APPENDIX D1

Evacuation Plan

CONCEPTUAL WILDFIRE EVACUATION PLAN for TRAILS AT CARMEL MOUNTAIN RANCH



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TABLE OF CONTENTS

Section

Page No.

1	QUICK REFERENCE - WILDFIRE PREPAREDNESS					
	1.1	Nearest Medical Facilities	1			
	1.2	Register to Receive Emergency Alerts	9			
	1.3	Get Involved in Community Readiness	9			
	1.4	Evacuation Plan Purpose and Limitations	11			
2	BACK	KGROUND	13			
3	SAN I	DIEGO CITY EVACUATION PLANNING SUMMARY	15			
	3.1	Evacuation Objectives	16			
	3.2	Evacuation Coordination Process	17			
	3.3	Evacuation Response Operations	18			
		3.3.1 Evacuation Points and Shelters	19			
		3.3.2 Pet Evacuations	19			
		3.3.3 Shelter-in-Place (County EOC Discussion)	20			
4	TRAI	LS AT CARMEL MOUNTAIN RANCH COMMUNITY EVACUATIO	N			
	ROAI	D NETWORK	23			
	4.1	Roadway Capacities and Evacuation Time Estimates	26			
		4.1.1 Evacuation Time Discussion	30			
		4.1.2 Mass Evacuation Vehicle Traffic	31			
		4.1.3 Potential for Project Evacuation Impact on Existing Conditions	33			
	4.2	Evacuation Route Determination	36			
5	THE	TRAILS AT CARMEL MOUNTAIN RANCH AND CARMEL				
	MOU	NTAIN RANCH RESIDENT WILDFIRE/				
	EVAC	CUATION AWARENESS	37			
6	TRAI	LS AT CARMEL MOUNTAIN RANCH COMMUNITY				
	EVAC	CUATION PROCEDURES	39			
	6.1	Relocation/Evacuation	39			
	6.2	The Trails at Carmel Mountain Ranch and Carmel Mountain Ranch				
		Communities Evacuation Baseline	40			
	6.3	Civilian and Firefighter Evacuation Contingency	41			
		6.3.1 Safety Zones	42			
		6.3.2 Temporary Firefighter Refuge Areas	43			

TABLE OF CONTENTS (CONTINUED)

Section

Page No.

8	REFE	RENC	ES	.51
7	LIMIT	TATIO	NS	.49
		6.4.3	Re-Entry Procedures	46
		6.4.2	Animal Evacuations	46
		6.4.1	Evacuation of Special Populations	45
	6.4	Social	Aspects of Wildfire Evacuation	45

APPENDICES

А	"Ready, Set,	Go!" Resident	Wildland	Fire Action	Guide
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- B-1 Emergency Supply List
- B-2 Family Emergency Communication Plan Kit
- B-3 Family Emergency Communication Plan Cards
- B-4 Sample Family Disaster PlanC Preparer Qualifications

FIGURES

1	Trails at Carmel Mountain Ranch Community Fire Evacuation Map	3
2	Project Vicinity Map	5
3	Project Site Plan	7
4	Incident Command System Local Government EOC Functional Interactions	.15
5	Evacuation Time Calculation	.28

TABLES

1	The Existing CMR Community Roadway and Freeway Estimated	
	Vehicle Capacities	26
2	Evacuation Vehicle Estimates and Anticipated Distribution Assuming 100	
	Percent Occupancy (Worst Case Condition)	
3	Evacuation Time Per Development Unit	31
4	Vehicle Speeds Based on Road Capacity	34
5	Evacuation Route Usage and Time Estimates	35
6	Project Evacuation Travel Timeframes*	

1 QUICK REFERENCE - WILDFIRE PREPAREDNESS

The Quick Reference Guide provides helpful tips and educational resources, so residents are prepared in the event of a wildland fire evacuation.

Figure 1 illustrates the emergency evacuation routes potentially available to Trails at Carmel Mountain Ranch and Carmel Mountain Ranch communities. Figure 2 displays the Trails at Carmel Mountain Ranch's vicinity location and Figure 3 is the Project's site plan.

The Project's evacuation routes for residents and guests are detailed below and in Figure 1. Visitors should know available routes, stay informed, and follow directions provided by law enforcement or fire agencies, news media, and other credible sources. Do not rely on navigation apps that may inadvertently lead persons toward the approaching wildfire.

The available and potential evacuation routes for the residents and guests of the combined Carmel Mountain Ranch and Trails at Carmel Mountain Ranch communities are detailed in Section 4¹. Know your available routes, stay informed and follow directions provided by credible sources. Do not rely on navigation apps that may inadvertently lead you toward an approaching fire.

1.1 Nearest Medical Facilities

Hospitals:

Palomar Medical Center Poway

15615 Pomerado Road Poway, California 92064

Directions from northern lots:

Carmel Mountain Road east Right on Camino Del Norte Left on Pomerado Road Hospital on right

Directions from southern lots:

Ted Williams Parkway east Left on Pomerado Road Hospital on right

Palomar Medical Center Escondido

2185 Citracado Parkway Escondido, California 92029

¹ Directions of travel and use of routes noted here will be controlled by Emergency Personnel in the event of a wildfire based upon location of emergency and conditions such as weather, fire movement, and evacuation conditions.

Wildfire Evacuation Plan The Trails at Carmel Mountain Ranch

Directions from northern lots:

Carmel Mountain Road west I-15 North to SR 78 West Exit Nordahl Road/Auto Park Way Right on Citracado Parkway Hospital on right

Urgent Care Facilities:

Sharp Rees-Stealy Urgent Care

16889 West Bernardo Drive San Diego, California 92127

Directions from southern lots:

Ted Williams Parkway west I-15 North to SR 78 West Exit Nordahl Road/Auto Park Way Right on Citracado Parkway Hospital on right

Scripps Clinic Rancho Bernardo

15004 Innovation Drive San Diego, California 92128



SOURCE: BASEMAP-SANGIS, 2017



The Trails at Carmel Mountain Ranch Community Fire Evacuation Map

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SOURCE: USGS 7.5-Minute Series Poway Quadrangle

FIGURE 2 Project Location Wildfire Evacuation Plan for The Trails at Carmel Mountain Ranch

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SOURCE: SANGIS 2017; SANGIS 2019; Project Design 2020

FIGURE 3 Site Plan Wildfire Evacuation Plan for The Trails at Carmel Mountain Ranch

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1.2 Register to Receive Emergency Alerts

The City of San Diego (City) utilizes Alert San Diego for its Community Emergency Notification System. Alert San Diego is a countywide standard system that is managed as a regional asset by the County of San Diego Office of Emergency Services. In the event of a wildfire within the City limits, the Incident Command (IC) or other City departments will contact the Police Department Communications Division. The communications center has the responsibility to request activation of the Alert San Diego system and release an emergency notification (San Diego 2010) to affected population. Therefore, residents of the Trails at Carmel Mountain Ranch and Carmel Mountain Ranch communities are strongly advised to register their land lines, mobile phone numbers and email addresses with Reverse 9-1-1, Alert San Diego system (http://www.readysandiego.org/AlertSanDiego/) in order to receive emergency evacuation instructions. The Trails at Carmel Mountain Ranch and Carmel Mountain Ranch communities are part of the greater San Diego media market and the media outlets will also be a good source of information, via television and radio, on overall emergency situations and how residents should respond. In addition, the San Diego Emergency Alert System (EAS) is county-wide and broadcasts emergency information via two radio stations: KOGO AM 600 and KLSD AM 1360. Social media provides another outlet for news:

- https://twitter.com/cityofsandiego
- CityTV is another news sources available during an emergency and can be found online (http://granicus.sandiego.gov/MediaPlayer.php?publish_id=1648)
- Channel 24 Cox Communications
- Channel 24 Time Warner Cable
- Channel 99 AT&T

1.3 Get Involved in Community Readiness

Trails at Carmel Mountain Ranch and Carmel Mountain Ranch residents are encouraged to form a volunteer Neighborhood Emergency Response Team with Community Emergency Response Team (CERT) experience (https://www.sandiego.gov/fire/services/cert). The Trails at Carmel Mountain Ranch community Homeowner's Association (HOA) will organize annual evacuation public outreach for anyone interested from both communities, engage directly with organizations such as Fire Safe Council of San Diego County, as well as maintain a fire safe page on the community website, including this Emergency Evacuation Plan and links to important citizen preparedness information. This information will be made available to all residents from Trails at Carmel Mountain Ranch and Carmel Mountain Ranch communities. This evacuation plan is prepared specifically for the Carmel Mountain Ranch community with the addition of the Trials at Carmel Mountain Ranch Project and focuses on wildland fire evacuations, although many of the concepts and protocols will be applicable to other emergency situations. Ultimately, this plan should be used by the Trails at Carmel Mountain Ranch and Carmel Mountain Ranch residents for awareness of evacuation approaches during wildfires and other similar emergencies. It is important for the residents to understand the importance of being prepared, so if/when the time comes where evacuation is necessary, they will be able to calmly implement their evacuation plan. Some actions the community residents can do in advance include:

- Follow the "Ready, Set, Go!" model developed for wildfire evacuations.
 - Create an escape plan from the residence, as well as an escape route once outside of the home.
 - Know your available routes, stay informed and follow directions provided by credible sources.
 - Do not rely on navigation apps that may inadvertently lead you toward an approaching fire.
 - Create a car emergency kit, including cell phone charger, flashlight, jumper cables, water, and food.
 - Gather important paperwork, including birth and marriage certificates, account documents, passports, Social Security cards, and any other important family photos or irreplaceable items and documents.
 - As time allows, make sure to secure your home by locking all doors and windows, and unplugging electrical equipment, such as appliances and electronics.

Sample emergency preparedness resources available to the Trails at Carmel Mountain Ranch and Carmel Mountain Ranch residents are provided in Appendix A (Resident "Ready, Set, Go!" Wildland Fire Action Plan) and Appendices B-1 through B-4 (Family Disaster Checklists and Communications Plans), and residents are encouraged to become familiar with the concepts detailed at the following websites:

1. "Ready, Set, Go!" Personal Action plan:

https://www.fire.lacounty.gov/wp-content/uploads/2014/02/RSG-Booklet.pdf

2. Red Cross Emergency Planning:

http://www.redcross.org/get-help/how-to-prepare-for-emergencies/make-a-plan

 Hazardous Materials Emergency Preparedness: https://www.ready.gov/hazardous-materials-incidents

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Wildfire Evacuation Plan Trails at Carmel Mountain Ranch

4. Building a disaster kit:

http://www.redcross.org/get-help/prepare-for-emergencies/be-red-cross-ready/get-a-kit

5. Making a Plan Checklist:

https://www.ready.gov/make-a-plan

6. Family Communication Plan:

https://www.fema.gov/media-library-data/1440449346150-1ff18127345615d8b7e1effb4 752b668/Family_Comm_Plan_508_20150820.pdf

1.4 Evacuation Plan Purpose and Limitations

Wildfire and other emergencies are often dynamic events and the need for evacuations are typically determined by on-scene first responders or by a collaboration between first responders and designated emergency response teams, including Office of Emergency Services and the IC established for larger emergency events. As such, and consistent with all emergency evacuation plans, this Emergency Evacuation Plan is to be considered a tool that supports existing pre-plans and provides for residents who are familiar with the evacuation protocol, but is subservient to emergency event-specific directives provided by agencies managing the event.

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2 BACKGROUND

This Trails at Carmel Mountain Ranch Wildfire Evacuation Plan was prepared based on the City's Emergency Operations Procedures (San Diego 2010), County of San Diego Emergency Operations Procedures (EOP), the Unified San Diego County Emergency Services Organization and County of San Diego Operational Area Emergency Operations Plan – Evacuation Annex.

To establish a framework for implementing well-coordinated evacuations, the City, like most California emergency operations agencies, has adopted evacuation procedures in accordance with the State of California's Standardized Emergency Management System (SEMS) and the National Incident Command System (NIMS). Large-scale evacuations are complex, multi-jurisdictional efforts that require coordination between many agencies and organizations. Emergency services and other public safety organizations play key roles in ensuring that an evacuation is effective, efficient, and safe.

Evacuation is a process by which people are moved from a place where there is immediate or anticipated danger, to a safer place, and offered temporary shelter facilities. When the threat passes, evacuees are able to return to their normal activities, or to make suitable alternative arrangements.

Evacuation during a wildfire is not necessarily directed by the fire agency, except in specific areas where fire personnel may enact evacuations on-scene. The City's Police Department or Fire-Rescue Department have primary responsibility for emergency evacuations. These agencies work closely within the Unified IC System, with the City's Emergency Operations Center (EOC) and County OES. To that end, the San Diego Fire-Rescue Department (SDFRD), Police Department, Public Works, Planning, Emergency Services Departments, and California Department of Transportation (Caltrans), amongst others, have worked as part of a Pre-Fire Mitigation Task Force to address wildland fire evacuation planning for City of San Diego.

Every evacuation scenario will include some level of unique challenges, constraints, and fluid conditions that require interpretation, fast decision making, and alternatives. For example, one roadway incident that results in blockage of evacuating vehicles may require short-term or long-term changes to the evacuation process. Risk is considered high when evacuees are evacuating late, and fire encroachment is imminent. This hypothetical scenario highlights the importance of continuing to train responding agencies, model various scenarios, educate the public, provide contingency plans, and take a very conservative approach to evacuation decision timelines.

Equally as important, the evacuation procedures should be regularly updated with lessons learned from actual evacuation events, as they were following the 2003, 2007, and 2014 San Diego County fires. The authors of this Emergency Evacuation Plan recommend that occasional updates are provided, especially following lessons learned from actual incidents, as new technologies become

available that would aid in the evacuation process, and as changing landscapes and development patterns occur within and adjacent to the Project Area that may impact how evacuation is accomplished. At the time of this plan's preparation, there is no encompassing emergency evacuation plan available for the northern San Diego region. This Trails at Carmel Mountain Ranch Wildfire Evacuation Plan is consistent with the City evacuation planning standards and can be integrated into a regional evacuation plan and other pre-plans when and if the area officials and stakeholders (CAL FIRE, SDFRD, OES, San Diego Sheriff's Department, SDCFA, and others) complete one.

As demonstrated during large and localized evacuations occurring throughout San Diego County and the City over the last 15 years, an important component to successful evacuation is early assessment of the situation and early notification via managed evacuation declarations. The City utilizes early warning and informational programs to help meet these important factors. Among the methods available to citizens for emergency information are radio, television, social media/internet, neighborhood City patrol car and aerial public address notifications, and Reverse 9-1-1 or Alert San Diego. The County of San Diego, in partnership with Blackboard Connect Inc., instituted this regional notification system that is able to send telephone notifications to residents and businesses within San Diego County impacted by, or in danger of being impacted by, an emergency or disaster. This system, called Alert San Diego, is used by emergency response personnel to notify homes and businesses at risk with information on the event and/or actions (such as evacuation, shelter-in-place, gas leak, missing person, etc.) they are advised to implement. The system utilizes the region's 9-1-1 database, provided by the local telephone company(ies), and thus is able to contact landline telephones whether listed or unlisted. It is TTY/TDD capable.

Please also note that the major fire events that have occurred in San Diego County in the past 17 years (including the Cedar Creek and Witch fires) have also resulted in substantial change in the individual and united approaches between City, County and State agencies, as well as substantial investment in fire-fighting resources. For example, San Diego County Fire Agencies and related partners have developed a robust ability to rationally predict wildfire movement. This is accomplished through pre-fire planning and fire behavior modeling, working with UCSD's WIFIRE lab advanced wildfire behavior projection technology, and SDG&E's nationally renowned weather system network. In addition, more than 500 million dollars has been invested to enhance the county's fire prevention, detection, response, suppression and recovery capabilities since the 2003 Cedar Fire. These efforts have proven effective in managing and responding to wildfire events, such as was accomplished during the successfully managed 2018 Lilac Fire.

Because the system uses the 9-1-1 database, only landline numbers are in the system. If you have a Voice over IP (VoIP) or cellular telephone and would like to be notified over that device, or if you would like an email notification, you must register those telephone numbers and/or email address for use by the system to receive voice, text, and email messages.

