

WILDLAND FIRE MANAGEMENT PLAN FOR MARINE CORPS AIR STATION MIRAMAR SAN DIEGO, CALIFORNIA

Prepared for:

MCAS Miramar Fire Department

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Title:

Wildland Fire Management Plan

Implementing Agency:

U.S. Marine Corps, MCAS Miramar Fire Department

Affected Jurisdictions:

Marine Corps Air Station Miramar

Designation:

Implementation of an Improved Wildland Fire Management Program at Marine Corps Air Station Miramar, County of San Diego, California

Abstract:

This document presents the wildland fire and fuels management strategies associated with initial implementation of a Wildland Fire Management Plan (WFMP) at Marine Corps Air Station (MCAS) Miramar (also referred to as the Station). Wildfires threaten military assets on the Station; residential, commercial, and industrial areas off-Station; and sensitive natural and cultural resources, both on- and off-Station. Wildfires can also cause interruptions in training and can jeopardize the readiness and, subsequently, the mission of the Station. Actions prescribed in this plan enable the MCAS Miramar Fire Department to prevent and suppress wildland fires within and immediately surrounding MCAS Miramar. Effects of this WFMP on environmental resources are minimized through incorporation of conservation measures that are presented in an appendix and are an integral part of this WFMP.

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LIST OF ACRONYMS

AAR After Action Review

AIU Alliant International University

APCD Air Pollution Control District

BA Biological Assessment

BAASH Bird and Animal Aircraft Strike Hazard

CALFIRE Formerly: California Department of Forestry and Fire Protection

CDFG California Department of Fish and Game

DoD Department of Defense

EA Environmental Assessment

ECC Emergency Communications Center

EIS Environmental Impact Statement

EOD Explosive Ordnance Disposal

FTZ Fuel Treatment Zone

GIS geographic information system

HSPD-5 Homeland Security Presidential Directive-5

I-15 Interstate 15

I-805 Interstate 805

IC Incident Commander

ICS Incident Command System

INRMP Integrated Natural Resources Management Plan

IRPG Incident Response Pocket Guide

LCES lookouts, communications, escape routes, and safety zones

MCAS Marine Corps Air Station

MIST Minimum Impact Suppression Tactics

MMNNL Miramar Mounds National Natural Landmark

NAS Naval Air Station

NEPA National Environmental Policy Act

NFPA National Fire Protection Association

NIMS National Incident Management System

NWCG National Wildfire Coordinating Group

PMO Provost Marshall Office

PTB Position Task Book

SDCWA San Diego County Water Authority

SDG&E San Diego Gas and Electric

SDZ surface danger zone

SOG standard operating guideline

SOP standard operating procedure

SR State Route

UCSD University of California San Diego

USFWS U.S. Fish and Wildlife Service

UXO Unexploded Ordnance

WFIP Wildland Fire Implementation Plan

WFMP Wildland Fire Management Plan

WFU Wildland Fire Use

WUI wildland/urban interface

EXECUTIVE SUMMARY

PURPOSE

Marine Corps Air Station (MCAS) Miramar prepared this Wildland Fire Management Plan (WFMP) to guide wildland fire management and planning decisions on MCAS Miramar. It provides a comprehensive vegetation and fire management program for MCAS Miramar. The MCAS Miramar Fire Department has the responsibility of fire prevention and fire suppression on the Station. The fire prevention and suppression measures described in this WFMP will serve to prevent and/or control the frequency, size, distribution, and intensity of wildfires. Furthermore, these measures are intended to protect high-value areas on- (e.g., military assets and sensitive natural and cultural resources) and off-Station (e.g., residential and commercial areas that border MCAS Miramar).

RELATIONSHIP TO THE MILITARY MISSION

The WFMP will provide the basis and criteria for conducting fire management activities, consistent with the military mission. The mission of the Station is to maintain and operate facilities and provide services and material to support operations of a Marine Aircraft Wing, or units thereof, and other activities and units as designated by the Commandant of the Marine Corps in coordination with the Chief of Naval Operations. Wildfires can cause interruptions in training and can jeopardize the readiness and, subsequently, the mission of the Station. Wildfires can also cause costly reparations and liabilities that divert funds from important military readiness functions. Fire management is a necessary part of the readiness, and safe and efficient operation, of the Station consistent with its mission.

In general, the mission of MCAS Miramar has been beneficial to plant communities. As such, relatively large expanses of native plant communities have been maintained.

MCAS MIRAMAR FIRE MANAGEMENT

The historical approach to fire management within the Station did not typically include intentionally disturbing native plant communities with prescribed burning. Thus, early fuel management of the Station consisted of fire suppression. As fewer natural fires were allowed to burn, fuel loading became increasingly more significant.

The combination of existing and future fuel loads (e.g., dead and live biomass) and the continuing limited fuel management activities, restricted to maintaining existing fireroads and fuelbreaks, has and will continue to create a potential for a wildland fire that exceeds current fire suppression capabilities of the MCAS Miramar Fire Department. Several factors have combined to help create a relatively large area of mostly undeveloped plant communities that represent potentially large-scale fire risk. Among those factors are past vegetation management practices, fire suppression, environmental constraints, and loss of native habitat adjacent to the site. Past fire management on MCAS Miramar has resulted in localized fuel load reduction success, but this has been limited in distribution across the Station. The Cedar Fire of 2003 temporarily eliminated much of the risk of large-scale catastrophic fire throughout the majority of East Miramar and a small portion of West Miramar. However, how these burned areas recover, and what management actions are applied to them over time, will affect wildfire behavior on the Station in the future.

The fire prevention and suppression measures described in this WFMP are needed to ensure that MCAS Miramar can (1) maintain its mission and operations; (2) prevent the loss of life from wildland fires; (3) protect and preserve federal facilities; (4) prevent the loss of property adjacent to Station boundaries due to fire; and (5) prevent large-scale loss of natural resources due to fire. The proposed action is described in further detail in Section 3.4, Description of Wildland Fire and Fuels Management Strategies by Fire Planning Unit.

For the purposes of this WFMP, the Station is divided into two management areas, East and West Miramar. The management areas are further divided into "planning units" of which there are seven. The West Miramar Management Area includes both the Rose Canyon and West San Clemente Canyon planning units. The East Miramar Management Area includes the I-15 Corridor, Murphy Canyon, Scripps Ranch, East San Clemente Canyon, and West Sycamore Canyon planning units. Large portions of the Station, primarily in the East Miramar Management Area, are undeveloped with native vegetation cover that is susceptible to periodic wildfires. This WFMP formalizes and builds upon the steps that MCAS Miramar is already taking to manage wildfire on the Station. It incorporates or modifies many recommendations from previous fire planning documents.

Current and proposed wildland fire and fuel management strategies are described in detail per planning unit. These management strategies include the following types of actions: conduct prescribed burns to create a range of age-class fuel mosaics, create fuel treatment zones, establish/maintain access roads, conduct annual mowing, maintain defensible space zones, continue to coordinate with the Explosive Ordnance Disposal (EOD) unit during EOD training, and conduct roadside brushing. Stationwide management actions include the following: maintain

all existing fuelbreaks and fireroads, continue use of the Fire Danger Rating System and Wildland Dispatch Plan, continue to carry out standard operating guidelines for responding to and managing wildland fire in sensitive areas, continue to provide training and certification for fire personnel, keep current mutual aid agreements, survey Stationwide fuel load conditions, and thin strands of eucalyptus species.

RELATIONSHIP TO PROFESSIONAL GUIDELINES/NATIONAL POLICIES AND AUTHORITIES

This WFMP follows in accordance with two primary objectives that are compatible with the Station's Integrated Natural Resources Management Plan (INRMP) (MCAS Miramar 2006). These include the following.

<u>Objective I</u>: Support a wildland fire management program to protect high-value human and natural resource areas from catastrophic wildfire and short fire return intervals while conserving resources and military operational flexibility.

Objective II: Track and monitor the effects of fuel modifications to validate hazardous fuel reduction actions in strategic areas of the Station and enhance/maintain native plant diversity and improve wildlife habitat.

Several high-priority and other planned actions that will allow the MCAS Miramar Fire Department to meet these objectives are described within this WFMP.

Development of the WFMP was based on professional standards for the Department of Defense wildland fire management policy, as well as other national programs and guidelines. One element of the 2001 Federal Wildland Fire Management Policy identifies fire management planning as an effective measure in reducing long-term effects of wildland fire on federal assets and natural and cultural resources. Each federal agency is required to prepare a WFMP as part of a successful fire management program. In addition, Marine Corps Order (MCO) P5090.2A Section 11204.6, as amended January 22, 2008, discusses required components of the WFMP. This WFMP has considered the following issues in accordance with the 2001 Federal Wildland Fire Management Policy:

- Firefighter and Public Safety
- Fire Management and Ecosystem Sustainability
- Response to Wildland Fire

- Wildland Fire Use
- Rehabilitation and Restoration
- Protection Priorities
- Wildland-Urban Interface
- Planning
- Science
- Preparedness
- Suppression
- Prevention
- Standardization
- Interagency Cooperation and Mutual Aid Agreements
- Communication and Education
- Agency Administration and Employee Roles
- Evaluation

Additional issues that are relevant to the Station's WFMP include:

- Station Mission Impact Considerations
- Smoke Management and Air Quality
- Emergency Operations
- Personnel Training and Certification Standards
- Monitoring
- Funding

Effects to federally listed endangered and threatened species (e.g., California gnatcatcher, San Diego fairy shrimp, willowy monardella, Del Mar Manzanita, etc.) will be avoided. Where a listed species occurs within a specific management unit, the specific action will be designed to avoid effects to the species, as detailed in Appendix A.

NATIONAL ENVIRONMENTAL POLICY ACT

The National Environmental Policy Act (NEPA) requires disclosure of environmental impacts created by proposed major federal actions. An Environmental Assessment (EA) will be completed to assess the potential environmental impacts associated with the comprehensive vegetation and fire management program described herein. The EA will also assess the potential environmental impacts from not implementing this comprehensive program, or from

implementing only a portion of the actions proposed within this WFMP. Fire management activity conservation measures to avoid and/or minimize impacts are listed in Appendix A of the WFMP; these measures are an integral part of the WFMP. Management and mitigation measures required in association with implementing this WFMP are described in the EA.

Several plant and animal species that are listed as threatened or endangered by the U.S. Fish and Wildlife Service (USFWS) occur within the Station. Similarly, cultural resources that are, or may be, eligible for listing on the National Register of Historic Places (NRHP) occur within the Station. This WFMP, for the implementation period, has been developed to avoid potential adverse effects. This will be accomplished through close coordination between the Miramar Fire Department and Environmental Management Department and through implementation of measures outlined in Appendix A. Future updates of this plan may require consultation with USFWS under Section 7 of the Endangered Species Act, or with the California Office of Historic Preservation (OHP).

Upon finalization of the EA, a Finding of No Significant Impact on the proposed action or preparation of an Environmental Impact Statement (EIS) will occur. If the proposed action includes items that may have a significant environmental impact, additional NEPA documentation in the form of an EIS would be prepared prior to implementing those specific actions.

PLAN ORGANIZATION

This WFMP is organized as follows.

- Chapter 1, *Introduction* describes the purpose of and project location for the WFMP. It describes environmental documentation for and decision-making processes involved with the proposed actions in the WFMP.
- Chapter 2, Relationship to Land Management Planning and Fire Policy describes the
 mission of MCAS Miramar and the relationship of the WFMP to guidance within the
 INRMP. It describes the professional standards and national programs and guidance on
 which the WFMP is based.
- Chapter 3, *Wildland Fire and Fuels Management Strategies* describes implementation of the fire management program. It identifies the specific current and proposed fire prevention and suppression actions per planning unit.
- Chapter 4, Wildland Fire Management Program Components describes components of the program to manage vegetation and fire on the Station. These include wildland fire

suppression, prescribed fire, fuelbreaks and fireroads, and emergency rehabilitation and restoration.

- Chapter 5, *Organizational Structure* describes the organization of personnel within MCAS Miramar as it relates to the WFMP.
- Chapter 6, *Monitoring and Evaluation* describes the annual monitoring and reporting requirements of fires and fire management activities. It summarizes the types of monitoring and reporting that will be required.
- Chapter 7, *References* documents all sources cited in this WFMP.
- *Appendices* contain information, data, or forms relevant to implementation of fire management activities on MCAS Miramar.

CHAPTER 1.0 INTRODUCTION

1.1 PURPOSE

This Wildland Fire Management Plan (WFMP) includes or summarizes the numerous policies, guidelines, and procedures that are followed by the Marine Corps Air Station (MCAS) Miramar Fire Department to prevent, fight, and manage fires that affect MCAS Miramar, San Diego, California, hereinafter referred to as the Station.

The MCAS Miramar Fire Department has the responsibility of preventing, fighting, and managing fires on the Station. Large portions of the Station, primarily in the eastern area, are undeveloped with native vegetation cover susceptible to periodic wildfires. The purpose of this document is to establish a program to reduce the occurrence and severity of fires at the Station, as well as to formalize and build upon the steps that the Station is already taking to manage wildfire. The proposed fire management activities described herein will serve to reduce and/or control the frequency, size, distribution, and intensity of wildfires to protect personnel and high-value areas on-Station (e.g., military assets and sensitive natural and cultural resources) as well as off-Station (e.g., residential and commercial areas that border the Station). The combination of chaparral plant communities, open space, climate, and human activities poses a wildfire risk to the Station and requires an ongoing need for a fire and fuels management program.

