

**APPENDIX C**  
*Corral Canyon Park*  
*Focused Fire Protection Plan*



**APPENDIX C**

**CORRAL CANYON PARK**  
**FOCUSED FIRE PROTECTION PLAN**  
**Modified Redesign Alternative**



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**Corral Canyon Park  
Focused Fire Protection Plan  
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**ATTACHMENT**

- 1 Select Project Area Photographs

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## 1.0 INTRODUCTION

This Fire Protection Plan (FPP) has been prepared as an evaluation of the adverse environmental effects that the proposed Malibu Parks Public Access Enhancement Plan - Public Works Plan improvement project, Modified Redesign Alternative at Corral Canyon Park (CCP) may have from wildland fire. It further evaluates methods for reducing those effects to ensure that the above referenced project does not unnecessarily expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

This FPP utilizes a 'systems approach' for specifying fire protection measures. The measures consist of the components of fuel modification, structural protection, water supply, fire protection systems, access (ingress/egress), and emergency response. The 'Master' FPP provides additional details regarding wildfire risk assessment, fire history, fire behavior modeling, and construction and fire protection features that will be provided at this Park site.

## 2.0 PROJECT DESCRIPTION

The proposed project includes improvements at Corral Canyon Park as illustrated in Figure 1. As proposed, the 772-acre park site will include the following improvements:

- Accessible trail access
- 17 campsites at one camp area
- 19 new parking spaces/34 total with existing
- Three optional emergency fire shelters
- One Fire Engine Storage Shed
- 10,000-gallon water tank and wildland hydrants
- Camp host and/or park administration/employee quarters
- Two self-contained restroom facilities.

Specific details regarding the CCP proposed improvements can be found in the project's Environmental Impact Report Project Description, (FEIR – Volume 4). Select project area photographs are provided in Attachment 1. The following sections provide summaries of the site's environmental setting, wildfire risk, and provided risk reducing features.

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## **3.0 ENVIRONMENTAL SETTING**

### **3.1 Location**

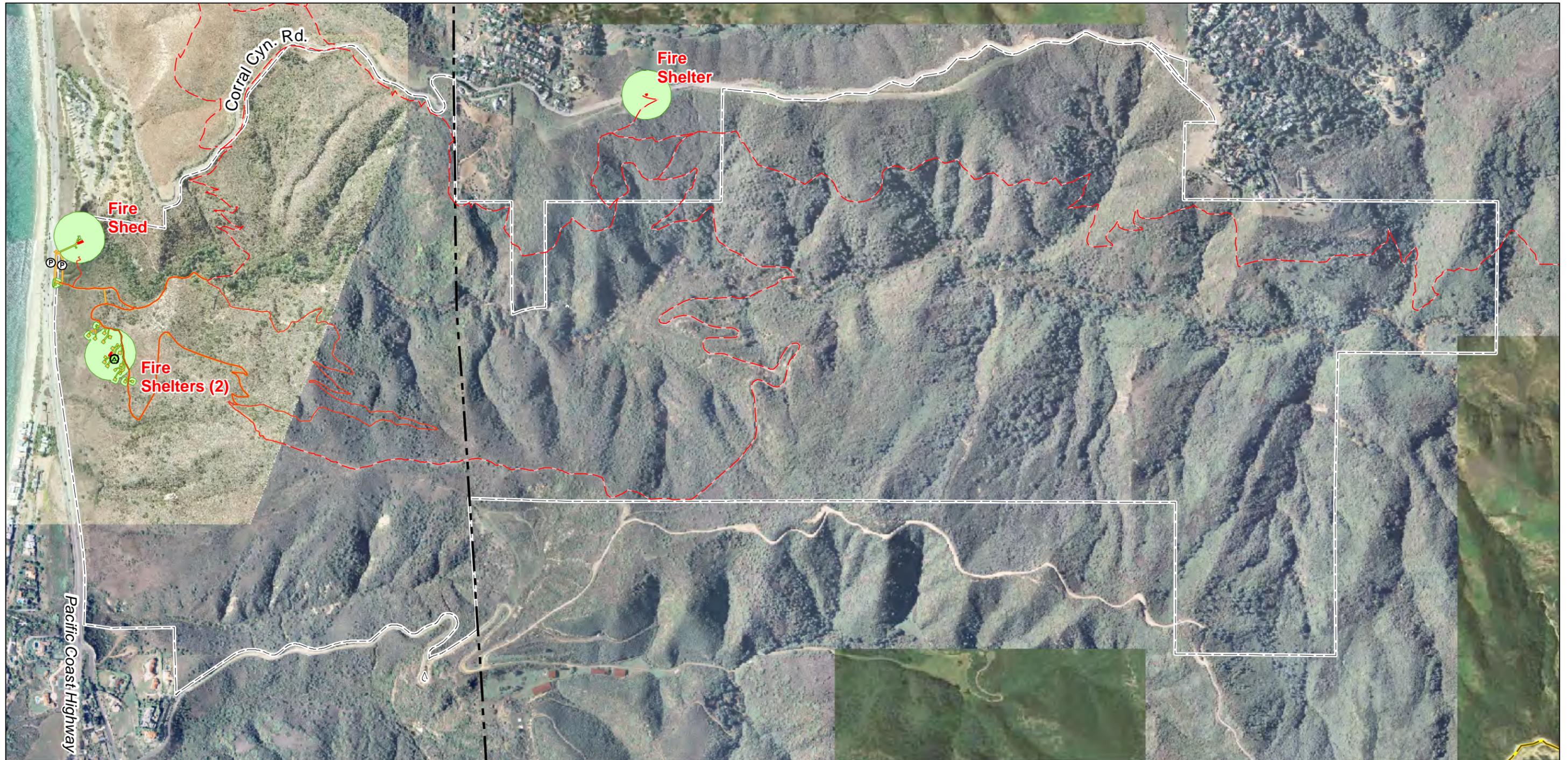
The proposed CCP project is located within the City of Malibu and unincorporated Los Angeles County at 25623 Pacific Coast Highway (PCH). CCP stretches to the Santa Monica Mountains 'ridgeline' in Malibu Creek State Park. CCP is designated and zoned as Public Open Space in the County of Los Angeles Malibu Local Coastal Program Land Use Plan (County LUP) for the Malibu and Santa Monica Mountains area and Upper Corral Canyon is designated Mountain Land (1du/20ac) and zoned agriculture in the County LUP. The CCP is the last undeveloped coastal canyon in Los Angeles County that flows freely to the ocean. Surrounding land uses include residential, recreational vehicle park and private campground, commercial, public parkland (National Park Service and California State Parks), Los Angeles City Department of Water and Power undeveloped land, and private undeveloped land. The park is surrounded by privately owned land with the exception of where Dan Blocker County Beach lies just south along the shoreline.