3 SAN DIEGO CITY EVACUATION PLANNING SUMMARY

This Wildfire Evacuation Plan incorporates concepts and protocols practiced throughout the City and San Diego County. The City's EOP follows basic protocols set forth in the City's Operation Area Emergency Operations Plan and the California Master Mutual Aid Agreement, which dictate who is responsible for an evacuation effort and how regional resources will be requested and coordinated.

First responders are responsible for determining initial protective actions before EOCs and emergency management personnel have an opportunity to convene and gain situational awareness. Initial protective actions are shared/communicated to local EOCs and necessary support agencies as soon as possible to ensure an effective, coordinated evacuation. Figure 2 summarizes the functional interactions of local government EOCs under the Incident Command System.

Figure 4. Incident Command System Local Government EOC Functional Interactions



Incident Command System-Local Government EOC Functional Interactions

↔ ↔ Primary Field - EOC Coordination and Information Flow

Lines of secondary communications and coordination

Lines of Management Authority

During an evacuation effort, the designated City Evacuation Coordinator is the Police Chief, who is also the Law Enforcement Coordinator, although several official City positions are allowed to declare evacuations. The Evacuation Coordinator will be assisted by other law enforcement and support agencies. Law enforcement agencies, highway/road/street departments, and public and private transportation providers will conduct evacuation operations. Procurement, regulation, and allocation of resources will be accomplished by those designated. Evacuation operations will be conducted by the following agencies:

- City Police Department
- San Diego Fire and Rescue Department
- American Red Cross
- San Diego Humane Society
- San Diego County Department of Animal Services
- Department of Planning and Development Services
- Department of Environmental Services
- Department of Public Works
- Other City, County and state agencies, as needed
- The following overview contains information from the San Diego County Evacuation Annex and is consistent with the City's EOP. A complete copy of the EOC can be downloaded here: https://www.sandiegocounty.gov/content/sdc/oes/emergency_management/oes_jl_oparea.html.

3.1 Evacuation Objectives

The overall objectives of emergency evacuation operations and notifications for the City of San Diego are to:

- Expedite the movement of persons from hazardous areas;
- Institute access control measures to prevent unauthorized persons from entering vacated, or partially vacated areas;
- Provide for evacuation to appropriate transportation points, evacuation points, and shelters;
- Provide adequate means of transportation for persons with disabilities, the elderly, other persons with access and functional needs, and persons without vehicles;
- Provide for the procurement, allocation, and use of necessary transportation and law enforcement resources by means of mutual aid or other agreements;

- Control evacuation traffic;
- Account for the needs of individuals with household pets and service animals prior to, during, and following a major disaster or emergency;
- Provide initial notification, ongoing, and re-entry communications to the public through the EOC; and
- Assure the safe re-entry of the evacuated persons.

The San Diego Police Department (SDPD) is the lead agency for evacuations of areas within the City, including the Trails at Carmel Mountain Ranch and Carmel Mountain Ranch communities. The SDPD, as part of a Unified Command, assesses and evaluates the need for evacuations, and orders evacuations according to established procedures. Additionally, as part of the Unified Command, the SDPD identifies available and appropriate evacuation routes and coordinate evacuation traffic management with the Caltrans, the California Highway Patrol (CHP), the San Diego County Sheriff's Department (SDSD), other supporting agencies, and jurisdictions.

The decision to evacuate an area is not made lightly and there is a significant impact to public safety and the economy. The following process describes how emergency evacuation decisions are coordinated, allowing emergency managers and other supporting response organizations to make collaborative decisions.

3.2 Evacuation Coordination Process

- 7. If the emergency only impacts the City, the decision to evacuate will be made at the local jurisdiction level with regional collaboration considerations.
 - a. Based on the information gathered, local jurisdictions will generally make the determination on whether to evacuate communities as the need arises, on a case-by-case scenario basis.
 - b. The decision to evacuate will depend entirely upon the nature, scope, and severity of the emergency; the number of people affected; and what actions are necessary to protect the public.
 - c. Local jurisdictions may activate their EOC and conduct evacuations according to procedures outline in their EOP.
 - d. The EOC may make recommendations on whether a community should evacuate and may help coordinate the evacuation effort.
 - e. The Evacuation Annex is automatically activated when an incident occurs requiring an evacuation effort that impacts two or more jurisdictions.



- f. The EOC will coordinate with fire, law enforcement, public health, and other relevant support agencies to obtain recommendations on protective actions.
- g. The EOC will coordinate with jurisdictional emergency management personnel and other public safety personnel. The Policy Group within the EOC will coordinate with other officials from jurisdictions within the City's Operational Area (OA) to identify command decisions, including:
 - i. Gaining regional situational awareness
 - ii. Determining response status
 - iii. Reviewing status of initial protective actions
 - iv. Considering additional protective actions
 - v. Evaluating public information needs
 - vi. Determining next steps
 - vii. Establishing a regular time to share updates
- h. The EOC will coordinate emergency public information to citizens in accordance with established procedures.
- i. The EOC may support coordinating the evacuation response according to the EOP, including:
 - i. Providing transportation for those who need assistance
 - ii. Providing support for people with disabilities and other access and functional needs
 - iii. Coordinating and communicating with the private sector, community groups, and faith based organizations to utilize their services and resources available to support the response
 - iv. Providing shelter for evacuees

3.3 Evacuation Response Operations

An evacuation of any area requires significant coordination among numerous public, private, and community/non-profit organizations. Wildfire evacuations will typically allow time for responders to conduct evacuation notification in advance of an immediate threat to life safety; giving residents time to gather belongings and make arrangements for evacuation. On the other hand, other threats, including wildfires igniting nearby, may occur with little or no notice and certain evacuation response operations will not be feasible (for example, establishing contra flow requires between 24 to 72 hours to be implemented; a no-notice event will not allow for contra flow to be established). Evacuation assistance of specific segments of the population may also not be feasible.

3.3.1 Evacuation Points and Shelters

When the SDPD or Incident Command (IC) implements an evacuation order, they coordinate with the responding fire and rescue agency, the EOC, and others, to decide on locations to use as a Temporary Evacuation Point (TEP). The City's Police Department Communications Division will utilize the Alert San Diego system to direct evacuees to the established TEPs or shelters. These evacuation points will serve as temporary safe zones for evacuees and will provide basic needs such as food, water, and restrooms. Possible shelters and assembly areas that can provide at least short-term refuge and that would be designated by emergency managers during an evacuation include:

- Shoal Creek Elementary School
- Carmel Mountain Ranch Recreation Center
- Rancho Bernardo High School
- SDFRD Fire Station 42
- Carmel Mountain Plaza

Other refuge sites are available within urbanized areas of Poway, Rancho Bernardo, Mira Mesa, and developed communities primarily to the north, south, and west of the Trails at Carmel Mountain Ranch and Carmel Mountain Ranch communities.

If there are residents unable to evacuate or in need of transportation assistance to get to a TEP or shelter, the SDPD or IC may establish transportation points to collect and transport people without transportation resources to evacuation points. These transportation points should be large, well-known sites such as shopping centers, libraries, and schools. Transportation should be accessible to all populations, including people with disabilities and other access and functional needs.

3.3.2 Pet Evacuations

The Pets Evacuation and Transportation Standards Act of 2006 amends the Stafford Act, and requires evacuation plans to take into account the needs of individuals with household pets and service animals, prior to, during, and following a major disaster or emergency.

The San Diego County Department of Animal Services (DAS) has plans in place to transport and shelter pets in a disaster under Annex O of the OA EOP, including the Animal Control Mutual Aid Agreement. Animal Control Officers, the San Diego Humane Society, and private animal care shelters will assist in the rescue, transport, and sheltering of small and large animals. In addition, potential volunteer resources and private groups are identified and tracked in WebEOC by the County. Only non-emergency resources and personnel, such as public and private animal services agencies, will be used to rescue and transport animals during an evacuation effort.

In most cases, DAS and the OA EOC will coordinate and attempt to co-locate animal shelters with people shelters.

3.3.3 Shelter-in-Place (County EOC Discussion)

As stated in the County EOC, sheltering-in-place is the practice of going or remaining indoors during or following an emergency event. This procedure is recommended if there is little time for the public to react to an incident and it is safer for the public to stay indoors for a short time rather than travel outdoors. Sheltering-in-place also has many advantages because it can be implemented immediately, allowing people to remain in their familiar surroundings, and providing individuals with everyday necessities such as telephone, radio, television, food, and clothing. However, the amount of time people can stay sheltered-in-place is dependent upon availability of food, water, medical care, utilities, and access to accurate and reliable information.

The decision on whether to evacuate or shelter-in-place is carefully considered with the timing and nature of the incident (San Diego County 2014). Sheltering-in-place is the preferred method of protection for people that are not directly impacted or in the direct path of a hazard. This will reduce congestion and transportation demand on the major transportation routes for those that have been directed to evacuate by police or fire personnel. The Carmel Mountain Ranch community includes homes built in the 1990s and are in varying states of ignition resistance. Unlike most new master planned communities that incorporate ignition-resistant construction and provide defensibility throughout (like the Trails at Carmel Mountain Ranch will), responding fire and law enforcement personnel may not be able to direct residents to temporarily refuge in their homes at Carmel Mountain Ranch except for residents of the Trails at Carmel Mountain Ranch. Homes that are not built to the ignition-resistant standards can be retrofitted to increase their ability to withstand wildfire and ember storms by focusing on roofs, windows, walls, vents, appendages and defensible space. Attention to these components of a home's fire protection system is recommended for existing Carmel Mountain Ranch homeowners.

Options when evacuation is not considered feasible that may be available to responding fire and law enforcement personnel may include temporary refuge/sheltering on site where residents are instructed to remain in their homes while firefighters perform their structure protection function if it is considered unsafe to evacuate. This approach is consistent with San Diego County's (San Diego County 2014) evacuation approach which states "*Due to the nature of the threats requiring an evacuation, there may be insufficient time to perform an early evacuation of the area and shelter-in-place instructions may need to be provided.*" The greater Carmel Mountain Ranch community does not currently include attributes that would allow a community-wide sheltering in place option, due primarily to the older construction methods and codes that guided construction at the time the homes were built. The structures in Trails at Carmel Mountain Ranch community, including the proposed homes and the proposed community art

gallery/studio would conform to the ignition-resistant building codes codified in Chapter 7A of the California Building Code, would be ignition-resistant, defensible and designed to require minimal firefighting resources for protection, which enables this contingency option when it is considered safer than evacuation.

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4 TRAILS AT CARMEL MOUNTAIN RANCH COMMUNITY EVACUATION ROAD NETWORK

As evidenced by mass evacuations during the 2007 Witch Fire along with other San Diego County evacuations, even with roadways that are designed to the code requirements, it may not be possible, or even the best response, to move large numbers of persons at the same time as part of a mass-evacuation. Instead, informed, phased evacuations enable more streamlined evacuations where those at highest risk are moved first. Road infrastructure throughout the United States, and including San Diego County, is not designed to accommodate a short-notice, mass evacuation without some level of congestion (FEMA 2008). The need for evacuation plans, pre-planning, and tiered or targeted and staggered evacuations becomes very important for improving evacuation effectiveness. Among the most important factors for successful evacuations in urban settings is control of intersections downstream of the evacuation area. If intersections are controlled by law enforcement, barricades, signal control, and other means, potential backups and slowed evacuations can be minimized. Multiple evacuation points enable more evacues the ability to evacuate with less impact on roadways.

If a wildfire starts in the nearest open space areas (Black Mountain Open Space Park or the Twin Peaks open space) and is fanned by Santa Ana winds out of the northeast, the fire would likely tend to blow away from Trails at Carmel Mountain Ranch and Carmel Mountain Ranch toward the southwest, west or south. Wildfires occurring under typical weather conditions may result in fire that burns toward Trails at Carmel Mountain Ranch and Carmel Mountain Ranch, but the surrounding terrain does not support aggressive runs at the community, much of which is separated from the open space by developed areas and wildfires during typical weather conditions are less aggressive and more manageable, rarely resulting in large evacuations. As conducted in past wildfires, an early evacuation of the area may occur several or more hours prior to actual threatening conditions at the Trails at Carmel Mountain Ranch or Carmel Mountain Ranch, depending on conditions and fire spread projections.

The Project is located within an area that is subject to occasional wildfires, but based on the residential uses to the west, east, and north and open space areas to the south, and more distantly to the north, west and east, the wildfire potential within the Project structures' direct sphere of influence is considered minimal and direct exposure to unmaintained fuels is limited. Similarly, fire intensity would be expected to be low in areas outside of the Black Mountain Open Space, Twin Peaks open space, and natural hillside unmaintained fuels. This reduced fire behavior would be expected to facilitate evacuations as well as potential on-site sheltering for properly constructed residences, if considered safer than a short-notice evacuation.

This approach is consistent with San Diego County's (2018) Evacuation approach which states, "[The shelter-in-place] procedure is recommended if there is little time for the public to react to an incident and it is safer for the public to stay indoors for a short time rather than travel outdoors." Although not a designated shelter-in-place community, the structures in the Trails at Carmel Mountain Ranch would include the same level of ignition resistance and landscape maintenance, are defensible against the short duration wildfire exposure anticipated, and are designed to require minimal resources for protection, which enables these contingency options that may not be available to other vicinity communities (i.e. Carmel Mountain Ranch).

Among the most important factors for successful evacuations at the Project site is control of intersections downstream of the evacuation area. If intersections are controlled by law enforcement, barricades, signal control, firefighters or other means, potential backups and slowed evacuations can be minimized. Another important aspect of successful evacuation is a managed and phased evacuation declaration. Evacuating in phases, based on vulnerability, location, or other factors, enables the subsequent traffic surges on major roadway to be smoothed over a longer time frame and can be planned to result in traffic levels that flow better than when mass evacuations include large evacuation areas at the same time. This plan defers to Law Enforcement and OES to appropriately phase evacuations and to consider the vulnerability of communities when making decisions. For example, newer development in the area, including Trails at Carmel Mountain Ranch's protected structures, will offer a high level of fire safety on site, along with open-air options for firefighter safety zones and temporary on-site refuge as a contingency due to the setbacks from the nearest wildland areas.

Consistent with the County of San Diego evacuation planning annex (2018), major ground transportation corridors in the area will be used as primary evacuation routes during an evacuation effort. The road systems were evaluated to determine the best routes for fire response equipment and "probable" evacuation routes for relocating people to designated safety areas. The primary roadways that would be used for evacuation from the Project are:

- Ted Williams Parkway,
- Carmel Mountain Road,
- Rancho Carmel Drive,
- Camino Del Norte, and
- I-15

These roads provide access to urbanized areas and major traffic corridors including I-15 and SR-56.

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During a Project emergency evacuation, the primary and secondary roadways may be providing citizen egress while responding emergency vehicles are inbound. Because the required fire access roads throughout the area are designed to meet or exceed County of San Diego Consolidated Fire Code, including 24 foot-wide, unobstructed roadways, adequate parking, turning radius, grade maximums, and roadside fuel modification zones, potential conflicts that could reduce the roadway efficiency are minimized, allowing for smoother evacuations.

The primary evacuation routes are accessed from internal roadways, which connect to ingress/egress roads (i.e. Highland Ranch Road, Rancho Carmel Drive) that in turn intersect with primary evacuation routes (i.e. Ted Williams Parkway, Carmel Mountain Road). There are three primary Project ingress/egress routes:

Primary Ingress/Egress Route:

- a. Ted Williams Parkway west (either to I-15 or continuing on Ted Williams Parkway).
- b. Carmel Mountain Road west to I-15.
- c. Camino Del Norte west to I-15. Depending on the nature of the emergency requiring evacuation, it is anticipated that the majority of the Trails at Carmel Mountain Ranch would be directed to one of three major arterial roadways (Ted Williams Parkway, Carmel Mountain Road or Camino Del Norte) and be directed westbound toward I-15. These are the most direct routes out of the project area. Evacuation movement will be determined primarily by the fire's location, its spread rate direction, and time available before it could threaten evacuation routes and traffic levels. If less time is available, or one or more potential routes are considered unsafe, fire and law enforcement officials may direct all traffic in one direction and may consider directing some area communities or the Project site's residents and guests, to temporarily refuge in protected structures.

The large developed and converted landscapes and lack of uninterrupted open space through the developed portions of this area significantly reduces the potential for dangerous evacuation conditions and evacuee exposure to wildfire.

