commercial and Entertainment): This is the primary commercial core of the site, consisting of approximately 66,100 square feet of commercial uses on approximately 8.4 acres.
3. Development Area 3 (Visitor Commercial): This area includes approximately 77,200 square feet of visitor commercial uses on approximately 4.5 acres at the southwest corner of Festival Drive and Santa Ana Canyon Road. An existing hotel, the Residence Inn by Marriott Anaheim Hills, and a freestanding restaurant, Islands Restaurant, are currently in place.
4. Development Area 4 (Business Commercial): This area includes approximately 240,000 square feet of commercial uses on approximately 17.7 acres. There are existing senior residential units located south of the Project site.

The surrounding area is a mix of regional-serving commercial uses and senior residential units to the south. Examples of these regional serving uses include large department stores, specialty stores, theaters, and restaurants. SR 91 and Santa Ana Canyon Road are north of the Specific Plan area. There are also commercial uses along with a public library located less than a mile north of the Project site. 24-Hour Fitness Gym is located directly east of the site, along with religious institutions and offices in the Anaheim Business Center and East Hills Office Park. Single-family residential development surrounds the Project in the residential neighborhoods of East Hills, The Highlands of Anaheim Hills, and the Summit of Anaheim Hills. The Overlook at Anaheim Hills Apartment complex is located west of the site. The Deer Canyon Park Preserve to the west offers nature trails.

1.2.3 Project Description

The site plan for the proposed Project is depicted on Figure 4, Site Plan. As proposed, the Project would allow for the development of a 447-unit multi-family rental residential community. The development consists of a 4-story residential building wrapped around a 5-level parking structure with a subterranean level. Project amenities would include a clubhouse area, swimming pools, 5 courtyards, a fitness center, a leasing office/mailroom area, and common open spaces. The Project includes 1,245 parking spaces, which would be provided in the residential garage and surface parking. No additional square footage for commercial retail uses would occur. Approximately 78,144 sf of existing retail would be transferred from Development Area (DA) 2 to the newly created DA 5. The retail within DA 5 includes the following existing uses: 9,200 sf of office, 38,160 sf of Fitness/Gym, and 13,276 sf of tutor/retail space.

The multi-family residential development would offer eight different floorplans with private patio or balcony areas. All units would be single-story. The unit mix includes studio, 1 bedroom, 2 bedrooms, and 3 bedrooms floor plans. The residential development would be a wrap constructed, with a central concrete parking garage in the center, surrounded by several stories of residential units. The maximum residential building heights would be 54 feet to the top of the roof. The parking garage's maximum height would be 57 feet. These heights are measured from adjacent grade.

Santa Ana Canyon Road provides access from the Specific Plan area to the SR 91. Santa Ana Canyon Road is constructed in its full build out condition, as a six-lane roadway with a raised landscape median. A full-turn access exists at the intersection of Santa Ana Canyon Road at Festival Drive. Vehicular access to the Project site would be primarily provided by two driveways.

Driveway 1 is an existing curb cut on Festival Drive and would remain. Driveway 1 is located at the northern portion of the Project site and would serve as the primary entrance. Driveway 1 would be approximately 37.6 feet wide and lead toward the Project's frontage, with a landscaped vehicular court and leasing office. Beyond the vehicular court is an entrance to the parking structure.

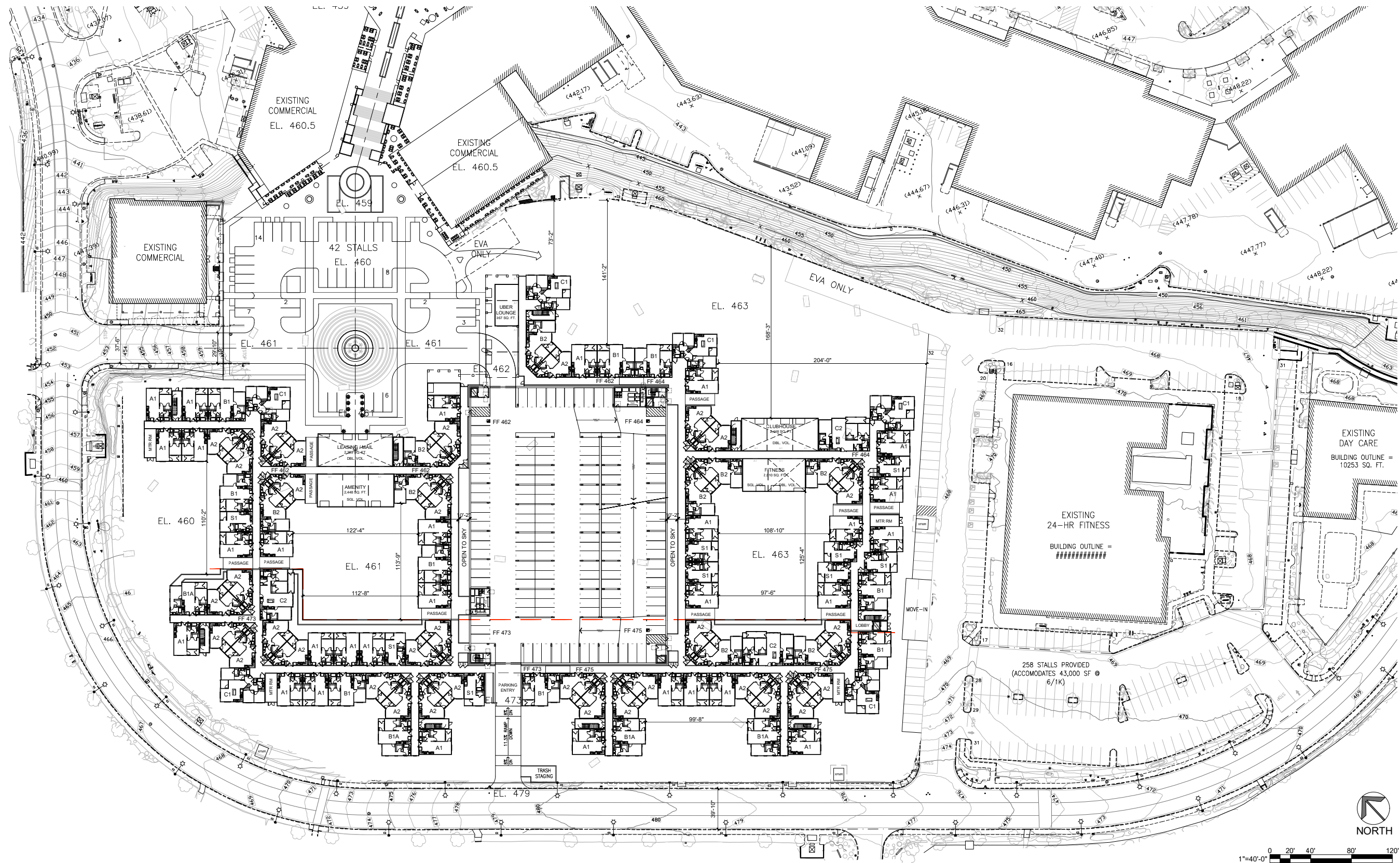
Driveway 2 would be a new curb cut proposed along Festival Drive. Driveway 2 is proposed at the southern portion of the Project site and will serve as an additional driveway entry point. This entrance would be primarily used by future residents and lead to the gated parking structure. Residents would have a remote key fob to operate the gate.

The City of Anaheim, specifically Anaheim Public Utilities, provides water services to the City, including the Anaheim Hills area. The Project site is currently developed with existing water infrastructure. Project implementation would require new points of connection to existing infrastructure on Festival Drive. Specifically, a proposed 8-inch water line would connect to the public water main in Festival Drive.



SOURCE: Bing Maps 2023; Open Street Map 2023

FIGURE 3
Existing Conditions
Festival Hills Project - FPP



SOURCE: AO 2023

FIGURE 4
Site Plan
Festival Hills Project - FPP

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2 Project Site Risk Analysis

2.1 Environmental Setting and Field Assessment

After review of available digital Study Area information, including topography, vegetation types, fire history, and the Project's Development Footprint, a Dudek Fire Protection Planner conducted a field assessment of the Anaheim Hills Festival Project site on March 7, 2023, in order to confirm/acquire site information, document existing site conditions, and to determine potential actions for addressing the protection of the proposed structures. While on-site, Dudek's Fire 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 included:

- Topography evaluation;
- Vegetation/fuel assessments;
- Photograph documentation of the existing condition;
- Confirmation/verification of hazard assumptions;
- Off-site, adjacent property fuel and topography conditions;
- Surrounding land use confirmations;
- Necessary fire behavior modeling data collection;
- Ingress/egress documentation;
- Nearby Fire Station reconnaissance.

Study Area photographs were collected (refer to Appendix A, *Representative Site Photographs*) and field observations were utilized to augment existing site data in generating the fire behavior models and formulating the requirements and recommendations detailed in the FPP.

2.2 Project Site Characteristics and Fire Environment

The following sections discuss the characteristics of the development area and the surrounding region, local climate, and fire history within and adjacent to the property at a regional scale. The Project is similar concerning topography, vegetative cover, and proximity to adjacent residential areas, available access, and planned use. The intent of evaluating conditions at a macro-scale provides 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 spread down-slope in the absence of wind. Terrain that forms a funneling effect, such as chimneys, chutes, or saddles on the landscape, can result in especially intense fire behavior. Conversely, flat terrain tends to have little effect on fire spread, resulting in fires that are driven by vegetation and wind. The Project site is currently developed with a cinema, fitness center, several other businesses, and a significant amount of parking in an asphalt lot between them. Given the previous development, the site has little difference in elevation with a range from approximately 460 feet above mean sea level (AMSL) in the northwestern portion of the site, to approximately

465 feet AMSL along the southeastern portion of the site with an average northwestern gradient of less than 1%. The existing mall and hotel to the north and northwest are at a slightly lower elevation, while the residential developments to the southwest and south are at a slightly higher elevation. Deer Canyon Park to the west poses the highest fire hazard and ranges in elevation from approximately 385 feet AMSL to approximately 670 feet AMSL with relatively steep drainages running west to east. The northern extent of the Santa Ana Mountains are 2 miles east of the Project and are the dominant geographic feature in the Project vicinity that also represent a significant portion of the fire history in the area.

2.2.2 Climate

Throughout southern California, and specifically at the Project site, climate has a large influence on fire risk. The climate of the city of Anaheim is typical of a Mediterranean area, with warm, dry summers and cold, wet winters. Temperatures average (annual) around 64°F and reach up to an average high of 85°F in August. Annual precipitation has been averaging less than 12 inches and typically occurs between December and March. The prevailing wind is an onshore flow between 5 and 8 mph from the Pacific Ocean (Weather Spark, 2023). While the prevailing wind pattern is from the west (onshore), 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. Santa Ana winds are an extreme wind event caused by cool, dry high-pressure systems in the deserts to the east (Great Basin area of the United States) that can result in wind speeds up to 75 miles per hour (mph) or higher. Their seasonality can often coincide with the end of the seasonal southern California drought resulting in extreme fire hazards in the fall.