The Miramar Fire Department currently conducts 38 ongoing fire management activities; these are captured in this WFMP as "current actions." In addition to the current fire management actions, the MCAS Miramar Fire Department identified 12 new actions. The proposed project addressed in this WFMP consists of the 12 new actions. Section 3.4.1 and section 3.4.2 of this FMP describe the 38 current actions and the 12 new actions. All fire management actions performed on the Station constitute two management approaches, fire prevention and fire suppression.

Current fire prevention measures described in the WFMP are as follows:

- 1. on-going use of an established Stationwide fire danger rating system; and
- 2. continuation of an established fuel modification and reduction program through selected vegetation management practices.

Proposed fire prevention measures are the following:

- 1. constructing one new fuelbreak;
- 2. conducting prescribed burns within two areas;
- 3. creating/maintaining seven new fuel treatment zones; and
- 4. surveying/monitoring Stationwide fuel load conditions.

Current fire suppression measures include the following:

- 1. on-going maintenance of existing fire/access roads;
- 2. on-going compliance with standard operating guidelines for wildland fire suppression operations; and
- 3. on-going compliance with minimum impact suppression tactics (MIST) guidelines for sensitive natural resource areas.

Proposed fire suppression measures include the following:

1. the design, but not construction, of one fireroad into the Miramar Mounds National Natural Landmark (MMNNL).

Wildfires threaten military assets on the Station; residential, commercial, and industrial areas off-Station; and sensitive natural and cultural resources, both on- and off-Station. At the Stationwide level, this WFMP will:

- provide a comprehensive proactive program for fire and vegetation management, including identifying methods and areas for fuel load reduction, prescribed burns, fuelbreaks, and fireroads; and
- establish the environmental documentation required for implementation of vegetation and fire management actions during the applicable implementation period of this plan.

This program is needed to maximize the Station's ability to (1) maintain its mission and operations, (2) prevent loss of life from wildland fires, (3) protect and preserve federal facilities, (4) prevent loss of property adjacent to Station boundaries due to fire, and (5) prevent large-scale loss of natural and cultural resources due to fire.

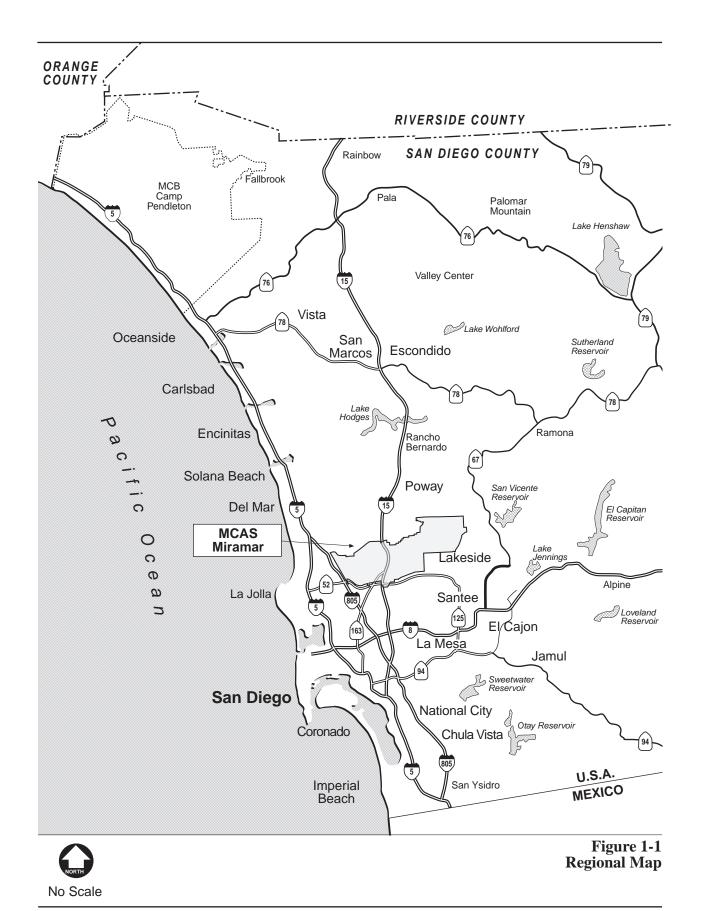
1.2 PROJECT LOCATION

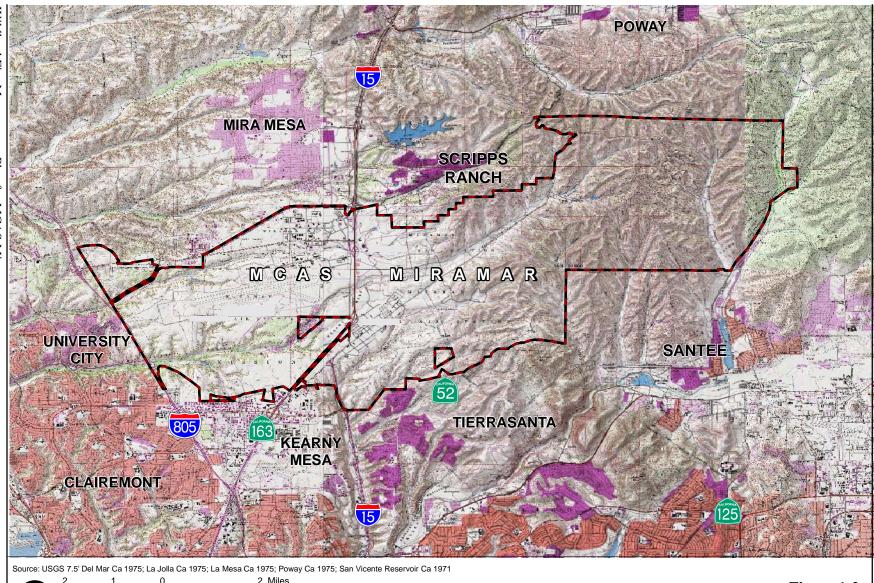
The focus of this WFMP is within the boundaries of the Station. For purposes of risk analyses off-base ignitions will be considered. MCAS Miramar is the primary Marine Corps Air Station for the west coast, located within the northeastern portion of the city of San Diego (Figure 1-1). The Station is located approximately 13 miles north of downtown San Diego and 4 miles east of the Pacific Ocean. State Route (SR) 52 and Interstate 805 (I-805) generally form the Station's southern and western boundaries, respectively. The Station is bisected by Interstate 15 (I-15). Primary access to the Station is from I-15 or Kearny Villa Road via the east gate (or main gate) on Miramar Way and from Miramar Road at the north gate on Mitscher Way. The Station is surrounded by the communities of Mira Mesa and Scripps Ranch to the north; Santee to the southeast; Clairemont, Kearny Mesa, and Tierrasanta to the south; and University City to the west (Figure 1-2). The Station is 23,015 acres in size and is generally divided into two areas: (1) the area west of I-15 that has been more developed and supports commercial, administrative, industrial, and aviation uses, as well as the housing area; and, (2) the area east of I-15 that has largely been left as open space for military training and other operational requirements.

1.3 ENVIRONMENTAL DOCUMENTATION

This fire management program would apply to an initial implementation period of approximately 5 years from the date of publication of the WFMP. An Environmental Assessment (EA) will be completed to assess the potential environmental impacts associated with the comprehensive vegetation and fire management program described herein. The EA will also assess the potential environmental impacts from not implementing this comprehensive program under the "No Action Alternative." Fire management activity conservation measures to avoid and/or minimize impacts are listed in Appendix A of the WFMP. Management and mitigation measures required in association with implementing this WFMP are described in the EA.

Several plant and animal species that are listed as threatened or endangered by the U.S. Fish and Wildlife Service (USFWS) occur within the Station. This WFMP, for the implementation period, has been developed to avoid potential adverse effects to federally listed endangered and threatened species (e.g., California gnatcatcher, San Diego fairy shrimp, willowy monardella, Del Mar Manzanita, etc.). This will be accomplished through close coordination between the Miramar Fire Department and Environmental Management Department. Where a listed species occurs within a specific management unit, the specific action will be designed to avoid effects to the species through implementation of measures outlined in Appendix A. Future updates of this plan may require consultation with USFWS under Section 7 of the Endangered Species Act.





Source: USGS 7.5' Del Mar Ca 1975; La Jolla Ca 1975; La Mesa Ca 1975; Poway Ca 1975; San Vicente Reservoir Ca 1971

2 1 0 2 Miles

Scale: 1 = 125,000; 1 inch = 2 mile(s)

Figure 1-2 Vicinity Map

1.4 DECISION-MAKING PROCESSES

Once the EA is completed, MCAS Miramar personnel (environmental, fire department, public works, and others) will participate in a discussion on the results of the environmental analysis process. The finalized EA will be forwarded through the MCAS Miramar chain-of-command for review to determine whether a Finding of No Significant Impact is appropriate. This decision will be based on a determination that all potential impacts are either less than significant or can be reduced to less than significant levels through the implementation of mitigation measures. If any potential impacts are considered significant and cannot be avoided or reduced to less than significant levels, then preparation and processing of additional National Environmental Policy Act (NEPA) documentation in the form of an Environmental Impact Statement (EIS) would be required.

No actions are proposed for areas outside of Station boundaries under this WFMP. Environmental impacts of future off-Station actions (not part of this proposed action) that may need to be conducted with neighboring responsible fire departments would be addressed in separate environmental documentation and coordinated with the appropriate state agencies and local jurisdictions.

CHAPTER 2.0 RELATIONSHIP TO LAND MANAGEMENT PLANNING AND FIRE POLICY

Fire management activities within the Station are conducted in consideration of both the mission of the Station and management of resources. Furthermore, activities on the Station are conducted in compliance with, or consideration of, numerous national policies and authorities. The relationship of fire management to these existing plans and policies is described below.

2.1 MISSION OF MCAS MIRAMAR

One of the primary objectives of the Marine Corps is rapid deployment to anywhere in the world at any time. The mission of the Station is to:

Maintain and operate facilities and provide services and material to support operations of a Marine Aircraft Wing, or units thereof, and other activities and units as designated by the Commander of the Marine Corps in coordination with the Chief of Naval Operations.

The mission of the Third Marine Aircraft Wing, stationed at MCAS Miramar, is to:

Provide combat-ready, expeditionary aviation forces capable of short-notice worldwide deployment to Marine Air Ground Task Force, Fleet, and Unified Commanders.

Wildfires can cause interruptions in training and can jeopardize the readiness and, subsequently, the mission of the Station. Wildfires can also cause costly reparations and liabilities that divert funds from important military readiness functions. In addition, wildfires can result in injuries and loss of life. Fire management is a necessary part of the readiness, and safe and efficient operation, of the Station consistent with its mission.

2.2 INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN

The MCAS Miramar NEPA Checklist and Sensitive Resources Map serve as the natural and cultural resources considerations checklist to be used for planning fire management activities.

The following guidance for fire management is included in the Integrated Natural Resource Management Plan (INRMP) for MCAS Miramar (MCAS Miramar 2006).

"The primary reason for fire management at the Station is the protection of human life, health, and property" (MCAS Miramar 2006). Managing wildland fire also aids in preventing catastrophic loss of wildlife habitat and vegetative cover, which helps maintain the watersheds and, thereby, water quality. Risks from uncontrolled wildfire come from potential ignition sources both on and off the Station. Management is necessary to support emergency response control efforts in an attempt to prevent a catastrophic wildfire that can cause significant loss of high-value resources, both human and natural. "The MCAS Miramar Fire Department is responsible for fire management on the Station. Fire Department wildland fire managers work with the Public Works Division and Environment Management Department to maintain fuelbreaks and access roads" (MCAS Miramar 2006).

"The management of vegetation to meet fire management needs and soil/vegetation conservation will be evaluated jointly between wildland fire managers and the Station Natural Resource Division. Ideally, plans and actions should be directed to avoid grading or blading the soil beyond maintenance of an access road width with the remainder maintained by vegetation crushing, mowing, or prescribed burning. Where vegetation is cleared down to mineral soil on steep slopes, water bars or other diversion structures need to be placed at regular intervals to minimize soil erosion" (MCAS Miramar 2006). Where prescribed burning is determined to be the best method of vegetation management for wildland fire management, the MCAS Miramar Fire Department will accomplish necessary coordination and subsequent burning activities.

"Maintenance of existing fuelbreaks and fireroads, where there is no expansion beyond the existing impact footprint, should meet NEPA compliance via a Categorical Exclusion and would require no additional environmental documentation. Actions that must expand footprints of managed fuelbreaks would require natural resource impact assessment and further NEPA documentation" (MCAS Miramar 2006). As noted in the INRMP, "Other access roads should be addressed separately, based on their primary purpose" (MCAS Miramar 2006). Road management activities described in this WFMP are specific to the maintenance of all established fuelbreaks and fireroads used primarily for wildland fire management.

The use of fire to create a mosaic of different age classes on the landscape may help maintain ecological diversity by creating a variety of niches and microhabitats for plants and wildlife. Studies have shown ecosystem diversity in California shrublands is decreased by fire exclusion or very frequent repeat fires (Keeley and Fotheringham 2001). The use of prescription burning to

create a "fuel-age mosaic" (i.e., a landscape of different-aged patches with young stands of lesser fuel load) with the objective of reducing fire hazard, on the other hand, has been debated in the literature. The idea is that fires are primarily fuel-driven and will burn out when young stands with lower fuel loads than older stands are encountered (Minnich 1995). However, recent studies indicate that large-scale, catastrophic fires burning under severe/extreme fire weather conditions (i.e., Santa Ana winds) are not constrained by low fuel loads and readily burn through even young stands, particularly in chaparral (Conrad and Weise 1998; Keeley and Fotheringham 2001; Moritz et al. 2004). Under moderate fire weather conditions, patches of younger age classes may provide access for fire suppression and/or control activities. In general, the lack of a strong age effect of fuels has major implications for planning and fire management in southern California shrubland communities.