Evacuation Alternatives

Fires occurring on typical (non-extreme) fire weather days, when humidity is higher and winds are not as high or gusty, have been very successfully controlled at small sizes within minutes of ignition and would not typically trigger a need to evacuate the Trails at Carmel Mountain Ranch or Carmel Mountain Ranch communities. Partial evacuation of some neighborhoods could be an option in on-shore wind wildfire, particularly those homes that are closest to the native fuels in the Twin Peaks open space, such as homes south of Ted Williams Parkway.

If a wildfire ignited closer to the Carmel Mountain Ranch communities during weather that facilitates fire spread, where multiple hours are not available for evacuation and placing residents on the roads could expose them to wildfire, an alternative evacuation approach would need to be explored. It is preferred to evacuate long before a wildfire is near, and in fact, history indicates that most human fatalities from wildfires are due to late evacuations when they are overtaken on roads. Therefore, it is prudent to consider a contingency option of temporary on-site refuge. For example, if a wildfire is anticipated to encroach upon the community or Ted Williams Parkway in a timeframe that is shorter than would be required to evacuate all residents, then evacuations could be significantly impacted and the ability to temporarily shelter residents in their homes is a prudent contingency.

4.1 Roadway Capacities and Evacuation Time Estimates

Roadway capacity represents the maximum number of vehicles that can reasonably be accommodated on a road. Roadway capacity is typically measured in vehicles per hour and can fluctuate based on the number of available lanes, demand surges, number of traffic signals, construction activity, accidents, and obstructions as well as positively by traffic control measures. The estimated capacities for existing roads are provided in Table 1.

Each roadway classification has a different capacity based on level of service, with freeways having the highest capacities. Based on Synchro software analysis using the Highway Capacity Manual methodology for calculating adjusted saturation flow rates, roads that would be the most likely available to Carmel Mountain Ranch and Trails at Carmel Mountain Ranch residents were analyzed and the hourly capacities are presented in Table 1.

 Table 1

 Existing CMR Community Roadway and Freeway Estimated Hourly Vehicle Capacities

		Estimated Roadway and Freeway Capacity ¹			Capacity ¹	
Roadway	Segment	East	West	North	South	Total
Interstate I-15 ²	North and south of Carmel Mountain Road			10,000	10,000	20,000
Camino Del Norte	Ted Williams Parkway to I-15	5,040	5,040			10,080
Ted Williams Parkway	West of I-15	4,830	4,830			9,660
Poway Road	Sabre Springs Parkway to I-15	4,830	4,830			9,660
State Route 56	West of I-15	4,000	4,000			8,000
Carmel Mountain Road	East of I-15	4,620	3,080			7,700

Wildfire Evacuation Plan Trails at Carmel Mountain Ranch

Table 1 Existing CMR Community Roadway and Freeway Estimated Hourly Vehicle Capacities

		Estimated Roadway and Freeway Capacity ¹				Capacity ¹
Roadway	Segment	East	West	North	South	Total
Pomerado Road	Ted Williams Pkwy to Rancho Bernardo Rd			3,480	3,480	6,960
Rancho Carmel Drive/Sabre Springs Parkway	Poway Road to Carmel Mountain Road			3,220	3,220	6,440
Rancho Bernardo Road	Pomerado Road to I-15	3,220	3,220			6,440
Carmel Mountain Road	West of I-15	3,080	3,080			6,160
Highland Ranch Road	Carmel Mountain Road to Ted Williams Parkway			2,900	2,900	5,800
Windcrest Lane	Shoal Creek Drive to Rancho Carmel Drive			1,600	1,600	3,200
Shoal Creek	Ted Williams Parkway to Rancho Carmel Drive	1,550	1,550			3,100
Boulton Avenue	Windcrest Lane to Carmel Ridge Road	1,650	1,650			3,300
Stoney Gate Place	Carmel Ridge Road to Shoal Creek Drive	1,680	1,680			3,360
Carmel Ridge Road	Summerbreeze Lane to Ted Williams Parkway			1,160	1,160	2,320

Source: Fehr and Peers 2021. Notes:

Estimated vehicle traffic per hour, per Synchro, using the Highway Capacity Manual methodology for calculating adjusted saturation flow rates.

² Does not include HOV lanes (based on 5 travel lanes in each direction at 10% during peak time).

³ The vehicle capacity estimates utilized for this evacuation plan are based on Synchro software, using the Highway Capacity Manual methodology for calculating adjusted saturation flow rates, and are discounted for various assumed traffic-related slowing. This evacuation plan assumes that law enforcement personnel are controlling downstream intersections to maintain traffic flow out of the area. If traffic flow is not maintained, then the estimated evacuation times would be expected to increase, potentially substantially, as is the case in any urban area.

Using these averages, the length of time it will take for an area to evacuate can be estimated by dividing the population by the average vehicle occupancy and then dividing by the roadway capacity (Figure 5). Table 2 provides a summary of the calculated number of evacuating vehicles and assumptions for the Carmel Mountain Ranch and the Trails at Carmel Mountain Ranch populations. The populations include:

- Single- and multi-family residences² 13,605 residents
- Shoal Creek Elementary School 771 students and staff

² Per the Carmel Mountain Ranch Community Plan current zoning allows for 5,039 dwelling units within the CMR community, and it is estimated that there are approximately 2.7 persons per dwelling unit; therefore, it is estimated that the current population of CMR is 13,605.

- Highland Ranch Elementary School 743 students and staff
- Regional Commercial (Carmel Mountain Plaza) 2,379 parking spaces
- Industrial/Office Park³ 13,802 parking spaces

Figure 5Evacuation Time Calculation

Evacuation Time =
$$\left(rac{Evacuation Population}{Average Vehicle Occupancy}
ight)$$
Roadway Capacity

The existing Carmel Mountain Ranch community is estimated to include 2.7 persons per dwelling unit (SANDAG 2019), which equals approximately 13,605 persons. Trails at Carmel Mountain Ranch of 1200 residential units is projected to include 2.65 persons per dwelling unit, which totals 3,180 persons⁴. The combined population for Trails at Carmel Mountain Ranch and Carmel Mountain Ranch would be 16,785 persons. During an evacuation, it is calculated that an average of 2 persons per vehicle would evacuate, resulting in up to 8,393 vehicles potentially evacuating in a major incident that required full evacuation of Carmel Mountain Ranch and Trails at Carmel Mountain Ranch. However, to continue this plan's conservative approach, the evacuation travel time calculation is based on every residence evacuating two vehicles. This results in up to 10,078 vehicles generated from Carmel Mountain Ranch residential units and 2,400 vehicles from Trails at Carmel Mountain Ranch, totaling up to 12,478 vehicles.

Within Carmel Mountain Ranch there are several non-residential land uses, including: Carmel Mountain Plaza-Regional Commercial (2,379 parking spaces), Industrial-Office (13,802 parking spaces), Shoal Creek Elementary School (12 busses and 30 vehicles), and Highland Ranch Elementary School (12 busses and 30 vehicles). For both the Carmel Mountain Plaza-Regional Commercial and the Industrial-Office uses, it is assumed that some portion of these populations would be individuals from the Carmel Mountain Ranch community; therefore the total number of

³ According the Carmel Mountain Community Plan, the areas designated for Industrial uses are permitted for approximately 2,760,250 square feet of industrial/office park development in areas 40 and 41 (see Figure 5 of the Community Plan). Parking spaces were calculated using Table 142-05E of the City's Parking Ordinance, which calls for 5.0 parking spaces per 1,000 square feet of floor area within parcels zoned IP-2-1, IH-2-1, IL-2-1, IL-3-1..

⁴ City of San Diego, 2020. Trails at Carmel Mountain Ranch Environmental Impact Report.

vehicles each use is generating can be reduced to avoid redundancy in calculating the worst-case evacuation conditions.

According to the City of San Diego General Plan⁵, regional commercial serves the population within 5 to 25-plus miles, and according to the corporate website, Carmel Mountain Plaza serves the Carmel Mountain Ranch, Poway and Rancho Bernardo communities⁶. For the purposes of this evacuation plan, based on an educated assumption using the estimated study area population density and proximity to Carmel Mountain Plaza, the total number of parking spaces will be reduced 30% (714 parking spaces) to account for individuals visiting Carmel Mountain Plaza from within the Carmel Mountain Ranch community. Therefore, in a worst-case scenario the total number of additional vehicles from outside of the Carmel Mountain Ranch community would be 1,665.

According to a 2013 San Diego Association of Governments (SANDAG) Employee Commute Survey, approximately 13% of respondents traveled five miles or less to work⁷. If applied to the Carmel Mountain Rach community, for the purposes of this evacuation plan, an estimated 1,769 residents commute five miles or less. The Industrial-Offices uses in this community support approximately 11,041 employees, assuming an average of 250 square feet per employee. For the purposes of this evacuation plan, it is assumed that 13% of the total number of employees from the Industrial-Office uses would be from within the Carmel Mountain Ranch Community; therefore the population of these uses from outside of the Carmel Ranch Community would be 9,272.

This increases the worst-case population to 15,544 persons and number of evacuating vehicles to 11,021, as depicted in Table 2.

The number would likely be lower, as some families would likely drive in one vehicle versus in multiple vehicles and, depending on the time of day, many of these vehicles may already be offsite, such as if a fire occurred during typical work hours or if after hours, schools and industrial/office spaces would not be at maximum capacity.

⁵ City of San Diego, 2015. General Plan Land Use Element. Available at: https://www.sandiego.gov/sites/ default/files/lu_2015.pdf

⁶ https://carmelmountainplaza.buildingengines.com/geofire/BDPW?conid=2227375615&id_site=405198778& id_client_site_rel=0

⁷ SANDAG, 2013. Employee Commute Survey. Available at: https://www.sandag.org/uploads/publicationid/ publicationid_1878_18068.pdf

Wildfire Evacuation Plan Trails at Carmel Mountain Ranch

Table 2 Evacuation Vehicle Estimates and Anticipated Distribution Assuming 100 Percent Occupancy (Worst Case Condition)

	Existing CMR Community	Trails at CMR Community	Shoal Creek Elem	Highland Ranch Elem	Regional Commercial	Industrial Uses	Combined
Dwelling Units (residences)	5,039	1,200	N/A	N/A	N/A	N/A	6,239
Persons per Unit	2.7	2.65	N/A	N/A	N/A	N/A	-
Calculated Population	13,605	3,180	771	743	4,758ª	9,272 ^b	32,329
Vehicles per Unit	2	2	12 Busses and 30 staff vehicles	12 Busses and 30 staff vehicles	N/A	N/A	-
Parking Spaces	N/A	N/A	N/A	N/A	2,379	13,802	16,181
Worst Case Number of Vehicles Evacuating	10,078	2,400	42	42	1,665	9,272	23,499

a Assumes two persons per vehicle

b Assumes one person per vehicle

4.1.1 Evacuation Time Discussion

For purposes of determining an appropriate discount on the travel time vehicle capacity estimate, it is important to know the potential worst-case evacuation population (number of vehicles) that could occur. Discounting the maximum vehicle capacity essentially slows down the calculated travel times, imitating congested roadways and/or bottleneck intersections. Trails at Carmel Mountain Ranch is unique in that it will be developed on non-contiguous parcels of a vacant golf course within the existing Carmel Mountain Ranch community. The Trails at Carmel Mountain Ranch would construct internal private roadways; however, does not propose to make any changes to the exiting external roadways. Therefore, Trails at Carmel Mountain Ranch would increase the number of vehicles evacuating on the following existing collector roadways (per Trails at Carmel Mountain Ranch EIR Table 3-1): Highland Ranch Road (246 vehicles), Eastbourne Road (240 vehicles), Carmel Ridge Road (1,000 vehicles), Shoal Creek Drive (370), Rancho Carmel Drive (412 vehicles), and Windcrest Lane (132 vehicles).

Based on the Trails at Carmel Mountain Ranch's largest development area's (Unit 9) estimated potential 600 vehicles and utilizing a roadway capacity during evacuation of 1,000 vehicles per hour, it is estimated that the last vehicle can be off site and onto a major thoroughfare in

approximately 36 minutes of wheels rolling. Table 3 provides the estimated evacuation time out of each development area.

	Number of New Units	Number of New Vehicles	Estimated Evacuation Time (roadway capacity 1,000 veh/hr)	Estimated Evacuation Time (roadway capacity 500 veh/hr)
Unit 1, Lot 1	66	132	7.92 minutes	15.84 minutes
Unit 2, Lot 1	87	174	10.44 minutes	20.88 minutes
Unit 5	78	156	9.36 minutes	18.72 minutes
Unit 6	128	256	15.36 minutes	30.72 minutes
Unit 8, Lot 1	98	196	11.76 minutes	23.52 minutes
Unit 9, Lot 1	300	600	36 minutes	72 minutes
Unit 10	200	400	24 minutes	48 minutes
Unit 16, Lot 1	123	246	14.76 minutes	29.52 minutes
Unit 17, Lot 1	120	240	14.40 minutes	28.80 minutes

Table 3Evacuation Time Per Development Unit

4.1.2 Mass Evacuation Vehicle Traffic

The Carmel Mountain Ranch community surrounds the proposed Trails at Carmel Mountain Ranch community, with a maximum of 5,039 dwelling units permitted within the Community Plan Area (CPA). If all permitted units are constructed within the CPA there will be a maximum of 10,078 vehicles evacuating the existing community. Within the Carmel Mountain there is also the Carmel Mountain Ranch Plaza, which has approximately 2,379 parking spaces and the Industrial-Office uses which provides approximately 11,052 parking spaces. Additionally, there are a total of approximately 1,514 students and teachers reside at the three schools within Carmel Mountain Ranch, many of which reside within Carmel Mountain Ranch, so do not represent additional population. Evacuations of this population would include buses and passenger vehicles with a total of up to 24 buses and an estimated 60 vehicles. This Project's additional vehicle volume would not be expected to materially impact evacuation of the existing development.

During a large wildfire moving from east to west, it is most likely, that evacuations would be directed west along Ted Williams Parkway, Carmel Mountain Road and Camino Del Norte, depending on the fire location and movement. The vehicle capacity estimates utilized for this evacuation plan are based on Synchro software, using the Highway Capacity Manual methodology for calculating adjusted saturation flow rates, and are discounted for various assumed traffic-related slowing, such as higher volume and downstream bottlenecks (Fehr and Peers 2021); therefore, the discounted vehicle capacity (3,080 vehicles per hour, per Table 1) includes capability
to absorb additional vehicles. With no capacity discounts, these roads would be capable of supporting 1,900 vehicles per lane⁸ (3,800 vehicles per hour) and an approximate 9.5 mph.

This evacuation plan assumes that law enforcement personnel are controlling downstream intersections to maintain traffic flow out of the area. If traffic flow is not maintained, then the estimated evacuation times would be expected to increase, potentially substantially, as is the case in any urban area. Additionally, this analysis assumes that all existing populations within Carmel Mountain Ranch and Trails at Carmel Mountain Ranch are evacuating simultaneously. Further, under the assumption that drivers of vehicles evacuating will choose or be directed to the least congested roadway, it is probable that vehicles would disperse evenly onto surrounding roadways. If this occurs, the following are assumptions for how vehicles within the Carmel Mountain Ranch and Trails at Carmel Mountain Ranch communities would travel during a mass evacuation event:

- 1. Residential uses East of Highland Ranch Road (between Ted Williams Parkway and Carmel Mountain Road): 50% of vehicles evacuating west towards Highland Ranch Road would travel north to Carmel Mountain Road, of which 25% would travel north to Camino Del Norte then west to I-15 and 25% would travel south to I-15, and 50% would travel south to Ted Williams Parkway.
- 2. Residential uses west of Highland Ranch Road and east of Shoal Creek Drive (between Carmel Mountain Road/Rancho Carmel Drive and Ted Williams Parkway): Approximately 25% of vehicles evacuating this area would travel north toward Highland Ranch Road, of which 12.5% would travel south to Ted Williams Parkway and 12.5% would travel north to Carmel Mountain Road. 25% would travel south to Shoal Creek Road, of which 12.5% would travel north to Rancho Carmel Drive and of that 7.25% would travel north to Carmel Mountain Road then west to I-15 and 7.5% would travel south to Ted Williams Parkway then west to I-15. 25% would travel south to Ted Williams Parkway and then west to the I-15. 12.5% would travel north to Carmel Mountain then west to the I-15. The remaining 12.5% would travel north to Rancho Carmel Drive and of that 7.25% would travel north to Carmel Mountain Road then west to I-15 and 7.5% would travel north to Carmel Mountain then west to the I-15. The remaining 12.5% would travel north to Rancho Carmel Drive and of that 7.25% would travel north to Carmel Mountain Road then west to I-15 and 7.5% would travel north to Carmel Mountain then west to the I-15. The remaining 12.5% would travel north to Rancho Carmel Drive and of that 7.25% would travel north to Carmel Mountain Road then west to I-15 and 7.5% would travel south to Ted Williams Parkway then west to I-15.
- 3. **Residential uses south of Shoal Creek Drive between Ted Williams Parkway and Rancho Carmel Drive:** 60% would travel north to Shoal Creek Drive, of which 30% would travel south to Ted Williams Parkway then west to the I-15 and 30% would travel north to Rancho Carmel Drive, of which 15% would travel north to Carmel Mountain Road then west to I-15 and 15% would travel south to Ted Williams Parkway then west to I-15. The remaining 40% of vehicles would travel west to Rancho Carmel Drive of which 20%

⁸ Per Highway Capacity Manuel, 6th Edition: A Guide for Multimodal Mobility Analysis.

would travel south to Ted Williams Parkway and 20% would travel north to Carmel Mountain Drive then west to the I-15.