2.2.3 Vegetation

The Project site is predominantly non-combustible as a product of development in the form of asphalt parking with several stucco buildings as well. The little vegetation that is present is irrigated, maintained landscaping that does not pose a fire threat. The same can be said of the roadside vegetation along South Festival Drive as well. The nearest area of concern when it comes to wildfire is Deer Canyon Park. This area is mainly comprised of southern California coastal scrub with non-native grasses and scattered trees and large shrubs. Goats have been used for grazing as a weed abatement effort in recent years and aid in reducing fuel loading and continuity (National Public Radio, 2020). This area is .15 miles west of the Project site.

2.2.4 Fire History

Fire history is an important component of a site-specific FPP. Fire history data provides valuable information regarding fire spread, fire frequency, ignition sources, and vegetation/fuel mosaics across a given landscape. One important use for this information is as a tool for pre-planning. It is advantageous to know which areas may have burned recently and therefore may provide a tactical defense position, what type of fire burned on the site, and how a fire may spread.

Fire history represented in the FPP uses the California Department of Forestry and Fire Protection (CAL FIRE) Fire and Resource Assessment Program (FRAP) database. FRAP summarizes fire perimeter data dating to the late 1800s, but which is incomplete due to the fact that it only includes fires over 10 acres in size and has incomplete perimeter data, especially for the first half of the 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 the CalFire FRAP database, as detailed in Appendix B, Fire History, three fires burned within 5 miles of Project site in the years 1948, 1967, and 1982, but no fires have burned on or adjacent to the Project area since the area has been developed. The 2017 Canyon II fire burned 9,180.03 acres and was contained approximately .75 miles east of the Project site.

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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 the fire that would be expected adjacent to the development 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 behavior².

3.2 Fire Behavior Modeling Analysis

An analysis was conducted to evaluate fire behavior variables and to objectively predict flame lengths, intensities, and spread rates for two modeling scenarios, including one summer, onshore weather condition (southwest of the site) and one extreme fall, offshore weather condition (northwest of the site). These fire scenarios incorporated observed fuel types representing the dominant vegetation representative within and adjacent to the development site, in addition to slope gradients, wind, and fuel moisture values for both the 50th percentile weather (summer, onshore winds) and the 97th percentile weather (fall, offshore winds). Modeling scenario locations were selected to better understand different fire behavior that may be experienced on or adjacent to the site.

To support the fire behavior modeling, 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. Vegetation types, which were derived from the field assessment, were classified into a fuel model. Fuel models are selected by the vegetation type, fuel stratum most likely to carry the fire, and depth and compactness of the fuels. Fire behavior modeling was conducted for vegetative types that are both on and adjacent to the proposed development. Fuel models were also assigned to illustrate post-Project fire behavior changes, but given the site has already been developed, the pre- and post-Project fuel model selection would be the same. Fuel models were selected from Standard Fire Behavior Fuel Models: a Comprehensive Set for Use with Rothermel's Surface Fire Spread Model (Scott and Burgan 2005). Fuel models were also assigned to the fuel FMZs to illustrate post-Project fire behavior changes. Based on the anticipated existing and post-Project vegetation conditions, six different fuel models were used in the fire behavior modeling effort presented herein. Fuel model attributes are summarized in Table 1.

Table 1. Fuel Models Used for Fire Behavior Modeling

Fuel Model	Description	Location of Fuel Models	Fuel Bed Depth (Feet)
Existing Conditions			
GS2	Moderate-load, Dry climate grass-shrubs	Represents the grass-shrub vegetation located in the northern portion of Deer Canyon Park.	1.5 ft.
SH5	High-load, Dry Climate Shrubs	Represents the shrubs/chaparral vegetation southwest of the Project in Deer Canyon Park	6.0 ft.
FM8	Compact Litter	Irrigated landscape throughout the Project site	0.2 ft.

² A discussion of fire behavior modeling is presented in Appendix C, Fire Behavior Modeling.

Table 1. Fuel Models Used for Fire Behavior Modeling

Fuel Model	Description	Location of Fuel Models	Fuel Bed Depth (Feet)
NB	Non-burnable	Parking lot areas and roadways throughout the development.	0 ft.
Post-Development Conditions			
FM8	Compact Litter	Irrigated landscape throughout the Project site	0.2 ft.
NB	Non-burnable	Parking lot areas and roadways throughout the development.	0 ft.

A total of two fire modeling scenarios were completed for the development area. These sites were selected based on the low probability of a fire approaching from these directions during a Santa Ana wind-driven fire event (fire scenario 1) and an onshore weather pattern (fire scenario 2). Weather conditions were generated using data from a local Remote Automated Weather Station and utilizing the Fire Family Plus software to generate climatic average (50th percentile) and extreme (97th percentile) weather and fuel conditions to use as inputs in the fire behavior modeling software.

3.3 BehavePlus Fire Behavior Summary

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.

The results of fire behavior modeling analysis for pre- and post-Project conditions are presented in Tables 2 and 3, respectively. Identification of modeling run (fire scenarios) locations is presented graphically in Figure 5, BehavePlus Analysis Map.

Fire Scenario locations and descriptions:

- **Scenario 1.** Fire flaming front approaching from the northwest in Deer Canyon Park beyond existing development toward the northwest Project boundary.
 - Existing conditions:
 - Offsite: Moderate-load grass-shrub vegetation in Deer Canyon Park with South Festival Drive and existing apartments and a hotel between the Project and the park.
 - Onsite: Stucco structures, an asphalt parking lot, and maintained, irrigated landscaping.
 - Post-Project conditions: Paved roadways and maintained, irrigated landscaping around and throughout a large, stucco residential building.

- **Scenario 2.** Fire flaming front approaching from the southwest in Deer Canyon Park beyond existing development toward the southwestern of the property.
 - Existing conditions:
 - Offsite: High-load shrub vegetation in Deer Canyon Park with existing apartments and South Festival Drive between the Project and the park.
 - Onsite: Stucco structures, an asphalt parking lot, and maintained, irrigated landscaping.
 - Post-Project conditions: Paved roadways and maintained, irrigated landscaping around and throughout a large, stucco residential building.

3.3.1 Existing Condition

Based on the BehavePlus analysis result presented below and in Tables 2 and 3, wildfire behavior through the grass-shrub dominated fuels northwest of the Project pushed by Santa Ana winds typically exhibit very high fire behavior, extreme rates of spread, and spotting distances of a mile due to the strong gusts associated with the wind event. The onsite vegetation would have low fire behavior and low to moderate rates of spread with a spotting distance of about a quarter of a mile.

A fire under summer onshore winds southwest of the Project site in the shrub dominated fuels is expected to be primarily of extreme fire behavior and rates of spread with spotting distances just under a mile. The onsite vegetation would support low fire behavior and low to moderate rates of spread with spotting distances of a tenth of a mile.

Table 2. RAWS BehavePlus Fire Behavior Model Results - Existing Conditions

Fire Scenarios	Flame Length ¹ (feet)	Fireline Intensity ¹ (BTU/feet/second)	Spread Rate ¹ (mph ²)	Spotting Distance ¹ (miles)
Scenario 1: Fall off-shore winds (97th percentile) – (NW of the site)				
(Offsite) Moderate-load grass-shrub (GS2)	14.6	1,921	2.4	1.0
(Onsite) Compact Litter (FM8)	2.6	46	0.1	0.3
Scenario 2: Summer on-shore winds (50th percentile) – (SW of the site)				
(Offsite) High-load shrubs (SH5)	25.0	6,207	2.2	0.9
(Onsite) Compact Litter (FM8)	1.8	21	0.1	0.1

Notes:

- ¹ Wind-driven surface fire.
- ² MPH=miles per hour.
- ³ Spotting distance from a wind driven surface fire

3.3.2 Post-development Condition

As presented in Table 3, Fire Behavior Modeling Results for Post-Project Conditions, Dudek conducted modeling of the Project site for post-Project fuel conditions for the Project. Given the Project will have maintained, irrigated landscaping as the current development does, the fuel models and expected fire behavior are the same for existing onsite fire scenarios and post-development conditions. During an extreme wind event, the onsite vegetation would have low fire behavior and low to moderate rates of spread with a spotting distance of about a quarter of a mile.

While during an average summer onshore wind, the onsite vegetation would support low fire behavior and low to moderate rates of spread with spotting distances of a tenth of a mile.

Table 3. 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 ²)	Spotting Distance ¹ (miles)
Scenario 1: Fall off--shore winds (97th percentile) – (NW of the site)				
Irrigated Landscaping (FM8)	2.6	46	0.1	0.3
Non-burnable	N/A	N/A	N/A	N/A
Scenario 2: Summer on--shore winds (50th percentile) – (SW of the site)				
Irrigated Landscaping (FM8)	1.8	21	0.1	0.1
Non-burnable	N/A	N/A	N/A	N/A

Notes:

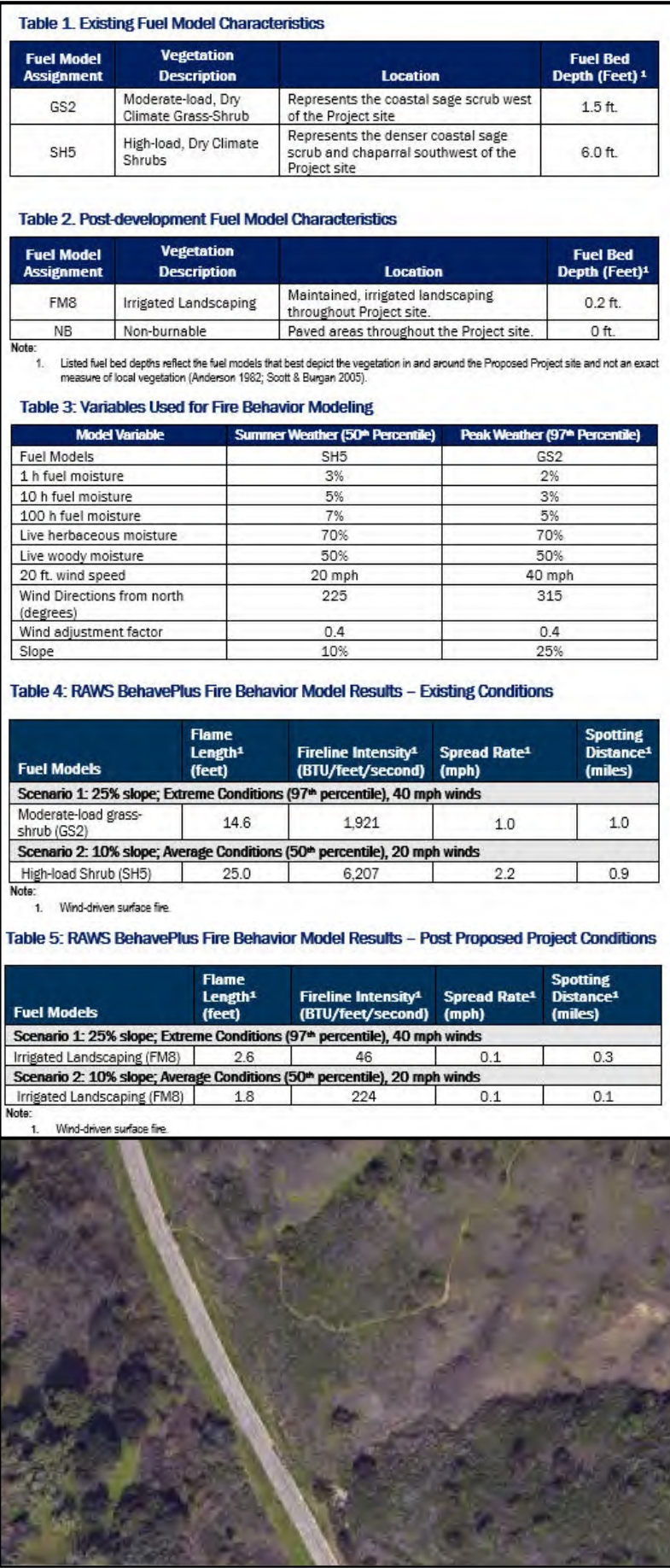
- ¹ Wind-driven surface fire.
- ² MPH=miles per hour.
- ³ Spotting distance from a wind driven surface fire

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.