Fire can have both positive and negative impacts on native vegetation and wildlife habitat. While fires are frequent on the Station (i.e., approximately every year for class A and B fires, i.e., less than 10 acres; 3 to 5 years for class C fires or greater, i.e., more than 10 acres), "wildfire in any one area is typically much less frequent (i.e., approximately every 20 years or more)" (MCAS Miramar 2006). Many benefits to wildlife accrue from this, including improved edge effects and water yields, and reduced erosion. However, potential harm to resources includes vegetation type conversion from short fire intervals and spread of exotic plant species, which may alter the structure and components of habitat for some species of wildlife.

"Better understanding of the effects of fire on vegetation and wildlife habitat can come from tracking and monitoring the effects of fuel load modifications, prescribed burns, and wildfires. The Natural Resources Division has established Long-term Ecological Trend Monitoring special purpose plots (Section 7.3.1, General Vegetation Management and Soil Conservation) in representative controlled burn and wildfire areas to monitor long-term effects to vegetation and soil conservation. Long-term monitoring will provide information into the effects of fire on vegetation and wildlife habitat" (MCAS Miramar 2006).

The Station's Fireroad/Fuelbreak Maintenance Plan and Standard Operating Procedure was updated in 2009 (MCAS Miramar Fire Department 2009, included herein as Appendix B) with continuing yearly reviews to evaluate methodology and incorporate more current procedures, changes in laws or regulations, and environmental conditions. This plan is thorough and covers (1) the evaluation of existing fuelbreaks, including the removal and restoration of some; (2) natural and manual methods for managing vegetation growth on the fuelbreaks; (3) fuelbreak maintenance standards and requirements; (4) guidelines for reducing erosion (e.g., leaving roots in fuelbreaks, construction of waterbars, leaving some crushed vegetation as a light mulch, etc.);

(5) improvements to access and wildfire suppression response time; and (6) limited use of prescribed burns to reduce fuels on fuelbreaks (Appendix B). The plan describes the average fuelbreak on the Station as 120 feet wide (to vary by slope), composed of a 20-foot roadbed bordered on each side by 50-foot strips of low-volume native grasses and chaparral shrubs to reduce erosion and provide an aesthetic appearance.

The following are wildland fire management objectives and planned actions that the MCAS Miramar Environmental Management Department and MCAS Miramar Fire Department are working on together and are directly quoted from the INRMP (MCAS Miramar 2006).

"Objective 1: Support a Wildland Fire Management Program to protect high-value human and natural resource areas from catastrophic wildfire while conserving resources and military operational flexibility.

In-house Management Actions:

- Provide technical, natural resource-based support to the Fire Department for wildland fire management planning.
- Revegetate a severely eroded portion of fire access road R-15 (jointly with Public Works Division and Fire Department).

Project in Progress:

• Wildland Fire Management Plan and Environmental Assessment (Miramar Fire Department lead).

Objective 2: Track and monitor effects of fires and fuel modifications to support hazardous fuel reduction actions in strategic areas of MCAS Miramar and enhance/maintain native plant diversity and improve wildlife habitat.

In-house Management Action:

 Maintain an up-to-date GIS database of past fires and other fuel management activities."

2.3 AUTHORITIES AND POLICIES

The professional standards for Department of Defense (DoD) wildland fire management policy are established by the following:

- Federal Wildland Fire Management Policy and Program Review of 1995 (*National Fire Plan*) as updated 2001
- National Wildfire Coordinating Group (NWCG) Wildland Fire Qualification Subsystem Guide (PMS 310-1/NFES 1414)
- National Fire Protection Association (NFPA) Standard 295, Standard for Wildfire Control
- NFPA Standard 299, Protection of Life and Property from Wildfire
- NFPA Standard 1051, Wildland Firefighter Professional Qualification Standard
- DoD Instruction Number 6055.6, October 10, 2000, DoD Fire and Emergency Services Program
- Homeland Security Presidential Directive-5 (HSPD-5), National Incident Management System (NIMS)

In addition, this MCAS Miramar WFMP was developed based on the following national programs and guidelines:

- National Association of State Foresters: Identifying and Prioritizing Communities at Risk
- Healthy Forests Initiative
- A Collaborative Approach for Reducing Fire Risks to Communities and the Environment: A 10-Year Comprehensive Strategy
- Interagency Standards for Fire and Aviation Operations 2005 (Redbook)
- Marine Corps Order (MCO) P5090.2A Section 11204.6, as amended January 22, 2008

Furthermore, in accordance with the 2001 Federal Wildland Fire Management Policy, Federal WFMPs must consider the following issues:

- Firefighter and Public Safety
- Fire Management and Ecosystem Sustainability

- Response to Wildland Fire
- Wildland Fire Use
- Rehabilitation and Restoration
- Protection Priorities
- Wildland-Urban Interface
- Planning
- Science
- Preparedness
- Suppression
- Prevention
- Standardization
- Interagency Cooperation and Mutual Aid Agreements
- Communication and Education
- Agency Administration and Employee Roles
- Evaluation

Additional issues relevant to the Station's WFMP include:

- Station Mission Impact Considerations
- Smoke Management and Air Quality
- Emergency Operations
- Personnel Training and Certification Standards
- Monitoring
- Funding

This MCAS Miramar WFMP has been prepared to guide the wildland fire management and planning decisions on the Station. All fire and fuel management actions conducted within the Station will be managed within the framework of this WFMP. Moreover, all activities will be compatible with the Station's INRMP.

CHAPTER 3.0 WILDLAND FIRE AND FUELS MANAGEMENT STRATEGIES

This section describes how the vegetation and fire management program would be implemented and identifies the proposed fire prevention and fire suppression actions. A glossary of the key fire management terminology used throughout the remainder of this document is included in Appendix C.

3.1 GENERAL MANAGEMENT CONSIDERATIONS

The occurrence of wildland fire is a threat to military installations. Fires can interrupt training, damage or destroy military resources, and reduce military capabilities, thereby jeopardizing the mission of the installation. The ignition sources of wildland fire on military installations have been identified as (1) arson, (2) trespass activities of unauthorized personnel and off-road vehicles, (3) careless smoking and open fires, and (4) military operations (e.g., off-road vehicle operations, pyrotechnics, and weapon firing). The large undeveloped tracts of land, such as those on military installations, provide fuel loads with the potential for catastrophic wildland fires. Consequently, proactive vegetation management, increased military security and training procedures/controls, and rapid fire suppression response provide the greatest level of fire protection.

Many military installations, including the Station, are islands of biodiversity surrounded by a sea of urban development. As urbanization encroaches on installation boundaries, the urban/wildland fire interface problems become more acute. Large portions of the Station are undeveloped for military purposes and prior to the 2003 Cedar Fire featured thick vegetation of nearly uniform age. Those conditions presented fire prevention and fire suppression challenges to the MCAS Miramar Fire Department that will return as the vegetation matures. The Station recognizes the increased risk and associated liability of wildland fires and their impact on the Station and adjacent property owners. Conversely, there have been many fires started off-Station that have burned onto the Station. The MCAS Miramar Fire Department has in place mutual aid agreements with federal, state, and local fire agencies for fighting fires on- and off-Station.

3.2 WILDLAND FIRE MANAGEMENT GOALS

In consideration of the many authorities and national policies that were outlined in Section 2.3, numerous goals have been established for wildland fire management within the Station. A

primary goal in the development of this WFMP is the protection of personnel and facilities throughout the Station, and the primary goal of each fire management activity described in this WFMP is firefighter and public safety. The fire management activities that would increase the protection of personnel and facilities would also support many other goals identified for this WFMP. The goals identified for fire management include:

- Protect human life, property, and natural and cultural resources both within and adjacent to MCAS Miramar-administered lands from wildfires.
- Minimize impacts to natural and cultural resources from fire suppression activities and fuels management practices.
- Minimize wildland fire impacts on Station operations and training requirements.
- Employ fire suppression strategies that provide for firefighter and public safety, minimize suppression costs, and are consistent with values to be protected.
- Maintain mutual aid agreements with surrounding federal, state, and local agencies to accept and provide assistance in wildland fire incidents.
- Strategically focus fuels treatment activities by placing priorities on Marine Corps facilities and infrastructure, neighboring communities, and natural resources.
- Maintain the fireroad and fuelbreak network within the Station.
- Manage age class distribution of plant communities within the framework of fire regimes and condition classes to enhance wildfire management objectives.
- Construct and maintain defensible space adjacent to all structures and facilities within the Station.
- Investigate wildfires to determine cause and identify responsible parties.
- Organize and train a fire management staff that can apply the highest standards of professional and technical expertise at all levels of fire management.
- Promote public understanding of fire management programs and objectives.

3.2.1 <u>Safety Philosophy</u>

As stated above, firefighter and public safety is the first priority in every fire management activity. The commitment to and accountability for safety is a joint responsibility of all firefighters, managers, and administrators. Individuals must be responsible for their own performance and accountability. Managers at all levels need to stress that firefighter and public safety take precedence over property and resource loss. All firefighters have the right to a safe assignment. All employees have a right to turn down unsafe assignments; they also have the

responsibility to identify alternative methods of accomplishing the mission. As such, all personnel are authorized and obligated to exercise emergency authority to stop and prevent unsafe acts.

3.2.2 Endangered Species Protection

The intentional use of fire will not be prescribed in areas with federally protected species. Where a listed species occurs within a specific project area the specific fire management action will be designed to avoid adverse effects to the species through implementation of measures outlined in Appendix A. Habitat occupied by the California gnatcatcher will not have prescribed burns. Unoccupied habitat suitable for the California gnatcatcher may receive fire management treatments, including prescribed burns. However, habitat-based mitigation measures for unoccupied habitat, as described in Tables 6.2.2.1a and 6.2.2.1b in Chapter 6 of the INRMP (MCAS Miramar 2006), will be implemented to mitigate impacts to unoccupied habitat. Projectspecific planning by the MCAS Miramar Fire Department will be followed by site-specific evaluation by the Natural Resources Division to ensure that habitat suitable for California gnatcatcher is not impacted. It is anticipated that, beyond the program horizon timeline of this plan, prescribed fires may be needed in occupied habitat to meet fire-risk-reduction objectives. Future plans will be designed to implement prescribed fire using adaptive management principles, particularly where fire effects to rare species such as Del Mar manzanita are poorly understood. This will be addressed in future plan updates and environmental documentation. The goal of this WFMP is to maximize sensitive species persistence and ecosystem health while providing appropriate fire risk reduction.

3.2.3 <u>Cultural Resources Protection</u>

The intentional use of fire will not be prescribed in areas with known cultural resources. With the implementation of conservation measures listed in Appendix A, there would be no impacts to known cultural resources from the fire management activities as part of this WFMP. For previously unrecorded cultural resources, conservation measure #29 states, "if previously unidentified cultural resources are revealed during fire management activities, then further activity that may affect the resource will be stopped until MCAS Miramar can have a qualified archaeologist evaluate the resource relative to eligibility for the NRHP and a discovery can be coordinated with the State Historic Preservation Officer."

3.3 WILDLAND FIRE MANAGEMENT OPTIONS

The primary wildland fire management measures, which are vegetation management, fire and fuels analysis, and wildfire risk assessment, are described below.

3.3.1 Vegetation Management

The development and implementation of a vegetation management plan that focuses on the reduction and modification of fuels to reduce wildfire risk/hazard are integral parts of the Federal Wildland Fire Management Policy. The policy specifically addresses the need to assess and treat vegetation communities that pose a wildfire threat to human life, property, and natural resources. Wildland fuels treatment can be viewed as a component of vegetation management that is integrated into the overall natural resource management approach identified in MCAS Miramar's INRMP. Properly applied fuels management techniques can be a "force multiplier" of fire suppression resources and can lead to a more effective and efficient fire protection program.

Chaparral plant communities are dynamic ecosystems characterized by relatively frequent wildfires. The typical fire return interval in chaparral is approximately 35 to 70 years (Minnich 2001; Keeley and Fotheringham 2001). The fire regime in chaparral is one of high-intensity, stand-replacing fires (Moritz et al. 2004). Historically, fire suppression has been the primary management action influencing chaparral at the Station. The reaction to aggressive suppression has been one of increased fuel accumulations and an older age class distribution of plant communities within the Station boundaries. Had the Cedar Fire not occurred, approximately 15,000 acres within the Station boundaries would be 60 years or older (not burned since 1945 or before). With the Cedar Fire, approximately 5,000 acres are still 60 years or older. The Cedar Fire reduced the fuel load across much of the Station but unless past fuels management practices are changed, the increased probability for intense wildfires to burn and resist initial attack suppression efforts is the future fire behavior outlook for the Station.

Chaparral can be managed using a variety of methods, but generally two basic strategies are used: *type conversion*, converting the vegetation to another type, such as grass; and *age class management*, which removes the aboveground portions of the plant and reestablishes the natural vegetation in a less hazardous growth stage. Each strategy ultimately reduces fuel loading and plant heights in order to lower fire intensities. A well-planned and coordinated series of vegetation or "fuel" treatments is a vital component of the wildland fire management program and needed to ensure maximum effectiveness of wildfire suppression efforts reducing the potential for large fires. The following vegetation treatment methods are several tools fire

managers can utilize and apply to the landscape to achieve desired fire and resource management goals and objectives.