- 4. **Residential uses west of Rancho Carmel Drive:** 100% of vehicles would travel east to Rancho Carmel Drive, of which 50% of vehicles would travel north to Carmel Mountain Road then west to I-15 and 50% of vehicles would travel south to Ted Williams Parkway the west to I-15.
- 5. **Residential uses south of Ted Williams Parkway:** 100% of vehicles would travel north to Ted Williams Parkway then west to I-15.
- 6. **Carmel Mountain Plaza:** 50% of vehicles would travel south to Carmel Mountain Road, of which 25% would travel north to Camino Del Norte than west to I-15 and 25% of vehicles would travel south along Carmel Mountain Road to the I-15. The remaining 50% of vehicles would travel north to Rancho Carmel Drive, of which 25% would travel north to Carmel Mountain Road then west on Camino Del Norte to the I-15 and 25% would travel south to Carmel Mountain Road then west to the I-15.
- 7. **Industrial-Office Uses:** 40% would travel north to Camino Del Norte via World Trade Drive. The remaining 60% would travel south to Rancho Carmel Drive, of which 30% would travel north on Carmel Mountain Drive to Camino Del Norte and west to the I-15, and 30% would travel south to Carmel Mountain Road then west to I-15.

4.1.3 Potential for Project Evacuation Impact on Existing Conditions

The potential occurrence of a large evacuation event including evacuation of existing populations is minimal, but possible. In this case, the existing populations would be associated with Carmel Mountain Ranch residences, Shoal Creek Elementary, Highland Ranch Elementary, Industrial-Office uses, and Carmel Mountain Plaza.

As mentioned, this analysis caps the evacuation route traffic capacity at 1,000 vehicles per hour on internal roads and 3,080 vehicles per hour on the three major evacuation route roadways in each direction. This capacity is lower than each travel lane could support under ideal conditions but is utilized as a method to reflect evacuation conditions, where there may be a traffic surge that slows vehicle speeds. Understanding the speed vehicles would travel to support 1,000 or 3,080 vehicles per hour provides additional supporting context. If the average vehicle is approximately 16 feet long, and allowing approximately 10 feet between vehicles (26 total feet per vehicle) for 1,000 vehicles per hour and 15 feet between vehicles (31 total feet per vehicle) for 3,080 vehicles per

hour, an average travel speed of approximately 10 or 15 mph would enable 2,000 or 3,000 vehicles to pass a given point every hour, respectively. This is calculated by the following:

- 1,000 vehicles per hour = 16.67 vehicles per minute = 1 vehicle every 3.6 seconds
- 5 mph = 7.35 feet per second (1 mph = 1.47 feet per second)

Therefore, at 7.35 feet/second x 3.6 seconds = 26.5 feet. Each vehicle (16 feet + 10 feet = 26 feet) is allotted 3.6 seconds to pass a given point. In order for 1,000, 2,000, or 3,000 vehicles to pass that given point, a speed of 4.9, 9.8 and 14.8 mph is necessary, respectively, per Table 4. The average human walking speed is around 3 mph.

Vehicles per hour	Vehicles per minute	Seconds for a vehicle (26') to pass a given point	Feet per second for a vehicle to pass a given point	mph for a vehicle to pass a given point
1000	16.67	3.60	7.35	5
1200	20	3.00	8.82	6
2000	33.33	1.80	14.70	10
3000	50	1.20	22.05	15

Table 4Vehicle Speeds Based on Road Capacity

Therefore, the following travel time and evacuation estimates are not reliant on unrealistic vehicle speeds in order to achieve the use of 1,000 and up to 3,080 vehicles per hour capacity and are representative of congested roadways that can occur during evacuations, especially the initial phase where traffic surges are common. It is likely that more than 3,080 vehicles per hour would be possible on Ted Williams Parkway, Carmel Mountain or Camino Del Norte with law enforcement traffic control.

Based on the factors and assumptions previously detailed regarding evacuation routes, and incorporating standard pre-evacuation timeframes and the evacuation route estimates detailed in Table 5, it is estimated that the existing condition would see all evacuating traffic from Carmel Mountain Ranch, Carmel Mountain Plaza, Industrial-Office uses, Shoal Creek Elementary and Highland Ranch Elementary University Commons via Ted Williams Parkway, Carmel Mountain Road or Camino Del Norte. With the Project, the same traffic conditions are expected, but the Project's traffic would also be added to the formula.

Wildfire Evacuation Plan Trails at Carmel Mountain Ranch

	Existing ((Scena	Condition ario 1)	Existing Condition + Project (Scenario 2)		Existing Conditions + Project (Scenario 3)		Existing Conditions + Project (Scenario 4)		Existing Conditions + Project (Scenario 5)	
Evacuation Route using;	Percent of Vehicles	Total Vehicles	Percent of Vehicles	Total Vehicles	Percent of Vehicles	Total Vehicles	Percent of Vehicles	Total Vehicles	Percent of Vehicles	Total Vehicles
Ted Williams Parkway to I-15	33.3	7,033	33.3 (EC) / 33.3 (P)	7,033 (EC) / 800 (P)	50 (EC) / 50 (P)	10,549 (EC) / 1,200 (P)	-	-	50 (EC) / 50 (P)	10,549 (EC) / 1,200 (P)
Carmel Mountain Road to I-15	33.3	7,033	33.3 (EC) / 33.3 (P)	7,033 (EC) / 800 (P)	50 (EC) / 50 (P)	10,550 (EC) / 1,200 (P)	50 (EC) / 50 (P)	10,549 (EC) / 1,200 (P)	-	-
Camino Del Norte to I-15	33.3	7,033	33.3 (EC) / 33.3 (P)	7,033 (EC) / 800 (P)	-	-	50 (EC) / 50 (P)	10,550 (EC) / 1,200 (P)	50 (EC) / 50 (P)	10,549 (EC) / 1,200 (P)
Total	100	21,099	100	7,033+ 7,033+ 7,033+ 800+ 800+800 =23,499	100	10,549+ 10,549+ 1,200+ 1,200 =23,499	100	10,549+ 10,549+ 1,200+ 1,200 =23,499	100	10,549+ 10,549+ 1,200+ 1,200 =23,499

Table 5Evacuation Route Usage and Time Estimates

Based on the preceding assumptions and the travel time formula, the time estimates for the existing condition and the Project scenario are summarized in Table 6. As noted, there is virtually no change in overall travel time in these region wide evacuation travel time scenarios. This is due to the relatively small number of additional vehicles, approximately 10%, that would be generated by Trails at Carmel Mountain Ranch.

Route: Scenario	1. Existing Cond.	2. Existing Cond. + Project	3. Existing Cond. + Project	4. Existing Cond. + Project	5. Existing Cond. + Project	Minimum Road Capacity (vehicles per hour)	Existing Cond. Estimated Evacuation Travel Timeframe	Existing Cond. + Project Estimated Evacuation Travel Timeframe**	Travel Time Increase with Project
Ted Williams Parkway	7,033	7,033 (EC) / 800 (P)	10,549 (EC) / 1,200 (P)	0	10,549 (EC) / 1,200 (P)	3,080	7,033 vehicles 2.28 hrs or 136.8 min	7,833 vehicles 2.54 hrs or 152.4 min	0.26 hrs or 15.6 min
Carmel Mountain Road to I-15	7,033	7,033 (EC) / 800 (P)	10,550 (EC) / 1,200 (P)	10,549 (EC) / 1,200 (P)	0	3,080	7,033 vehicles 2.28 hrs or 136.8 min	7,833 vehicles 2.54 hrs or 152.4 min	0.26 hrs or 15.6 min
Carmel Mountain Road to I-15	7,033	7,033 (EC) / 800 (P)	0	10,550 (EC) / 1,200 (P)	10,550 (EC) / 1,200 (P)	3,080	7,033 vehicles 2.28 hrs or 136.8 min	7,833 vehicles 2.54 hrs or 152.4 min	0.26 hrs or 15.6 min
Total Vehicles	21,099	23,499	23,499	23,499	23,499	NA	NA	NA	NA

Table 6Project Evacuation Travel Timeframes*

Includes "wheels rolling" where all persons have left their home. Does not include notification, mobilization and travel out of the area
Estimated evacuation travel timeframe is calculated by dividing the maximum number of vehicles using each evacuation route by the route's lowest vehicle capacity. The longest evacuation route timeframe is used to represent the overall travel time.

The Project evacuation scenario results in a worst-case calculated 2.28 hours or 136.8 minutes travel time to fully evacuate all studied populations. With the Project, there is an increase in the calculated evacuation travel time of up to an estimated 15.6 minutes for all evacuation routes.

This travel time calculation is conservative in both the number of vehicles evacuating and the number of vehicles per hour that can be accommodated.

4.2 Evacuation Route Determination

Typically, fire and law enforcement officials will identify evacuation points before evacuation routes are announced to the public. Evacuation routes are determined based on the location and extent of the incident and its spread rate and direction and include as many pre-designated transportation routes as possible. However, field conditions and shifting fire behavior may result in real-time changes to predetermined routes. Having additional evacuation route options is considered critical in these conditions. Under extreme fire weather events, it is unlikely that evacuation would occur to the east and this analysis assumes all traffic, existing and proposed Project related would be sent west to I-15.

5 THE TRAILS AT CARMEL MOUNTAIN RANCH AND CARMEL MOUNTAIN RANCH RESIDENT WILDFIRE/ EVACUATION AWARENESS

The Trails at Carmel Mountain Ranch HOA should be active in its outreach to its residents regarding fire safety and general evacuation procedures. There are aspects of fire safety and evacuation that require a significant level of awareness by the residents and emergency services in order to reduce and/or avoid problems with an effective evacuation. Mitigating potential impediments to successful evacuations requires focused and repeated information through a strong educational outreach program. The Trails at Carmel Mountain Ranch HOA should engage residents and coordinate with local fire agencies for fire safety awareness through a variety of methods and provide opportunities for the Carmel Mountain Ranch residents to opt in to this outreach.

This evacuation plan will be accessible on the HOA's website. Annual reminder notices will be provided to each homeowner encouraging them to review the plan and be familiar with community evacuation protocols. The HOA will coordinate with local fire agencies to hold an annual fire safety and evacuation preparedness informational meeting. The meeting will be attended by representatives of appropriate fire agencies and important fire and evacuation information will be reviewed. One focus of these meetings and of the HOA's annual message will be on the importance of each resident to prepare and be familiar with their own "Ready, Set, Go!" evacuation plan. The "Ready, Set, Go!" program is defined at http://www.readysandiego.org/Resources/ wildfire_preparedness_guide.pdf, and information about preparing an individual Action Plan is provided in Appendix A of this document.

The focus of the "Ready, Set, Go!" program is on public awareness and preparedness, especially for those living in the wildland-urban interface (WUI) areas. The program is designed to incorporate the local fire protection agency as part of the training and education process in order to ensure that evacuation preparedness information is disseminated to those subject to the potential impact from a wildfire. There are three components to the program:

• "READY" – Preparing for the Fire Threat: Take personal responsibility and prepare long before the threat of a wildfire so you and your home are ready when a wildfire occurs. Create defensible space by planting and maintaining ignition-resistant vegetation near your home. Use only fire-resistant landscaping and maintain the ignition resistance of your home. Assemble emergency supplies and belongings in a safe spot. Confirm you are registered for Reverse 911, AlertSanDiego, and Community alert system. Make sure all residents residing within the home understand the plan, procedures and escape routes.

- "SET" Situational Awareness When a Fire Starts: If a wildfire occurs and there is potential for it to threaten the Trails at Carmel Mountain Ranch and Carmel Mountain Ranch communities, pack your vehicle with your emergency items. Stay aware of the latest news from local media and your local fire department for updated information on the fire. If you are uncomfortable, leave the area.
- "GO!" Leave Early! Following your Action Plan provides you with knowledge of the situation and how you will approach evacuation. Leaving early, well before a wildfire is threatening your community, provides you with the least delay and results in a situation where, if a majority of neighbors also leave early, firefighters are now able to better maneuver, protect and defend structures, evacuate other residents who couldn't leave early, and focus on citizen safety.

"READY SET GO!" is predicated on the fact that being unprepared and attempting to flee an impending fire late (such as when the fire is physically close to your community) is dangerous and exacerbates an already confusing situation. This Trails at Carmel Mountain Ranch Wildfire Evacuation Plan provides key information that can be integrated into the individual Action Plans, including the best available routes to use in the event of an emergency evacuation.

Situation awareness requires a reliable information source. One of the most effective public notification methods is Reverse 911. The San Diego OES operates the Reverse 911 notification system that provides a recorded message over land line telephone systems relating to evacuation notices. In addition, OES operates a program known as "Alert San Diego" that has the capability to send emergency notifications over both land lines as well as to cell phones and via text messages. It is up to individual residents to register their cell phones for "Alert San Diego." The registration of cell phones can be done on line at www.ReadySanDiego.com. In addition, the San Diego Emergency Alert System (EAS) is county-wide and broadcasts emergency information via two radio stations: KOGO AM 600 and KLSD AM 1360.

As part of the Trails at Carmel Mountain Ranch resident fire awareness and evacuation readiness program, which will be available to Carmel Mountain Ranch residents who opt in, information will be delivered in a variety of methods. The HOA will be responsible for providing access to this Wildfire Evacuation Plan, including materials from the "Ready, Set, Go!" Program.

As part of the approval of Trails at Carmel Mountain Ranch, it shall be binding on the HOA to actively participate as a partner with the SDFRD to assist with the coordination and distribution of fire safety information they develop to the greater Trails at Carmel Mountain Ranch and Carmel Mountain Ranch communities.

6 TRAILS AT CARMEL MOUNTAIN RANCH COMMUNITY EVACUATION PROCEDURES

6.1 Relocation/Evacuation

It is estimated that the minimum amount of time needed to move Trails at Carmel Mountain Ranch and Carmel Mountain Ranch population to urbanized and/or designated evacuation areas may require up to 2.59 hours or more under varying constraints that may occur during an evacuation. This does not include additional allowances for the time needed to detect and report a fire, for fire response and on-site intelligence, for phone, patrols, and aerial based notifications, and for notifying special needs citizens.

Wolshon and Marchive (2007) simulated traffic flow conditions in a computer derived WUI under a range of evacuation notice lead times and housing densities. To safely evacuate more people, they recommended that emergency managers (1) provide more lead time to evacuees and (2) control traffic levels during evacuations so that fewer vehicles are trying to exit at the same time.

Wildfire emergency response procedures will vary depending on the type of wildfire and the available time in which decision makers (IC, SDFRD, CAL FIRE, SDSD, and/or County Office of Emergency Management) can assess the situation and determine the best course of action. Based on the Trails at Carmel Mountain Ranch and Carmel Mountain Ranch communities, its road network, and the related fire environment, the first and primary type of evacuation envisioned is an orderly, pre-planned evacuation process where people are evacuated from the Trails at Carmel Mountain Ranch communities to more urban areas further from an encroaching wildfire (likely to urban areas south [and west] or north) well before fire threatens. This type of evacuation must include a conservative approach to evacuating; i.e., when ignitions occur and weather is such that fires may spread rapidly, evacuations should be triggered on a conservative threshold that includes time allowances for unforeseen, but possible, events that would slow the evacuation process.