3.4 Project Area Fire Risk Assessment

Deer Canyon Park represents the most substantial wildfire hazard to the Project. There are chances for ignition in the area with frequent recreation, powerlines, and East Santa Ana Canyon Road at the northern end of the park. An ignition in the existing fuels, under the right conditions, could support extreme fire behavior as modeled. However, the Project is not viewed as a high risk as there is a minimum of 400 feet between the Project and this wildland area, while flame lengths in the park measure 25 feet tall at maximum. The buffer between the Project and Deer Canyon Park is comprised of existing development in the form of apartments and a hotel. These developments have maintained, irrigated vegetation. The probability of a wildland fire entering these developed areas, becoming a conflagration, and spreading to the Project is unlikely. The greatest hazard to the Project would be from embers produced from a wildland fire in the park; according to the fire behavior modeling performed, embers could be carried over existing development to the Project site, however, irrigated landscaping on-site does not present an opportunity for the embers to take hold.



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4 Emergency Response and Service

The following sections analyze the Project in terms of current AFR Fire Service capabilities and resources to provide Fire Protection and Emergency Services. The analysis that follows examines the ability of the existing nearby AFR fire stations to adequately serve the proposed Project site. Response times were evaluated using Project build-out conditions. It was assumed that phased construction would include access roads to the newly constructed structures and that the shortest access route to those structures would be utilized.

4.1 Emergency Response

The Project is located within the Anaheim Fire and Rescue jurisdictional response area. AFR provides fire, emergency medical, and rescue services from 11 stations. The Department serves nearly three hundred fifty thousand residents throughout the city. AFR Station 10 would provide the initial response to the Project site and AFR Station 9 is within approximately 3.1 miles of the Project site and would be available to provide a secondary response to the site, if needed.

AFR Station No. 10, located at 8270 E Monte Vista Rd, Anaheim, California is the closest AFR station and would provide initial response to the Project site. AFR Station 10 is equipped with a Type 3 engine, and a ladder truck. AFR Station 10 is typically staffed with at least 1 paramedic. Additionally, AFR Station 9 located at 6300 Nohl Ranch Rd, Anaheim, California is the next closest AFR Station. Station 9 is equipped with a ladder truck, a Type 3 Engine, an Ambulance, and an engine reserve. An additional truck is stationed at Orange County Fire Authority (OCFA) Station 32 and could provide an additional response.

Table 4 provides a summary of the location, equipment, and staffing levels for the two closest existing AFR Stations and the location of the next two closest fire stations which are part of the Orange County Fire Authority (OCFA) and could provide an additional response through existing mutual aid agreements.

Table 4. Closest AFR/OCFA Responding Stations Summary

Station	Location	Equipment	Staffing*
AFR Station 10	8270 E. Monte Vista Road Anaheim, California 92807	(1) Type 3 Engine (1) Paramedic Truck 10	One 4-person engine company (1 Captain, 1 Engineer, 2 Firefighters)
AFR Station 9	6300 E. Nohl Ranch Road Anaheim, California 92807	(1) Paramedic Engine 9 (1) Type 3 Engine	One 4-person engine company (1 Captain, 1 Engineer, 2 Firefighter-Paramedics)
Orange County Fire Authority Station 32	20990 Yorba Linda Blvd, Yorba Linda, California	Truck 32 Medic Engine 32 Engine 132	2 Fire Captains, 2 Fire apparatus Engineers, 4 Firefighters
Orange County Fire Authority Station 53	25415 E. La Palma Ave, Yorba Linda, California	Medic Engine 53 Engine 353	1 Fire Captain, 1 Fire Apparatus engineer, 2 Firefighters

Source:

* Staffing levels and equipment from Anaheim Fire & Rescue Standards of Cover 2017-2022 and the OCFA Operations webpage.

** AFR Station 10 equipment and paramedic staff confirmed via phone call with Rosa from AFR on December 4, 2024.

4.1.1 Emergency Response Travel Time Coverage

In an effort to understand fire department response capabilities, Dudek conducted an analysis of the travel-time response coverage from the closest responding AFR and OCFA Fire Stations (AFR Fire Station 10 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 5 and 6 present tabular results of the emergency response time analysis using the distance at speed formula and the ISO formula, respectively.

Table 5. Project Emergency Response Analysis using Speed Limit Formula

Station	Travel Distance to Project	Travel Time to Project ¹	Maximum Travel Distance ²	Maximum Travel Time	Total Response Time ³
AFR Station 10	0.7	1 minutes 12 seconds	1	1 minutes 43 seconds	3 minutes 43 seconds
AFR Station 9	3.1	5 minutes 19 seconds	3.4	5 minutes 50 seconds	7 minutes 50 seconds
OCFA Station 32	3.1	5 minutes 19 seconds	3.4	5 minutes 50 seconds	7 minutes 50 seconds
OCFA Station 53	3.5 miles	6 minutes	3.7 miles	6 minutes 21 seconds	8 minutes 21 seconds

Notes:

- ¹ Assumes travel distance and time to the Project entrance nearest the 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.
- ² Assumes travel distance and time to the furthest point within the project development 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, and does not include turnout time.
- ³ Emergency response time target thresholds include travel time to furthest point within the project development 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 6. Project Emergency Response Analysis using ISO Formula

Station	Travel Distance to Project	Travel Time to Project ¹	Maximum Travel Distance ²	Maximum Travel Time	Total Response Time ³
AFR Station 10	0.7 miles	1 minutes 50 seconds	1 miles	2 minutes 41 seconds	4 minutes 41 seconds
AFR Station 9	3.1 miles	5 minutes 55 seconds	3.4 miles	6 minutes 26 seconds	8 minutes 26 seconds
OCFA Station 32	3.1 miles	5 minutes 55 seconds	3.4 miles	6 minutes 26 seconds	8 minutes 26 seconds

Table 6. Project Emergency Response Analysis using ISO Formula

Station	Travel Distance to Project	Travel Time to Project ¹	Maximum Travel Distance ²	Maximum Travel Time	Total Response Time ³
OCFA Station 53	3.5 miles	6 minutes 36 seconds	3.7 miles	6 minutes 56 seconds	8 minutes 56 seconds

Notes:

- ¹ Assumes travel distance and time to the Project entrance nearest the fire station, and application of the ISO formula, $T=0.65+1.7(\text{Distance})$, 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 from fire station, and application of the ISO formula, $T=0.65+1.7(\text{Distance})$, 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 from fire station, and application of the ISO formula, $T=0.65+1.7(\text{Distance})$, a 35 mph travel speed along with dispatch and turnout time, which can add an additional two minutes to travel time.

Emergency response time target thresholds include travel time along with dispatch and turnout time, which can add two minutes to travel time. AFR has a response time standard of 7 minutes and 15 seconds for emergency medical services calls and 7 minutes and 35 seconds for structure fire calls (AFR, 2017). AFR Fire Station 10 would provide an initial response as the closest existing AFR fire station. As indicated in Tables 5 and 6, the total response time from Station 10 to the furthest point within the Project development does conform both AFR standards and is estimated to arrive within approximately 3 minutes and 43 seconds (Speed Limit Formula) or 4 minutes and 41 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 minimum requirement.

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.

The AFR documented 36,750 total incidents for 2022 generated by a city-wide service area total population of approximately 344,461 persons (City of Anaheim, 2022; U.S. Census Bureau, 2023). The City's per capita annual call volume is approximately 107 calls per 1,000 persons. The resulting per capita call volume is 0.107. Using the AFR's estimated call volume, the Project's estimated population is calculated to generate up to approximately 144 calls per year (approximately 3 call per week). The population includes approximately 1,350 residents for up to 447 units (including 3.02 persons per unit x 447 DU=1,350 persons) (State of California, 2024). Most of the calls generated by the Project are expected to be medical-related calls, consistent with typical emergency call statistics.

Table 7. Calculated Call Volume Associated with the Project

Emergency Calls per 1,000 (County Data)	Number of Residents and Employees	Avg. No. Calls per Year (1,350\1,000) x 107	Avg. No. Calls per Week (144/52)
107	+/-1,350	144	3

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 2016³ Station 10, the primary responding station for the Project, responded to approximately 1,619 incidents with an approximate call volume of 4 to 5 calls a day.

The Anaheim Hills Festival Project includes approximately 447 residential units, and it's projected to add up to approximately 159 calls per year (approximately 3 calls per week), mostly medical, within Station 10's first-in response jurisdiction. The addition of approximately 159 calls per year is not considered a substantial impact given Station 10's annual call volume of approximately 1,619 calls per year. A busy urban 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 slightly raise the overall call volume but is not anticipated to impact the existing fire station to a point that they cannot meet the demand. Station 10 would respond to an additional approximately 159 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.

³ The most recent station-specific call data found for AFR is for 2016 in the 2017-2022 Standards of Cover.

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5 Fire Safety Requirements

This FPP demonstrates that the Project development would comply with applicable portions Anaheim Fire & Rescue Specifications and Requirements and applicable portions of the Anaheim Municipal Code, Title 16, Chapter 16.08, which adopts the 2022 edition of the California Fire Code (CFC with amendments. Furthermore, the Project will be consistent with applicable portions of Title 15 – Building and Housing, which adopts the 2022 edition of the California Building Code (CBC). 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. Appendix C serves as a Conceptual Fire Master Plan that illustrates many of the concepts listed herein.

5.1 Access

Access to the Project will be provided via South Festival Drive. The northwestern access will have a roundabout turnaround with exclusive emergency vehicle access branching northeast from this turnaround in order to achieve minimum access distance requirements on the northern portion of the building. The other access point will be between the Project and the existing fitness center.

Project site access, including road widths and connectivity, will comply with the requirements of the Road Circulation and Design Guidelines and applicable codes, including:

- Interior circulation streets 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.
- Roadways and/or driveways 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 AFR leading from fire apparatus access roads to exterior openings (CFC 504.1).
 - The Interior Courtyard cannot be reached within 150 feet, therefore, standpipes will be installed in the Courtyard (See AM&M Section 6).
- 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 AFR official (CFC 503.4).