- Wildland Fire Use: Wildland Fire Use (WFU) is defined as the application of the appropriate management response to naturally-ignited wildland fires to accomplish specific resource management objectives in predefined areas outlined in a Fire Management Plan. WFU will not be used as a fire/fuel management tool at MCAS Miramar, given the number of threats to life and property, liability issues, air quality impacts, and available resources on hand to manage a fire of this type. However, a management response of Confinement or Monitoring & Mitigation Actions may be evaluated for low-intensity fires burning in areas designated for this management response. An approved Wildland Fire Implementation Plan & Relative Risk Assessment for the specific geographic area is required to be in place prior to selecting this strategy. Fire management and resource management objectives would be clearly defined and an expectation of a reasonable degree of success would be evaluated before declaring Confinement/Monitoring or Mitigation Actions.
- Prescribed Fire: Lands designated for prescribed fire treatment will be assessed within the framework of two management fields. Fire and Resource management goals, objectives, and impacts will be analyzed and defined by managers when prescribed fire is selected as a vegetation treatment method. MCAS Miramar's INRMP and this WFMP identify the need and benefits of this treatment method and have established NEPA review; burn plan; smoke management; and Stationwide planning, review, and notification guidelines.
- Mechanical Treatment: The use of mechanized equipment is an established and widely used method of removing or modifying vegetation to meet fuel management goals at the Station. Equipment such as bulldozers, industrial brush cutters, and road graders are used annually to maintain the fireroad and fuelbreak network on the Station. A program of field assessment and monitoring is addressed in the MCAS Miramar Fireroad/Fuelbreak Maintenance Plan and Standard Operating Procedures (MCAS Miramar Fire Department 2009). Mechanical treatment can be combined with periodic prescribed burning to maintain desired fuel mosaics and help reduce impacts to soil stability brought about by repeated heavy equipment use.
- Hand Treatment: Similar in principle to mechanical treatment, this is a minimum impact technique that can be selective in application. Handcrews, whether forestry crews, firefighters, or contractors, can be employed to perform fuelbreak construction, maintenance, and fuel modification projects by cutting, thinning, and disposal of vegetation. This method may also be combined with other strategies to bring about desired fuel and fire management goals.

- <u>Chemical Treatment</u>: Application of chemical herbicides to control invasive species of undesirable plants is an accepted practice and is used on the Station. Given the nature and properties of some of these chemicals and labor intensive application techniques, this method is less likely to be used on a large geographic scale than on more isolated points such as weed abatement (i.e., reduction of generally fine, ground fuels) adjacent to structures.
- <u>Landscaping</u>: The modification and reduction of vegetative growth around structures and
 along roadways provide defensible space, improved access, and better control lines for
 suppression operations. The integration of irrigation systems in and around buildings can
 further reduce the flammability of vegetation and improve defensible space for firefighters to
 deploy resources in and around structures during a wildfire event.

3.3.2 Fire and Fuels Analysis

The steps involved in determining a treatment method encompass several factors that fire managers will need to consider when conducting a fire and fuels analysis for a planning unit (see Section 3.4 for a description of all planning units). A wildfire risk and hazard assessment will be conducted and applied to properties within and adjacent to Station lands to establish management priorities. For definition purposes, risk applies to the probability of an ignition occurring as determined from historical fire record data and hazard identifies the availability of fuels to sustain a fire. Where high risk coincides with high hazard, the probability of high fireline intensity and significant resistance to control is more likely. Consideration will focus on the protection of Marine Corps mission requirements, infrastructure, and the wildland urbaninterface, as well as other applicable fire management goals identified in Section 3.2. The following are recommended steps to be taken:

- Identify and assess wildfire risk areas on a landscape scale and assign geographic fire
 management areas. The Station is divided into East and West Miramar fire management
 areas with I-15 the dividing line. Management areas will contain planning units with defined
 geographic boundaries based on prominent topographic features and fire management
 considerations.
- Conduct a fuels inventory within the *planning unit* considering fuel loading, age class distribution, live-to-dead fuel ratios, size class distribution, fire regime classification, and condition class.
- Review sensitive resource maps and evaluate impacts to threatened and endangered plant and animal communities, cultural and archaeological resources, water quality, air quality, and soils as a result of fuels treatment. Begin the NEPA review process and coordination with the

Station Environmental Management Department early in the planning stage. Where appropriate, Comprehensive Environmental Response, Compensation, and Liability Act review will be addressed as part of the NEPA process.

- Prepare a report that summarizes the planning unit assessment process and rate each unit as "Low," "Medium," or "High" priority for fuels treatment consideration.
- Identify *fuel treatment zones*. Fuel treatment zones will be assessed according to fire behavior alignments such as prevailing wind direction, slope, aspect, fuel shading, arrangement, and continuity in proximity to values at risk. These values may be threats to life, property, firefighter safety, or natural resources.
- Finally, select a treatment method or combination of methods that can achieve fire management objectives and be compatible with resource management objectives identified in the INRMP.

3.3.3 Wildfire Risk Assessment

Wildfire risk assessment is a tool fire managers developed to better determine the probability of a fire igniting, burning, and threatening life, property, and natural resources. Priority will be given to wildlands adjacent to urban areas identified as "communities at risk" from a fire originating within the Station and escaping initial attack. Subsequently, an evaluation of wildfire potential originating off-Station and posing a threat to Station lands will also be assessed. Military facilities located within the Station boundaries will be evaluated for wildfire risk. As part of this evaluation, fire codes, Station orders, and building construction codes will be reviewed as needed to determine whether the requirements described within these codes provide sufficient defensible space and vegetation clearance to reduce the fire risk to manageable levels.

The risk assessment process encompasses several factors that should be considered both spatially and temporally. Human encroachment and development of open space, vegetation growth cycles, fire history, and fire return intervals are just a few components that influence and change the physical characteristics of the fire landscape over time.

Goals and guidelines set forth in the Congressional Directive (Public Law 106-291): *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment;* 10-Year Comprehensive Strategy outline four priorities for reducing risk to life, property, and resources:

- Improve Fire Prevention and Suppression
- Reduce Hazardous Fuels
- Restore Fire Adapted Ecosystems
- Promote Community Assistance

Several Fire Risk Assessment models have been developed by federal land management agencies and are in wide application across the country (USDA 2007). The models have a number of fundamental considerations for determining risk and prioritizing mitigation actions in common including:

- Values at Risk
- Inventory of Fuels
- Model Fire Behavior
- Historic Fire Occurrence
- Fire Protection Capabilities
- Threat Zones
- Fire Effects: Human and Environmental

The goals, policies, and guidelines outlined in the National Fire Plan along with those specified in A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment; 10-Year Comprehensive Strategy and the National Association of State Foresters Field Guide to Identifying & Prioritizing Communities at Risk are the primary references guiding fuels management strategies at the Station. Wildfire risk assessment and fuels management will include the previously listed modeling parameters along with the Station's INRMP to base fire management decisions on sound natural resource management science and NEPA compliance.

The National Fire Plan defines communities at risk from wildfire as those communities within the same locality, under the same government, and that lie within the wildland/urban interface (WUI). The Station falls within this definition and historically has been impacted by wildland fires burning within and adjacent to the property boundaries. The MCAS Miramar Fire Department will direct wildland fire management efforts with an emphasis on community protection and public and firefighter safety, as well as other applicable fire management goals identified in Section 3.2.

3.4 DESCRIPTION OF WILDLAND FIRE MANAGEMENT STRATEGIES BY FIRE PLANNING UNIT

For Stationwide fire management purposes, the Station is divided into the West Miramar Fire Management Area and East Miramar Fire Management Area. These two large management areas are further divided into the seven planning units as listed in Table 3-1 and depicted in Figure 3-1.

Table 3-1
Fire Management and Planning Unit Areas

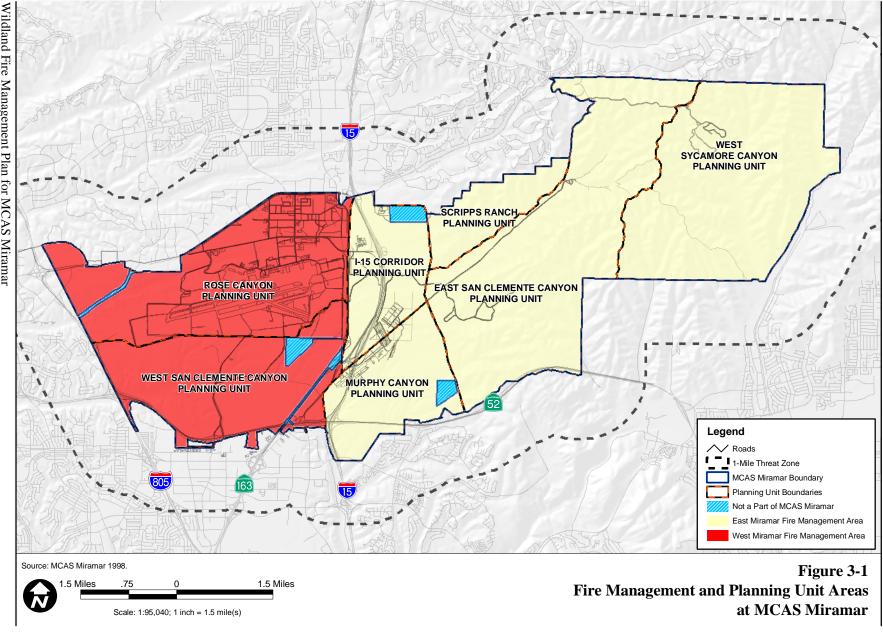
Management Areas and Units	Size (Acres)
West Miramar Fire Management Area	
Rose Canyon Planning Unit*	4,462.52
West San Clemente Canyon Planning Unit*	3,388.86
Total Management Area =	7,851.38
East Miramar Fire Management Area	
I-15 Corridor Planning Unit*	1,658.54
Murphy Canyon Planning Unit*	1,851.02
Scripps Ranch Planning Unit	1,030.10
East San Clemente Canyon Planning Unit	5,896.85
West Sycamore Canyon Planning Unit	5,019.62
Total Management Area =	15,456.13

^{*} These planning units include areas, within overall Station boundaries, that are not part of the Station (blue hatched areas in all figures); therefore, the total area of all planning units is somewhat greater than the Station area.

The fire management planning units were identified by the MCAS Miramar Fire Department. Planning unit boundaries encompass areas with similar fire management considerations, e.g., the airfield and the I-15 corridor, or they were otherwise based on prominent topographic features that subdivide the large tracts of open space within the Station.

3.4.1 Current Actions

The MCAS Miramar Fire Department currently conducts various fire management actions within each planning unit in order to protect one or more specific resources (e.g., military assets; natural and cultural resources; or off-Station residential, commercial, or industrial uses) within or surrounding that particular planning unit. These actions are summarized in Table 3-2, shown in Figures 3-2 and 3-8, and described in Sections 3.4.3 through 3.4.10 as current actions. Fire management activity conservation measures to avoid and/or minimize impacts are listed in Appendix A of this WFMP; these measures are an integral part of the WFMP. Management and mitigation measures required in association with actions are described in the EA prepared for implementing this plan. Some of the fire management measures under the current level of protection are conducted by organizations other than the MCAS Miramar Fire Department. For



example, the City of San Diego and the San Diego County Water Authority (SDCWA) currently maintain access roads over utility easements they have on the Station. These roads provide enhanced access and fire response time. The current level of fire protection is identified as No Additional Protection. The projects will be designed to have no effects to listed species.

Table 3-2 Current and Proposed Fire Management Actions within Planning Units

Current and Proposed Fire Management Actions within Planning Units			
		Planning Unit Priority	
Task	Risk Reduction Expected	(Area to Be Protected)	
	E MANAGEMENT AREA		
ROSE CANYON PLANNING UNIT (Section 3.4.3; p	gs 30-37)		
Current Actions (No Additional Protection)			
Rose Canyon-1 (RC-1). (Fuel Treatment Zone)	Reduce flammable grass	Airfield operations	
Continue annual mowing of the grasses around the	fuels.	-	
airfield. Includes infields, east to Austin Road (with the			
exception of marked vernal pools), south to Johnson			
Road, and north to Sidewinder Road.			
RC-2. (Prescribed Burn) Continue annual prescribed	Reduce flammable grass	Airfield operations	
burning of the islands of the runway in preparation for	fuels.	r	
the airshow pyrotechnics display.			
RC-3. (Road Maintenance) City of San Diego maintains	Provide suppression access	Western Station boundary	
the sewer line access road along Rose Canyon.	and maintain response time.		
RC-4. (Road Maintenance) City of San Diego maintains	Provide suppression access	Off-Station industrial area	
a fire access road from Rose Canyon to the southern	and maintain response time.		
border of the industrial area along Miramar Road.			
RC-5. (Road Maintenance) Maintain fire access road R-	Provide suppression access	Miramar Pond recreation	
01 per NFPA 1, Chap 17, para 17.3.5.3 (10-foot	and maintain response times.	area and airfield operations	
minimum clearance both sides of road).	_	_	
RC-6. (Road Maintenance) Maintain access and a	Provide access and reduce	Western and southwestern	
security gate from the airfield perimeter road to the City	response time.	Station boundaries	
of San Diego sludge line road.			
Proposed Actions			
RC-7. (Fuel Treatment Zone) Create and maintain a fuel		Miramar Pond recreation	
treatment zone on each side of De La Garza Road and	suppression access to fires	area; Miramar Brig; Rose	
Pless Avenue (east to the helipads and west to the Navy	burning in Rose Canyon	Canyon riparian area;	
Consolidated Brig) with mechanical treatment and	east of the pond.	airfield operations	
prescribed burning. Treatment zone width shall			
accommodate cultural and natural resources within the			
area.			
Reference Appendix A for standard conservation			
measures and EA for required mitigation measures.			
RC-8. (Fuel Treatment Zone) Create and maintain	Reduce ignition risk and	Miramar Pond recreation	
Miramar Pond fuel treatment zone: maintain current	fireline intensities within the	area; riparian woodland	
access road to and around Miramar Pond recreation	recreation area; provide fire		
area; maintain fuel reduction in and around the lake	suppression access and		
using hand, chemical, and mechanical treatment.	firefighter safety zones.		
Treatment shall be coordinated with Natural Resources			
Staff of Miramar Environmental Management			
Department to avoid adverse effects to cultural and natural resources within the area.			
Reference Appendix A for standard conservation			
measures and EA for required mitigation measures.			
measures and EA for required infugation measures.			