### **3.2 Access**

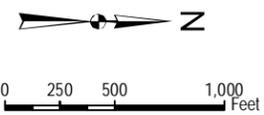
CCP is accessed directly from PCH where an existing 15-space parking lot supports public access to the park. The park may also be accessed via public transit where a MTA bus stop is located at the entrance to the park. Access can be gained beneath PCH through a storm drain underpass, although passage is difficult and would not be recommended during winter. One access from the parking area requires crossing the creek channel while the other access on the east side of the creek off PCH avoids the creek crossing.

### **3.3 Topography**

CCP is located adjacent Pacific Coast Highway. The canyon extends to the north and includes gradually increasing slope presence and steepness up-canyon. Slopes reach 50% in portions of the canyon. Elevations in the bottom of the canyon range from 650 feet above mean seal level (amsl) in the northern sections of the Park to 15 feet amsl at PCH, whereas elevations on the adjacent ridgetops reach over 1,700 feet amsl. The larger campsite is located on a broad, gently sloping toe of the eastern ridge above Corral Canyon where it meets PCH. The area is approximately 150 feet amsl.



- Proposed Camping Area
  - Proposed Parking Area
  - Proposed Facilities
  - Fuel Modification Zones
  - Malibu City Limits
  - Park Boundaries
- Trail Corridors**
- Primary Trail (see P&S Project Plans)
  - Primary Trail (Existing)
  - Connector Trail (Existing)
  - Backbone Trail
  - Other Existing Trail



SOURCE: DigitalGlobe 2008, MRCA 2009

**FIGURE 1**  
**Corral Canyon Park**

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# Corral Canyon Park

## Focused Fire Protection Plan

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### 3.4 Flammable Vegetation

The entire parkland area consists of open land heavily vegetated with a variety of native and non-native plant and tree species. Given the unique terrain of Corral Canyon Park, its proximity to the ocean and large undeveloped watershed, the park contains a wide variety of habitat, including coastal sage scrub, coastal bluff, native grassland, and the riparian corridor of Corral Creek which includes among other species alder, coast live oak, California sycamore, and willow trees. A pocket of coastal salt marsh is located where the creek meets the ocean at the Pacific Coast Highway Bridge.

### 3.5 Climate

The project area includes a Mediterranean-like climate; that is, warm, dry summers and wetter winters. Precipitation typically occurs between December and March. The prevailing wind is from the west with fall Santa Ana winds from the northeast that may gust to 70 mph or higher. The project area's climate, as with most of southern California, has a large influence on the fire risk as drying vegetation (fuel moisture for 1-hour fuels of less than 5% is possible) during the summer months becomes fuel available to advancing flames should an ignition be realized. A notable weather/wind related phenomenon for Corral Canyon and the other north-south trending canyons of Malibu is that typical Santa Ana winds do not have the same direct effect on rate of spread as they do in other southern California locations. A northeast Santa Ana typically results in a fire that burns down the steep slopes in a slower manner. A wind out of the north, however, could result in very fast moving wildfire as the winds funnel and accelerate through the canyon alignments.

## 4.0 RISK ASSESSMENT

### 4.1 Fire Behavior Modeling

FlamMap fire behavior modeling was conducted for the Plan area and surrounding Malibu/Santa Monica Mountains region and is summarized in the project's Master FPP. More focused fire behavior modeling utilizing BehavePlus 4.0.0 was conducted for this site. A general discussion of the BehavePlus analysis, including weather input variables, is presented in the project's Master FPP (Section 3.3). Fuel model typing was conducted in the field for Corral Canyon Park concurrent with site hazard evaluation efforts. Based on field analysis, three different fire scenarios were evaluated for the Corral Canyon Park site, including:

- **Scenario 1:** Fire originating on PCH, burning uphill toward proposed camping areas.

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- **Scenario 2:** Fire originating in canyon and burning westward toward Corral Canyon Road.
- **Scenario 3:** Fire burning down-canyon toward proposed camp facilities.

The terrain and fuel model values used for BehavePlus modeling in Corral Canyon Park are presented in Table 1, and the results of modeling efforts are provided in Table 2. Locations of BehavePlus model runs are presented graphically in Figure 2. Based on the BehavePlus analysis conducted for Corral Canyon Park, expected flame lengths near the proposed camping facilities (Scenarios 1 and 2) during 97th percentile weather conditions with wind speeds of 69 mph (documented maximum gust speed observed in the region during the 2007 Canyon Fire) reach up to 49.8 feet, with fireline intensities reaching 27,788 BTU/feet/sec. A fire burning southward down the canyon in sumac vegetation (Scenario 3) presents flame lengths reaching 51.4 feet and fireline intensities reaching 29,693 BTU/feet/sec. during 97th percentile weather conditions and the same wind speed values. Spotting distances for all scenarios reach a maximum of 3.3 miles during fall, Santa Ana weather conditions. The results from all BehavePlus fire behavior modeling scenarios are presented in Table 2.

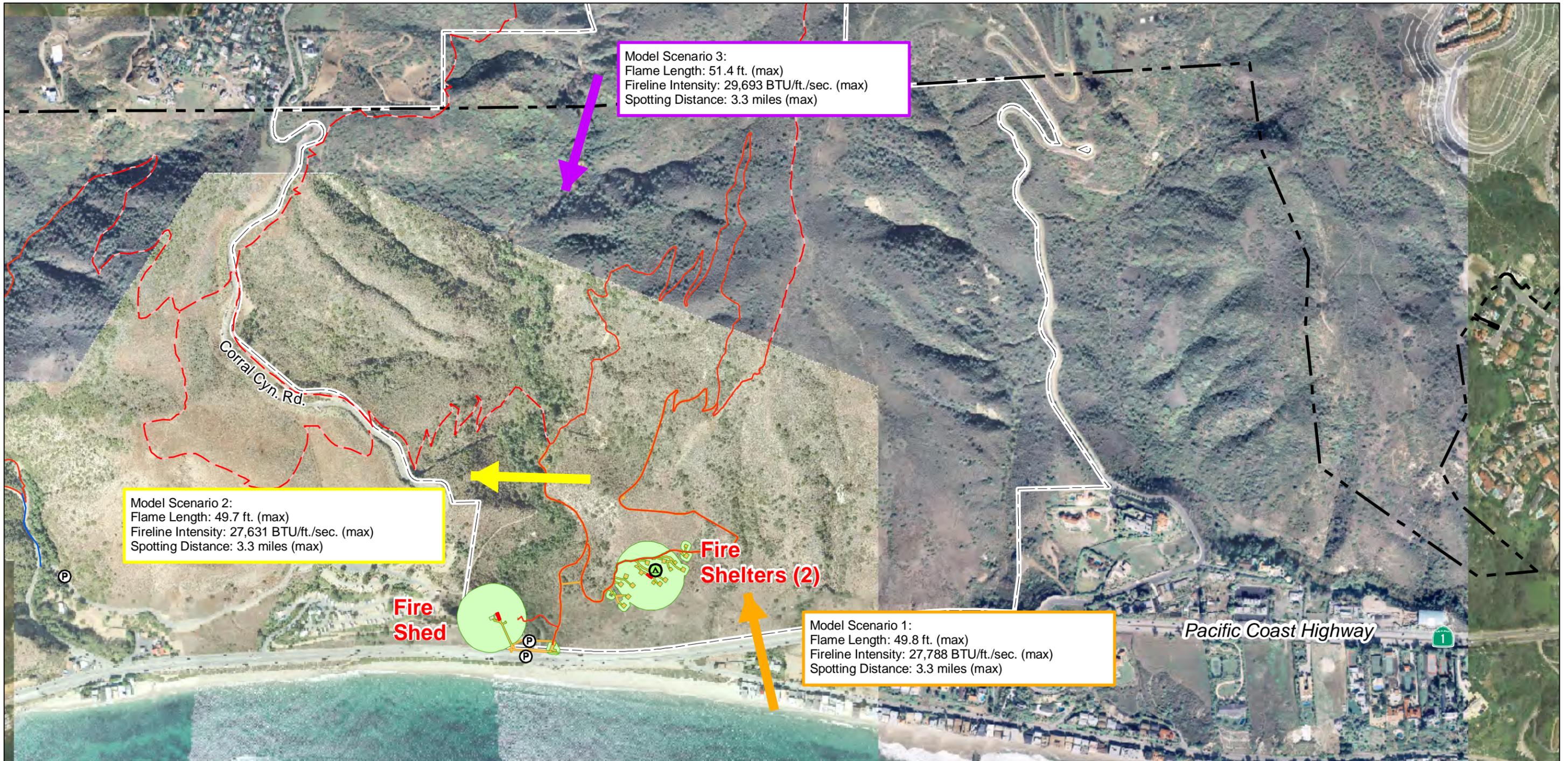
**Table 1  
Fire Behavior Model Variables**