The second type of evacuation is considered by many to offer the highest level of life protection to the public, but it can result in evacuees being placed in harm's way if the time available for evacuation is insufficient (Cova et al. 2011). An example of this type of evacuation, which is highly undesirable from a public safety perspective, is an evacuation that occurs when fire ignites close to vulnerable communities. This type of situation is inherently dangerous because there is generally a higher threat to persons who are in a vehicle on a road when fire is burning in the immediate area than in a well-defended, ignition-resistant home. Conditions may become so poor that the vehicle drives off the road or crashes into another vehicle, and flames and heat overcome the occupants. A vehicle offers little shelter from a wildfire if the vehicle is situated near burning

vegetation or catches fire itself. This type of evacuation must be considered a very undesirable situation by law and fire officials in all but the rarest situations where late evacuation may be safer than seeking temporary refuge in a structure (such as when there are no nearby structures, the structure[s] is/are already on fire, or when there is no other form of refuge). Temporary refuge would be possible within the Trails at Carmel Mountain Ranch structures, but the greater Carmel Mountain Ranch structures, as previously discussed, are less desirable due to their higher vulnerability to ignition.

The third potential type of evacuation is a hybrid of the first two. In cases where evacuation is in process and changing conditions result in a situation that is considered unsafe to continue evacuation, it may be advisable to direct evacuees to pre-planned temporary refuge locations, including their own home if it is ignition-resistant and defensible, such as those at Trails at Carmel Mountain Ranch. As with the second type of evacuation discussed above, this situation is considered highly undesirable, but the evacuation pre-planning must consider these potential scenarios and prepare decision makers at the IC level and at the field level for enacting a contingency to evacuation when conditions dictate.

Indications from past fires and related evacuations, in San Diego County and throughout Southern California, which have experienced increasingly more frequent and larger fires, are that evacuations are largely successful, even with a generally unprepared populace. It then stands to reason that an informed and prepared populace would minimize the potential evacuation issues and related risk to levels considered acceptable from a community perspective.

Evacuation orders or notifications are often triggered based on established and pre-determined model buffers, which are based on topography, fuel, moisture content of the fuels and wind direction. Evacuations are initiated when a wildfire reaches or crosses one of these pre-determined buffers. Evacuations can also be very fluid. The IC, law enforcement and OES would jointly enact evacuations based on fire behavior.

6.2 The Trails at Carmel Mountain Ranch and Carmel Mountain Ranch Communities Evacuation Baseline

For purposes of this Wildfire Evacuation Plan, the first and most logical choice for all of the residents and guests within the boundaries of Trails at Carmel Mountain Ranch and Carmel Mountain Ranch communities is to adhere to the principles and practices of the "Ready, Set, Go!" Program previously mentioned in this document. As part of this program, it is important that each household develop a plan that is clearly understood by all family members and participates in the educational and training programs sponsored by the Trails at Carmel Mountain Ranch HOA and the SDFRD. In addition, it is imperative that the "Ready, Set, Go!" program information be reviewed on a routine basis along with the accompanying maps illustrating evacuation routes,

temporary evacuation points and pre-identified evacuation points. It must be kept in mind that conditions may arise that will dictate a different evacuation route than the normal roads used on a daily basis.

Residents are urged to evacuate as soon as they are notified to do so or earlier if they feel uncomfortable. Directions on evacuation routes will be provided in most cases, but when not provided, the Trails at Carmel Mountain Ranch and Carmel Mountain Ranch community residents will proceed according to known available routes away from the encroaching fire as detailed in Section 1 of this report. Residents are cautioned not to rely on navigation aid apps which may inadvertently lead them toward an oncoming fire. Depending on the type of emergency and the resulting evacuation, it could take as long as two and a half hours or more to complete a Trails at Carmel Mountain Ranch and Carmel Mountain Ranch community-wide evacuation, based on road capacities and competing use of the roads by residents from other areas.

Note: this evacuation plan will require adjustment and continued coordination by the Trails at Carmel Mountain Ranch HOA and/or developer and fire/law enforcement agencies during each of the construction phases. With each phase, the evacuation routes may be subject to changes with the addition of both primary and secondary evacuation routes.

6.3 Civilian and Firefighter Evacuation Contingency

As of this document's preparation, no community in California has been directed to shelter-inplace during a wildland fire. Even the communities in Rancho Santa Fe, California, which are designed and touted as shelter-in-place communities, were evacuated during the 2007 Witch Creek Fire. This is not to say that people have not successfully sheltered-in-place during wildfire, where there are numerous examples of people sheltering in their homes, in hardened structures, in community buildings, in swimming pools, and in cleared or ignition-resistant landscape open air areas. The preference will always be early evacuation following the "Ready, Set, Go!" model, but there exists the potential for unforeseen civilian evacuation issues, and having a contingency plan will provide direction in these situations that may result in saved lives.

Potential problems during wildfire evacuation from the Trails at Carmel Mountain Ranch and Carmel Mountain Ranch communities include:

- Inadequate time to safely evacuate
- Fire evacuations during rush hour traffic or when large events are occurring
- Blocked traffic due to accidents or fallen tree(s) or power pole(s)
- The need to move individuals who are unable to evacuate

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It is recommended that local law enforcement and fire agencies conduct concerted pre-planning efforts focusing on evacuation contingency planning for civilian populations when it is considered safer to temporary seek a safer refuge than evacuation. Trails at Carmel Mountain Ranch's structures would allow for the possibility of temporary sheltering while the Carmel Mountain Ranch' structures would not typically be considered ignition-resistant and therefore, not appropriate for temporary refuge.

6.3.1 Safety Zones

The International Fire Service Training Association (IFTSA; Fundamentals of Wildland Fire Fighting, 3rd Edition) defines "safety zones" as areas mostly devoid of fuel, which are large enough to assure that flames and/or dangerous levels of radiant heat will not reach the personnel occupying them. Areas of bare ground, burned over areas, paved areas, and bodies of water can all be used as safety zones. The size of the area needed for a safety zone is determined by fuel types, its location on slopes and its relation to topographic features (chutes and saddles) as well as observed fire behavior. Safety zones should never be located in topographic saddles, chutes or gullies. High winds, steep slopes or heavy fuel loads may increase the area needed for a safety zone.

The National Wildland Fire Coordinating Groups (NWFCG), Glossary of Wildland Fire Terminology provides the following definitions for safety zones:

Safety Zone. An area cleared of flammable materials used for escape in the event the line is outflanked or in case a spot fire causes fuels outside the control line to render the line unsafe. In firing operations, crews progress so as to maintain a safety zone close at hand allowing the fuels inside the control line to be consumed before going ahead. Safety zones may also be constructed as integral parts of fuelbreaks; they are greatly enlarged areas, which can be used with relative safety by firefighters and their equipment in the event of blowup in the vicinity.

According to NWFCG, safety zone(s):

- Must be survivable without a fire shelter
- Can include moving back into a clean burn
- May take advantage of natural features (rock areas, water, meadows)
- Can include constructed sites (clear-cuts, roads, helispots)
- Are scouted for size and hazards
- Consider the topographic location (larger if upslope)

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- Should be larger if downwind
- Should not include heavy fuels
- May need to be adjusted based on site-specific fire behavior

The definition for a safety zone includes provisions for separation distance between the firefighter and the flames of at least four times the maximum continuous flame height. Distance separation is the radius from the center of the safety zone to the nearest fuels. For example, considering worstcase 41-foot tall flame lengths that may be possible in open space near this site (Dudek 2020), then a 164-foot separation would be required, and potentially more could be needed if there were sitespecific features that would result in more aggressive fire behavior. The calculated 41-foot-tall flame lengths are not directly adjacent to this site and are longer than the fire behavior modeling results for fuels on and directly adjacent to the Project's developed area.

Safety zones are not readily available within the Carmel Mountain Ranch community, but the Carmel Mountain Plaza, a shopping center in the northern portion of the Carmel Mountain Ranch community offers the best possibility for a safety zone for firefighter use. The Trails at Carmel Mountain Ranch community will include the ability for firefighters to seek safety zones within the ignition-resistant landscapes, but identification of other potential safety zones will require additional focused study by SDFRD and other fire and law enforcement agencies.

6.3.2 Temporary Firefighter Refuge Areas

Firescope California (Firefighting Resources of Southern California Organized for Potential Emergencies) was formed by legislative action to form a partnership between all facets of local, rural, and metropolitan fire departments, CAL FIRE and federal fire agencies. Firescope defines a contingency plan when it is not possible to retreat to a safety zone. This contingency includes establishment of firefighter temporary refuge areas (TRAs), which are defined as:

A preplanned area where firefighters can immediately take refuge for temporary shelter and short-term relief without using a fire shelter in the event that emergency egress to an established safety zone is compromised.

Examples of a TRA may include the lee side of a structure, inside of a structure, large lawn or parking areas, or cab of a fire engine, amongst others. Differences between a TRA and a Safety Zone is that TRAs are closer to the immediate firefighting area, are considered a contingency to being able to get to a safety zone, do not include a requirement for a large area set back four times the flame lengths of adjacent fuels, and cannot be feasibly pre-planned until firefighters arrive on-scene and size up the situation.

Firescope appropriately notes that although safety zones and viable escape routes shall always be identified in the WUI environment, they may not be immediately available should the fire behavior increase unexpectedly. Often a TRA is more accessible in the WUI environment. A TRA will provide temporary shelter and short-term relief from an approaching fire without the use of a fire shelter and allow the responders to develop an alternate plan to safely survive the increase in fire behavior.

The major difference between a TRA and a safety zone is that a TRA requires another planned tactical action; i.e., TRAs cannot be considered the final action, but must include self-defense and a move out of the area when the fire threat subsides. A TRA should be available and identified on site at a defended structure. TRAs are NOT a substitute for a safety zone. TRA pre-planning is difficult, at best because they are very site- and fire behavior-specific. For the Carmel Mountain Ranch community, TRAs would likely include navigating into any of the Trails at Carmel Mountain Ranch neighborhoods within the more densely developed areas where firefighters would be separated from the unmaintained wildland fuels by wide areas including site-wide maintained landscapes, ignition-resistant residences, and wide roads that offer numerous opportunities for TRA.

The entire developed portions of Trails at Carmel Mountain Ranch neighborhoods, but especially the interior areas of neighborhoods, are considered TRAs. This is an important concept because it offers last-resort, temporary refuge of firefighters, and in a worst-case condition, residents. This approach would be consistent with Firescope California (2013), which indicates that firefighters must determine if a safe evacuation is appropriate and if not, to identify safe refuge for those who cannot be evacuated, including civilians.

Each of the site's residences that can be considered for TRA include the following features:

- Ignition-resistant construction
- Annual landscape inspections by 3rd party inspectors
- Wide roadways with fire hydrants
- Maintained landscapes and roadside fuel modification
- Ember-resistant vents
- Interior fire sprinklers

Because there is the possibility that evacuation of the Trails at Carmel Mountain Ranch and Carmel Mountain Ranch communities may be less safe than temporarily refuging on site, such as during a fast-moving, wind-driven fire that ignites nearby, including temporary refuge within some properly designed, constructed and maintained residences on site is considered a contingency plan for the Carmel Mountain Ranch Community. This concept is considered a component of the "Ready, Set, Go!" model as it provides a broader level of "readiness" should the ability to execute an early evacuation be negated by fire, road congestion, or other unforeseen issues.

Note: this approach would be considered a last-resort contingency during wildfire with the primary focus being on early evacuation. The decision for evacuation or temporarily refuging on site will be made by responding law enforcement and/or fire personnel.

6.4 Social Aspects of Wildfire Evacuation

Orderly movement of people is the result of planning, training, education, and awareness, all of which are promoted in San Diego. Evacuation has been the standard term used for emergency movement of people and implies imminent or threatening danger. The term in this Wildfire Evacuation Plan, and under the "Ready, Set, Go!" concept, indicates that there is a perceived threat to persons and movement out of the area is necessary, but will occur according to a pre-planned and practiced protocol, reducing the potential for panic.

Citizen reactions may vary during an evacuation event, although several studies indicate that orderly movement during wildfire and other emergencies is not typically unmanageable. Evacuation can be made even less problematic through diligent public education and emergency personnel training and familiarity. Social science research literature indicates that reactions to warnings follow certain behavior patterns that are defined by people's perceptions (Aguirre 1994; Drabek 1991; Fitzpatrick and Mileti 1994; Gordon 2006; Collins 2004) and are not unpredictable. In summary, warnings received from credible sources by people who are aware (or have been made aware) of the potential risk, have the effect of an orderly decision process that typically results in successful evacuation. This success is heightened when evacuations are not foreign to residents (Quarantelli and Dynes 1977; Lindell and Perry 2004) as will occur within the Carmel Mountain Ranch and Trails at Carmel Mountain Ranch area. Further, in all but the rarest circumstances, evacuees will be receiving information from credible sources during an evacuation. It would be anticipated that law enforcement and/or fire personnel would be on site to help direct traffic and would be viewed by evacuees as knowledgeable and credible. The importance of training these personnel cannot be overstated and annual education and training regarding fire safety and evacuation events will be essential for successful future evacuations.

6.4.1 Evacuation of Special Populations

Vogt (1990 and 1991) defines special populations as those groups of people who, because of their special situations or needs, require different planning strategies from those of the

general population. Special needs populations include those in institutions or special facilities, those with disabilities in homes, those who need care, children, and others who cannot provide for their own evacuation if necessitated. The special needs population is concentrated in facilities, but is also widespread in terms of facility locations and those who live in residences. Special needs populations in the Trails at Carmel Mountain Ranch and Carmel Mountain Ranch communities include the hearing or visually impaired, foreign speaking, visitors passing through the area, temporary visitors such as day workers, and the non-ambulatory confined to residences either temporarily or permanently.

Tourists and temporary visitors may not have knowledge of the area's fire hazard, they may not know how to react in a fire emergency, and they may not understand what they are being told to do. Conversely, this segment of the population would typically be easier to evacuate quickly as they have no possessions or pets they would need to prepare. They can get in their cars and be directed out of the area.

6.4.2 Animal Evacuations

Animal evacuations present a host of challenges that may affect the overall successful movement of people and their possessions out of harm's way. For example, livestock owners do not always have the means to load and trailer their livestock out of the area. Further, most wildfire evacuation relief shelters or commercial lodging facilities do not allow people to bring in pets or other animals. Sorensen and Vogt (2006) indicate that an issue receiving increasing attention is what evacuees do with pets or other animals such as livestock when they leave their homes and whether having pets or animals impacts their decision to evacuate.

Neither the Trails at Carmel Mountain Ranch and Carmel Mountain Ranch communities accommodate livestock on site. Household pets are a common occurrence.

6.4.3 Re-Entry Procedures

An important component of evacuations is the citizen re-entry process. Guidance and procedures to ensure a coordinated, safe, and orderly re-entry into impacted communities following an incident is provided in the County of San Diego Re-Entry Protocol.

Re-entry will be initiated by the IC/Unified Command of the Incident Management Team, with the support of the Director of Emergency Services, the OA EOC Director, and the Operations Section Chief at the OA EOC. In most cases, the OA EOC will remain activated until full re-entry is complete. In the event that the OA EOC has been deactivated, the IC or the Liaison Officer of the Incident Management Team will initiate re-entry procedures.

The IC will designate a Re-Entry Coordinator and the Operations Section Chief of the OA EOC will coordinate with and support the Re-Entry Coordinator. The Re-Entry Coordinator is responsible for coordinating the re-entry procedures with all involved agencies and ensuring effective communication.

The impacted areas must be thoroughly investigated to ensure it is safe for residents to return and normal operations have been restored.

The public will be notified of the re-entry status through the notification measures previously mentioned in this annex, including SDCountyEmergency.com, SDEmergency App for smart phones, emergency broadcast radio, television, press releases, informational phone lines such as 2-1-1, community briefings, and informational updates at shelters.

Once evacuees are permitted to return, it is important that procedures are established to properly identify residents and critical support personnel, as well as ensure the legitimacy of contractors, insurance adjustors, and other personnel. Re-entry points should be staffed by law enforcement personnel.