Task	Risk Reduction Expected	Planning Unit Priority (Area to Be Protected)
RC-9. (Fuel Treatment Zone) Create 100-foot-wide fuel	Create defensible space for	Miramar Road industrial
treatment zone along the northern fenceline behind	structures.	businesses
Miramar Road businesses using hand and mechanical	Stractures.	Cusinesses
treatment.		
Reference Appendix A for standard conservation		
measures and EA for required mitigation measures.		
RC-10. (Prescribed Burn) Conduct prescribed burns of	Reduce fuel loading and	Off-Station industrial area,
5- to 10-acre mosaic patches within a 50-acre fuel	continuity, lower vegetation	airfield operations, Rose
treatment zone on a north-facing aspect of Rose Canyon	age class, provide for	Canyon Watershed
so that each patch burns no more frequently than once	firefighter safety zone.	
every 35 years. Project area is bounded by the Rose	,	
Canyon drainage bottom to the north, R-01 to the south		
and east, and a north-south running drainage on the west		
side.		
Reference Appendix A for standard conservation		
measures and EA for required mitigation measures.		
WEST SAN CLEMENTE CANYON PLANNING UN	IIT (Section 3.4.4; pgs 37-42)	
Current Actions (No Additional Protection)		
West San Clemente-1 (WSC-1). (Road Maintenance)	Provide access and reduce	Western Station boundary
City of San Diego maintains access and the current	response time to the western	
width of the sewer sludge line access road along the	Station boundary.	
western boundary of the Station.		
WSC-2. (Road Maintenance) Maintain existing Harris	Reduce response times to	Hansen Aggregates/Harris
Plant Road and Miramar Gun Club access road.	San Clemente Canyon,	Plant, Miramar Gun Club,
Maintain fuel treatment within 100 feet of gun club and	West Planning Unit, and	and MMNNL
10 feet on either side of Harris Plant Road from Kearny	Miramar Mounds National	
Villa into the Hansen Aggregates/Harris Plant boundary	Natural Landmark	
(per NFPA 1, Chap 17, para 17.3.5.3) with hand and	(MMNNL).	
mechanical treatments. Additionally, SDG&E maintains		
underground gas line road from Harris Plant Road south		
to SR 163.		
Proposed Action	D :1 1 1	GD 162 GD 52
WSC-3. (Road Design) Design minimal access to the	Provide access and reduce	SR 163, SR 52, and
Miramar Mounds National Natural Landmark from	response time; anchor point	MMNNL
Landfill Road while minimizing impacts to natural	for suppression operations.	
resources. Construction of any such road is not intended		
during the implementation period of this WFMP.	E MANAGEMENT AREA	
I-15 CORRIDOR PLANNING UNIT (Section 3.4.5; p	gs 42-47)	
Current Actions (No Additional Protection)	Maintain defensible and a	December Contact AIII
I-15-1. (Fuel Treatment Zone) Maintain Reserve Center	Maintain defensible space	Reserve Center, AIU
fuel treatment zone 100 feet around facilities, structures,		Campus, and UCSD
and within the boundary fencelines using a combination	lencenne.	Ecological Reserve
of hand, mechanical, and chemical treatments.	Maintain agassa magnanga	Deserve Center AIII
I-15-2. (Road Maintenance) Maintain existing fireroad	Maintain access, response	Reserve Center, AIU
(R-21) in accordance with the Station's existing fireroad and fuelbreak maintenance plan.	time, and fire control.	Campus, and UCSD Ecological Reserve
I-15-3. (Fuel Treatment Zone) Maintain Camp Elliott	Maintain defensible space	Warehouse district and
fuel treatment zone around warehouses using a	Maintain defensible space around structures.	facilities
combination of hand, mechanical, and chemical	around structures.	lacillues
treatments in coordination with Natural Resources Staff		
of Miramar Environmental Management Department to		
avoid adverse effects to cultural and natural resources		
within the area.		
winnin the trea.	<u> </u>	<u> </u>

		Planning Unit Priority
Task	Risk Reduction Expected	(Area to Be Protected)
I-15-4. Maintain County Sheriff/USMC Pistol Range Training Facility fuel treatment zone (100 feet surrounding) using a combination of hand, mechanical, and chemical treatments. Treatment shall be coordinated with Natural Resources Staff of Miramar Environmental Management Department to avoid adverse effects to cultural and natural resources within the area. Note, this task occurs within multiple planning units but is to be considered as an entire action under the I-15 Corridor Planning Unit.	Maintain defensible space around structures.	Range training areas and pistol ranges
I-15-5. (Fuel Treatment Zone) Maintain recreational vehicle storage area defensible space with a 50-foot fuel treatment zone around the perimeter of the parking area using hand and mechanical treatments	Maintain defensible space around the perimeter fence enclosing the parking area from fires originating along the I-15/Kearny Villa Road corridor.	Recreational Vehicles parked in the long-term storage lot.
I-15-6. (Fuelbreak) SDCWA maintains road NS-4. Station maintains the fuelbreak using mechanical and prescribed fire treatments. Note, this task occurs within multiple planning units but is to be considered as an entire action under the I-15 Corridor Planning Unit.	Maintain access and fuelbreak, and reduce fire response time.	Reserve Center, AIU Campus, and UCSD Ecological Reserve
Proposed Action		
I-15-7. (Fuel Treatment Zone) Thin strands of eucalyptus trees in the area of Johnson Road and Kearny Villa Road, within the San Clemente Canyon creek bottom using hand and mechanical treatments. Stumps should be treated with herbicide to prevent regrowth. Tree removal will not be conducted during the nesting season for migratory birds if nests are present. Note, the area covered by this task extends into the Rose Canyon Planning Unit but is to be considered an action under the I-15 Corridor Planning Unit. Reference Appendix A for standard conservation	Maintain a fuel treatment zone along an ordnance transportation corridor and flightline access road.	Ordnance transportation corridor, perimeter gate 15, flightline access route
measures and EA for required mitigation measures.		
MURPHY CANYON PLANNING UNIT (Section 3.4.	6; pgs 48-52	
Current Actions (No Additional Protection) Murphy Canyon-1 (MC-1). (Fuel Treatment Zone) Maintain a fuel treatment zone through weed abatement and pruning of tree limbs up to 10 feet from the ground within 100 feet of existing structures using hand and mechanical treatments. Treatment shall be coordinated with Natural Resources Staff of Miramar Environmental Management Department to avoid adverse effects to cultural and	Reduce fuel load and horizontal and vertical continuity of fuels near structures.	Camp Elliott and Ranges
natural resources within the area. MC-2. Road Maintenance. Maintain paved access road to the pistol ranges via roadside brushing 10 feet on either side of the road using hand and mechanical treatments (per NFPA 1, Chap 17, para 17.3.5.3).	Reduce fire suppression response time.	Camp Elliott

		Planning Unit Priority
Task	Risk Reduction Expected	(Area to Be Protected)
MC-3. Road Maintenance. Maintain the access road	Reduce the fuel load and	Camp Elliott
behind the targets and continue weed abatement within	horizontal continuity of	
the target area and 20 feet on either side of the road	fuels between the range and	
using a combination of hand, mechanical, and chemical	open space.	
treatments.		
MC-4. Fuelbreak. Maintain fuelbreak along the eastern	Maintain access and	Tierrasanta
and southern boundaries of the "Tea Cup" parcel	defensible space in WUI.	
adjacent to Tierrasanta, on-Station, using hand and		
mechanical treatments.		
SCRIPPS RANCH PLANNING UNIT (Section 3.4.7;	pgs 52-58)	
Current Actions (No Additional Protection)	TG	
Scripps Ranch-1 (SR-1). Road Maintenance. Maintain	Maintain access, response	Off-Station residential areas
the existing fireroads (R-06, R-08, R-09, R-10, R-11, R-	time, and fire control.	
12, R-13, R-14, and R-29) and fuelbreaks (NS-1, NS-5,		
and EW-3) in accordance with the Station's existing		
maintenance plan using a combination of mechanical		
treatments and prescribed burning.		
SR-2. Road Maintenance. Maintain existing dirt road	Provide access and reduce	Off-Station residential areas
between the northern Station/Scripps Ranch boundary	response time.	
and NS-4 to a fire access road.		
SR-3. Fuel Treatment Zone. Maintain a 20-foot-wide	Provide safety buffer for	Off-Station residential areas
fuel treatment zone on either side of the entire length of	firefighting operations along	
R-29 by thinning trees and shrubs/roadside brushing	Station boundary road.	
using hand and mechanical treatments. Note, portions of		
this task extend into the East San Clemente Canyon		
Planning Unit; however, this task as a whole is to be		
considered under the Scripps Ranch Planning Unit.		
Proposed Actions		
SR-4. Fuel Treatment Zone. Create and maintain a 25-	Provide access and control	Off-Station residential areas
foot fuel treatment zone along both sides of R-08	lines, and reduce fireline	
(beginning at R-09), and R-06 extending to the Station	intensities; provide	
boundary using mechanical treatments and prescribed	firefighter safety zones.	
burning on a 5-year rotational basis. Treatment shall be		
coordinated with Natural Resources Staff of Miramar		
Environmental Management Department to avoid		
adverse effects to cultural and natural resources within		
the area.		
Reference Appendix A for standard conservation		
measures and EA for required mitigation measures.		
SR-5. 5- to 10-year projection: Prescribed Burn.	Introduce maintenance	Off-Station residential areas
Conduct annual prescribed burns of 5- to 10-acre mosaic	burning to create age class	
patches for the area between R-29, EW-3, and the	mosaics to reduce fuel load	
Station boundary until the entire project area is treated.	near residential area.	
Patches will be burned approximately on a 35-year		
cycle. Treatment shall be coordinated with Natural		
Resources Staff of Miramar Environmental		
Management Department to avoid adverse effects to		
cultural and natural resources within the area.		
Reference Appendix A for standard conservation		
Reference Appendix A for standard conservation		

		Planning Unit Priority
Task	Risk Reduction Expected	(Area to Be Protected)
SR-6. 5- to 10-year projection: Prescribed Burn.	Introduce maintenance	Off-Station residential areas
Conduct prescribed burns for the area encircled by R-09,	burning to create age class	and Training Area 4
R-06, NS-5, and the Station boundary of 20- to 40-acre	mosaics to reduce fuel load	
mosaic patches every other year until the entire area has	near residential area.	
been treated. Patches will be burned approximately on a		
35-year cycle. Treatment shall be coordinated with		
Natural Resources Staff of Miramar Environmental		
Management Department to avoid adverse effects to		
cultural and natural resources within the area.		
Reference Appendix A for standard conservation		
measures and EA for required mitigation measures.		
SR-7. Fuel Treatment Zone. Create and maintain fuel	Reduce fuel load and	Off-Station residential
treatment zones on-Station along Scripps Ranch homes	horizontal and vertical	areas, military housing, and
with thinning of dead trees, understory shrubs, and	continuity of fuels near	University property
ladder fuels using a combination of hand, mechanical,	homes.	
and prescribed fire treatments. Treatment shall be		
coordinated with Natural Resources Staff of Miramar		
Environmental Management Department to avoid		
adverse effects to cultural and natural resources within		
the area.		
Reference Appendix A for standard conservation		
measures and EA for required mitigation measures.		
SR-8. 5- to 10-year projection: Prescribed Burn.	Introduce maintenance	Off-Station residential areas
Conduct annual prescribed burns of 15- to 20-acre	burning to create a mosaic	
mosaic patches for the northern portion of the area	of fuel age classes and	
bordered by R-06 and the Station boundary until the	reduce fuel load near	
entire project area has been treated. Patches will be	residential area.	
burned approximately on a 35-year cycle. Treatment		
shall be coordinated with Natural Resources Staff of		
Miramar Environmental Management Department to		
avoid adverse effects to cultural and natural resources		
within the area.		
Reference Appendix A for standard conservation		
measures and EA for required mitigation measures.		
EAST SAN CLEMENTE CANYON PLANNING UNI	T (Section 3.4.8; pgs 58-65)	
Current Actions (No Additional Protection)		
East San Clemente-1 (ESC-1). Fuel Treatment Zone.	Provide defensible space	Magazine Storage facility
Maintain Magazine Storage fuel treatment zone.	and provide widened fire	
Maintain roadside brushing of Magazine Road using a	control line along road.	
combination of hand, mechanical, and chemical		
treatments.		
ESC-2. Road Maintenance. Maintain Ammo Road,	Maintain access and reduce	Magazine Storage facility
existing fireroads, and fuelbreaks in accordance with the	response times.	and Training Area 5
Station's existing fuelbreak maintenance plan using a		
combination of mechanical and prescribed fire		
treatments.		
ESC-3. Fuelbreak. Maintain clearance from 20 to 30	Maintain a fuel treatment	Magazine Storage facility
feet on either side of the security fence around the	zone around Magazine	
Magazine Storage facility using a combination of hand	Storage facility security	
and mechanical treatments.	fence.	