Scenario	Fuel Model	Slope	Aspect
1	SCAL 18, coastal sage scrub	30%	South
2	SCAL 18, coastal sage scrub	25%	East
3	SH7, sumac	20%	Southeast

**Table 2  
BehavePlus Fire Behavior Model Results**

Scenario	Flame Length (feet)	Fireline Intensity (BTU/feet/second)	Spotting Distance (miles)
<i>Scenario 1: Coastal Scrub on South-Facing, 30% Slope</i>			
On-shore (50th Percentile)	16.6	2,551	0.4
Santa Ana (97th percentile with 69mph gusts)	49.8	27,788	3.3
<i>Scenario 2: Coastal Scrub on East-Facing, 25% Slope</i>			
On-shore (50th Percentile)	16.4	2,481	0.4
Santa Ana (97th percentile with 69mph gusts)	49.7	27,631	3.3
<i>Scenario 3: Sumac on South-East-Facing, 20% Slope</i>			
On-shore (50th Percentile)	13.2	1,560	0.4
Santa Ana (97th percentile with 69mph gusts)	51.4	29,693	3.3

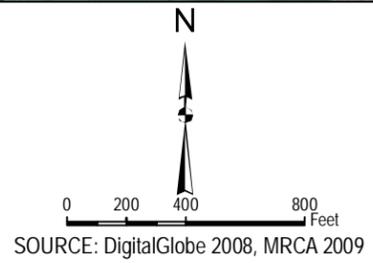
NOTE: The results presented in Table 2 depict values based on inputs to the BehavePlus software. Changes in slope, weather, or pockets of different fuel types are not accounted for in this analysis. Model results should be used as a basis for planning only, as actual fire behavior for a given location will be affected by many factors, including unique weather patterns, small-scale topographic variations, or changing vegetation patterns.



Model Scenario 3:  
 Flame Length: 51.4 ft. (max)  
 Fireline Intensity: 29,693 BTU/ft./sec. (max)  
 Spotting Distance: 3.3 miles (max)

Model Scenario 2:  
 Flame Length: 49.7 ft. (max)  
 Fireline Intensity: 27,631 BTU/ft./sec. (max)  
 Spotting Distance: 3.3 miles (max)

Model Scenario 1:  
 Flame Length: 49.8 ft. (max)  
 Fireline Intensity: 27,788 BTU/ft./sec. (max)  
 Spotting Distance: 3.3 miles (max)



- Proposed Camping Area
  - Proposed Parking Area
  - Proposed Facilities
  - Fuel Modification Zones
  - Malibu City Limits
  - Park Boundaries
- Trail Corridors**
  - Primary Trail (see P&S Project Plans)
  - Primary Trail (Existing)
  - Connector Trail (Existing)
  - Backbone Trail
  - Other Existing Trail

**FIGURE 2**  
 BehavePlus Analysis Map

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## 4.2 Result – Exposure to Wildland Fire

Given the climatic, vegetation, wildland-urban interface location, and topography characteristics along with the fire history, ignition sources and fire behavior modeling results previously discussed in this FPP, the project site is determined to be potentially vulnerable to wildfire igniting on, burning onto or spotting onto the site. Based on this information and the recorded history of fires in the area, along with the persistence of naturally vegetated open space within and surrounding the CCP, it is expected that wind-driven wildfires could occur near, and/or on, this site in the future.

Under the most severe fall weather conditions, fire can move rapidly through the canyon fuels. The most common type of fire anticipated in the vicinity of the project area is a fire originating on PCH and burning northward, or a fire burning from the north into Corral Canyon and approaching the project areas. Worst-case flame lengths for each of the three dominant vegetation types on site were calculated at approximately 51 feet. Spotting distances on site may reach 3.3 miles under extreme weather and slope conditions.

## 5.0 PROJECT EMERGENCY RESPONSE, INFRASTRUCTURE AND FIRE PROTECTION FEATURES

The Malibu region experiences periodic wildfire and this site has burned, including the 2007 Canyon, Corral, and Malibu Fires and the 2008 Bluff Fire (refer to Figure 4 of the Master FPP). It can be reasonably anticipated that CCP will be exposed to wildfire in the future. As such, this FPP provides a summary of existing and proposed infrastructure and special measures to provide for fire protection.

### 5.1 Emergency Response

The Project Site is located within the City of Malibu and unincorporated Los Angeles County, which receive fire protection and emergency services from the Los Angeles County Fire Department (LACoFD). LACoFD is under contract to Cal Fire for State Responsibility Area (SRA) fire protection. LACoFD provides initial response to SRA fires, and Cal Fire provides response when necessary based on size and type of fire. Regionally, the LACoFD provides fire, emergency medical, and rescue services from 22 battalions and 170 stations. The Department serves over 4 million residents throughout 58 cities and all unincorporated portions of Los Angeles County. The Project Site lies within the jurisdiction of Battalion 5, which consists of 12 stations. While portions of the proposed trail system and parking improvements within and adjacent to CCP are located in the City of Malibu, the majority of the park facility improvements and new uses would be located within Los Angeles County. The City of Malibu is served

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directly by four LACoFD fire stations (Stations 70, 71, 88, and 99); however, additional stations within the LACoFD are available to service the City if necessary. Additionally, the Ventura County Fire Department (VCFD) and the National Park Service (NPS) are available indirectly to provide fire services to the City if needed.