The Project is required by section 503.1.2 of the adopted fire code to have at least two access points. The Project provides this and those access points surpass the requirement of needing to 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 (503.1.2).

5.1.1 Roads

- All fire access roads associated with the Project will be in compliance with the Anaheim Fire & Rescue Road Standards and Standard Specifications, the Anaheim Municipal Code Chapter 16.08, the 2022 California Fire Code, AFR Specifications and Requirements, and all other applicable codes.

5.1.1.1 Maximum Dead-End Road (cul-de-sac) Length

- Fire apparatus access roads in excess of 150 feet in length shall be provided with an approved turnaround area. The emergency vehicle access on the northeastern side of the building appears to be close to the 150 feet maximum. If the maximum is surpassed, an approved turnaround must be added unless there is special approval by an AFR official. The first option is a cul-de-sac which must have a 76-foot-diameter turning radii compliant to that stated in section 5.1.1.2, no parking permitted, and the area shall remain clear of all permanent or immovable structures or obstructions. The second option is a hammerhead turnaround with a minimum lane width of 28 feet with the top of the “T” being 80 feet long, 40 feet off center in each direction with code compliant turning radii (CFC Section D103.4; AFR Specifications and Requirements).

5.1.1.2 Road Surface and Grade

Fire access roads shall 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 shall comply with access road standards of the capability of supporting an imposed load of at least 78,000 pounds (AFR Specifications and Requirements).
- 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, AFR Specifications and Requirements).
- Unless otherwise approved, the grade of a fire apparatus access road shall not exceed 10% (CFC Section D103.2; AFR Specifications and Requirements).

The fire access road will comply with the minimum required turning radius of a fire apparatus access road of 17.5 feet for a 20-foot access way. City of Anaheim Engineering Standards can be referenced for further detail (AFR Specifications and Requirements).

5.1.1.3 Width and Clearance

Fire apparatus access roads shall 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 shall comply with the following requirements:

- Fire apparatus access roads shall have an unobstructed width of not less than 26 feet, exclusive of shoulders, and an unobstructed vertical clearance of not less than 14 feet. (CFC 503.2.1, AFR Specifications and Requirements).
- A minimum width of 8 feet must be added when parking is proposed to a single side and a minimum of 16 feet must be added when parking is added to both side of a fire access road. (AFD Specifications and Requirements).

Parking exists adjacent to the fire access lanes of the Project. While the requirements given by the AFR do not specify type of parking, such codes typically refer to parallel parking on the fire access road. Given the parking of the Project is removed from the 26-foot width access way, no additional width is needed to be added.

5.1.1.4 Aerial Fire Apparatus Access Roads

As directed by the AFR Emergency Vehicle Access (EVA) Standard, the height of the Project buildings necessitates the use of aerial fire apparatus access roads. Currently, there are five planned laddering locations. These are at the northwestern corner, the northern side, the eastern corner, the southern corner and the southwest side. There are two separate roof levels for the building corresponding to the northern and southern portions.

- Where the vertical height of a building exceeds 30 feet or 3 stories, approved aerial fire apparatus access roads shall be provided (AFR EVA Standard).
- Aerial fire apparatus access roads for the Project shall have a minimum unobstructed width of 26 feet, exclusive of shoulders, in the immediate vicinity of the building or portion thereof (AFR EVA Standard).
- Aerial fire apparatus access roads road shall be a minimum of 10 feet from the building and not greater than 30 feet from the building and shall be positioned parallel to one entire side of the building. (AFR EVA Standard).
 - While there is a full width aerial fire apparatus access road along the entire western, southern, and eastern sides of the building, no full length of any of them are within the required distance range from the exterior of the building. However, three of the five planned laddering locations are within the required setback range. Laddering Locations labeled as D and E on Appendix C are 31 and 43.5 feet from the building respectively. Laddering angle analyses have been performed for each location and are attached as Appendix C. (See AM&M Section 6)
- Given the building is four or more stories above grade plane with a roof slope at or below 33.3 percent, the building is provided with stairways to the roof. The stairways shall be marked at street and floor levels that they continue to the roof (CFC 504.3). The stairways will be in compliance with Section 1011.12 of the CFC and Section 1511.12 of the CBC.

All buildings equipped with openings, as required by the Fire and Building Code, shall be provided with an approved direct access route from the fire access road to accommodate fire department operations. The access route shall be a minimum of 6 feet in width and be designed to accommodate a 21-foot fire department ladder. A clear area of at least 8 feet in width shall be maintained free of permanent obstructions below all required rescue windows to allow for fire department ladder placement. (AFR EVA Standard).

Approved signs or other approved notices or markings that include the words “NO PARKING – FIRE LANE” shall be provided for fire apparatus access roads to identify such roads and prohibit the obstruction thereof (CFC 503.3). Under circumstances where parking is not permitted along a fire access road, the no parking area will be identified by means approved by AFR.

5.1.2 Gates

The only gates planned on interior roadways of the Project are those at the entrance to the central parking garage. The fire access lane around the perimeter of the building does not have any gates planned. Any gates included in future plan iterations would be in compliance with applicable codes. Gates on private roads are permitted, but subject to Fire Code requirements and standards, including:

- Gates shall open to a minimum clear width of 20 feet or when separate gates are provided for ingress and egress, gates may be a minimum width of 12 feet each (AFR EVA Standard). 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.

- Electrically operated gates shall be provided with a Knox override switch located on the entry side of the gate in an approved location. Manually operated gates shall be provided with a Knox padlock. In addition, all electrically operated gates providing fire access to greater than twenty residential units, or when otherwise required by the Chief, shall be provided with an approved remote opening-preemptive system that is controlled by either public safety radio frequency or optical emitter (AFR Specifications and Requirements).
- Speed bumps and directional barriers such as spikes are not permitted in fire access roads (AFR Specifications and Requirements).
 - 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). 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).

5.1.3 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 described in Section 5.1.1.

5.1.4 Premises Identification

Identification of roads and structures will comply with Anaheim building standards as well as the CFC Section 505, as follows:

- New and existing building(s) shall be provided with approved address identification. Address identification shall be placed on the address side of the building unless otherwise directed by the fire code official. Address identification shall contrast with their background. Each character shall be not less than 8 inches high, adding an additional 1 inch for every 10 feet of setback distance from the street. Additional address identification shall be provided at the discretion of the fire code official (AFR EVA Standard).
- Streets and roads shall be identified with approved signs. Temporary signs shall be installed at each street intersection when construction of new roadways allows passage by vehicles. Signs shall be of an approved size, weather resistant and be maintained until replaced by permanent signs (CFC 505.2).

5.1.5 Ongoing Infrastructure Maintenance

Project Owner/Property Management Company shall be responsible for long term funding and maintenance of fuel modification zones, however this responsibility may be transferred to the tenant by an appropriate lease agreement.

5.1.6 Pre-Construction Requirements

Prior to bringing lumber or combustible materials onto the Project site, improvements within the active development area shall be in place, including operable fire hydrants and an approved, temporary roadway surface. These features will be approved by the fire department or their designee prior to combustibles being brought on-site.

A preconstruction meeting with the Anaheim Fire Rescue Community Risk Reduction Division is advised, prior to start of underground installation.

5.2 Ignition Resistant Construction

There are two primary concerns for structure ignition: 1) radiant and/or convective heat and 2) burning embers, which have been a focus of building code updates for at least the last decade. Therefore, all new structures will be constructed to City of Anaheim Municipal Fire Code standards, and 2022 CFC standards (or then current edition) for development in a VHFHSZ. Each of the proposed structures will comply with defensible space and the enhanced ignition-resistant construction standards of Chapter 7A of the California Building Code and Chapter 49 of the California Fire Code. These requirements address 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. New development in the WUI, built to these codes, have proven to be very ignition resistant, limiting structure losses, as seen in Orchard Hills community during the 2020 Silverado Fire and others.

5.3 Fire Protection Systems

5.3.1 Water Supply

The City of Anaheim, specifically Anaheim Public Utilities, provides water services for the City, including the Anaheim Hills area. The Project site is currently developed with existing water infrastructure. Project implementation would require new points of connection to existing infrastructure on Festival Drive. Specifically, a proposed 8-inch water line would connect to the public water main in Festival Drive.

An AFR 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). The standpipe system provided for the Project shall be in compliance with Section 905 of the CFC.

5.3.2 Hydrants

Fire Hydrants shall be located along fire access roadways and adjacent to each structure, as determined by the AFR Fire Marshal and current fire code requirements to meet operational needs. Fire Hydrants will be consistent with applicable codes and Design Standards, inclusive of the following (AFR Specifications and Requirements):

- No structures or external portions thereof shall be more than 300 feet travel distance from a fire hydrant. All hydrants, public or private, shall be installed in accordance with the City of Anaheim Water Engineering Standard W-110, with the following exceptions:
 - Private on-site fire hydrants shall be located at least 40 feet from any structure where possible and identified by installation of blue reflective markers.
 - Private on-site fire hydrants shall be located no closer than 24 inches and no more than 26 inches from the face of the curb to the center of the hydrant barrel.

Protective devices (curbs, rails, concrete-filled pipes, etc.) shall be provided to protect all fire hydrants from vehicular traffic where adjacent to vehicular access ways. Such devices shall not obstruct use of the hydrant connections. Three (3) feet of clearance must be provided around all hydrants.

5.3.3 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 AFR, and National Fire Protection Association (NFPA) Standard 13. Fire sprinkler plans for each structure will be submitted and reviewed by AFR for compliance with the applicable fire and life safety regulations, codes, and ordinances.

5.4 Defensible Space and Vegetation Management

5.4.1 Defensible Space

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 Project.

5.4.2 Fuel Modification Zone Requirements

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. A typical landscape/fuel modification installation consists of a 100-foot-wide fuel management zone from each structure extending outward towards undeveloped 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 exterior wall designs to be implemented on the proposed buildings.

The conceptual FMZ map is presented graphically for the Project in Figure 6 (Fuel Modification Plan). FMZs will be implemented according to AFR and CAL FIRE requirements for the entire Project. Based on the Project's site plan, the Project will provide 100 feet of Zone 1 FMZ, or the equivalent, which consists of asphalt roadways and an irrigated landscape.

5.4.2.1 Conceptual Fuel Modification Zone Description

As required by the Anaheim Fire Code for development in a VHFHSZ, new development is required to implement the following Fuel Modification Zones:

Zone 1: 0 to 30 feet from a structure

- Zone 1 is applicable site wide and is an irrigated, limited planting area measured from the outermost edge of the structure outward to 30 feet (horizontal), or to the property line in all directions.
- Includes intensive year-round maintenance, removal of dead or dry vegetation and branches.
- Fire-resistant plants and landscaping

Zone 2: 30 to 100 feet from a structure

- Zone 2 is applicable site wide and is a maintained area measured horizontally from the outer edge of Zone 1 to 100 feet from the structure or property line, whichever is first.
- Zone 2 recommendations from CAL FIRE include trimming grass to a maximum of 4 inches, spacing out shrubs and trees horizontally, ensuring vertical space between vegetation, removed fallen leaves and branches.