Task	Risk Reduction Expected	Planning Unit Priority (Area to Be Protected)
ESC-4. Fuel Treatment Zone. Maintain a fuel treatment	Reduce fuel load around	Magazine Storage facility
zone through weed abatement within 50 feet of each	bunkers and maintain a	Wiagazine Storage racinty
ammunition storage bunker in accordance with	defensible space.	
NAVSEA OP-5 using a combination of hand,	gerensiere space.	
mechanical, and chemical treatments.		
ESC-5. Road Maintenance. Maintain "H" Avenue and	Provide safety buffer for	Structure and resource
Rifle Range Road and conduct roadside brushing using	firefighting operations.	protection
mechanical treatment. Note, this task extends into other		
planning units but is to be considered as an entire action		
under the East San Clemente Canyon Planning Unit.		
ESC-6. New Facility. Construct an approved new fire	Reduce response times to	East Miramar Planning
station in East Miramar within the approved new	wildfires occurring within	Units
housing project. A new fire station is planned to serve	this planning unit.	
the fire protection needs created by operation of this		
military housing site. Station 62 would remain in its		
current location.		
Proposed Actions		
ESC-7. Fuel Treatment Zone. Provide fuel treatment	Reduce fuel load and	Structure protection
zone through weed abatement and pruning of tree limbs	horizontal and vertical	
up to 10 feet from the ground within 100 feet of existing		
structures around Rifle Range facility using a	structures.	
combination of hand, mechanical, and chemical		
treatments. Treatment shall be coordinated with Natural		
Resources Staff of Miramar Environmental		
Management Department to avoid adverse effects to		
cultural and natural resources within the area.		
Reference Appendix A for standard conservation		
measures and EA for required mitigation measures.	G , G, ii l l	
ESC-8. Fuelbreak. Construct and maintain a fuelbreak	Create a Station boundary	Station boundary (for
along Missile Road from Pomerado Road eastbound to	wildfire protection zone	wildfires originating both
Station boundary (50 feet on either side of roads) using a combination of mechanical and prescribed fire	(fuelbreak) and a safety zone for firefighters.	on- and off-Station)
treatments. Treatment will avoid coastal sage scrub until	Zone for interiginers.	
compensating habitat is identified with commitment for		
execution.		
Reference Appendix A for standard conservation		
measures and EA for required mitigation measures.		
ESC-9. Prescribed Burn. A prescribed burn project is	Introduce maintenance	Rifle and Pistol Range
proposed for a 350-acre area generally encircled by R-	burning to create a mosaic	facilities; off-Station
34, R-20, NS-2, and Rifle Range Road to create and	of fuel age classes and	residential areas
maintain age class mosaics within the down-range	reduce fuel loading;	
surface danger zone (SDZ) of the Rifle Range. Five- to	reduce Rifle Range fire risk.	
10-acre units would be burned in patches on a 35-year		
cycle. Treatment will avoid Del Mar manzanita.		
Reference Appendix A for standard conservation		
measures and EA for required mitigation measures		
WEST SYCAMORE CANYON PLANNING UNIT (S	Section 3.4.9; pgs 66-71)	
Current Actions (No Additional Protection)		
West Sycamore Canyon-1 (SYC-1). Fuel Treatment	Provide defensible space;	Protect EOD Training
Zone. Maintain Explosive Ordnance Disposal (EOD)	reduce fuel continuity.	Range facilities
	1	
Training Range fuel treatment zone in and around the		
facilities/structures using a combination of hand and mechanical treatments.		

		Planning Unit Priority
Task	Risk Reduction Expected	(Area to Be Protected)
SYC-2. EOD to continue to coordinate with MCAS	Prevent and/or control	East Miramar Planning Unit
Miramar Fire Department for fire danger adjectives	accidental ignition source	
during EOD training and have the Fire Department	from EOD operations.	
present prior to, during, and up to 20 minutes after,		
explosive operations.		
SYC-3. Maintain the existing paved access road to the	Provide access and reduce	East Miramar Planning
EOD Training Range with roadside brushing up to 10	response time.	Units
feet on either side of the road using hand and mechanical		EOD Training Range
treatments (per NFPA 1, Chap 17, para 17.3.5.3).		
SYC-4. Maintain a 200-foot radius fuel treatment zone	Reduce accidental ignition	East Miramar Planning
around the firing point by using a combination of hand,	around firing point.	Units
mechanical, and prescribed fire treatments located		EOD Training Range
within the EOD Training Range. The area within		
approximately 100 feet of the immediate firing point is		
maintained as bare ground (i.e., sand); vegetation within		
the outer 100 feet of the fuel treatment zone is treated.		
SYC-5. Maintain R-32 as the primary access road along	Provide additional access,	East Miramar Planning
West Sycamore Canyon.	fire control line, and	Units
	reduced response time.	
SYC-6. Maintain a mosaic of fuels through prescribed	Minimize risk of any EOD	East Miramar Planning
burning in the 11-acre area adjacent to the firing point	detonations igniting	Units
and surrounded by the EOD Training Range Road and	surrounding vegetation by	West Sycamore Canyon
the fuelbreak west of the firing point within the EOD	reducing fuel load in an	
Training Range. Annual prescribed burning is generally	around the firing point.	
limited to the area adjacent to the firing point; the entire		
11-acre area is treated in a manner that avoids habitat		
type conversion to grassland.		
MISCELLANEOUS ACTIONS STA	TIONWIDE (Section 3.4.10;	; pgs 71-73)
Current Actions (No Additional Protection)		
Miscellaneous-1 (MISC-1). Maintain all existing	Maintain access and	All planning units
fuelbreaks and fireroads in accordance with the Station's	response time, and reduce	
existing fuelbreak and fireroad maintenance plan using a	horizontal continuity of	
combination of mechanical and prescribed fire	fuels.	
treatments.		
MISC-2. Continue use of the Fire Danger Rating	Reduce ignition sources and	All planning units
System.	restrict activities during	
	High+ fire danger.	
MISC-3. Continue to carry out SOGs for	Identify resources and	Sensitive biological and
attacking/responding to wildland fire in sensitive areas.	procedures to avoid	cultural resources
	significant impacts.	
MISC-4. Continue to provide Wildland Fire Fighting	Improve firefighter	All planning units
training and Red Card certification for fire personnel	personnel training.	
(NWCG 310-1 Standards).	[
MISC-5. Keep current mutual aid agreements with local,	Additional resource support	All planning units
state, and federal fire protection agencies.	for fire suppression and	
	management operations.	
Proposed Action		
MISC-6. Survey and document Stationwide fuel load	Provide more accurate	All planning units
conditions.	information on fuel loading.	

3.4.2 **Proposed Actions**

Several additional actions are proposed in five of the seven planning units, plus one Stationwide action is also proposed. These new actions are summarized in Table 3-2 and shown in Figures 3-2 through 3-8. Generally, the planning unit boundaries extend only to the Station boundaries. However, the Rose Canyon, West San Clemente Canyon, I-15 Corridor, and Murphy Canyon planning units all include relatively small non-MCAS Miramar properties, as shown in Figure 3-1. The new actions are primarily composed of prescribed fires and fuel treatment areas; one new fuelbreak is also proposed. Prescribed fire will be conducted on a rotational basis but will not be conducted to increase the fire frequency on the Station, which could lead to vegetation type conversion. The goal of all prescribed fire actions herein is fuel reduction, not type conversion.

Consistent with the current actions, all proposed actions are intended to protect one or more specific resources (e.g., military assets; natural and cultural resources; or off-Station residential, commercial, or industrial uses) within or surrounding a particular planning unit. As noted in Section 3.2.2, where proposed actions coincide with known occurrences of federally listed endangered and threatened species, or unoccupied habitat suitable for the California gnatcatcher, the action will be designed to avoid effects to habitat. Similar avoidance objectives pertain to proposed actions that coincide with vernal pools and other wetlands. Implementation of conservation measures #1 through #11, #25, and #26 would avoid any discharge of fill into federal jurisdictional waters. As noted in Section 3.2.3, where proposed actions occur near known cultural resources, the fire management actions would be implemented in accordance with conservation measures #1 through #11, and #27 through #29, which would avoid disturbance of any sensitive cultural resources. These and other avoidance objectives are listed in Appendix A; these measures are an integral part of the WFMP. Sections 3.4.3 through 3.4.10 provide additional detail about the priority for fire management and the fire environment within each planning unit, and associated threat zones, access routes, and the fire management response strategy for that area.

The majority of the proposed fire management actions could be implemented immediately as part of the fire management program. However, a few of the proposed actions are considered 5-to 10-year projections for areas that are expected to need fire management once vegetation recovering from the 2003 Cedar Fire has recovered to the point that fuel loads require treatment in accordance with this WFMP. In addition, several general fire management actions to be implemented throughout the Station are identified. Among these, the MCAS Miramar Fire Department has identified actions that address areas of highest priority for fire management both

on and off the Station. These actions target areas that have a high susceptibility to fire and also have valued assets, either on the Station or immediately off the Station. The fire management actions would reduce the potential fire risk in each planning unit.

For each planning unit discussed in this section, the following information is provided: the assets identified for protection (Planning Unit Priority), physical and natural features relevant to managing fire (Fire Environment), the primary threats to fire management from outside the planning unit (Threat Zone), and access routes and the strategy for response to wildland fires within the planning unit. Following this information, each of the current fire management actions being conducted by the MCAS Miramar Fire Department and other organizations or agencies is described, together with the associated reduction in fire risk that is provided. Finally, the proposed additional fire management actions and the potential reduction in fire risk that would be provided are also described.

As stated in Section 1.4, no actions are proposed for areas outside of Station boundaries under this WFMP. Environmental impacts of off-Station actions that may need to be conducted with neighboring responsible fire departments would be addressed in separate environmental documentation and coordinated with the appropriate state agencies and local jurisdictions.

WEST MIRAMAR FIRE MANAGEMENT AREA

3.4.3 Rose Canyon Planning Unit

Location

This area encompasses the core-developed portion of the Station and undeveloped areas west of I-15. This area is located west of I-15, south of Miramar Road, north of West San Clemente Canyon, and east of I-805 (Figure 3-2).

Planning Unit Priority

Although this planning unit is the most extensively developed, it remains an area of high concern for wildfires that would pose a threat to Station facilities and off-Station properties because of fuel loads near the base boundary. Areas of potential concern include:

- MCAS Miramar airfield operations
- Off-Station industrial uses bordering Station property along Miramar Road

- Miramar Pond recreation area
- Miramar Consolidated Brig
- Main Station Facilities Interface
- Railroad Easement
- East Gate Mall

No projects will be designed that include impacts to occupied threatened and endangered species (e.g., San Diego fairy shrimp, California gnatcatcher, San Diego mesa mint, etc.) habitat.

The northern portion of this area includes the airfield, flightline, administration, housing, operations, etc. Due to the extensive development within the planning unit, there are fewer fire management projects in this area. The grass areas around the airfield and flightline are subject to ignition from runway maintenance, and aircraft activities and operations. If these grasses were not maintained regularly, a fire and the subsequent smoke could interrupt aviation operations on the Station.

The on-Station areas along the backside of the industrial uses located on Miramar Road are undeveloped areas that are susceptible to wildfire. A fire in this area could damage the off-Station industrial structures.

The Miramar Pond recreation area is located northwest of the airfield. This area includes the recreational pond, an access road to and around the pond, and access from De La Garza Road and Pless Avenue. These areas have not burned since 1945. A fire in this area could damage the recreation area. Fuel treatment zones are necessary to reduce fuel loading and lower fireline intensities.

Fire Environment

The Rose Canyon Planning Unit is dominated by the east-west aligned drainage that lies north of the airfield and flows from I-15 to I-805 and eventually to the Pacific Ocean. This planning unit currently has 50- to 60-year-old growth chaparral along the canyon sides, drainage bottom, and within the Miramar Pond recreation area. The mesas are primarily covered with grasses. A patchy mosaic of chaparral, shrubs, and grasses is found along the western portion of the unit. Notable sensitive plant and animal resources include coastal sage scrub, California gnatcatcher, vernal pool wetlands, and waters of the U.S. The prevailing winds are a marine-influenced westerly flow.