LACoFD Station No. 88 located at 23720 Malibu Road is the closest fire station at 3.2 miles from CCP. The response time of arrival is expected to be within 5 minutes, roughly the same as the average 4.8-minute response time for urban areas achieved by the LACoFD, based on 2006 statistics (County of Los Angeles 2008). Fire Station No. 71, located at 28722 Pacific Coast Highway, is approximately 4.8 miles from the Project Site entrance and estimated response time is expected to be less than 10 minutes. Additionally, Fire Station 70 at 3970 Carbon Canyon Road is roughly 5.6 miles from the entrance and Fire Station 99 is roughly 9.4 miles from the site.

Typical brush-fire response at Escondido Canyon Park and/or Latigo Trailhead would include the following:

- 5 Engines, 1 Dozer, 3 Copters/ 2 Flycrews, 4 Camp Crews, 3 Superintendents, 2 Battalion Chiefs, 1 Patrol
  - The flycrews land on the incident with a Division Superintendent and attack the active flank, advancing to the head of the fire.
  - Ground crews arrive on scene and are designated to anchor the fire at the point of origin and improve the fire line from the flycrews scratch line, to an impassible fire break. Hazards are addressed, snags relieved, possible rolling material trenched, and dog legs widened.
    - Battalion Chiefs assume Incident Commander responsibilities, in accordance with the Helicopter Coordinator (HELCO) and previous on-scene commanders.

It is expected that the initial arriving BC would evaluate the need for additional resources based on several factors.

In addition to the LACoFD and neighboring NPS and VCFD fire fighting capabilities, the Santa Monica Mountains Conservancy (Conservancy) and Mountains Recreation and Conservation Authority (MRCA) assist local fire departments in fighting wildland fires and protecting the array of resources on and off its own properties. The response time for initial attack is anticipated to be within a few minutes of fire notification and as such, the MRCA will likely be the first or second responder to wildfire starts on or near their properties. The MRCA:

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- Maintains constant communication and mutual aid agreements with the Los Angeles County Fire Department, the Los Angeles City Fire Department, the Ventura County Fire Department, California State Parks, and the National Park Service, to promote cooperative efforts to prevent and defend against wildfire.
- Conducts a formal Fire Academy, certifying MRCA wildland fire fighting personnel to Federal and State standards. This program also trains state and regional firefighters, including the Local Fire departments and resource agencies. The MRCA academy provides continuing education, including; advanced training in wildland fire behavior, emergency medical services (EMS), and urban interface fire fighting.
- Deploys its own fire fighting equipment Fire fighting apparatus, including one four-wheel drive Type II fire engine, one Type I Class A foam engine, one four-wheel drive Type III engine with Compressed Air Foam System, two Type III engines, one water tender, two mobile command units, 40+ chainsaws, two four-wheel drive Type IV engines equipped with Compressed Air Foam System and a minimum of 300 gallons of water and eight four-wheel drive Type IV engines equipped with a minimum of 200 gallons of water. In addition, MRCA stores water and portable high pressure firefighting pumps for fire fighting purposes at this facility. In addition, MRCA provides helicopter-landing zones on its properties for Ventura County Fire Department, Los Angeles County Fire Department, and Los Angeles City Fire Department helicopters.

Based on the available fire fighting resources on site and in the vicinity of the site, adequate resources are available to respond to typical wildfire emergencies for suppression and life safety activities anticipated in the vicinity of this site. This is especially the case because, as described in detail in later sections of this FPP, during the periods where the probability of extreme or catastrophic wildfire occurring would be highest (Red Flag Warning Periods), activities at CCP would be suspended, negating the potential incremental increase in wildfire risks (refer to Master FPP risk analysis) associated with the proposed park uses and human presence on the site.

## **5.2 Water Supply**

For Corral Canyon potable water would be provided via a 6-inch diameter connection to a water main in PCH. This water would be boosted by a small pump station located near the service vehicle access area to serve the camp areas with domestic water. This boosted water will also supply water to the 10,000 gallon storage tank at the top of the knoll above Camp Area 1. The 10,000 gallon storage tank will only be used to provide water to the wildland hydrants (The standard fire hydrant in the parking area will be served by the water main in PCH). To augment pressure and flow to the wildland hydrants, a stand pipe and Siamese connection are provided

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near the service vehicle access area. This will allow a pumper truck to take municipal water and pump it into the fire water line that services the wildland hydrants in the camp area.

As a backup to firewater pressures and flows at Corral Canyon, a gas powered booster pump is being provided at a central location in Camp Area 1. The booster pump would be able to connect to the domestic supply and pump into the firewater line boosting the pressure and flow into the wildland hydrants. Additionally, the booster pump would be able to also connect directly to the 10,000 gallon storage tank supply line and be fitted with a fire hose and nozzle to fight fires directly. The gas powered booster pump, hoses and nozzles will be stored in a steel container centrally located in Camp Area 1. The approximate 20-horsepower booster pump would be refueled (as needed) and inspected/ tested approximately four (4) times per year by wild-fire trained personnel. The booster pump would be housed within a 2 feet by 4 feet steel container. Any necessary refueling of the pump would occur without removing it from the steel container; any accidental fuel spillage would, therefore, be contained. The booster pump would be capable of providing 120 GPM and would be located in a central location between several campsites (with surrounding 20-foot fuel modification buffers) and on a trail (with approximately 10-foot in width of fuel modification).

## 5.3 Fire Access Roads

Fire access roads will be provided as follows:

- The parking lot access will not be significantly changed and allows access to park improvement areas via a 32-foot driveway apron and 16-foot wide driveway to a looped parking area. An additional 19 parking spaces will be provided in Parking Area 1.
- An improved access will be provided to the east of Corral Canyon Creek for additional access without having to cross the creek. The access will be widened and a turnaround placed at the end of the access way, which in total will extend no more than 200 feet from PCH. No other roads or vehicle access points are proposed.

### Dead Ends

No roads are proposed for construction for CCP besides improved access described previously. The improved access on the east side of the creek is a dead end, but does not serve any structures and is an occasional access for special needs campers. The road will be provided with a turnaround to the Fire Authorities approval.

The existing parking area offers a looped travel way.

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## Width

No new roads are proposed for CCP. Existing access roadway widths are:

- Parking Area – 15 to 20 feet wide travel lanes unobstructed with parking provided. The improved access to the east of the creek will be 16 feet wide.