For the proposed Project, which is within the Anaheim Hills Festival Shopping Center, there is limited native vegetation adjacent to the Project site, with the closest unmaintained vegetation associated with Deer Canyon approximately 560 feet to the west. As described above, The Project site is predominantly non-combustible as a product of development in the form of asphalt parking with several stucco buildings. The proposed landscaping within the Project site would be irrigated, maintained and would function as Zone 1, or equivalent. Therefore, the entirety of the Project site is proposed as Zone 1, with reciprocal fuel modification along Festival Drive (Figure 6, Project Fuel Modification Zones. 5.4.3 Prohibited Plants

5.4.3 Prohibited Plants

Certain plants are considered to be undesirable 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 AFR's Recommended Acceptable Fire Resistive Plant Species list are unacceptable from a fire safety standpoint and would not be planted on the site or allowed to establish opportunistically within the FMZs. AFR provides a description of undesirable and invasive plant species that are not recommended for high wildfire potential areas.

5.4.4 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.

5.4.5 Annual Fuel Modification Zone Compliance Inspection

To confirm that the Project's FMZs and landscape areas are being maintained according to the AFR's and this FPPs standards, AFR inspectors, or a mutually agreed upon third party, would perform an annual inspection. If the FMZ areas are not compliant, the management company will have a specified period to correct any noted issues so that a re-inspection can occur, and certification can be achieved. Re-inspection fees are established, billed, and collected by the City of Anaheim as described in Title 16 of the Anaheim Municipal Code.

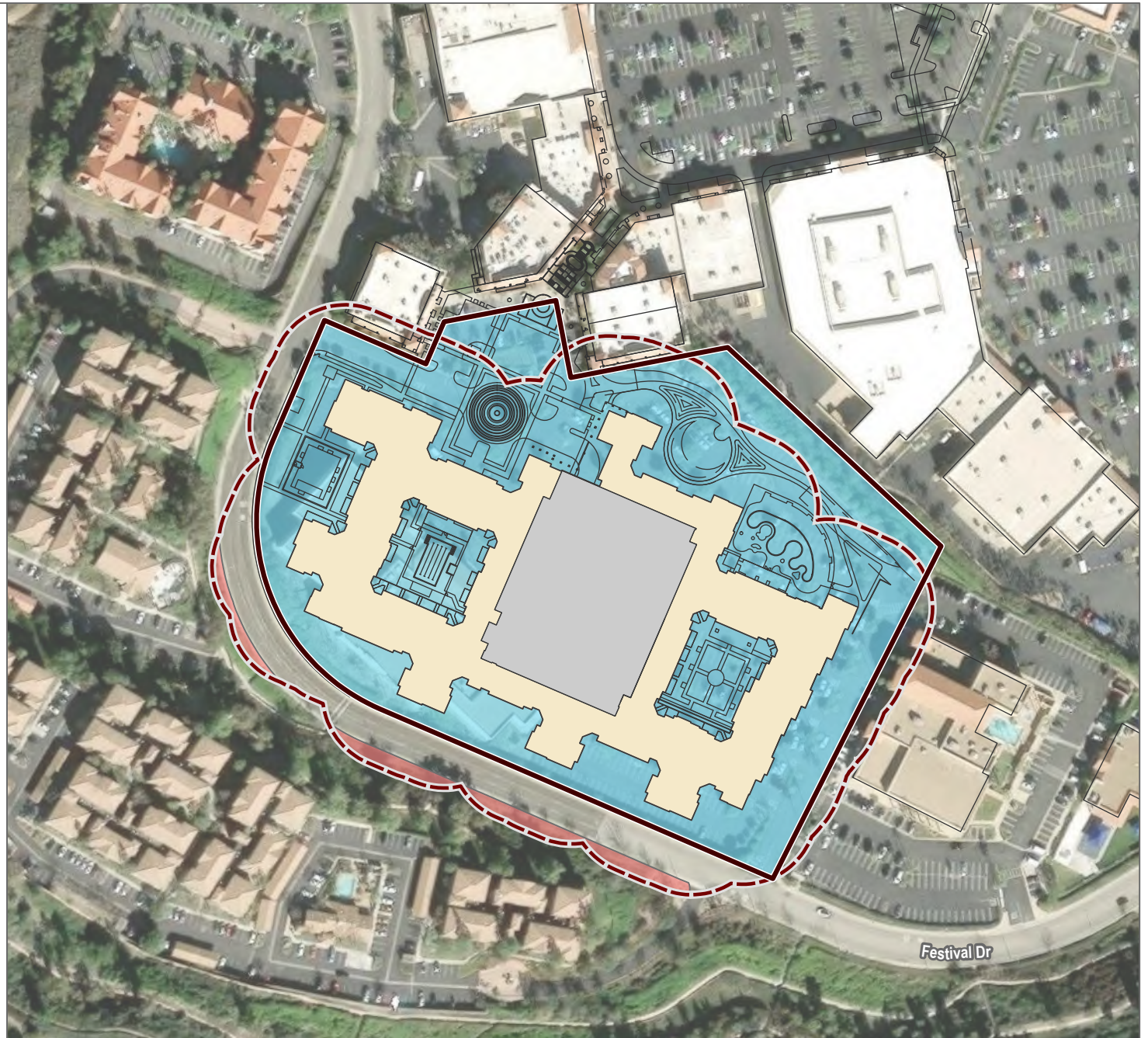
5.5 Emergency Access Key Box

An emergency access key box provides a secure central location for first responders to access keys to the building and all utility rooms by a uniform key specific to the city or county. Anaheim Fire Rescue Department uses the Knox Rapid Entry system; a Knox Box will be installed in accordance with the adopted fire code.

5.6 Emergency Responder Radio Coverage System

Approved in-building, two-way emergency communication coverage for emergency responders shall be provided. In-building, two-way emergency responder communication coverage shall be based on the existing coverage levels of the public safety communication systems utilized by the jurisdiction, measured at the exterior of the building, or as determined by an FCC Technician. This section shall not require improvement of existing public safety communication systems. In addition, the emergency responder radio coverage system shall comply with the requirements of the Orange County Sheriff's Department, Communications and Technology Division.

-  Project Boundary
-  Structure
-  Parking Structure
-  Zone 1 (irrigated)
-  Off-Site FMZ Equivalent Zone
-  100-Ft Buffer from structure



SOURCE: ESRI BASEMAPS (Accessed: 2025); DEVELOPMENT- AO Architecture 2025

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6 Alternative Materials and Methods

As identified in Section 5 of this FPP, the Project does not comply with two AFR requirements, specifically:

1. CFC Section 503.1.1 requires fire apparatus access roads to be provided within 150 feet of every portion of the perimeter of the building as measured by an approved route. As indicated on Sheet A1.6 of Appendix C, portions of the first floor are located more than 150 feet from an access road.
2. The AFR EVA standard requires an aerial fire apparatus access road positioned parallel to one entire side of the building setback 10 to 30 feet from the building. As indicated on Sheet A1.6 of Appendix C, there is a full width aerial fire apparatus access road along the entire western, southern, and eastern sides of the building but no full length of any of them are within the required distance range from the exterior of the building.

As described by AO Architects on sheet A1.7 of Appendix C, the proposed AM&M to satisfy the intent of the hose-pull requirement and the aerial fire apparatus access road setback are as follows:

1. Fire walls will be constructed to compartmentalize the building, creating separate areas. In portions of the building where distances of exterior walls exceed the 150-foot access to fire apparatus road, fire walls have been used to create separate compartments, smaller than required per CBC 2022 Table 503. The residential building has been compartmentalized into 9 fire separation areas, including reduced fire areas adjacent to the interior courtyards. Refer to sheet A1.8 of Appendix C.
2. Four (4) stairways per building will provide access to the roof per plan. This provision is in excess of only one required per CBC 1011.12. Additionally, roof access is provided through a penthouse, which is beyond the allowance of a roof hatch per CBC 1011.12.2 exception. The roofs are primarily contiguous or unobstructed access to all portions of roof can be accessed at any roof access location. Where a building split level occurs (10' vertical offset) a stationary fire ladder will be provided to access either level.
 - a. NOTE: due to the fact that the lowest 2 levels of the parking structure are subterranean, the topmost parking level elevation is approximate to the topmost residential roof level elevation, providing ease of traversing the roof. Also, the parking garage ramp at the topmost level provides direct walkable access to either side of the vertical split level condition. Refer to sheet A1.7 of Appendix C.
3. All four elevators, per building, will be sized to accommodate a medical stretcher (gurney). This provision is in excess of only one required per CBC 3002.4
4. Provide 2-hour fire resistance rated passageways in the portions where firefighters passed through the building to access into your courtyards. Where this passageway intersects a corridor, a 90-minute assembly will separate and provide an uninterrupted path of travel for said passageway.
5. Driveways adjacent to the residential building provide a 26-foot width for aerial ladder access. This provision is in excess of the minimum fire lane width of 20 feet per CFC.
6. Courtyard standpipes will be installed to provide coverage of the exterior walls within the interior courtyards of the building where located beyond the area covered by the 150 foot hose pull lengths thereby completing coverage of all exterior walls of the building. Said yard hydrants (freestanding or wall mounted) will be tied into the building automatic fire sprinkler system.
7. Aerial laddering diagrams are provided on sheet A1.8 of appendix C to ensure acceptable ladder angle operations.

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7 Analysis of Project Effects

Fire Protection Plans provide an evaluation of the adverse environmental effects a proposed Project may have from wildland fire. While not currently in an area designated as a fire hazard severity zone, as of the most recent Local Responsibility Area maps released by OSFM, the Project is within a designated VHFHSZ within an LRA, with approximately a 2.17-acre portion on the eastern side of the Project designated as a HFHSZ. The Project is located adjacent to other areas designated as in a FHSZ, including the area immediately across South Festival Drive to the west. Section 5, Safety Requirements, of this FPP, describes the Project features designed to ensure that the Project would not unnecessarily expose people or structures to a significant loss, injury or death involving wildland fires. Significance is determined by answering the following guidelines:

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:

Threshold 1: For a Project located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project substantially impair an adopted emergency response plan or emergency evacuation plan?

The Festival Hills Project includes fire access consistent with the Anaheim Fire & Rescue Road Standards and Standard Specifications, the Anaheim Municipal Code Chapter 16.08, the 2022 California Fire Code, AFR Specifications and Requirements, and all other applicable codes. Access to the Project will be provided via South Festival Drive. The northwestern access will have a roundabout turnaround with exclusive emergency vehicle access branching northeast from this turnaround in order to achieve minimum access distance requirements on the northern portion of the building. The other access point will be between the Project and the existing fitness center. Project site access, including road widths and connectivity, will comply with the requirements of the Road Circulation and Design Guidelines and applicable codes as described further in Section 5.1. Therefore, the site's access meets the code's minimum requirements for this Project.

