

APPENDIX D2

Evacuation Memorandum

MEMORANDUM

To: City of San Diego Planning Department
From: Dudek Fire Protection Planning Team, Michael Huff – Principal
Subject: Trails at Carmel Mountain Ranch Evacuation Planning
Date: June 25, 2021
cc:
Attachment(s): None

Evacuations during large, wind-driven wildfires have occurred in San Diego and because wildfire is a component of California landscapes, will likely occur again. It is this reality that was the nexus for the Trails at Carmel Mountain Ranch (Project) to prepare an Evacuation Plan in addition to the wildfire focused “Fire Fuel Load Modeling Report” which details the Project-provided features that will provide fire-safe homes, as well as improve fire safety for existing residences. The following memo provides a brief summary of the site’s fire environment, evacuation road network, and evacuation processes and how each of these facilitate evacuations.

1 Fire Safety

1.1 Fire Environment

The Project’s fire environment can best be described as an infill project. The greater Carmel Mountain Ranch area, within which the Project is located, is largely converted landscapes that are dominated by higher density residential, commercial, retail, and industrial uses, and highly managed and maintained landscapes. Preserved open space occurs in isolated islands to the north, south and west. None of these open space areas is considered a direct threat to the Project due to distance, urban landscapes separating the islands, and fire behavior science. A portion of the Project site is located within a City-designated Very High Fire Hazard Severity Zone (VHFHSZ), directly adjacent to the I-15, just north of the SR-56 intersection. This area includes an existing riparian drainage that is not proposed for new homes and is proposed for Project-provided fire safety improvements through ongoing brush management to protect existing residences that currently have exposure. Approximately 95 percent of the planned units are outside the VHFHSZ. The approximately 5 percent of planned units within the VHFHSZ are located directly north of Stoney Gate Place and along Esprit Avenue. These units occur on the outer fringe of the City’s VHFHSZ and include planned brush management zones and ignition resistant construction, as required for these areas.

1.2 Wildfire Behavior and Structural Protection

Wildfires in San Diego predominantly occur where there is unmaintained, dry and burnable vegetation. Referring to fire history maps in San Diego, wildfires that once occurred where open space was present, have not reoccurred since areas were urbanized – because the consistent fuels no longer exist. The Project area is urbanized and would not facilitate wildfire spread. Wildfire may occur in the distant open space preserves; however, would not represent a direct threat to the Project in terms of heat or flame impingement. Of the three preserves within approximately ½ mile of the Project, only one, Twin Peaks, occurs to the north/northeast. This is important because the types of wildfires

that result in evacuations occur during Red Flag Warning weather conditions, when humidity is low and winds out of the east/northeast are high. These Santa Ana wind conditions are the environmental factor that can

facilitate fire spread, both through physically spreading flames from shrub to shrub, and from airborne embers or fire brands. Absent these off-shore winds, fire spread and ember production is drastically reduced, fire control success is high, and risk is low. Preserves that are south or west of the Project present low risk because fires in these preserves would be driven to the west/south by Santa Ana winds, away from the Project. A fire in the Twin Peaks preserve could generate embers that could reach the Project area, but the landscapes would not support sustained burning before the embers burned out. Moreover, the Project's homes, as well as most of the existing homes, are built of ignition resistant materials, which creates a large area that is resistant to fire ignitions and spread. The Project's structures would also incorporate ember resistant vents to minimize the likelihood of ember penetration into attics or other spaces. It is also important to understand that the Twin Peaks preserve area is small in size and, under extreme conditions (Red Flag Warning), would have a fast burn time, resulting in a short duration for fuel consumption and a finite period of ember production. This is important to the Project and surrounding area because it minimizes the period where burning embers are produced and the resulting potential for structure or vegetation ignitions.

In summary, the Project is not defined as a wildland urban interface project because it is situated within an area that is built out and converted to ignition resistant landscapes. The small portion of the Project that is within a VHFHSZ includes a riparian drainage and adjacent former golf course fairway. This area would not be built upon but would include brush management to protect existing and future residences as well as the riparian drainage from vegetation ignitions.