## Grade and Departure Angle

Existing grades and departure angles at the parking area meet code. The new access drive will meet code with less than 10% grade change and less than 7% departure angle.

## Bridges

There are no vehicular bridges currently, or proposed to provide access for CCP.

## Surface

All existing access roadway and driveway surfaces are asphalt concrete pavement capable of supporting travel by minimum 75,000-pound apparatus. The new access drive will be improved and capable of supporting 50,000-pound apparatus during a wildfire emergency based on the weight of typical responding equipment for a wildland fire (ex, dozer transport) where no structures are involved).

## 5.4 Building Construction

New structures planned for CCP include non-combustible self-contained restrooms, a permanent, modular type camp host and/or park administration/employee quarters, a fire engine shed and three temporary, prefabricated optional, emergency fire shelters.

The restrooms will meet the code for the intended use. The camp host and/or park administration/employee quarters will meet fire and building codes for this occupancy type. The fire engine sheds will be of steel construction and will meet code. The proposed emergency fire shelters will meet or exceed the requirements of the existing building and fire codes.

The fire shelters will be located east of Corral Canyon Road (Trail 13b) and in Camp Area 1 within CCP. These shelters are a last resort, and training will be required of campers who could potentially need to use them. Rangers will routinely inspect the shelters and associated features for correct functioning. The shelters will be able to accommodate the maximum number of potential campers for each camp area.

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Each optional, emergency fire shelter would have a window and a door and would be made of Timbercrete or cement-based equivalent. Timbercrete has a very high fire resistance, exceeding a 4 hour exterior rating (Appendix G of the Master FPP) and includes insulated metal fire resistant door, fire resistant triple paned glass window, and a fire resistant “spy hole.” The system used to prevent smoke and gas from entering the structure includes airtight construction for all but the door surround. The structures would be equipped with an air tank that can be turned on as a fire approaches. This slightly pressurizes the structure, forcing excess cooler air out around the small gaps surrounding the door, preventing smoke or gases from entering the structure. The structures will be placed on 0.75-inch gravel base, and are self-leveling. These shelters would be 10.5 feet (width) × 11.8 (length) feet × 10.5 feet (height) and up to 12 feet (w) × 16 feet (l). The smaller shelter could, in an emergency situation, temporary shelter up to 17 people, based on 7 square feet per person. The larger structure could temporary shelter up to 27 people for a short period. The structures will be painted with ignition resistant paint colors that are earth-toned, camouflage, or otherwise compatible with the existing landscape. Location of the optional emergency fire shelters are provided in Figure 1.

## 5.5 Fire Protection Systems

The camp host and/or park administration/employee quarters proposed for CCP will provide a fire protection system (interior fire sprinklers), as required for this occupancy type by the adopted code at the time of placement on site.

## 5.6 Defensible Space

The extents of the CCP fuel modification zones are illustrated in Figure 1. In summary, the program will focus on:

- **Campsites, Parking, and Restroom Fuel Modification:** A total of 20 feet of fuel modification in one zone will be provided. The fuel modification area adjacent to all sides of these improvements will consist of thinning zones where existing vegetation is removed to represent a 75% thinning (from existing conditions) for the extent of the 20-foot-wide zone. Thinning will include removal of highly flammable plant species, dead, and dying plant material, creating horizontal and vertical spacing, mowing grasses and understory plants to 3-inch height, and creating a highly interrupted, non-continuous fuel zone, as described further in this section. Plant species and maintenance requirements will be consistent with those in LACoFD’s Zone A and B as described above, with the exception of irrigation.
- **Permanent Camp Host and/or Park Administration/Employee Quarters:** CCP includes a semi-permanent, modular camp host and/or park administration/employee

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quarters. The building is proposed for location near the existing parking lot and existing buildings. This employee accommodation is located within the 200 foot wide vegetation management area for the existing Fish Market. Based on the modeled fire behavior, terrain, and vegetation, a 100-foot-wide fuel modification zone is considered adequate for protection, as augmented by a proposed seven foot tall, non-combustible, masonry wall will also be strategically positioned in the fuel modification zone as a separator between native fuels and the fuel modification zone. The fuel modification overlaps adjacent area with riparian vegetation (east of the accommodation site). Much of that area is provided irrigation and has been landscaped in association with parking lot and trailhead development. The 100 feet of fuel modification will be comprised of Zone A and B consistent plantings and maintenance. The fuel modification area adjacent to all sides of the building will consist of thinning zones where existing vegetation is removed to represent a 75% thinning (from existing conditions) in the first 50 feet and a 50% thinning (from existing conditions) for the next 50 feet (or more) to the outer edge of the fuel modification zone. Thinning will include removal of highly flammable plant species, dead and dying plant material, creating horizontal and vertical spacing, mowing grasses and understory plants, and creating a highly interrupted, non-continuous fuel zone. Plant species and maintenance requirements will be consistent with those in LACoFD's Zone A and B as described above, including irrigation.

- **Fire Engine Shed Fuel Modification:** A total of 100 feet of fuel modification in two zones will be provided for the fire engine truck shed. The fire engine shed is located within the 200 foot wide vegetation management buffer for the existing Fish Market. Based on the terrain and vegetation surrounding shed location, 100 feet is considered sufficient for protection of this non-combustible, metal shed. The fuel modification area adjacent to all sides of the shelters will consist of thinning zones where existing vegetation is removed to represent a 75% thinning (from existing conditions) in the first 50 feet and a 50% thinning (from existing conditions) for the next 50 feet, to 100 feet total. Thinning will include removal of highly flammable plant species, dead and dying plant material, creating horizontal and vertical spacing, mowing grasses and understory plants, and creating a highly interrupted, non-continuous fuel zone. Plant species and maintenance requirements will be consistent with those in LACoFD's Zone A and B as described above, with the exception of irrigation.
- **Optional Emergency Fire Shelter Fuel Modification:** A total of 200 feet of fuel modification in four zones will be provided for each emergency fire shelter. The fuel modification area adjacent to all sides of the shelters will consist of thinning zones where existing vegetation is removed to represent a 75% thinning (from existing conditions) in the first 100 feet and a 50% thinning (from existing conditions) for the next 100 feet, to

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200 feet total. Thinning will include removal of highly flammable plant species, dead, and dying plant material, creating horizontal and vertical spacing, mowing grasses and understory plants, and creating a highly interrupted, non-continuous fuel zone, free of sustained high Btu producing elements. Plant species and maintenance requirements will be consistent with those in LACoFD's Zone A and B, with the exception of irrigation.

- **Fire Access Road Zone:** This zone extends 20 feet (twice code requirements) from the edge of any proposed public or private roadway (excluding driveways), and may be used as access for firefighting apparatus or resources.