The City's primary document related to emergency and evacuation planning is the 2019 Emergency Operations Plan along with the City's Know Your Way program. The primary objective of the City of Anaheim Emergency Operations Plan (EOP) is to integrate and synchronize all City facilities and personnel into a streamlined structure capable of promptly and efficiently addressing any emergency situation, including the need for evacuations. The EOP outlines the functions of the City of Anaheim Emergency Operations Center (EOC), which serves as the central administrative body responsible for overseeing and harmonizing the emergency response efforts of different City departments and external agencies. The underlying purpose of the plan is to promote collaboration and coordination among multiple agencies and jurisdictions, specifically fostering effective communication and cooperation between the City of Anaheim, Orange County, special districts, volunteer groups, and state agencies during emergency operations.

The City EOP discusses the agencies and organizations typically involved in response actions necessary to implement an evacuation order and their respective roles. In the event of an evacuation, the Incident Command would likely order evacuations of zones. Evacuation Zones can be found at The City of Anaheim Know Your Way website (<https://www.anaheim.net/5204/Know-Your-Way>). Per the Know Your Way program, the Project site is proposed in Zone 8 and evacuations of the Project site will direct evacuations eastward to the CA-91 and then west.

The Project is considered infill development and does not propose changes to the existing circulation system and would not impair the execution of adopted emergency response and operations plans.

Threshold 2: For a Project located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project exacerbate wildfire risks, and thereby expose Project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, and other factors?

As described above, The Project site is predominantly non-combustible as a product of development in the form of asphalt parking with several stucco buildings. The proposed landscaping within the Project site would be irrigated, maintained and does not pose a fire threat. The Project site is flat and already developed. The nearest area of concern when it comes to wildfire is Deer Canyon Park, approximately 0.15 west Project site, and is designated as a VHFHSZ in an LRA. This area is mainly comprised of southern California coastal scrub with non-native grasses and scattered trees and large shrubs. Goats have been used for grazing as a weed abatement effort in recent years and aid in reducing fuel loading and continuity (National Public Radio, 2020). However, given the small size of the multiple access points, high visibility, and rapid emergency response, wildfires in Deer Canyon are considered of low risk and would likely be extinguished quickly. Overall, the Project is considered to be low risk, as it is located at least 400 feet away from the nearby wildland area, where maximum flame lengths in the park reach only 25 feet. The space between the Project and Deer Canyon Park is occupied by existing developments, including apartments and a hotel, which feature maintained, irrigated vegetation. The likelihood of a wildland fire entering these developed areas, escalating into a large-scale event, and reaching the Project is minimal. The primary risk to the Project would come from embers carried by wind from a fire in the park. However, based on fire behavior modeling, while embers could potentially cross the developed areas, the irrigated landscaping on the Project site would prevent them from igniting.

Pollutant concentrations or exposure from a wildfire event near the Project site could occur if the wildfire is not suppressed soon after it starts. Smoke released during a wildfire event can have a detrimental effect on air quality and lead to health risks from smoke inhalation. Risks associated with pollutants at the Project site would be similar to or less than those experienced across Southern California. The likelihood of fire ignition and spread on site would be reduced due to development compliant with all current City and state fire code standards, installation of irrigated landscaping and other Project features. The Project site is a flat, currently developed property surrounded by existing development on all sides, which is not prone to wildfires and would not exacerbate risks from smoke inhalation. Development in the area includes existing roadways, hardscape, and irrigated landscapes, which would act as fuel breaks between the Project site and the WUI. Accordingly, the Project would not worsen the detrimental effect on air quality and health risks from smoke inhalation to users of the site or within the surrounding community.

The Project would result in a population increase at the Project site that have the potential to be exposed to pollutant concentrations from a wildfire event. In areas where the public might be experiencing wildfire smoke, the U.S. Environmental Protection Agency recommends that public health and air quality agencies provide advice on strategies to limit exposure, which include staying indoors, limiting physical activity, reducing indoor air pollution sources, effectively using air conditioners and air filters or cleaners, creating cleaner air shelters, and using respiratory protection appropriately. The most common advisory during a smoke episode is to stay indoors, where people can better control their environment. Whether at home or in a public space, indoor environments that have filtered air and climate control can provide relief from smoke and heat (EPA 2019).

Threshold 3: For a Project located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Wildfire risks are not expected to be exacerbated by the installation or maintenance of planned infrastructure. The existing condition of the Project site is developed, and the Project would not expand the existing development footprint. The Project site is surrounded by development and therefore it would connect to existing infrastructure and utilities in the area. Roads within the Project Site will comply with local and state fire codes to allow adequate emergency access to all structures at the site. Roadside ignitions in the Project Site will be unlikely due to the lack of ignitable fuels along roadways and irrigated landscaping. 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, and an improved temporary roadway surface. These features will be approved by the fire department or their designee prior to combustibles being brought on-site.

The construction and operation of the proposed infrastructure would follow applicable state and local standards regulating fire risk. Due to the Project location being surrounded by existing development and roads, fuel breaks are not required. Project development and associated on-site infrastructure would not exacerbate fire risks.

Threshold 4: For a Project located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Wildfires have the potential to result in secondary impacts or after-effects due to the exposure of bare ground and loss of vegetation, such as flooding, slope instability, post-fire runoff, or drainage changes. These effects often occur on sites with steep slopes but may also include increased sedimentation that could negatively impact downstream drainages.

The Project site is completely flat and does not include steep slopes. The site would be built in an existing development area and would not alter drainage patterns. Additionally, the site is not near any watercourses that would result in post-fire flooding at the Project site. The site does not exist beneath hillslopes that could cause concerns regarding post-fire slope instability.

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8 Conclusion

The requirements and recommendations set forth in this FPP document how the Project conforms with required fire and building codes. As of the most recent maps released by the OSFM, the Project is primarily designated as a VHFHSZ which extends across South Festival Drive to the west. The Project therefore must conform to the codes strictly applying to properties within any SRA FHSZ or a LRA VHFHSZ, the CAL FIRE branch responsible for updating FHSZ maps, FRAP, recently released LRA maps in March of 2025. With the recent update, the majority of the Project is now included in a VHFHSZ thus triggering all applicable Wildland Urban Interface (WUI) codes. When properly implemented on an ongoing basis, the fire protection strategies proposed in this FPP should substantially reduce the potential fire threat to vegetation on the community and its structures, as well as assist AFR in responding to emergencies within the Project site.

Modern infrastructure would be provided, and all structures are required to include interior, automatic fire sprinklers consistent with AFR's regulatory standards. The requirements and recommendations provided in this FPP have been designed specifically for the Anaheim Hills Festival 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. The Project design features aerial access roads and/or standpipe systems within 150 feet of all exterior walls of the structure, automatic fire sprinklers throughout, 2-hour fire rated ingress/egress corridors, fire separation walls, and maintained, irrigated landscaping.

Note that this is a conceptual plan, which provides enough detail for AFR approval. Detailed plans, such as improvement plans and building permits, demonstrating compliance with the concepts in the FPP and with AFR's Fire Code requirements, would be submitted to AFR at the time they are developed. Fire is a dynamic and somewhat unpredictable occurrence and as such, this FPP does not guarantee that a fire will not occur or will not result in injury, loss of life, or loss of property. There are no warranties, expressed or implied, regarding the suitability or effectiveness of the recommendations and requirements in this FPP, under all circumstances.

The Project's developers, contractors, engineers, and architects are responsible for the proper implementation of the concepts and requirements set forth in the FPP. The property managers are also responsible for maintaining their structures and lots, as required by this FPP, the AFR, and as required by the City Fire Code. Alternative methods of compliance with this FPP can be submitted to the fire authority for consideration.

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9 List of Preparers

Project Manager

Michael Huff
Senior Fire Protection Planner
Dudek

Fire Behavior Modeling/Plan Preparer

Noah Stamm
Fire Protection Planner
Dudek

Computer Aided Design/Drafting

Lesley Terry
CADD Specialist
Dudek

Fire Protection Plan Preparer

Austin Ott
Fire Protection Planner
Dudek

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Appendix A

Representative Project Site Photographs



Photograph 1. Overview photograph of South Festival Drive and the landscaping on the southern side of the road. Photograph taken near the southeastern entrance to The Overlook apartment complex on South Festival Drive facing east.



Photograph 2. Overview photograph of the southeastern portion of the Project. Photograph taken near the southeastern entrance to The Overlook apartment complex on South Festival Drive facing north.



Photograph 3. Overview photograph of South Festival Drive near the southeastern corner of the Project. Photograph taken near the southeastern entrance to The Overlook apartment complex on South Festival Drive facing west.



Photograph 4. Overview photograph of the eastern portion of the Project. Photograph taken just southeast of the existing cinema on South Festival Drive facing northeast.



Photograph 5. Overview photograph of the landscaping on the south side of South Festival Drive south of the existing cinema. Photograph taken just southeast of the existing cinema on South Festival Drive facing west.



Photograph 6. Overview photograph of landscaping south of the existing cinema. Photograph taken just south of the cinema facing southeast.



Photograph 7. Overview photograph of landscaping south of the existing cinema. Photograph taken just south of the cinema facing northwest.



Photograph 8. Overview photograph of the northwestern Project entrance. Photograph taken from South Festival Drive facing east-southeast.



Photograph 9. Overview photograph of the southwestern side of the hotels northwest of the Project. Photograph taken from the northwestern entrance to the project facing west-northwest.



Photograph 10. Overview photograph of the northern extent of The Overlook apartment complex adjoining South Festival Drive. Photograph taken from the northwestern entrance to the Project facing west.



Photograph 11. Overview photograph of the eastern portion of the Project. Photograph taken from the center of the Project site facing southeast.



Photograph 12. Overview photograph of the northwestern portion of the Project. Photograph taken from the center of the Project site facing northwest.



Photograph 13. Overview photograph of the southwestern portion of the Project. Photograph taken from the center of the Project site facing west.



Photograph 14. Overview photograph of the northeastern side of the fitness center. Photograph taken from the northeastern corner of the parking lot facing west-northwest.



Photograph 15. Overview photograph of the parking between the fitness and daycare center. Photograph taken from the northeastern corner of the parking lot facing southwest.



Photograph 16. Overview photograph of the area east of the Project. Photograph taken from the northeastern corner of the parking lot facing east.



Photograph 17. Photograph of South Festival Drive east of the Project. Photograph taken from the entrance to the tutoring center facing east-northeast.



Photograph 18. Photograph of the southeastern corner of the project. Photograph taken from the entrance to the tutoring center facing west.