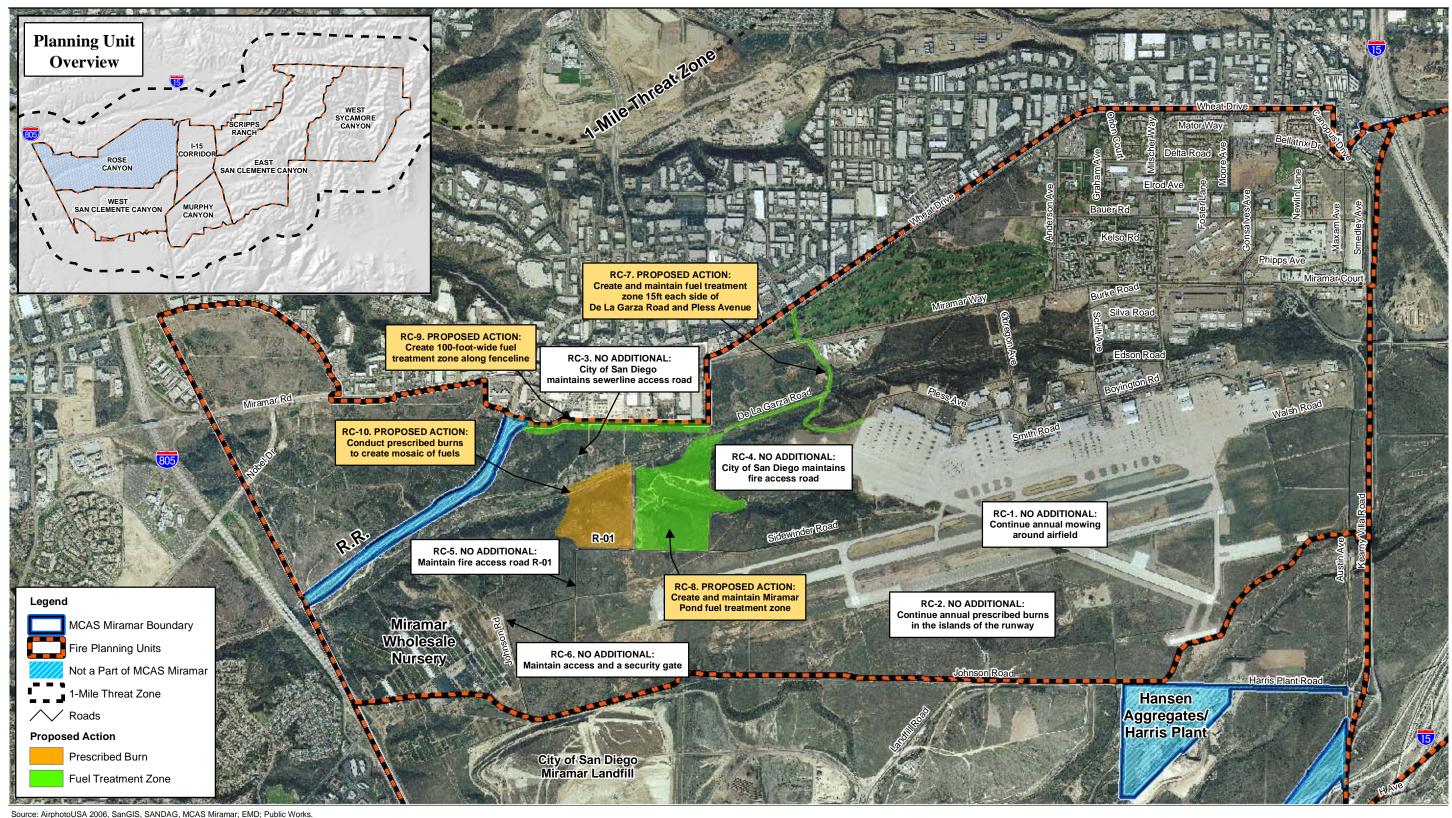


Figure 3-2 Rose Canyon Planning Unit

Scale: 1:24,000; 1 inch = 2,000 feet

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Threat Zone

The threat zone bordering this planning unit contains high-density urban and light industrial developments with isolated pockets of undeveloped wildlands and open spaces.

Primary Access Routes

Primary access routes are Miramar Way, De La Garza Road, Pless Avenue, Sidewinder Road, Johnson Road, Fireroad 1 (R-01), Miramar Road, Nobel Drive, East Gate Mall, I-805, Convoy Street, and Landfill Road.

Management Response Strategy

The management response for fires occurring in the northwest corner of the planning unit (area bounded by East Gate Mall, I-805, railroad easement, and Miramar Road) is initial attack with the objective of control and extinguishment with minimal acreage loss. The management response for fires occurring in the remainder of the planning unit may be considered for one of the following: monitoring and mitigation actions, initial attack to minimize acreage loss, or suppression actions with multiple strategies. The response strategy MIST should be considered within riparian and vernal pool areas.

Fire Management Actions

This section addresses the existing and proposed fire management actions for the Rose Canyon Planning Unit.

Current Actions, No Additional Protection

The current fire management actions being conducted for the Rose Canyon Planning Unit include regular mowing or annual prescribed burning of the grasses in select areas, and maintenance of several access and fireroads:

RC-1. The grass areas around the airfield and flightline are mowed in accordance with a letter from USFWS (dated January 14, 1994, 1-6-94-I-33) and in accordance with the MCAS Miramar Bird and Animal Aircraft Strike Hazard (BAASH) regulations. These regulations require that the grasses be mowed to discourage the gathering of birds around the runway. If a bird were to fly into the engine intake of an aircraft that was attempting to land or take off, the normal operations of the aircraft would be severely

- hindered and an accident could occur. Mowing maintains the grasses around the airfield at a low level, thereby reducing the potential fire hazard and the risk of a bird strike.
- RC-2. Annual prescribed burns are conducted to reduce the grass fuels from igniting during the Miramar Air Show pyrotechnics display.
- RC-3. The City of San Diego maintains a utility easement road in the Rose Canyon Planning Unit that extends parallel and east of I-805 along the sewerline (Figure 3-2). This road provides access to undeveloped areas and reduces the fire response time.
- RC-4. A second City-maintained fire access road extends from Rose Canyon to the southern border of the industrial area along Miramar Road, providing access to the area north and west of the airfield.
- RC-5. The Station maintains fire access road R-01 from the flightline perimeter road, north to Rose Canyon (per NFPA 1, Chap 17, para 17.3.5.3, i.e., 10-foot minimum clearance both sides of the road) (Figure 3-2). This road provides fire access to the west side of the Miramar Pond and the eastern canyon rim of Rose Canyon.
- RC-6. Access and a security gate are maintained from the airfield perimeter road to the City of San Diego sludge line road (Figure 3-2). Maintenance of this area provides access and reduces response time to the western and southwestern Station boundaries. The security gate restricts access to the Station airfield and flightline.

Proposed Actions

Four fire management actions are proposed for the Rose Canyon Planning Unit. These include the creation and maintenance of fuel treatment zones and prescribed burning. Fire management activity conservation measures to avoid and/or minimize impacts are listed in Appendix A of this WFMP. Resource management and mitigation measures required are contained in the EA for implementing this WFMP. Treatment shall be coordinated with Natural Resources Staff of Miramar Environmental Management Department to avoid adverse effects to cultural and natural resources within the following areas:

RC-7. A 15-foot-wide fuel treatment zone is proposed along each side of De La Garza Road and Pless Avenue (east to the helipads and west to the Navy Consolidated Brig). Vegetation in this zone would be mowed or masticated with a tractor, similar to

roadside brushing conducted along existing roads on the Station. This zone would provide a fuelbreak and suppression access to fires burning in Rose Canyon east of the pond, thus assisting in protection of the recreation area, Miramar Brig, Rose Canyon riparian area, and the airfield.

- RC-8. A fuel treatment zone is proposed in and around the Miramar Pond recreation area. This zone would maintain the current access road to and around the pond with roadside brushing, and removal of dead undergrowth and live limbs where needed. It would also reduce fuels in and around the pond and picnic areas through weed abatement (i.e., reduction of generally fine, ground fuels) to reduce ignition risk. It would provide safety zones for suppression operations within the Miramar Pond recreation area. Treatment shall be coordinated with Natural Resources Staff of Miramar Environmental Management Department to avoid adverse effects to cultural and natural resources.
- RC-9. A 100-foot-wide fuel treatment zone is proposed along the Station boundary, adjacent to the industrial park on the south side of Miramar Road. This zone would include weed abatement, removal of selected vegetation and dead biomass, and pruning trees to a height of approximately 10 feet. The intent would be to keep the existing native vegetation (chaparral) in place and maintained as a relatively low age-class. This zone would maintain low-growing ground cover (i.e., managed chaparral) to protect the soil against erosion. The low-growing ground cover would slow the spread of low-intensity fire, which would burn through the lighter fuel of the fuel treatment zone before it could become larger and hotter. Treatment shall be coordinated with Natural Resources Staff of Miramar Environmental Management Department to avoid adverse effects to cultural and natural resources.
- RC-10. A prescribed burn project is proposed for an approximately 50-acre area on the slopes of Rose Canyon that are bounded by Rose Canyon drainage bottom to the north, R-01 to the east and south, and a north-south running drainage on the west side (Figure 3-2). The entire area would not be burned at one time. Rather, 5- to 10-acre patches within the project boundary would be burned at 1-year intervals to create a mosaic of young age class vegetation. No area would be burned more frequently than once every 35 years. A fireline would be constructed along the western boundary of the project area; the remainder holding lines would utilize existing roads and natural barriers. The preparation of a burn plan would be required, along with review and approval by the MCAS Miramar Fire Planner. Treatment shall be coordinated with Natural Resources Staff of Miramar

Environmental Management Department to avoid adverse effects to cultural and natural resources.

3.4.4 West San Clemente Canyon Planning Unit

Location

The West San Clemente Canyon Planning Unit is mostly located west of I-15, north of SR 52, east of I-805, and south of the Rose Canyon Planning Unit (Figure 3-3). This area of the Station is largely undeveloped and the continuity of the native vegetation has the potential for large fire growth. The Miramar Mounds National Natural Landmark (MMNNL), which contains approximately 400 acres of vernal pool habitat, is located at the southeast portion of the West San Clemente Canyon Planning Unit. Hansen Aggregates/Harris Plant and the San Diego Shotgun Sports Club are located at the northeast portion of this planning unit.

Planning Unit Priority

This area includes the MMNNL, located south of the airfield. This sensitive natural landmark and the surrounding areas to the north and east are undeveloped. To the west and south are the Miramar Landfill (operated by the City of San Diego), an access road to the landfill, SR 163, I-805, and SR 52. A fire in this area could interrupt traffic on nearby freeways. However, fire suppression actions within the MMNNL could have a substantial adverse impact to sensitive resources that could require costly restoration. Due to the surrounding development and the adjacent freeway (SR 163, I-805, and SR 52) and roadway (Convoy Street) network, there is a moderate concern for wildland fire management in this area. Wildland fire management within this area will follow MIST Guidelines. Areas of potential concern include:

- Hansen Aggregates/Harris Plant
- San Diego Shotgun Sports Club (Miramar Gun Club)
- MMNNL
- Miramar Landfill
- Miramar Nursery (I-805)

No projects will be designed that include impacts to occupied threatened and endangered species (e.g., San Diego fairy shrimp, California gnatcatcher, San Diego mesa mint, etc.) habitat.

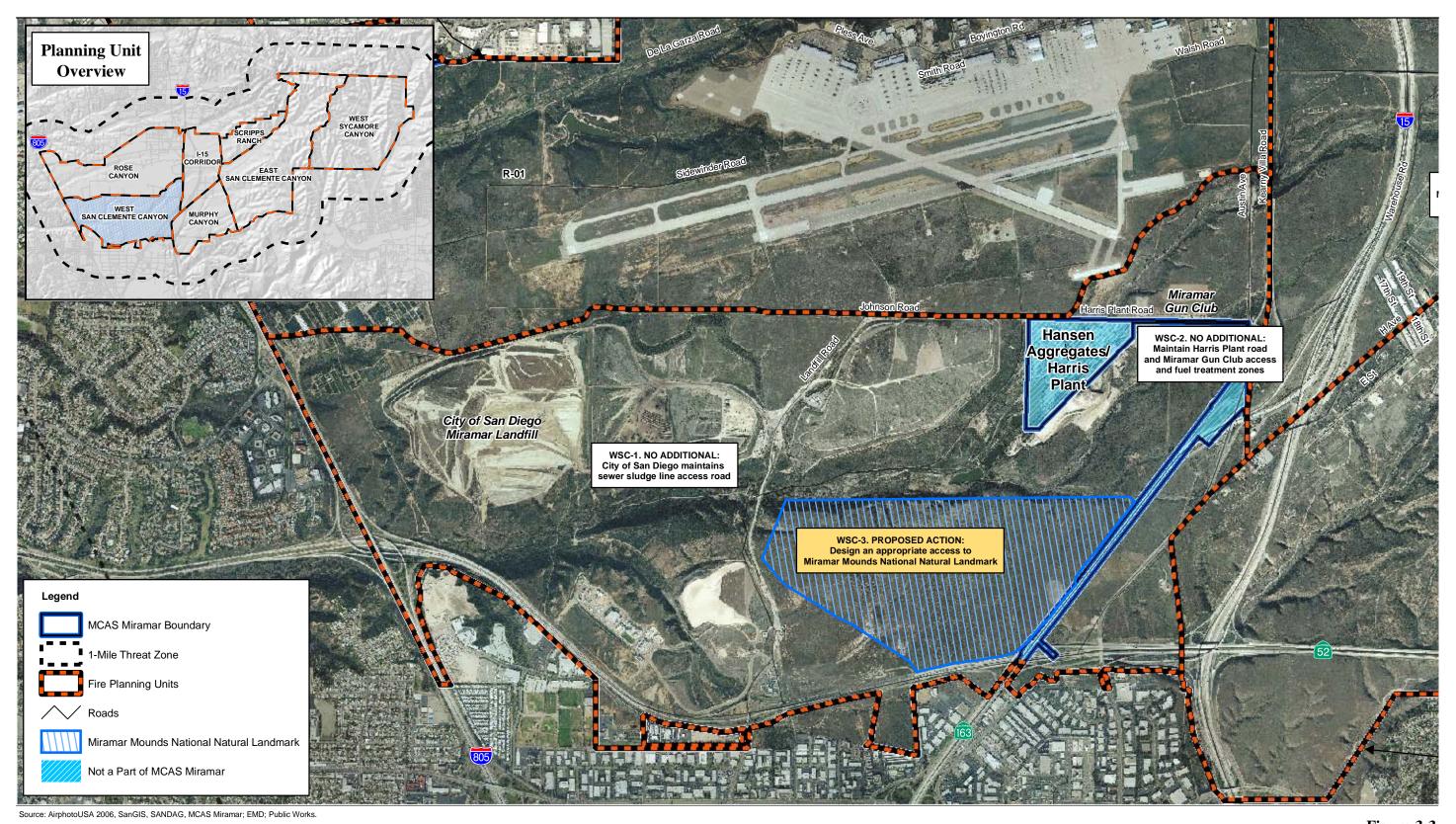


Figure 3-3 West San Clemente Canyon Planning Unit

Scale: 1:24,000; 1 inch = 2,000 feet

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Fire Environment

The West San Clemente Canyon Planning Unit contains the east-west aligned drainage located south of the airfield that runs from I-15 on the east side to I-805 on the west side (to the Station boundaries). The planning unit fuel type is dominated by 5-year-old, post-fire regrowth of chaparral and grasses. Remnant old growth chaparral exists within the MMNNL area. The unit contains notable sensitive plant and animal resources that include coastal sage scrub, California gnatcatcher, willowy monardella, vernal pools, and waters of the U.S. The prevailing wind over the unit is a marine-influenced westerly flow.