### *Specific Requirements – Fire Access Road Zone*

- Clear and remove flammable growth for a minimum of 20 feet on each side of Fire Access Roads (Fire Code Section 317.10) or to property or easement line (or similar measures required by LACoFD consistent with Fire Code allowances);
- Fire access roads, driveways, and turnarounds shall be maintained in accordance with Fire Code. Fire Access Roads shall have unobstructed vertical clearance (Fire Code Section 503.2.1) of a minimum of 13 feet 6 inches.
- Landscaping and native plants within the 20-foot Fire Access Road Zone shall be appropriately spaced and maintained to provide safe egress in wildland fire environments, including the removal of high Btu producing elements.

## 5.7 Vegetation Management

An annual vegetation management plan for each Park will be prepared by Conservancy/MRCA with special focus provided for road interface areas, camp host and/or park administration/employee quarters, parking area adjacency, fire engine sheds, optional emergency fire shelters, and campsites. All Fuel Modification Zone maintenance will be completed at least annually by May 15 of each year and more often as needed for fire safety, as determined by the appropriate fire agency. MRCA will provide on-going/as-needed fuel modification zone maintenance that will include:

- Pruning of foliage to reduce fuel load, vertical continuity, and removal of plant litter and dead wood.
- Removal or thinning of undesirable combustible vegetation and replacement of dead or dying landscaping.
- Chipping removed material to at least 4 inches diameter and distributing on site in fuel modification areas around campsites to reduce likelihood of weed growth.

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- Pruning lower branches of trees and tree-form shrubs to one-third of their height (or 6 feet from the lowest hanging branches) to help prevent fire from spreading upward into the crown.
- Maintaining ground cover at a height not to exceed 18 inches. Annual grasses and weeds shall be maintained at a height not to exceed 3 inches.
- Removing accumulated plant litter and dead wood. Debris and trimmings produced by thinning and pruning should be removed from the site or chipped and evenly dispersed in the same area to a maximum depth of 5 inches.
- Complying with these FPP requirements on a year-round basis. Annual inspections are conducted following the natural drying of grasses and fine fuels, between the months of April and June, depending on precipitation during the winter and spring months.
- Preparation of Plan area-specific fuel modification plans will commence and be completed prior to site preparation work. The fuel modification plans will be prepared by a qualified fire protection planner and will include CAD-generated drawings of the improvements and specific fuel modification requirements for each improvement. Final fuel modification plan approval will be provided by the appropriate fire agency.

Neighboring property owners, especially those atop the ridges along Corral Canyon Road provide defensible space around structures as required by LACoFD and state law (Public Resources Code, Section 4291). This practice should continue so that the combined fuel reduction efforts will improve the overall fire safety and reduce risk in the project area.

Construction period vegetation management will be consistent with requirement of LACoFD and the Master FPP, Section 5.2.1.

### **6.0 SITE SPECIFIC FIRE PROTECTION MEASURES**

The following customized measures have been developed based on the proposed CCP enhancements, the assessed wildfire risk, and the need for site-specific fire prevention, suppression, pre-planning, and relocation planning for the camping uses planned for the project.

1. Notification and enforcement of all standard park rules and regulations per existing policies of the Conservancy/MRCA will continue to occur. Most notably among the fires safety rules are:
  - a. CCP will be closed sunrise to sunset; except in designated camp areas
  - b. No smoking or fires.
  - c. No alcoholic beverages.

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- d. No littering or dumping.
  - e. No unauthorized vehicle use.
  - f. Possession of firearms, bow, and arrow prohibited.
  - g. Violations subject to \$1,000 fine and/or 6 months in County jail.
2. No person shall make or maintain, nor aid and abet others in making or maintaining, a campfire or any other open fire in the Park or at the Trailhead. The only cooking apparatus permitted shall consist of non-flammable, flameless, contained cook stations, described below, when permitted and only in designated areas. No kerosene or white gas lanterns shall be permitted.
3. Campers shall be required to utilize designated, flameless cook stations (hospitality stations) provided at each approved campsite, which shall be designed of nonflammable materials and capable of being enclosed vertically on three sides. Cold-camping apparatus such as flame-less cook-stoves and lanterns shall be required. Prospective campers shall be informed of the No Campfire/Cold Camp Policy upon reserving and/or registering for use of camp facilities and will be offered the opportunity to check out a dual burner electrical hot plate for cooking purposes during their stay. Small electric cooking appliances may be brought with campers, subject to inspection and approval by MRCA rangers, camp host, or staff. To facilitate the use of flameless cook surfaces, each approved camp site will be provided an all-weather electric outlet. Further, campers will be put on notice that unauthorized use of fire-related camping and cooking apparatus specifically prohibited by the No Campfire/Cold Camp Policy (including liquid fuel: alcohol, kerosene, unleaded gasoline, white gas, mentholated Spirit, etc.; canister fuel (propane, butane, etc.; wood, wax or any other type of combustible material, etc.) will be cause for confiscation of such devices and/or expulsion of visitors from camp facilities. Signs shall be posted and camp areas will be routinely patrolled to enforce the No Campfire/Cold Camp Policy and notification provided that violation of the No Campfire/Cold Camp Policy may be punishable by fines up to \$1,000.00. In addition, campers would be notified that use of the cook station electrical outlet(s) for space heaters, lighting sources, hair curling and flattening devices, blow dryers, stereos or other devices emitting audible noise would be cause for confiscation of such devices and/or expulsion of visitors from camp facilities
4. Fire protection equipment shall be provided and maintained at all camp facilities and shall include, at a minimum:
  - a. Existing water main connection with booster station for domestic water and to supply the 10,000 gallon water tank.

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- b. 10,000-gallon water storage tank with Siamese connection for additional pumper truck augmentation of pressure for wildland fire hydrant supply
  - c. A portable and air-powered quick attack firefighting system will be provided at each camp facility for ready deployment by trained Camp Host, Ranger, or park personnel in the event of a fire.
  - d. Portable self-contained fire extinguisher units to be provided for each cluster or group of campsites.
  - e. CCP will include a 45 feet x 15 feet x 12 feet steel fire shed on concrete slab for housing at least one fire engine along with miscellaneous fire protection equipment (Figure 1).
  - f. Self-contained restrooms will be constructed of non-combustible materials.
5. CCP shall be closed to all recreational use, camping reservations or other functions during any Red Flag Warning day/period, Flash Flood/Flood Warnings or Urban/Small Stream Advisory as declared for the Santa Monica Mountains area by the National Weather Service, a division of the National Oceanic Atmospheric Administration (NOAA). Signs shall be posted and park areas shall be patrolled to notify park users and to enforce restrictions on park use and notification provided that violation of the Red Flag Warning day closure policy may be punishable by fines up to \$1,000.00. Written warnings of the park closure and use cancellation policy shall be provided to potential campers and prospective program and event sponsors prior to contracting for park use.
6. Wildland fire-trained employee(s) and/or camp host(s) shall be on site during the times when camping is permitted. Camp Hosts shall be public officers designated pursuant to the MRCA Park Ordinance as authorized by the Public Resources Code. When camping is not permitted, rangers will make regular patrols. See Patrols text (DEIR, Chapter 2.0). To ensure adequate staffing and to meet this condition, the one permanent host accommodation is provided in the existing parking area. Staffing from the Conservancy's Malibu Bluffs Property will be available to cover shifts at Corral Canyon Park, if necessary.
7. Campsites will be located within accessible areas and/or within visually observable areas of CCP to ensure easy access for purposes of maintenance and patrol, and in case of emergency.