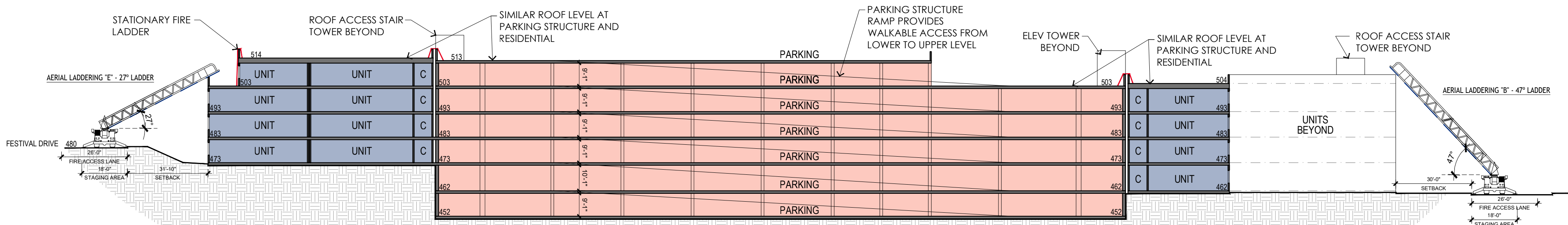
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Appendix B

Fire History Map

Appendix C

Conceptual Fire Master Plan



BUILDING SECTION A-A

LEGEND

- BUILDING FOOTPRINT - RESIDENTIAL R2 OCCUPANCY, 5 STORIES TYPE III-A CONSTRUCTION, SPRINKLERED THROUGHOUT, CONTIGUOUS ROOF SURFACE
- EXIT STAIR (ROOF ACCESS WHERE NOTED)
- 24'-0" WIDE PAVED FIRELANE
- AERIAL TRUCK LADDER ACCESS TO BUILDING
- STATIONARY FIRE LADDER (OVER WALL OR FOR VERTICAL SPLIT LEVEL)



144 N. Orange Street, Orange, CA 92668 714.639.7860 [aorhitects.com](#)

June 19, 2024

City of Anaheim Fire Department
Community Risk Reduction Division
201 S. Anaheim Blvd, Suite 300
Anaheim, CA 92805

SUBJECT:
DEV2022-00043 R2
8020 E. Santa Ana Canyon Road
Multifamily Residential Building - Area DA-5 of Anaheim Hills, S. Festival Drive
Alternative Materials and Methods (AMAM) Proposal

PROJECT INFORMATION:
The project site is a portion of an approximately 16.2 gross acre site located in Area DA-5 of Festival Hills in the City of Anaheim, California and consists of:

One Residential Building (Multifamily apartment):

- One 4-story R2 residential building (Type V-A) sprinklered throughout (NFPA 13)
- 447 full-type apartment units, on-grade
- Possesses two (2) enclosed courtyards
- One 8-level SE partial subterranean parking structure (Type I-A) sprinklered throughout (NFPA 13)
- 554 parking stalls within structure

The walls are interconnected by means of exterior exit balconies and corridors. The building is equipped with "curtney" accessible elevators providing access to all floors, and interior stairways situated around the building which connect each floor and discharge to exit courts and the public way.

The following information is being provided to assist in your evaluation of the proposed AMAM:

- Request:
To permit portions of the first story exterior walls within interior courtyards to be located more than 150' from a fire apparatus access road.
- Code Section for which the modification is requested:
CFC Section 104.10: Fire apparatus access roads (Firelanes) shall be provided within 150' of every portion of the perimeter of the building as measured along an approved route.
Alternative Materials and Methods
CFC Section 103.1.1
- Proposed Alternative fire protection measures:
A. Fire Walls will be constructed to "compartmentalize" building, creating separate areas. In portions of the building where distances of exterior walls exceed the 150' access to fire apparatus road, fire walls have been used to create separate "compartments," smaller than required per CFC 502.2 Table 502. The residential building has been compartmentalized into 3 fire separator areas, including reduced fire areas adjacent to the interior courtyards. (Refer to Sheet A1.8 Fire Access Plan)

Page 1 of 2

B. Four (4) stairways per building will provide access to the roof per plan. This provision is in excess of what is required per CFC 101.1.2. Additionally, roof access is provided through a greenhouse, which is beyond the allowance of a roof hatch per CFC 1011.12.2 exception. The roofs are primarily contiguous where undisturbed access to all portions of roof can be accessed at any roof access location. Where a building split-level occurs (10' vertical offset), a stationary fire ladder will be provided to access either level.

a. NOTE: due to the fact that the lowest 2 levels of the parking structure are subterranean, the top-most parking level elevation is approximately to the top-most residential roof level elevation, providing ease of traversing the roof. Also, the parking garage ramp at the top-most level provides direct walkable access to either side of the vertical split-level condition. Refer to Section AA on Sheet A1.7.

C. All four (4) elevators, per building, will be sized to accommodate a medical stretcher. This provision is in excess of only one required per CFC 3002.4.

D. Provide 2-hour fire resistance rated passageways in the portions where firefighters pass through the building to access the interior courtyards. Where the passageway intersects a corridor, a 90-minute assembly will separate and provide an uninterrupted path of travel for said passageway.

E. Driveways adjacent to the residential building provide a 20' width for aerial ladder access. This provision is in excess of the minimum fire lane width of 20' per CFC.

F. Courtyard Standspipes will be installed to provide coverage of the exterior walls within the interior courtyards of the building where located beyond the area covered by the 150' hose pull lengths thereby completing coverage of all exterior walls of the building. Said yard hydrants (freestanding or wall mounted) will be tied into the building automatic fire sprinkler system.

G. Aerial laddering diagrams are provided on Sheet A1.8 to ensure acceptable ladder angle operations.

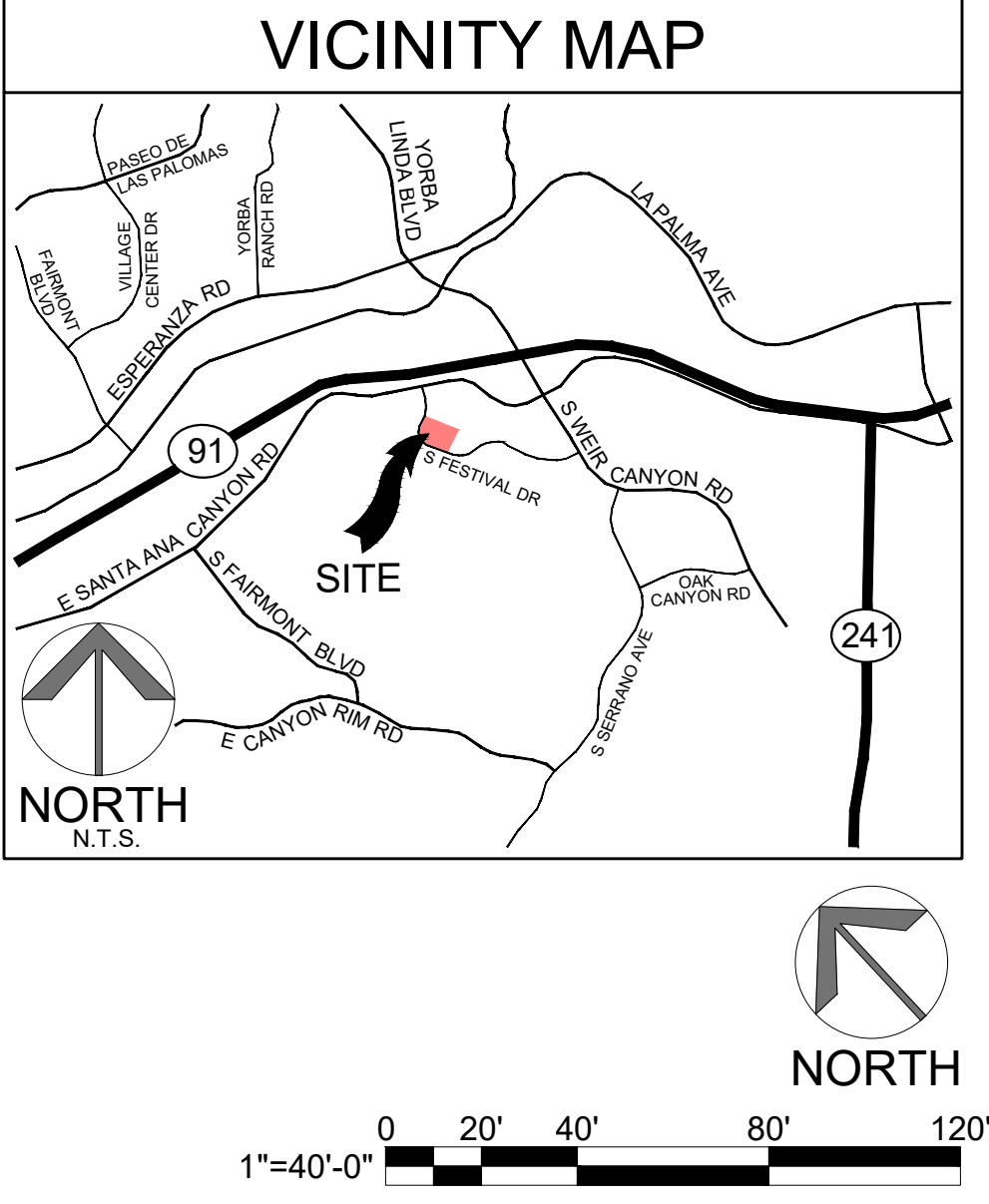
This AMAM proposal and acceptance letter shall be signed onto the Fire Access Plan, specifically Sheet A1.7. (Fire Access Plan consists of 3 sheets within the City submittal, Sheets A1.6, A1.7 & A1.8)

We appreciate your timely and favorable consideration of this proposal and trust that you find the proposed items provide an equivalent level of protection. If you have any questions, please do not hesitate to contact me at 714-639-8860 (mobile) or 714-639-7764 (office).

We acknowledge that any changes to the plan as submitted, or coordination with other disciplines which would require plan modification, may be subject to re-review by City of Anaheim fire Department staff.