2 Evacuation Safety

Evacuation of the Project population would not be an isolated event. An evacuation occurring within the Carmel Mountain Ranch area would potentially include a larger population of surrounding homes. Evacuation is not required in all instances, as other strategies may be employed if, for example, the Twin Peaks preserve were burning. Partial evacuations where those closest to the preserve are relocated may be the extent of the evacuation. However, for the sake of the Project's Evacuation Plan, a very conservative approach was employed as part of a consistent, cautious procedure that aims to understand the potential for a significant impact on the existing community's evacuations. The worst-case considered within the Project's Evacuation Plan assumes: 1) all residents within the existing and Project homes are at home, 2) all populations at the commercial, industrial and retail sites are present, and additional populations who shop in the area are present, 3) two elementary schools are in session, 4) the lowest road vehicle capacity on each evacuation route is considered the bottleneck and is the capacity used to calculate evacuation times, even though higher capacity roads would speed up evacuations, and 5) two vehicles from each home are evacuating the area. It is difficult to estimate the actual number of vehicles evacuating, so in an abundance of caution, these –conservative assumptions are utilized, even though it is likely a much lower population would actually be evacuating, resulting in reduced evacuation times. Please refer to the Project's Evacuation Plan (Section 4.1) for details regarding these and other assumptions.

The evacuation analysis indicates that under a worst-case condition, it could require up to 15.6 additional minutes over the current estimated time without the project for evacuation of the area, including the Project's population. This is considered an insignificant increase in evacuation travel time, resulting in a determination of less than significant impact from a CEQA analytical perspective. Reasoning for the insignificance determination is as follows:

- 1) The additional 15.6 minutes can be substantially reduced or entirely offset with faster evacuation speeds (the analysis utilizes a conservative 4.8 mph for internal streets and up to 14.8 mph for the multi-lane roads).

- 2) The additional 15.6 minutes would be lower assuming a more typical population evacuating – e.g., some residents may already be out of the area at work, schools may not be in session, the shopping center may not be at maximum capacity, etc.
- 3) For perspective, in Dudek’s experience, it is common for evacuation analysis to result in a finding that a proposed project adds 45 minutes or more to an evacuation event without triggering a significant impact. This is because many projects occur in areas where the circulation road system does not include multiple roads with multiple lanes leading to and from the area. There are multiple evacuation routes of the area that lead to the I-15 or westward. Multiple evacuation road options, like those available in the Carmel Mountain Ranch area (Ted Williams Parkway, Carmel Mountain Road, Rancho Carmel Drive, and Camino Del Norte), provide the ability to distribute vehicles among more routes, reducing demand on all of the routes and increasing evacuation efficiency. These routes provide options, and evacuation options and flexibility are critical for law enforcement managing evacuation events. Adding time to an evacuation doesn’t typically result in a significant impact because there are many other factors that must be considered besides travel time, including a Project’s location and evacuee safety along the evacuation route.
- 4) Many residents will likely only utilize one vehicle¹ because 1) they do not have more than one vehicle, 2) they do not have more than one legal driver, 3) they do not want to split up their family into multiple vehicles. This will reduce the vehicle loads and resulting evacuation times, potentially substantially.
- 5) The evacuation routes out of the area are “hardened” and protected corridors. There are no wind- or terrain-aligned exposures along the evacuation routes that would substantially impinge upon evacuation corridors. Evacuating from the Carmel Mountain Ranch area contrasts with Paradise in Northern California in that the Paradise evacuation required long travel through wildland fuels, and Carmel Mountain Ranch is urbanized and provides protected travel. Although it is possible that residents may sit in traffic that is not moving, sometimes for long periods of time, they are not exposed to wildfire while evacuating Carmel Mountain Ranch. Law enforcement is moving traffic that is most vulnerable or exposed.
- 6) There are significant first responder resources within San Diego Fire and Rescue Department and neighboring agencies that, during an evacuation event, would provide intersection control downstream of the event to maintain traffic movement.
- 7) Evacuations are no longer managed the way they were in the 2003 Cedar Fire or the 2007 Witch Creek Fire. In those fires, extremely large areas were evacuated at the same time. This caused widespread gridlock. However, it is important to remember that even with the type of mass-evacuation that occurred historically, the Carmel Mountain Ranch area evacuated with no loss of life. Technological investments and overall evacuation management improvements have resulted in a robust alert system that allows emergency managers to strategically evacuate smaller neighborhoods in a more surgical format to help smooth traffic surges and keep evacuations moving. An example is the 2017 Lilac Fire, which was a managed event where phased evacuations, by smaller areas, was implemented. This evacuation is considered a great success as large numbers of people were temporarily relocated safely along with several hundred horses that were moved out of the area.

¹ Wong, S., Broader J, and Shaheen S. 2020. Review of California Wildfire Evacuations from 2017 to 2019.