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7 LIMITATIONS

This Wildfire Evacuation Plan has been developed based on City of San Diego wildfire and evacuation standards and the San Diego City and County Evacuation Annexes and is specifically intended as a guide for evacuations for the Trails at Carmel Mountain Ranch and Carmel Mountain Ranch communities. This plan provides basic evacuation information that will familiarize the Trails at Carmel Mountain Ranch and Carmel Mountain Ranch residents with the evacuation route options that may be available to them during an emergency. However, because emergencies requiring evacuation have many variables and must be evaluated on a case-by-case basis, real-time law enforcement and fire personnel/agencies' decision-making and direction during an emergency requiring evacuation would supersede this plan.

This plan analyzes the Carmel Mountain Ranch's evacuation times currently and with the Trails at Carmel Mountain Ranch. The estimated evacuation times are based on several assumptions as detailed in this plan. However, actual evacuation times may be faster or slower than the estimates, depending on the type of emergency, the extent of the evacuation, the time of day, and other factors. A Trails at Carmel Mountain Ranch and Carmel Mountain Ranch collective, community–wide evacuation would include congested roads in its existing condition that are improved, but still congested, with the Trails at Carmel Mountain Ranch Project. Congested roads are normal in any urban setting when a mass evacuation is declared unless it is managed and evacuation areas are staggered to reduce the potential traffic surges that can significantly impact evacuations. Therefore, even though the additional evacuation road to the southeast through the Trails at Carmel Mountain Ranch Project and the northern route enhancement improves the evacuation process substantially from the existing Carmel Mountain Ranch configuration, there would likely still be congestion and delays.

This Wildfire Evacuation Plan promotes the "Ready, Set, Go!" model, adopted by County OES, CAL FIRE, and many fire agencies statewide, including SDCFA. The goal is to raise agency and citizen awareness of potential evacuation issues and get a majority of the public "Ready" by taking a proactive stance on preparedness, training drills, visitor education, and evacuation planning efforts. The Trails at Carmel Mountain Ranch and Carmel Mountain Ranch populace will be "Set" by closely monitoring the situation whenever fire weather occurs and/or when wildland fire occurs, and elevating pre-planned protocol activities and situation awareness. Lastly, officials will implement the plan and mandate that populations "Go" by executing pre-planned evacuation procedures in a conservative manner, i.e., evacuation will occur based on conservative decision points, as proposed in this evacuation plan or when directed by fire and law enforcement personnel, whichever is more conservative. The preferred alternative will always be early evacuation. However, there may be instances when evacuation is not possible, is not considered safe, or is not an option based on changing conditions. For example, should a fire occur and make evacuation from the Project area ill advised, a contingency plan for residents should be available. This

contingency would include moving people to pre-designated TRAs until it is safe to evacuate or the threat has been mitigated.

Ultimately, it is the intent of this Wildfire Evacuation Plan to guide the implementation of evacuation procedures such that the process of evacuating people from the Trails at Carmel Mountain Ranch and Carmel Mountain Ranch is facilitated in an efficient manner and according to a pre-defined evacuation protocol as well as providing a contingency option of temporarily refuging (for the Trails at Carmel Mountain Ranch), if evacuation is considered less safe. The Trails at Carmel Mountain Ranch and Carmel Mountain Ranch), if evacuation is considered less safe. The Trails at Carmel Mountain Ranch and Carmel Mountain Ranch residents will be aware of this evacuation plan as the Trails at Carmel Mountain Ranch's HOA will post it on its website and provide reminders to residents on at least an annual basis. This educational outreach will result in a populace that understands the potential for evacuations and the routes and options that may be presented to them.

During extreme fire weather conditions, there are no guarantees that a given structure will not burn or that evacuations will be successful all of the time. Wildfires may occur in the area that could damage property or harm persons. However, successful implementation of the procedures outlined in this Wildfire Evacuation Plan will provide for an informed populace regarding evacuations.

This Wildfire Evacuation Plan does not provide a guarantee that all persons will be safe at all times because of the procedures discussed. There are many variables that may influence overall safety. This Plan provides a summary for implementation of standard evacuation protocols, suggested roadway enhancements, and public outreach, which should result in reduced wildfire related risk and hazard. Even then, fire can compromise the procedures through various, unpredictable ways. The goal is to reduce the likelihood that the system is compromised through implementation of the elements of this Plan and regular occurring program maintenance and updates.

It is recommended that the evacuation process is carried out with a conservative approach to fire safety. This approach must include establishing and maintaining the Trails at Carmel Mountain Ranch fuel modification landscape on a property by property basis, infrastructural, and ignition-resistant construction components (retrofitting as possible) according to the appropriate standards and embracing a "Ready, Set, Go!" stance on evacuation. Accordingly, evacuation of the wildfire areas should occur according to pre-established evacuation decision points, or as soon as they receive notice to evacuate, which may vary depending on many environmental and other factors. Fire is a dynamic and somewhat unpredictable occurrence and it is important for anyone living at the wildland-urban interface to educate themselves on practices that will improve safety.

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APPENDIX A

"Ready, Set, Go!" Resident Wildland Fire Action Guide

WILDFIRE IS COMING. ARE YOU...

DEFENSIBLE SPACE AND HARDENING YOUR HOME.



THOUSANDS OF WILDFIRES STRIKE CALIFORNIA EVERY YEAR. IT'S NOT A MATTER OF IF YOUR HOME IS AT RISK, BUT WHEN.

ReadyForWildfire.org

PLANT AND TREE SPACING

The spacing between grass, shrubs, and trees is crucial to reduce the spread of wildfire. The spacing needed is determined by the type and size of the shrubs and trees, as well as the slope of the land. For example, a property on a steep slope with larger plant life will require greater spacing between trees and shrubs than a level property that has small, sparse vegetation.

VERTICAL SPACING

Remove all tree branches at least 6 feet from the ground.

If shrubs are under trees, additional vertical space is needed. Lack of vertical space can allow a fire to move from the ground to the shrubs to the treetops like a ladder.

> 6 FOOT MINIMUM CLEARANCE

FIRE-SAFE LANDSCAPING

Fire-safe landscaping isn't necessarily the same thing as a well-maintained yard. Fire-safe landscaping uses fire-resistant plants that are strategically planted to resist the spread of fire to your home.

The good news is that you don't need to spend a lot of money to make your landscape fire-safe. And fire-safe landscaping can increase your property value and conserve water while beautifying your home. For more information on fire-safe landscaping, visit: **ReadyForWildfire.org/landscaping**.

3X

MINIMUM VERTICAL SPACING BETWEEN TREES AND SHRUBS

To determine the proper vertical space between shrubs and the lowest branches of trees, use the formula below.

Example:

A five-foot shrub is growing near a tree.

 $3 \times 5 = 15$ feet of clearance needed between the top of the shrub and the lowest tree branches.

MINIMUM HORIZONTAL SPACING FOR TREES AND SHRUBS

Horizontal spacing depends on the slope of the land and the height of the shrubs or trees. Check the diagrams below to determine spacing distance.



DEFENSIBLE SPACE

Creating and maintaining defensible space is essential for increasing your home's chance of surviving a wildfire. It's the buffer that homeowners are required to create on their property between a structure and the plants, brush and trees or other items surrounding the structure that could catch fire. This space is needed to slow the spread of wildfire and improves the safety of firefighters defending your home.

Two zones make up the required 100 feet of defensible space:

ZONE 1—Extends 30 feet out from buildings, decks, and other structures

- 1 Remove all dead plants, grass and weeds.
- **2** Remove dead or dry leaves and pine needles from your yard, roof and rain gutters.
- **3** Trim trees regularly to keep branches a minimum of 10 feet from other trees.
- 4 Remove dead branches that hang over your roof. And keep branches 10 feet away from your chimney.
- 5 Relocate exposed woodpiles outside of Zone 1 unless they are completely covered in a fire resistant material.
- 6 Remove or prune flammable plants and shrubs near windows.
- 7 Remove vegetation and items that could catch fire from around and under decks.
- 8 Create a separation between trees, shrubs and items that could catch fire, such as patio furniture, swing sets, etc.

ZONE 2—Extends 30 to 100 feet from buildings and other structures

- 9 Cut or mow annual grass down to a maximum height of 4 inches.
- 10 Create horizontal spacing between shrubs and trees. (See diagram)
- 11 Create vertical spacing between grass, shrubs and trees. (See diagram)
- 12 Remove fallen leaves, needles, twigs, bark, cones, and small branches. However, they may be permitted to a depth of 4 inches if erosion control is an issue.

BOTH ZONES—0 to 100 feet from buildings and other structures

- **13** Mow before 10 a.m., but never when it's windy or excessively dry.
- 14 Protect water quality. Do not clear vegetation near waterways to bare soil. Vegetation removal can cause soil erosion—especially on steep slopes.

ARE YOU DOING THE RIGHT THING—THE WRONG WAY?

Each year, CAL FIRE responds to hundreds of fires started by Californians using equipment the wrong way. If you live in a wildland area, all equipment must be used with extreme caution.

Lawn mowers, metal-bladed trimmers, chain saws, grinders, welders, and tractors can all start a wildland fire if not used properly. Do your part to keep your community fire-safe.

HERE'S HOW TO DO IT THE RIGHT WAY:

Mowing

Metal blades striking rocks can create sparks and start fires in dry grass. Use caution.

Spark Arresters

In wildland areas, spark arresters are required on all

portable, gasoline-powered equipment. This includes tractors, harvesters, chainsaws, weed-trimmers and mowers.

- Keep the exhaust system, spark arresters and mower in proper working order and free of carbon buildup.
- Use the recommended grade of fuel, and don't top it off.



KNOW THE LAW BE FIRE SMART

10 FEE

7

100 FEET OF DEFENSIBLE SPACE IS REQUIRED UNDER THE PUBLIC RESOURCES CODE (PRC) 4291. CALIFORNIA BUILDING CODE CHAPTER 7A REQUIRES CERTAIN CONSTRUCTION MATERIALS AND METHODS FOR HOMES IN WILDLAND AREAS. BE SURE TO CONTACT YOUR LOCAL FIRE DEPARTMENT FOR ADDITIONAL REQUIREMENTS TO ENSURE YOUR HOME IS COMPLIANT WITH THE LAW. READYFORWILDFIRE.ORG/THELAW

ZONE 2

100 FEET

NEIGHBORING PROPERTY

30 FEET

11

ONE 1

2

8

HARDENING YOUR HOME

FLYING EMBERS CAN DESTROY HOMES UP TO A MILE AHEAD OF A WILDFIRE. PREPARE (HARDEN) YOUR HOME NOW BEFORE FIRE STARTS.

SOME THINGS YOU CAN DO TO HARDEN YOUR HOME:

Roof: Your roof is the most vulnerable part of your home. Homes with wood or shingle roofs are at high risk of being destroyed during a wildfire.

Build your roof or re-roof with materials such as composition, metal or tile. Block any spaces to prevent embers from entering and starting a fire.

Vents: Vents on homes create openings for flying embers.

- Cover all vent openings with 1/8-inch to 1/4-inch metal mesh. Do not use fiberglass or plastic mesh because they can melt and burn.
- Protect vents in eaves or cornices with baffles to block embers. (Mesh is not enough.)

Eaves and Soffits:

Eaves and soffits should be protected with ignitionresistant or non-combustible materials.

Windows: Heat from a wildfire can cause windows to break even before the home ignites. This allows burning embers to enter and start fires inside. Single-paned and large windows are particularly at risk.

- Install dual-paned windows with one pane of tempered glass.
- Consider limiting the size and number of windows that face large areas of vegetation.

Decks: Surfaces within 10 feet of the building should be built with ignition-resistant, non-combustible, or other approved materials.

 Remove all combustible items from underneath your deck.

Exterior Walls: Wood products such as boards, panels or shingles are common siding materials. However, they are combustible and not good choices for fire-prone areas.

- Build or remodel your walls with ignition-resistant building materials, such as stucco, fiber or cement siding, fire-retardant-treated wood, or other approved materials.
- Be sure to extend materials from the foundation to the roof.

Rain Gutters: Screen or enclose rain gutters to prevent accumulation of plant debris.

Patio Cover: Use the same ignition-resistant materials for patio covers as a roof.

Fences: Consider using ignition-resistant or noncombustible fence materials to protect your home during a wildfire.

Additional Home Fire Safety Steps:

Go to ReadyForWildfire.org/hardening for more important information on the following:

- Driveways and Access Road Information
- Address Visibility
- Water Supply Access
- Equipment Use Safety
- Ignition-Resistant Materials

Garage Safety

READY, SET, GO! PREPARATION GUIDES

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WILDFIRE IS COMING PREPARATION GUIDES:



Step 1: Is Your Home Ready?

Creating defensible space and hardening your home against wildfire.



Step 2: Are You Set?



Developing a Wildfire Action Plan.



Step 3: Are You Ready to Go?

A quick-reference evacuation guide.



Go to ReadyForWildfire.org for more detailed information on all three guides to prepare for and survive a wildfire.

WILDFIRE IS COMING. ARE YOU...

GET PREPARED TO EVACUATE BEFORE WILDFIRE STRIKES.



P

THOUSANDS OF WILDFIRES STRIKE CALIFORNIA EVERY YEAR. IT'S NOT A MATTER OF IF YOUR HOME IS AT RISK, BUT WHEN.

1

ReadyForWildfire.org

USE THIS GUIDE TO PREPARE YOUR EVACUATION PLAN AND EMERGENCY SUPPLY KIT

Once you complete your plan, rehearse and discuss it regularly with your family. Consider practicing the plan at night as well. Keep it in a safe, visible place for quick access when a wildfire emergency occurs.

Reminder: In an emergency it is easy to become confused or panicked. Preparing your wildfire action plan in advance will help keep you focused and able to act quickly when evacuation is anticipated or needed.

For more information on wildfire evacuation planning and survival, see the Ready for Wildfire "Go!" brochure or visit ReadyforWildfire.org/go.



KNOW THE LAW BE READY TO EVACUATE

CALIFORNIA LAW AUTHORIZES OFFICERS TO RESTRICT ACCESS TO ANY AREA WHERE A MENACE TO PUBLIC HEALTH OR SAFETY EXISTS DUE TO A CALAMITY SUCH AS FLOOD, STORM, FIRE, EARTHQUAKE, EXPLOSION, ACCIDENT OR OTHER DISASTER. REFUSAL TO COMPLY IS A MISDEMEANOR. (PENAL CODE 409.5)

CREATE A WILDFIRE ACTION PLAN

Your Wildfire Action Plan must be prepared and familiar to all members of your household well in advance of a wildfire. Use the checklist below to help create your plan. Each family's plan will be different, depending on a variety of issues, needs and situations.

YOUR WILDFIRE ACTION PLAN CHECKLIST:

Create an evacuation plan that includes:

- A designated emergency meeting location outside the fire or hazard area. This is critical to determine who has safely evacuated from the affected area.
- Several different escape routes from your home and community. Practice these often so everyone in your family is familiar in case of emergency.
- Have an evacuation plan for pets and large animals such as horses and other livestock.

A family communication plan that designates an out-of-area friend or relative as a point of contact to act as a single source of communication among family members in case of separation. (It is easier to call or message one person and let them contact others than to try and call everyone when phone, cell, and internet systems can be overloaded or limited during a disaster.)

Be Prepared:

- Have fire extinguishers on hand and train your family how to use them. (Check expiration dates regularly.) Ensure that your family knows where your gas, electric, and water main shut-off controls are located and how to safely shut them down in an emergency. Assemble an Emergency Supply Kit for each person, as recommended by the American Red Cross. (See next section for details.) Maintain a list of emergency contact numbers posted near your phone and in your emergency supply kit. Keep an extra emergency supply kit in your car in case you cannot get to your home because of fire or other emergency. Have a portable radio or scanner so you
 - Tell your neighbors about Ready, Set, Go! and your Wildfire Action Plan.

can stay updated on the fire.