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## 6.1 Relocation Planning

Wildfire emergency response procedures will vary depending on the type of wildfire and the available time in which decision makers from MRCA can assess the situation and determine the best course of action. The project's pre-plan, camp restrictions, adherence to "Ready, Set, Go," for early off-site relocation, and restrictions that prohibit visitors during weather that is most likely to facilitate ignition and spread of fire, are priority components of this FPP. The Barwood building at Ramirez Canyon Park currently serves as the Western Sector Emergency Operations Center for the MRCA, with full computer and radio dispatch capabilities in the event of an emergency. Trained dispatch personnel would be on-site at the Barwood building during a wildfire emergency. This Plan area resource provides an additional layer of support for the early relocation strategy by offering heightened access to important wildfire information and for determining which relocation option to employee. Among the Barwood building communications and information support capabilities:

- VHF Base radio – high powered stationary radio with a fixed repeater in Upper Ramirez Canyon
- Satellite phone
- VHF Hand held radios (numerous)
- GIS mapping center
- Phone System
- Inforad Emergency Paging System

### 6.1.1 Wildfire Emergency Pre-Plan

The MRCA has pre-planned for wildfire emergencies and will continue to update the relocation component of that pre-plan for CCP. Subject areas that shall be included in the emergency preparedness planning for CCP include:

- Staff training (by MRCA, LACoFD)
- Facility Protection (as defined in this FPP)
- Grounds Protection (fuel modification zones)
- Fire Prevention during Red Flag Warning periods
- Emergency Supplies (fire extinguishers, First-aid and AED kits, etc.)
- Telephones/Communications

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- Web based communication tactics – text messages, e-tools for information, education, and critical notifications
- Command List
- MRCA Emergency Operations Plan
- Annual Review and Update
- Emergency Notification Procedures
- Advisement of Potential Fire Danger
- Emergency Relocation/Evacuation Plan.
- Temporary sheltering in Optional fire shelters

## 6.1.2 Relocation Alternative Scenario

The following relocation scenarios are provided for illustration of decision making and alternatives. The term 'relocation' is used instead of 'evacuation' as the term indicates an orderly, pre-planned process where people are relocated from one area to a fire shelter or to an off-site area. Orderly movement of people is the result of planning, training, education, and awareness, all of which will be proactively implemented by MRCA.

The preferred and highest priority is early relocation from the CCP to off-site areas away from wildland fuels. This is evidenced by and will be aided by the fact that on declared Red Flag Warning days/periods, the CCP will be closed to visitors and any other activities, including camping. This closure removes visitors from the Plan area corresponding with the periods that have historically produced the largest and most dangerous wildfires. However, because southern California's fire season is now considered to be nearly a year round event, wildfire may occur when persons are at the site on non-Red Flag Warning days, perhaps during high fire season. Fires in the absence of high winds and low humidity during these periods would be expected to have much less aggressive behavior, but still requires provisions for early relocation and for contingency, 'last resort,' on-site, sheltering, should relocation from campsites be determined to be more dangerous than remaining on site. The following sections discuss emergency response decision making and the relocation and temporary on-site sheltering alternatives available for CCP visitors.

Relocation of the site's staff and visitors in the event of a wildfire would depend on the fire's location and behavior. Relocation can be achieved via the following optional routes:

- **Camp Area:** Campers in Camp Area 1 are within 4- to 5-minute walking distance from the parking area. Campers would return to the parking area and exit onto Pacific Coast

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Highway and out of the area. It is unlikely that campers in this camp area would ever need to relocate to the east or north along the proposed trail given the distance and potential exposure. The opportunity to exit from these camp sites directly to PCH is possible in an emergency. Nevertheless, an optional emergency fire shelter will be provided for this camp area and would be available as a contingent measure in the unlikely event that campers are caught in a wildfire and do not have time to relocate from the area.

As identified in this FPP, in case of wildfire, the preferred plan is early relocation and it is estimated that relocation will be implemented in all but the rarest of wildfire events. Early notification of the MRCA Command and administrators and subsequently of staff and visitors is critical to the timely and safe relocation to designated off-site relocation areas. As indicated in numerous recent wildfires in southern California, including the 2009 Jesusita wildfire in Santa Barbara and the 2007 San Diego County fires, early notification combined with an organized relocation strategy and implementation is an effective means of moving people out of harm's way.

On at least an annual basis, MRCA firefighting personnel will conduct fire relocation drills at CCP to train staff on efficient and effective relocation of this area during a wildfire. MRCA fire fighters will observe and participate in this annual drill and will have the authority to revise the procedure as necessary to provide the most efficient and safest relocation process. In addition, MRCA will hold regular relocation drills with timed facility sweeps for visitor 'round up.' The sweeps are estimated to take a maximum 25 minutes and include trails and campsites at the facility (excluding remote trails at night). Continued property sweep training will be included in the overall MRCA fire safety training program.

If relocation of CCP visitors is required, the following procedures will be followed. (NOTE: Relocation of the CCP visitors, at average daily population (estimated 32 people) may require in excess of 25 minutes, based on the typical time from notification of a fire to leaving the area).

Relocation of CCP visitors will typically occur during large, distant wildfire events that, due to weather patterns and difficulty in gaining control, could threaten the area. Under this scenario, MRCA fire fighters and administrators would evaluate the wildfire event and determine at which point relocation would occur, with a conservative Management Action Point (trigger) threshold (i.e., relocations will be required well before fire is threatening the greater Malibu area).

As mentioned, on declared Red Flag Warning days/Periods, when wildfire potential is high and fire behavior is unpredictable, CCP will be closed to visitors, including campers. On non-Red Flag Warning days, when wildfire potential is lower and wildfire behavior is more predictable

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and controllable, visitors will be allowed. On a non-Red Flag Warning day, should a wildfire occur that allowed time to relocate, visitors would be quickly relocated off-site with the assistance of MRCA's internal pre-plan which includes Ranger delivered warnings, visitor gathering, and disbursement without the need for local law enforcement assistance, as described below.