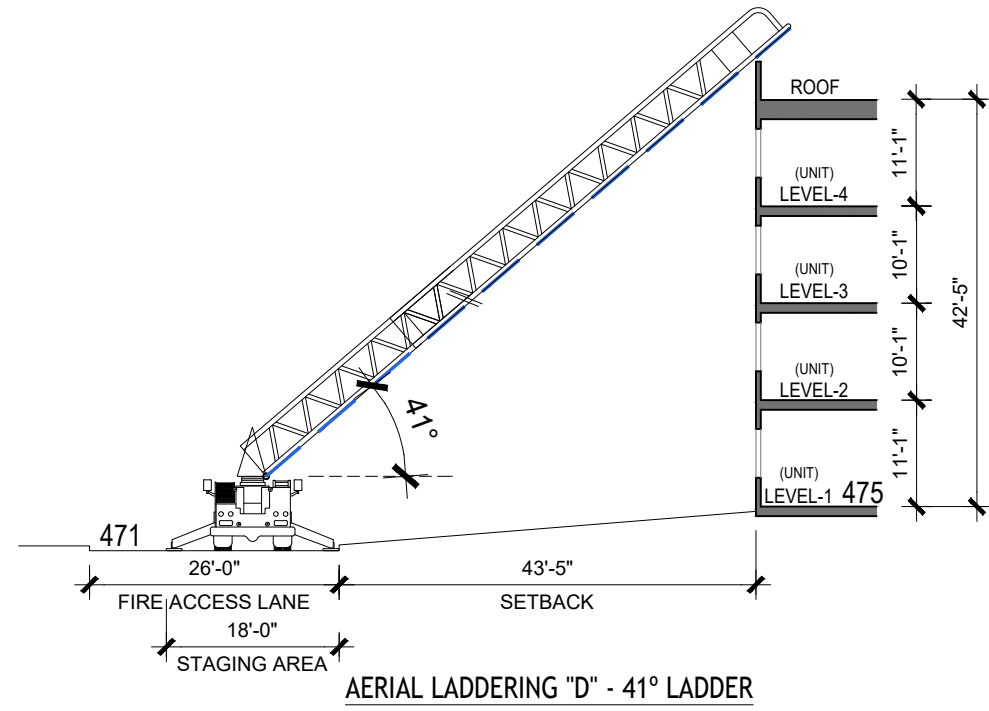
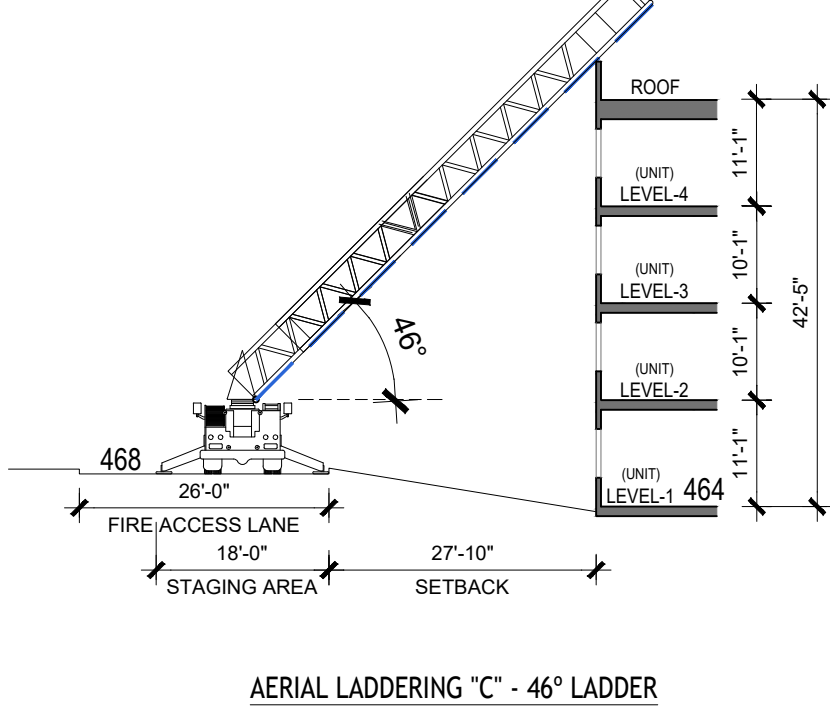
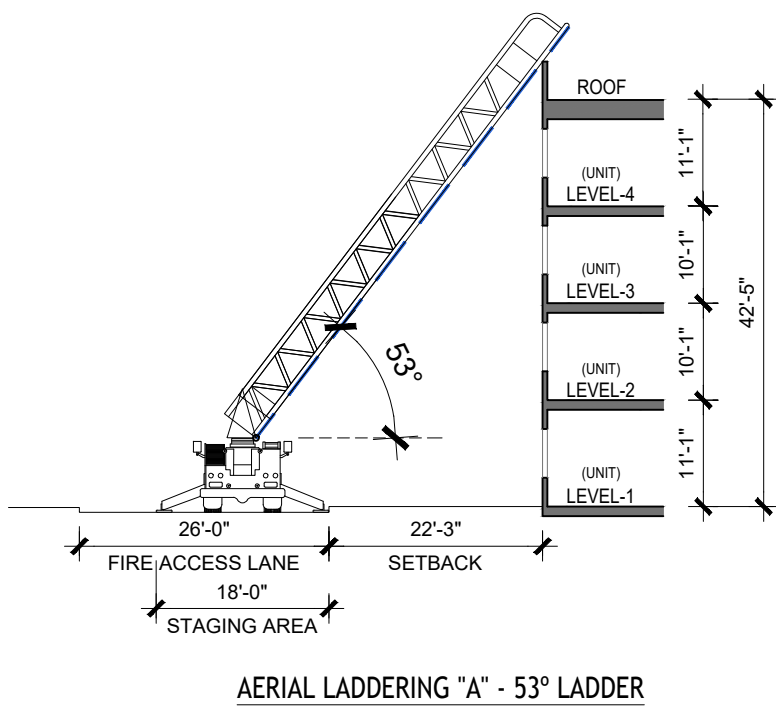
Thank you,

Tobin Symmak
AO Architects





3D MODEL
N.T.S.



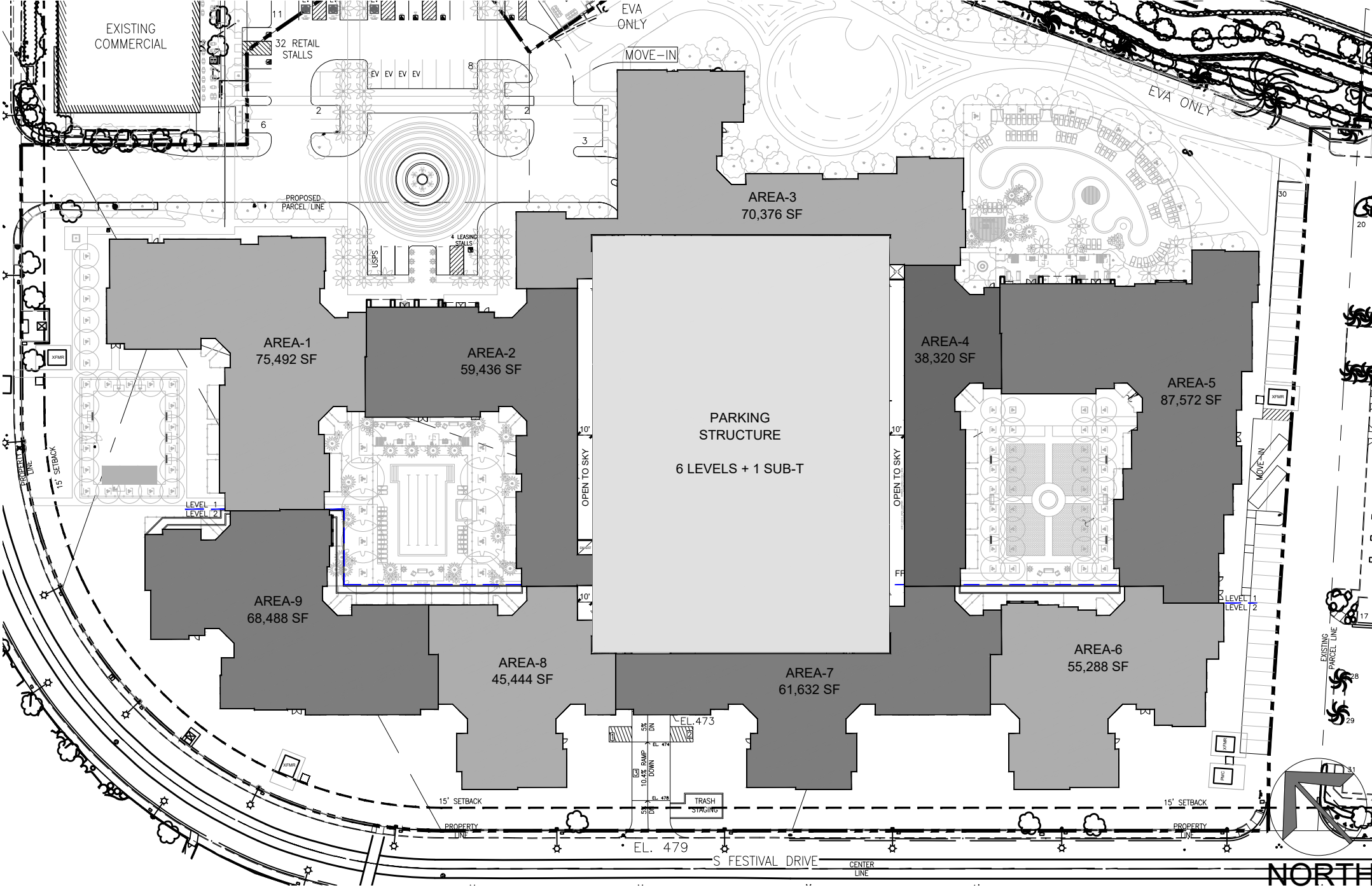
AERIAL LADDERING (REFER TO SHEET A1.7 FOR LADDER LOCATIONS "B" AND "E")

LEGEND

- BUILDING FOOTPRINT - RESIDENTIAL R2 OCCUPANCY, 5 STORIES TYPE III-A CONSTRUCTION, SPRINKLERED THROUGHOUT, CONTIGUOUS ROOF SURFACE
- EXIT STAIR (ROOF ACCESS WHERE NOTED)
- AERIAL TRUCK LADDER ACCESS TO BUILDING
- 24'-0" WIDE PAVED FIRELANE

2022 CBC - BUILDING CODE ANALYSIS - HEIGHT AND AREA - TYPE V-A CONSTRUCTION										
Building Use	Occup. Group	Const. Type	Sprinklers (903.3.1.1)	Allowable Ht / Stories	Height Provided	Allowable Building Area			Max Bldg Area per Bldg Section	Avg. Bldg Area per Story (4-51)
						Tab. 506.2	Nonsprinklered (Sec. 506.2.3)	Frontage Increase (Sec. 506.3)		
Parking Structure	S-2	I-A	NFPA 13	UL	6 St.	UL	-	-	UL	-
Leasing Office	B	V-A	NFPA 13	70' / 4 St.	1 St.	54,000	-	-	54,000	-
Recreation/Fitness	A-3	V-A	NFPA 13	70' / 3 St.	1 St.	34,500	-	-	34,500	-
Residential Dwelling Units	R-2	V-A	NFPA 13	60' / 4 St.	45' / 4 St.	[36,000 + (36,000 x 0])	x 2	72,000	18,000	18,000
Residential Dwelling Units	R-2	V-A	NFPA 13	60' / 4 St.	45' / 4 St.	[36,000 + (36,000 x 0.25)]	x 2	90,000	22,500	22,500
Residential Dwelling Units	R-2	V-A	NFPA 13	60' / 4 St.	45' / 4 St.	[36,000 + (36,000 x 0.50)]	x 2	108,000	27,000	27,000

- NOTES:
- Approved sprinklers (NFPA 13) used for Height and Story increase
 - Frontage Increase $I = (F/P - 0.25)W/30$: (0-1 side = 0 sf increase; 2 sides = 6,000 sf increase; 3 sides = 12,000 sf increase)
 - 2022 CBC Section 510.2 & 510.4 allows multiple stories below a horizontal assembly (podium)
 - Highest occupiable floor level is less than 75' above lowest floor level having building access and therefore building is not considered a High-rise per Section 202
 - Building corridors shall comply with the requirements of CBC Section 1020
 - Building Exit Passageways shall comply with the requirements of CBC Section 1024
 - Where an exit enclosure is extended to an exit discharge or a public way by an exit passageway, the exit enclosure shall be separated from the exit passageway by a fire barrier constructed in accordance with CBC Section 707 or a horizontal assembly constructed in accordance with Section 711, or both.
 - 50' max. dead-end corridor where the building is equipped with an approved automatic fire sprinkler system (NFPA 13) per CBC Section 1020.5



FIRE AREA CALCULATIONS