REMEMBER THE SIX "P's" KEEP THESE SIX "P's" READY IN CASE IMMEDIATE EVACUATION IS REQUIRED:

- People and pets
- Papers, phone numbers, & important documents
- Prescriptions, vitamins, and eyeglasses
- Pictures and irreplaceable memorabilia
- Personal computer <u>hard drive and disks</u>
- "Plastic" (credit cards, ATM cards) and cash

ASSEMBLE AN EMERGENCY SUPPLY KIT

Put together your Emergency Supply Kit long before a wildfire or other disaster occurs and keep it easily accessible so you can take it with you when you have to evacuate. Plan to be away from your home for an extended period of time. Each person should have a readily accessible Emergency Supply Kit. Backpacks work great for storing these items (except food and water) and are quick to grab. Storing food and water in a tub or chest on wheels will make it easier to transport. Keep it light enough to be able to lift it into your car.

Emergency Supply Kit Checklist:

- Three-day supply of non-perishable food and three gallons of water per person
- Map marked with at least two evacuation routes
- Prescriptions or special medications
- Change of clothing
- Extra eyeglasses or contact lenses
- An extra set of car keys, credit cards, cash or traveler's checks
- First aid kit
- Flashlight

Battery-powered radio and extra batteries

Sanitation supplies

- Copies of important documents (birth certificates, passports, etc.)
- Don't forget pet food and water!

Items to take if time allows:

- Easily carried valuables
- Family photos and other irreplaceable items
- Personal computer information on hard drives and disks
- Chargers for cell phones, laptops, etc.

ALWAYS KEEP A STURDY PAIR OF SHOES AND A FLASHLIGHT NEAR YOUR BED AND HANDY IN CASE OF A SUDDEN EVACUATION AT NIGHT.

FOR MORE INFORMATION ON EMERGENCY SUPPLIES, VISIT WWW.READY.GOV.

SAVE THIS FAMILY COMMUNICATION PLAN

Fill out this form and place it near your telephone where it can easily be found by everyone in your household. Copy the form and keep it in your Emergency Supply Kits. This will allow all family members to have access to this key information in case you get separated.

WHEN WE HAVE TO EVACUATE, WE WILL MEET AT:

OUR OUT-OF-AREA EMERGENCY CONTACT PERSON IS:

Name:	Relationship:	
Home Phone #:	Cell Phone #:	
E-mail:		

OTHER IMPORTANT NUMBERS ARE:

Emergency 911:	 Local Police:	
Local Fire Department:	 Other:	
Other:	Other:	

OUR TWO EVACUATION ROUTES ARE (SKETCH ROUTES BELOW):

READY, SET, GO! PREPARATION GUIDES

Preparing for a wildfire starts with three simple steps: Ready, Set, Gol Keep all three wildfire preparation guides on hand as a guick reference for helping your family and property be safe in the event of a wildfire.

WILDFIRE IS COMING PREPARATION GUIDES:



Step 1: Is Your Home Ready?

Creating defensible space and hardening your home against wildfire.



Step 2: Are You Set?



Developing a Wildfire Action Plan.



Step 3: Are You Ready to Go?

A quick-reference evacuation guide.



Go to ReadyForWildfire.org for more detailed information on all three guides to prepare for and survive a wildfire.
WILDFIRE IS COMING. ARE YOU READY TO...

WILDFIRE EVACUATION GUIDE.



GIVE YOUR FAMILY THE BEST CHANCE OF SURVIVING A WILDFIRE BY EVACUATING EARLY.

ReadyForWildfire.org

TAKE ACTION IMMEDIATELY WHEN WILDFIRE STRIKES

Follow these steps as soon as possible to get ready to Go!

- 1. Review your Evacuation Checklist.
- 2. Ensure your Emergency Supply Kit is in your vehicle.
- **3.** Cover up to protect against heat and flying embers. Wear long pants, long sleeve shirt, heavy shoes/boots, cap, dry bandanna for face cover, goggles or glasses. 100% cotton is preferable.
- 4. Locate your pets and take them with you.

WHEN TO EVACUATE

Leave as soon as evacuation is recommended by fire officials

to avoid being caught in fire, smoke or road congestion. Don't wait to be ordered by authorities to leave. Evacuating early also helps firefighters keep roads clear of congestion, and lets them move more freely to do their job. In an intense wildfire, they may not have time to knock on every door. If you are advised to leave, don't hesitate!

- Officials will determine the areas to be evacuated and escape routes to use depending upon the fire's location, behavior, winds, terrain, etc.
- Law enforcement agencies are typically responsible for enforcing an evacuation order. Follow their directions promptly.
- You will be advised of potential evacuations as early as possible. You must take the initiative to stay informed and aware. Listen to your radio/TV for announcements from law enforcement and emergency personnel.
- You may be directed to temporary assembly areas to await transfer to a safe location.

The terms "Voluntary" and "Mandatory" are used to describe evacuation orders. However, local jurisdictions may use other terminology such as "Precautionary" and "Immediate Threat." These terms are used to alert you to the significance of the danger. All evacuation instructions provided by officials should be followed immediately for your safety.

WHAT TO DO IF YOU BECOME TRAPPED

WHILE IN YOUR VEHICLE:

- Stay calm.
- Park your vehicle in an area clear of vegetation.
- Close all vehicle windows and vents.
- Cover yourself with a wool or cotton blanket or jacket.
- Lie on vehicle floor.
- Use your cell phone to advise officials—Call 911.

WHILE ON FOOT:

- Stay calm.
- Go to an area clear of vegetation, a ditch or depression on level ground if possible.
- Lie face down and cover up your body.
- Use your cell phone to advise officials—Call 911.

WHILE IN YOUR HOME:

- Stay calm and keep your family together.
- Call 911 and inform authorities of your location.
- Fill sinks and tubs with cold water.
- Keep doors and windows closed, but unlocked.
- Stay inside your house.
- Stay away from outside walls and windows.





PRE-EVACUATION PREPARATION STEPS

When an evacuation is anticipated, follow these checklists (*if time allows*) to give your home the best chance of surviving a wildfire:

OUTSIDE

- Gather up flammable items from the exterior of the house and bring them inside (patio furniture, children's toys, door mats, trash cans, etc.) or place them in your pool. Turn off propane tanks. 3 Move propane BBQ appliances away from structures. 4 Connect garden hoses to outside water valves or spigots for use by firefighters. Fill water buckets and place them around the house. 5 Don't leave sprinklers on or water running; they can affect critical water pressure. 6 Leave exterior lights on so your home is visible to firefighters in the smoke or darkness of night. 7 Put your Emergency Supply Kit in your vehicle 8 Back your car into the driveway with vehicle loaded and all doors and windows closed. Carry your car keys with you. 9 Have a ladder available and place it at the corner of the house for firefighters to quickly access your roof. **10** Seal attic and ground vents with pre-cut plywood or commercial seals. Monitor your property and the fire situation. Don't wait for an evacuation
 - order if you feel threatened and need to leave.
 - Check on neighbors and make sure they are preparing to leave.

INSIDE THE HOUSE

- Shut all windows and doors, leaving them unlocked.
 Remove flammable window shades and curtains. Close metal shutters.
 Move flammable furniture to the center of the room, away from windows and doors.
 Shut off gas at the meter. Turn off pilot lights.
 Leave your lights on so firefighters can see your house under smoky conditions.
 Shut off the air conditioning.
 - 20 Prepare farm animals for transport and think about moving them to a safe location early.



¹² NEIGHBORING PROPERTY

D

KNOW THE LAW BE READY TO EVACUATE

CALIFORNIA LAW AUTHORIZES OFFICERS TO RESTRICT ACCESS TO ANY AREA WHERE A MENACE TO PUBLIC HEALTH OR SAFETY EXISTS DUE TO A CALAMITY SUCH AS FLOOD, STORM, FIRE, EARTHQUAKE, EXPLOSION, ACCIDENT OR OTHER DISASTER. REFUSAL TO COMPLY IS A MISDEMEANOR. (PENAL CODE 409.5)

HOW TO BE PREPARED BEFORE WILDFIRE STRIKES

DEVELOP AN ACTION PLAN THAT INCLUDES:

Where to Go

Have a safe destination planned. It should be a low-risk area, such as a well-prepared friend's or relative's house, an evacuation center, motel, etc.

How To Get There

Plan several travel route options in case one route is blocked by the fire or by emergency vehicles and equipment.

What To Take

Assemble your emergency supply kit long before a wildfire or other disaster occurs. Plan to be away from your home for at least three days. Don't forget to plan for your pets or livestock as well.

For more information on preparing your family, pets and property for wildfire see the Ready for Wildfire "Are You Set?" brochure or visit ReadyforWildfire.org/set.

RETURNING HOME AFTER A WILDFIRE

Do not return to your home until fire officials determine it is safe. Notification that it is safe to return home will be given as soon as possible considering safety and accessibility.

When you return home:

- Be alert for downed power lines and other hazards.
- Check propane tanks, regulators, and lines before turning gas on.
- Check your residence carefully for hidden embers or smoldering fires.

READY, SET, GO! PREPARATION GUIDES

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Step 2: Are You Set?



Developing a Wildfire Action Plan.



Step 3: Are You Ready to Go?

A quick-reference evacuation guide.



Go to ReadyForWildfire.org for more detailed information on all three guides to prepare for and survive a wildfire.

APPENDIX B-1

Emergency Supply List

Additional Items to Consider Adding to an Emergency Supply Kit:

- Prescription medications and glasses
- Infant formula and diapers
- □ Pet food and extra water for your pet
- Important family documents such as copies of insurance policies, identification and bank account records in a waterproof, portable container
- Cash or traveler's checks and change
- Emergency reference material such as a first aid book or information from www.ready.gov
- □ Sleeping bag or warm blanket for each person. Consider additional bedding if you live in a cold-weather climate.
- □ Complete change of clothing including a long sleeved shirt, long pants and sturdy shoes. Consider additional clothing if you live in a cold-weather climate.
- Household chlorine bleach and medicine dropper When diluted nine parts water to one part bleach, bleach can be used as a disinfectant. Or in an emergency, you can use it to treat water by using 16 drops of regular household liquid bleach per gallon of water. Do not use scented, color safe or bleaches with added cleaners.
- **Fire Extinguisher**
- □ Matches in a waterproof container
- Feminine supplies and personal hygiene items
- □ Mess kits, paper cups, plates and plastic utensils, paper towels
- Paper and pencil
- Books, games, puzzles or other activities for children

Prepare. Plan. Stay Informec.®

Read

Emergency Supply List







Recommended Items to Include in a Basic Emergency Supply Kit:

Water, one gallon of water per person per day for at least three days, for drinking and sanitation

Food, at least a three-day supply of non-perishable food

Battery-powered or hand crank radio and a NOAA Weather Radio with tone alert and extra batteries for both

Flashlight and extra batteries

First aid kit

Whistle to signal for help

Dust mask, to help filter contaminated air and plastic sheeting and duct tape to shelter-in-place

Moist towelettes, garbage bags and plastic ties for personal sanitation

Wrench or pliers to turn off utilities

Can opener for food (if kit contains canned food)

Local maps

Through its Ready Campaign,

the Federal Emergency Management Agency educates and empowers Americans to take some simple steps to prepare for and respond to potential emergencies, including natural disasters and terrorist attacks. *Ready* asks individuals to do three key things: get an emergency supply kit, make a family emergency plan, and be informed about the different types of emergencies that could occur and their appropriate responses.

All Americans should have some basic supplies on hand in order to survive for at least three days if an emergency occurs. Following is a listing of some basic items that every emergency supply kit should include. However, it is important that individuals review this list and consider where they live and the unique needs of their family in order to create an emergency supply kit that will meet these needs. Individuals should also consider having at least two emergency supply kits, one full kit at home and smaller portable kits in their workplace, vehicle or other places they spend time.



Federal Emergency Management Agency Washington, DC 20472

APPENDIX B-2

Family Emergency Communication Plan Kit



BE SMART. TAKE PART. CREATE YOUR FAMILY EMERGENCY COMMUNICATION PLAN

Join with others to prepare for emergencies and participate in America's PrepareAthon! | ready.gov/prepare

Creating your Family Emergency Communication Plan starts with one simple question: "What if?"

"What if something happens and I'm not with my family?" "Will I be able to reach them?" "How will I know they are safe?" "How can I let them know I'm OK?" During a disaster, you will need to send and receive information from your family.

Communication networks, such as mobile phones and computers, could be unreliable during disasters, and electricity could be disrupted. Planning in advance will help ensure that all the members of your household—including children and people with disabilities and others with access and functional needs, as well as outside caregivers—know how to reach each other and where to meet up in an emergency. Planning starts with three easy steps:



1. COLLECT.

Create a paper copy of the contact information for your family and other important people/offices, such as medical facilities, doctors, schools, or service providers.



2. SHARE.

Make sure everyone carries a copy in his or her backpack, purse, or wallet. If you complete your *Family Emergency Communication Plan* online at <u>ready.gov/make-a-plan</u>, you can print it onto a wallet-sized card. You should also post a copy in a central location in your home, such as your refrigerator or family bulletin board.



3. PRACTICE.

Have regular household meetings to review and practice your plan.



If you are using a mobile phone, a text message may get through when a phone call will not. This is because a text message requires far less bandwidth than a phone call. Text messages may also save and then send automatically as soon as capacity becomes available.



HOUSEHOLD INFORMATION

Write down phone numbers and email addresses for everyone in your household. Having this important information written down will help you reconnect with others in case you don't have your mobile device or computer with you or if the battery runs down. If you have a household member(s) who is Deaf or hard of hearing, or who has a speech disability and uses traditional or video relay service (VRS), include information on how to connect through relay services on a landline phone, mobile device, or computer.

SCHOOL, CHILDCARE, CAREGIVER, AND WORKPLACE EMERGENCY PLANS

Because a disaster can strike during school or work hours, you need to know their emergency response plans and how to stay informed. Discuss these plans with children, and let them know who could pick them up in an emergency. Make sure your household members with phones are signed up for alerts and warnings from their school, workplace, and/or local government. To find out more about how to sign up, see *Be Smart. Know Your Alerts and Warnings* at http://1.usa.gov/1BDloze. For children without mobile phones, make sure they know to follow instructions from a responsible adult, such as a teacher or principal.

OUT-OF-TOWN CONTACT

It is also important to identify someone outside of your community or State who can act as a central point of contact to help your household reconnect. In a disaster, it may be easier to make a long-distance phone call than to call across town because local phone lines can be jammed.

EMERGENCY MEETING PLACES

Decide on safe, familiar places where your family can go for protection or to reunite. Make sure these locations are accessible for household members with disabilities or access and functional needs. If you have pets or service animals, think about animal-friendly locations. Identify the following places:

Indoor: If you live in an area where tornadoes, hurricanes, or other high-wind storms can happen, make sure everyone knows where to go for protection. This could be a small, interior, windowless room, such as a closet or bathroom, on the lowest level of a sturdy building, or a tornado safe room or storm shelter.

In your neighborhood: This is a place in your neighborhood where your household members will meet if there is a fire or other emergency and you need to leave your home. The meeting place could be a big tree, a mailbox at the end of the driveway, or a neighbor's house.

Outside of your neighborhood: This is a place where your family will meet if a disaster happens when you're not at home and you can't get back to your home. This could be a library, community center, house of worship, or family friend's home. *Outside of your town or city*: Having an out-of-town meeting place can help you reunite if a disaster happens and:

- You cannot get home or to your out-of-neighborhood meeting place; or
- Your family is not together and your community is instructed to evacuate the area.

This meeting place could be the home of a relative or family friend. Make sure everyone knows the address of the meeting place and discuss ways you would get there.

OTHER IMPORTANT NUMBERS AND INFORMATION

You should also write down phone numbers for emergency services, utilities, service providers, medical providers, veterinarians, insurance companies, and other services.



Discuss what information you should send by text. You will want to let others know you are safe and where you are. Short messages like "I'm OK. At library" are good.