In the event of a notification of wildfire and the decision to relocate:

- Staff will conduct a sweep of the facility and of the trail system within the vicinity of the CCP to notify hikers/pedestrians of the relocation decision. Hikers will be briefed at check in and by signage regarding wildfire danger and responses. MRCA Rangers will broadcast an alarm/siren (vehicle mounted or portable public address system) so hikers on trails beyond the immediate vicinity of the Park and Trailhead are alerted and return to their vehicle. Communication with registered campers will be via a vehicle mounted or portable siren/warning signal, cell phone (cell phone numbers will be collected at check in and may be utilized for tracking individuals' locations via GPS in an emergency) and may include the use of e-tools to support critical notification such as text messages, twitter alerts, or other e-alerts, and/or when possible, trail sweeps by MRCA Rangers. To retain camper privacy, all camper personal cell phone and text information will be purged from the MRCA digital and/or hard copy file within one week following camper departure. This information will not be used for any other purpose than emergency or camping-related contacts. In addition, another resource available for notification that has been used in the past, MRCA's Interagency Pre-Plan includes coordination with LA County Sheriff's Office for helicopter assistance with notification and/or rescue of remote trail users during emergency situations. Visitors will be directed to their vehicles. Visitors without vehicle transportation will carpool with other visitors or with MRCA staff. Visitors with special needs will be provided assistance by MRCA rangers, as necessary, so that relocation occurs in a safe and efficient manner.
- Vehicles will exit the site via the site parking area onto PCH.
- The vehicles will drive either east or west on PCH, as directed by MRCA fire personnel and/or law enforcement, depending on location of fire front and direction of fire movement. Staff and visitors will be directed by law enforcement as to the designated safe areas.

### **6.2 Temporary On-Site Sheltering – Contingency Option**

It is considered very unlikely that a wildfire scenario will occur that would preclude safe relocation of CCP camp areas. The site is located in close proximity to PCH and has access to

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nearby open areas with large expanses of irrigated, low fuel landscapes that can also serve as a safe refuge in a wildfire emergency. However, in the rare event that there is not enough time to safely relocate out of the area, such as fires igniting within or directly adjacent the Park and driven by a wind from the north or south on a non Red Flag Warning day (when people could be at the site), may result in MRCA Camp hosts determining that all or some of the site's campers will need to temporarily seek emergency shelter. This FPP stresses that on-site sheltering is a "last-resort" with early relocation off-site as the preferred priority.

Assuming the estimated average daily population 32 people on site and on a given day (outside the High Fire Season), it is estimated that it could require 25 minutes or more to locate registered visitors, and direct them to the project-optional fire shelter(s). The fire shelters provided at CCP will be sized sufficiently to temporarily shelter the maximum number of campers that may be on site.

As mentioned, MRCA will hold regular relocation drills with timed facility sweeps for visitor 'round up.' The sweeps will include the park facilities and campsites (excluding remote trails). Audible alarm/sirens (vehicle mounted or portable public address system) will be broadcast from several locations as a first attempt at communication. Remote trail hiker's with provided cell phone numbers will be called while others will be texted and/or provided e-alerts (when possible) as a secondary communication attempt to alert remote trail hikers of the need to return to the Park as quickly as possible. Lastly, remote trails will be swept by MRCA Rangers if adequate time is available.

In cases where temporary sheltering is required, MRCA Rangers will direct hikers/visitors to the optional fire shelters upon making contact during the park sweeps and warning period. All registered visitors will be familiar with the fire shelters, their purpose, and use based on information that will be provided at reservation and check in.

## **7.0 CONCLUSION**

This Focused FPP has been prepared as an evaluation of the adverse environmental effects that the proposed Malibu Parks Public Access Enhancement Plan - Public Works Plan improvement project, Modified Redesign Alternative at Corral Canyon Park may have from wildland fire. It further evaluates methods for reducing those effects to ensure that the above referenced project does not unnecessarily expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

This FPP utilizes a 'systems approach' for specifying fire protection measures. The measures consist of the components of fuel modification, structural protection, water supply, fire

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protection systems, access (ingress/egress), optional emergency shelters and well-planned emergency response and early evacuation of staff and visitors. In addition, the plan memorializes the MRCA's existing pre-planning and fire action plans as well as the recommended and required actions that will be enforced at the Corral Canyon Park as part of the area wide fire reduction efforts. This FPP provides details regarding the general fire protection features as well as the site specific, restrictive policies that will govern the Parks with regards to fire protection.

The requirements and recommendations provided in this FPP have been designed specifically for the proposed improvements adjacent or within the wildland urban interface zone at Corral Canyon Park. Because this project proposes primarily recreation improvements with minimal structural additions, the requirements for fire safety are customized for these uses and, in most cases, are not specifically covered under existing Fire or Building codes. Where possible, the codes are applied or used as guidance. Where infeasible or not applicable, alternative measures are provided that will reduce the likelihood of ignitions, such as prohibitions on camp fires, provision of non-flammable, flameless cook stations at campsites, Park closures on Red Flag Warning days, and emergency fire shelters, amongst others. An important additional consideration, fuel modification zones, will be diligently provided at Corral Canyon Park improvement areas and will be maintained on an on-going basis and inspected annually, maintaining the plants at very high levels of ignition resistance and removing all dead and dying materials and maintaining appropriate horizontal and vertical spacing within the zones. In addition, plants that establish or are introduced to the fuel modification zones that are not on the approved plant list will be removed.

Ultimately, it is the intent of this FPP to guide the fire protection efforts for Corral Canyon Park in a comprehensive manner. Implementation of the measures detailed in this FPP will reduce the risk of wildfire at this site, will improve the ability to safely relocate people from the area during wildfire events or temporarily shelter them under emergency conditions, and will improve the ability to fight fires on the properties and protect park property and neighboring resources irrespective of the cause or location of ignition.

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

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**8.0 MAINTENANCE AND LIMITATIONS**

In order to ensure that the proposed park improvements and uses minimize risks associated with wildfire, all components of the fire protection system must be in place and maintained. This FPP, when approved, provides the direction and nexus for that maintenance to occur. Specifically, the MRCA will conduct at least annual inspections of the fuel modification areas, fire protection systems, and infrastructure to ensure that they meet the requirements specified in this FPP.

**ATTACHMENT 1**  
*Select Project Area Photographs*





**Photograph 1.** View of access from PCH, one of two accesses. This access avoids the creek that runs north-south from Corral Canyon to the Ocean. This access will be improved for accessibility.



**Photograph 2.** View of split in trail leading to the two trail access points.



**Photograph 3.** View of trail leading to southeastern campsites. Note the fuel break that was bladed in 2006 up the large slope from PCH.



**Photograph 4.** View of area where campsites will be provided in the southeastern portion of Corral Canyon Park.



**Photograph 5.** View of trail leading into Corral Canyon to the northern campsites. Note the vegetation on adjacent slopes and the riparian vegetation along the creek bottom.



**Photograph 6.** View to the north from the access trail. Note the firebreak on the distant ridge line and the variations in fuel types and densities.



**Photograph 7.** View of the campsite location in the northern portion of the Park at near the site of an abandoned homestead.