America's PrepareAthon! ready.gov/prepare

	Talk about who will be the lead person to send out information about the designated meeting place for the household.
	Practice gathering all household members at your indoor and neighborhood emergency meeting places. Talk about how each person would get to the identified out-of-neighborhood and out-of-town meeting places. Discuss all modes of transportation, such as public transportation, rail, and para-transit for all family members, including people with disabilities and others with access and functional needs.
	Regularly have conversations with household members and friends about the plan, such as whom and how to text or call, and where to go.
	To show why it's important to keep phone numbers written down, challenge your household members to recite important phone numbers from memory— now ask them to think about doing this in the event of an emergency.
	Make sure everyone, including children, knows how and when to call 911 for help. You should only call 911 when there is a life-threatening emergency.
	Review, update, and practice your <i>Family Emergency Communication Plan</i> at least once a year, or whenever any of your information changes.
To he steps <i>It Sta</i> www icon	elp start the conversation or remind your family why you are taking s to prepare and practice, you may want to watch the 4-minute video, arted Like Any Other Day, about families who have experienced disaster, at v.youtube.com/watch?v=w_omgt3MEBs. Click on the closed captioning (CC) on the lower right to turn on the captioning.
After impro reme	you practice, talk about how it went. What worked well? What can be oved? What information, if any, needs to be updated? If you make updates, ember to print new copies of the plan for everyone.
ОТН	ER IMPORTANT TIPS FOR COMMUNICATING IN DISASTERS ¹
	Text is best when using a mobile phone, but if you make a phone call, keep it brief and convey only vital information to emergency personnel and/or family or household members. This will minimize network congestion, free up space on the network for emergency communications, and conserve battery power. Wait 10 seconds before redialing a number. If you redial too quickly, the data from the handset to the cell sites do not have enough time to clear before you've re-sent the same data. This contributes to a clogged network.
	Conserve your mobile phone battery by reducing the brightness of your screen, placing your phone in airplane mode, and closing apps you do not need. Limit watching videos and playing video games to help reduce network congestion.

Keep charged batteries, a car phone charger, and a solar charger available for backup power for your mobile phone, teletypewriters (TTYs), amplified phones, and caption phones. If you charge your phone in your car, be sure the car is in a well-ventilated area (e.g., not in a closed garage) to avoid life-threatening carbon monoxide poisoning.

	If driving, do not text, read texts, or make a call without a hands-free device.
	Maintain a household landline and analog phone (with battery backup if it has a cordless receiver) that can be used when mobile phone service is unavailable. Those who are Deaf or hard of hearing, or who have speech disabilities and use devices and services that depend on digital technology (e.g., VRS, Internet Protocol [IP] Relay, or captioning) should have an analog phone (e.g., TTY, amplified phone, or caption phone) with battery backup in case Internet or mobile service is down.
	If you evacuate and have a call-forwarding feature on your home phone, forward your home phone number to your mobile phone number.
	Use the Internet to communicate by email, Twitter, Facebook, and other social media networks. These communication channels allow you to share information quickly with a widespread audience or to find out if loved ones are OK. The Internet can also be used for telephone calls through Voice over Internet Protocol. For those who are Deaf or hard of hearing, or who have speech disabilities, you can make calls through your IP Relay provider.
	If you do not have a mobile phone, keep a prepaid phone card to use if needed during or after a disaster.
	Use a pay phone if available. It may have less congestion because these phones don't rely on electricity or mobile networks. In some public places, you may be able to find a TTY that can be used by those who are Deaf or hard of hearing, or who have speech disabilities.

America's PrepareAthon! is a grassroots campaign for action to get more people prepared for emergencies. Make your actions count at ready.gov/prepare.

The reader recognizes that the Federal Government provides links and informational data on various disaster preparedness resources and events and does not endorse any non-Federal events, entities, organizations, services, or products.



FAMILY EMERGENCY COMMUNICATION PLAN

HOUSEHOLD INFORMATION

Home #: Address:
Name:
Name:
Name:
Name:
Name: Address: Emergency/Hotline #: Website: Emergency Plan/Pick-Up:

SCHOOL, CHILDCARE,

CAREGIVER, AND WORKPLACE

EMERGENCY PLANS

SCHOOL, CHILDCARE, CAREGIVER, AND WORKPLACE EMERGENCY PLANS	Name: Address: Emergency/Hotline #: Website: Emergency Plan/Pick-Up:
	Name: Address: Emergency/Hotline #: Website: Emergency Plan/Pick-Up:
	Name: Address: Emergency/Hotline #: Website: Emergency Plan/Pick-Up:
IN CASE OF EMERGENCY (ICE) CONTACT	Name:
OUT-OF-TOWN Contact	Name:
EMERGENCY MEETING PLACES	Indoor: Instructions: Neighborhood: Instructions:
	Out-of-Neighborhood: Address: Instructions:
	Out-of-Town: Address: Instructions:

ii

IMPORTANT NUMBERS OR INFORMATION

Police:	Dial 911 c	or #:	
Fire:	Dial 911 d	or #:	
Poison Control:		#:	
Doctor:		#:	
Doctor:		#:	
Pediatrician:		#:	
Dentist:		#:	
Hospital/Clinic:		#:	
Pharmacy:		#:.	
Medical Insurance:		#:	
Policy #:			
Medical Insurance:		#:	
Policy #:			
Homeowner/Rental	Insurance	e:	
#:			
Policy #:			
Flood Insurance:		#:	
Policy #:			
Veterinarian:		#:	
Kennel:		#:	
Electric Company: .		#:	
Gas Company:		#:	
Water Company:		#:	
Alternate/Accessible	e Transpoi	rtatio	n:
#:			
Other:		#:	
Other:		#:	
Other:		#:	

APPENDIX B-3

Family Emergency Communication Plan Cards

-		IN CASE OF EMERGENC	Y (ICE) CONTACT
			51 - <i>u</i>
	1 1	Name:	·IIe #:
Prenare Athon Boady	1 1	Home #: Ema	11:
RE SMART TAKE DART DREDARE	1 i	Address:	
DE SMART, TARE FART, FREFARE.		OUT-OF-TOWN	CONTACT
		Name: Moh	ile #·
Mirita vaur familu'a nama abava		Home #: Ema	il·
I Formily Emergency Communication Plan	1	Address:	
	FOLD		
HOUSEHOLD INFORMATION	HERE	EMERGENCY MEET	ING PLACES
I Home #:			
I Address:		Indoor:	
	i i	Instructions:	
I Name:Nobile #:			
Other # or social media: Email:			
Important medical or other information:	i i	Neiahborhood:	
Name: Mobile #:		Instructions:	
	1		
Uther # or social media: Email:			
I Important medical or other information	FOLD		
	HERE	Out of Noighborhood	
I Name: Mobile #:		Out-oi-Neighborhood:	
		Address:	
Uther # or social media: Email:	i i	Instructions:	
Important medical or other information:			
Name:Mobile #:	i i	Out-of-Town:	
Other # or social media: Email:		Address:	
	1	Instructions:	
Important medical of other information:	i i		
 	-< FOLD		
SCHOOL, CHILDCARE , CAREGIVER, AND WORKPLACE EMERGENCY PLANS	HERE	IMPORTANT NUMBERS	OR INFORMATION
Name:	i i	Police:Dial 9	11 or #:
Address:		Fire:	#·
Emergency/Hotline #:	1	Doctor:	#:
Fmergency Plan/Pick-Un	i i	Doctor:	#:
		Pediatrician:	#:
Name:	1	Medical Insurance:	#·
Address:	i - i	Policy #:	
I Emergency/Hotline #:		Medical Insurance:	#:
Fmergency Plan/Pick-Lin	1	Policy #:	ш.
	IC FOLD		#: ·
Name:	I IIII	Pharmacy:	#:
Address:	1	Homeowner/Rental Insurance:	#:
I Emergency/Hotline #: Website:		Policy #: Flood Insurance:	#·
		Policy #:	
Emergency Plan/Pick-Up:	i i	Veterinarian:	#:
I Name:		Kennel:	#:
Address:		Electric Company:	#: #·
Emergenov/Hotline #: Wohsito:	i i	Water Company:	#:
		Alternate/Accessible Transportation:	#:
Emergency Plan/Pick-Up:		Other:	
· •	а I а в	Otner:	

APPENDIX B-4

Sample Family Disaster Plan



Family Disaster Plan

Family Last Name(s) or House	Date:		
Family Member/Household Co	ontact Info (If needed, a	dditional space is provid	led in #10 below):
Name	Home Phone	Cell Phone	<u>Email</u> :
			_
Pet(s) Info:			
Name:	<u>Type:</u>	<u>Color:</u>	Registration #:

Plan of Action

1. The disasters most likely to affect our household are:

2. What are the escape routes from our home?

3. If separated during an emergency, what is our meeting place near our home?

4. If we cannot return home or are asked to evacuate, what is our meeting place outside of our neighborhood?

What is our route to get there and an alternate route, if the first route is impassible?
5. In the event our household is separated or unable to communicate with each other, our emergency

contact outside of our immediate area is:

Name	<u>Home Phone</u>	Cell Phone	<u>Email</u> :

After a disaster, let your friends and family know you are okay by registering at "Safe and Well" at <u>https://safeandwell.communityos.org/cms//</u> or by calling 1-800-733-2767. You can also give them a call, send a quick text or update your status on social networking sites.

6. If at school/daycare, our child(ren) will be evacuated to:

Child's Name:	Evacuation Site (address and contact info):				
7. Our plan for people in our household with a disability or special need is:					
Person's Name:	<u>Plan:</u>				

8. During certain emergencies local authorities may direct us to "shelter in place" in our home. An accessible, safe room where we can go, seal windows, vents and doors and listen to emergency broadcasts for instructions, is:

9. Family Member Responsibilities in the Event of a Disaster

Task	Description	Family Member Responsible
Disaster Kit*	Stock the disaster kit and take it if evacuation is necessary. Include	
	to include medications and eye glasses.	
Be informed	Maintain access to NOAA or local radio, TV, email or text alerts for	
	important and current information about disasters.	
Family	Make sure the household medical information is taken with us if	
Medical	evacuation is necessary.	
Information		
Financial	Obtain copies of bank statements and cash in the event ATMs and	
Information	credit cards do not work due to power outages. Bring copies of	
	utility bills as proof of residence in applying for assistance.	
Pet	Evacuate our pet(s), keep a phone list of pet-friendly motels and	
Information	animal shelters, and assemble and take the pet disaster kit.	
Sharing and	Share the completed plan with those who need to know. Meet	
Maintaining	with household members every 6 months or as needs change to	
the Plan	update household plan.	

*What supplies and records should go in your disaster kit? Visit <u>www.redcross.org</u>

10. Other information, if not able to be included above.

Congratulations on completing your family disaster plan! Please tell others: "We've made a family disaster plan and you can, too, with help from the American Red Cross."

Get the facts about what you should do if an emergency or disaster occurs at <u>www.redcross.org</u>

APPENDIX C

Preparers Qualifications

Michael Huff, RCA

Principal

Michael Huff is founder and manager of Dudek's Urban Forestry/Fire Protection Planning team with 29 years' experience as a forester and fire protection planner. Mr. Huff specializes in management of communitywide and project-specific fire protection plans (FPPs), wildland–urban interface (WUI) fire management plans, wildfire hazard reduction projects, California Environmental Quality Act (CEQA) supporting technical documents, Oak Woodland impact and mitigation plans, urban and community forest management plans, forest and tree inventories, impact analysis studies, and tree hazard evaluations. Mr. Huff possesses considerable project issue resolution experience and focuses on working within the regulations to provide creative, cost-saving solutions to his clients. He routinely participates in public hearings, strategy sessions, and provides public presentations.

Sample Project Experience

City of Santa Barbara Wildland Fire Evacuation Procedures Analysis, Santa Barbara Fire Department,Santa Barbara, California. Mr. Huff managed a multi-disciplined team of fire protection planners, retired fire operations professionals, fire behavior modelers, and traffic engineers to analyze three high-probability wildfire scenarios and the existing evacuation conditions. The Project was implemented to identify how evacuations during these wildfire scenarios could be made more efficient through road and traffic management improvements. Additionally, trigger thresholds were examined to determine when evacuations would need to be initiated given the wildfire scenarios and how that process could be improved. Temporary refuge sites were evaluated along with safety zones. Traffic engineers modeled congestion based on evacuation zone populations and helped define the types of pre- and during- emergency improvements and actions that would result in the ability to move more traffic from higher to lower exposure areas.



Michael Huff

Education

Northern Arizona University BS, Forest Management, 1992 Certifications

Registered Consulting Arborist (RCA) Certified Arborist, No. WE-4276A

San Diego County Department of Planning and Land Use (DPLU)-Approved Fire Protection Planner Laguna Beach Fire Department-Approved Fire Protection Planner Certified Wildland Fire Ecologist

Professional Affiliations

American Society of Consulting Arborists

National Fire Protection Association – International

California Fire Chief's Association – Fire Prevention Officers

Point Molate Emergency Response Plans, Mixed Use Development, Argent Development, Richmond, Caliofrnia. Mr. Huff managed, wrote, reviewed, and coordinate the preparation of two emergency planning documents to satisfy project conditions of approval for the Point Molate project in Richmond, California. A Wildfire Emergency Response Plan was prepared that evaluated the potential wildfire risk for the proposed Point Molate mixed use community and made recommendations for addressing risk and providing for resident and fire department response. A second document, the Multi Hazard Emergency Response Plan, was prepared to address the most likely natural or human caused disasters and the Project's planned actions in response. This plan includes responses to earthquakes, tsunami, flooding, and other disasters and provides a framework for how the Project

DUDEK

would respond. Both emergency response plans include analysis and discussions of available response evacuation routes, discuss the potential for sheltering in place, and lay out mitigating measures that would be employed prior to these emergency situations as part of a pre-planning and readiness program. Mr. Huff presented at several public hearings to answer questions regarding the site's overall safety.

Paraiso Springs Resort Fire Protection and Evacuation Planning, Paraiso Springs Resort, LLC., Soledad, Monterey County, California. Mr. Huff managed this hot springs resort project and provided authorship of a fire safety plan, evacuation plan, and EIR wildfire section. Dudek's fire protection planning team performed a comprehensive review of the site's fire environment and developed approaches to address the hazards and reduce risk to acceptable levels. Mr. Huff provided support at several public hearings and answered questions regarding the site's safety for the planned use.

The Junipers Age-Restricted Residential Development, Lennar Homes, San Diego, California. Mr. Huff managed the preparation of a comprehensive Fire Protection Plan and Evacuation Plan for this 550 unit project. Dudek's fire specialists performed extensive analysis of the fire environment and documented the project's compliance with enhanced fire safety requirements. In addition, Dudek provided extensive analysis of the ability to evacuate the area based on existing conditions and post-project, enhanced conditions, noting that the project provides additional options and capacity, resulting in a safer area than current condition.

Laguna College of Art and Design (LCADD) Emergency Response and Evacuation Plan, Laguna College of Art and Design, Laguna Beach, California. Mr. Huff managed and authoried the EREP for LCADD's several campus locations within Laguna Canyon. Chapters address the top several potential natural disasters or human-caused emergencies with appropriate actions that should be taken prior to, during and following each. The EREP helps LCADD manage and mitigate potential risk at each of its campus locations through proactive measures.

Ocean Breeze Residential Development Wildfire Evacuation Plan, Helios Property Solutions, Bonsall, California. Dudek provide a comprehensive evacuation plan for this 396 single family home development in a very high fire hazard severity zone. The evacuation plan calculated the project area's evacuation timing currently and with the project and laid out steps the project would take to result in a prepared and aware population. The evacuation plan also contemplated the ability to refuge residents and area citizens on-site at various locations if there was not time to evacuate.Mr. Huff managed the project, wrote the evacuation plan and presented it at the local planning group.

Valiano Residential Community Evacuation Plan, Integral Communities, San Marcos, California. Mr. Huff managed and was primary author of an evacation plan for this 325 unit residential project. The evacuation plan focused on determing the project's ability to evacuate given available evacuation routes and planned enhancements. The road capacities were evaluated against the project's population numbers to determine the timing to move all residents out of the area. The evacuation plan was accepted by the local fire agency.

Bonsall Unified School District New High School Fire Protection and Evacuation Plan, Bonsall, California. Mr. Huff was lead author, fire protection planner, and manager of this project to assist the BUSD with fire safe planning for a new high school within a high fire hazard severity zone. The Fire Protection Plan documented the fire environment, related hazards and overall fire risk while specifying safety features and measures that would result in low overall fire risk and the ability to shelter in place if considered safer than evacuating. Mr. Huff also provided input on the EIR's wildfire chapter, responses to comments and overall fire and evacuation related planning.

Zhao, Bingyu, PhD and Wong, Stephen D. 2021. Developing Transportation Response Strategies for Wildfire Evacuations via an Empirically Supported Traffic Simulation of Berkeley, California.