Threat Zone

The western border of this planning unit is adjacent to undeveloped wildlands within canyons and drainages. The San Clemente Canyon watershed parallels SR 52 (which coincides with the southern boundary line of the planning unit) and crosses I-805 on the southwestern Station boundary. The remainder of the threat zone contains urban and light industrial developments.

Primary Access Routes

Primary access routes are Kearny Villa Road, Harris Plant Road, SR 163, SR 52, Convoy Street, I-805, San Diego Gas and Electric (SDG&E) gas line easement road (from Harris Plant Road south to SR 163), Miramar Landfill Road, and Johnson Road.

Management Response Strategy

The management response should be initial attack with the objective of control and extinguishment of the fire with minimal acreage loss. If a fire starts within the MMNNL boundary and the fire danger adjective does not exceed moderate, the response strategy of monitoring and confinement using MIST guidelines should be considered.

Fire Management Actions

This section addresses the existing and proposed fire management actions. Figure 3-3 shows the current and proposed actions for this planning unit.

Current Actions, No Additional Protection

There are two fire management actions currently being conducted for the West San Clemente Canyon Planning Unit. These include maintenance of access roads and fuel treatment zones.

- WSC-1. The City of San Diego maintains access and the current width of the sewer sludge line access road along the western boundary of the Station. This action aids access and reduces response time to the western Station boundary.
- WSC-2. Harris Plant Road and San Diego Shotgun Sports Club (Miramar Gun Club Road) access are maintained by fuel treatment within 100 feet of the gun club and 10 feet on either side of Harris Plant Road from Kearny Villa into the Hansen Aggregates/Harris Plant boundary (per NFPA 1, Chap 17, para 17.3.5.3). Additionally, SDG&E maintains the underground gas line road from Harris Plant Road south to SR 163. This action reduces response times to the entire planning unit, including the MMNNL, Hansen Aggregates/Harris Plant, and the San Diego Shotgun Sports Club skeet range.

Proposed Action

Only one fire management action is proposed for the West San Clemente Canyon Planning Unit. Fire management activity conservation measures to avoid and/or minimize impacts are listed in Appendix A of this WFMP. Resource management and mitigation measures required are contained in the EA for implementing this WFMP. Planning shall be closely coordinated with Natural Resources Staff of Miramar Environmental Management Department to avoid adverse effects to cultural and natural resources within the following area:

WSC-3. In coordination with the MCAS Miramar Environmental Management Department, design an appropriate access road into the MMNNL that will allow safe entry of fire vehicles while avoiding impacts to sensitive vernal pool basins and minimizing impacts to surrounding vernal pool watersheds and other sensitive biological resources. This landmark includes native vegetation and sensitive vernal pools but has limited access and is without any man-made or natural barriers to restrict fire growth. An access road would provide an anchor point from which to attack a fire that occurs within the landmark and would also reduce the response time. The road would also provide access for educational and training field trips. Due to the sensitivity of the landmark, the road would be established to avoid significant impacts to vernal pool

basins, and to the extent possible, other sensitive biological resources. During the implementation period of this WFMP, new access road construction is not proposed because of the complex and careful planning that will be required and needed as part of Endangered Species Act consultation with the USFWS. Future updates of this WFMP may address construction if the access road is deemed feasible.

EAST MIRAMAR FIRE MANAGEMENT AREA

3.4.5 I-15 Corridor Planning Unit

Location

This planning unit is located in the central portion of the Station, bounded by Kearny Villa Road on the west and NS-4 (Aqueduct Road) on the east, with I-15 bisecting the unit running north and south (Figure 3-4). This planning unit is located along the northern Station boundary west of NS-4.

Planning Unit Priority

The fire management objective for the I-15 Corridor Planning Unit is to protect the Naval/Marine Corps Reserve Center Facilities, Miramar recreation area, vernal pool wetlands, and off-Station uses including the campus of Alliant International University (AIU) and the University of California San Diego (UCSD) Ecological Reserve. These fire management actions would also minimize the risk of fire spreading from ignition sources along I-15 and a remote control, model airplane flying area to the facilities targeted for protection. Areas of potential concern include:

- Recreational vehicle storage area
- Federal Aviation Administration Southern California TRACON
- County Sheriff/USMC Pistol Range
- Camp Elliott Warehouse District
- Caltrans South Control Yard
- San Clemente Canyon riparian woodland
- Vernal pool wetland
- Gnatcatcher habitat

No projects will be designed that include impacts to occupied threatened and endangered species (e.g., San Diego fairy shrimp, California gnatcatcher, San Diego mesa mint, etc.) habitat.

Fire Environment

The I-15 Corridor Planning Unit is composed of relatively flat mesa top covered with large expanses of grasses and some patches of 5-year-old post-fire chaparral regrowth. The Rose Canyon and San Clemente Canyon drainages traverse the unit from east to west and contain some riparian zones. Notable sensitive plant and animal resources within the unit include native grasslands and vernal pools in the northern portion, and coastal sage scrub, vernal pools, California gnatcatcher, and willowy monardella in San Clemente Canyon. The prevailing wind over the planning unit is dominated by a marine-influenced westerly flow. Exposed, unsheltered fine fuel beds in this area have the potential for rapid rates of spread (ROS) with afternoon winds.

Threat Zone

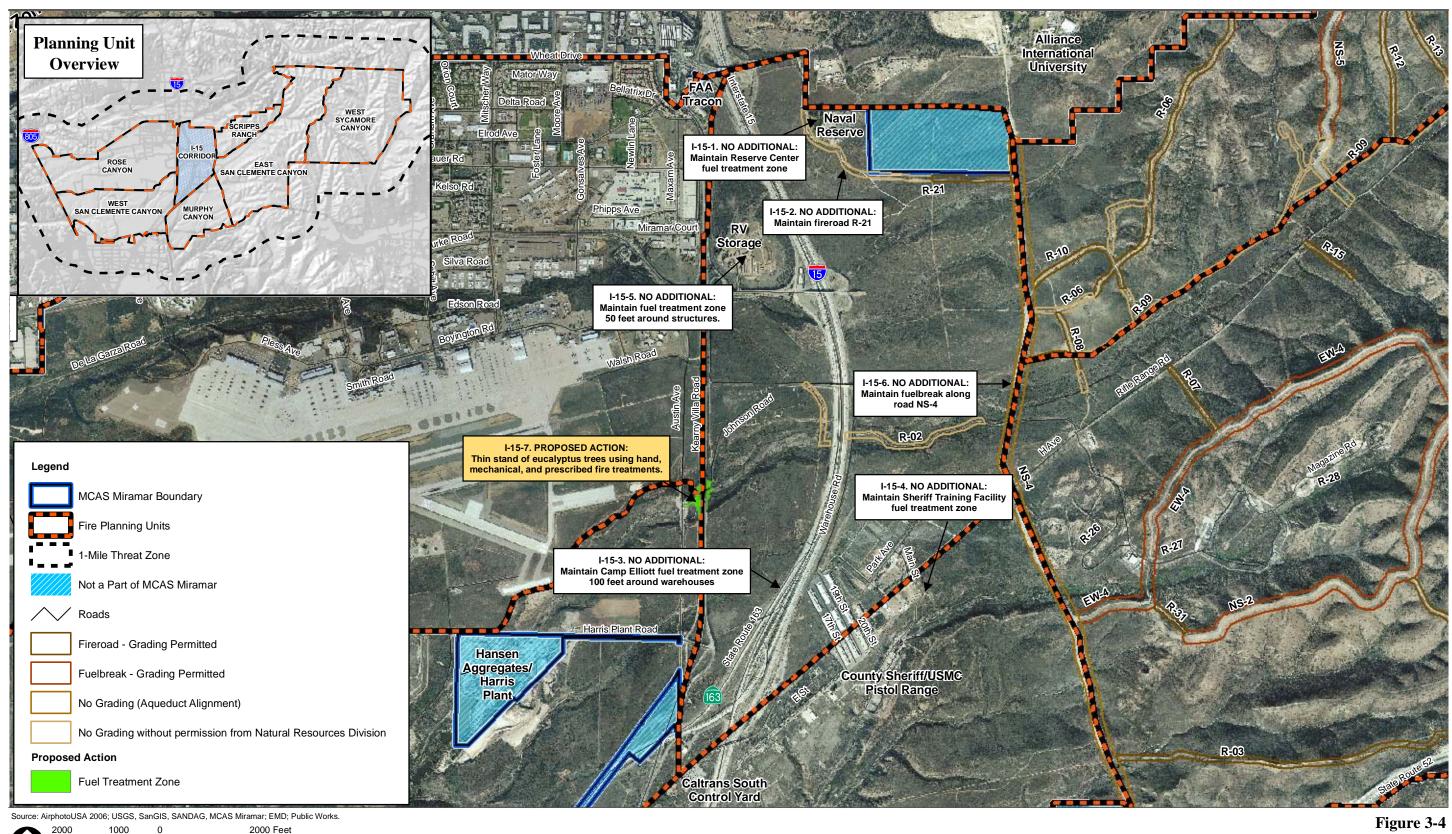
The northern boundary of the planning unit is bounded by privately owned (UC Regents), undeveloped, open land with a continuous fuel bed that crosses government property lines. Large stands of eucalyptus trees are located along the Station border. The northwest corner of the unit lies adjacent to a light industrial area and military housing, which pose multiple structure protection considerations within the threat zone.

Primary Access Routes

Primary access routes are I-15, Kearny Villa Road, Pomerado Road, "H" Avenue, Aqueduct Road (NS-4), R-21, R-02, Warehouse Road, Ammo Road, Johnson Road, 19th Street, and Main Street.

Management Response Strategy

The primary objective of the initial attack should be control and extinguishment of the fire with minimal acreage loss. Sensitive resource areas within the northern portion of the planning unit should be considered for monitoring plus mitigation actions using MIST guidelines.



I-15 Corridor Planning Unit

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Fire Management Actions

This section addresses the current fire management actions. No new actions are proposed within this planning unit. Figure 3-4 shows the current actions for this target area.

Current Actions, No Additional Protection

The fire management actions currently being conducted for the I-15 Corridor Planning Unit involve protection of the Reserve Center Facilities and off-Station uses, including the campus of AIU and the UCSD Ecological Reserve.

- I-15-1. A 100-foot Reserve Center fuel treatment zone is maintained around facilities, structures, and within the boundary fencelines. This action maintains defensible space for the Reserve Center and the AIU boundary.
- I-15-2. The existing fireroad R-21 is maintained in accordance with the Station's fireroad and fuelbreak and maintenance plan. This action maintains access, reduces response time, and allows for fire control in areas around the Reserve Center, AIU campus, and UCSD Ecological Reserve.
- I-15-3. The 100-foot-wide Camp Elliott fuel treatment zone is maintained around the warehouse. This action maintains a defensible space around the warehouse district and facilities.
- I-15-4. The 100-foot-wide County Sheriff/USMC Pistol Range Training Facility fuel treatment zone is maintained. This action maintains defensible space around the range training areas and pistol ranges.
- I-15-5. The 50-foot-wide Recreational Vehicle (RV) Storage area fuel treatment zone is maintained around the perimeter of the parking area using hand and mechanical treatment. This action maintains defensible space around the RV Storage.
- I-15-6. The SDCWA maintains road NS-4. NS-4 coincides with the easement for the SDCWA aqueduct. The Station maintains the 120-foot-wide fuelbreak associated with this road. This action maintains access and reduces fire response time to areas around the Reserve Center, AIU campus, and UCSD Ecological Reserve.

Proposed Actions

There is one proposed action for the I-15 Corridor Planning Unit. Treatment shall be coordinated with Natural Resources Staff of Miramar Environmental Management Department to avoid adverse effects to cultural and natural resources within the following area:

I-15-7. Johnson Road is the primary transportation corridor for military ordnance brought to the flightline from Magazine Storage. At the intersection of Johnson Road and Kearny Villa Road is perimeter gate 15. This specific location (approximately 3.2 acres) contains thick stands of relatively small-diameter eucalyptus trees (equal to or less than 12-inch dbh [diameter at breast height]) mixed with grass and brush. This heavily traveled route is critical to Marine Corps mission requirements and must be maintained as a fuel treatment zone to reduce wildfire threats to vehicles and an important transportation corridor. Fuel treatment will consist of thinning trees and will be done outside of the migratory bird nesting season if nests are present. Tree stumps shall be treated with herbicide to prevent regrowth. Cut trees and tree debris will not be left in jurisdictional wetlands.

3.4.6 Murphy Canyon Planning Unit

Location

The Murphy Canyon Planning Unit includes the area south of H Avenue within the Station's Camp Elliott area, west of Station fuelbreak NS-4, north of the Station's southern boundary, including the "Tea Cup" parcel south of SR 52, and encompasses a property section between I-15 and SR 163 on the western planning unit boundary (Figure 3-5).

Planning Unit Priority

The fire management objective is to protect the existing facilities at Camp Elliott and residences within Tierrasanta from fires that may start either on- or off-Station. Specific facilities within Camp Elliott to be protected from fire include the warehouse district, Duffy Town, a San Diego County Sheriff's Department training facility, and adjacent pistol/shotgun ranges. Fire management actions within this planning unit would also minimize the risk of fire spreading from ignition sources along I-15 and Kearny Villa Road. Areas of potential concern include:

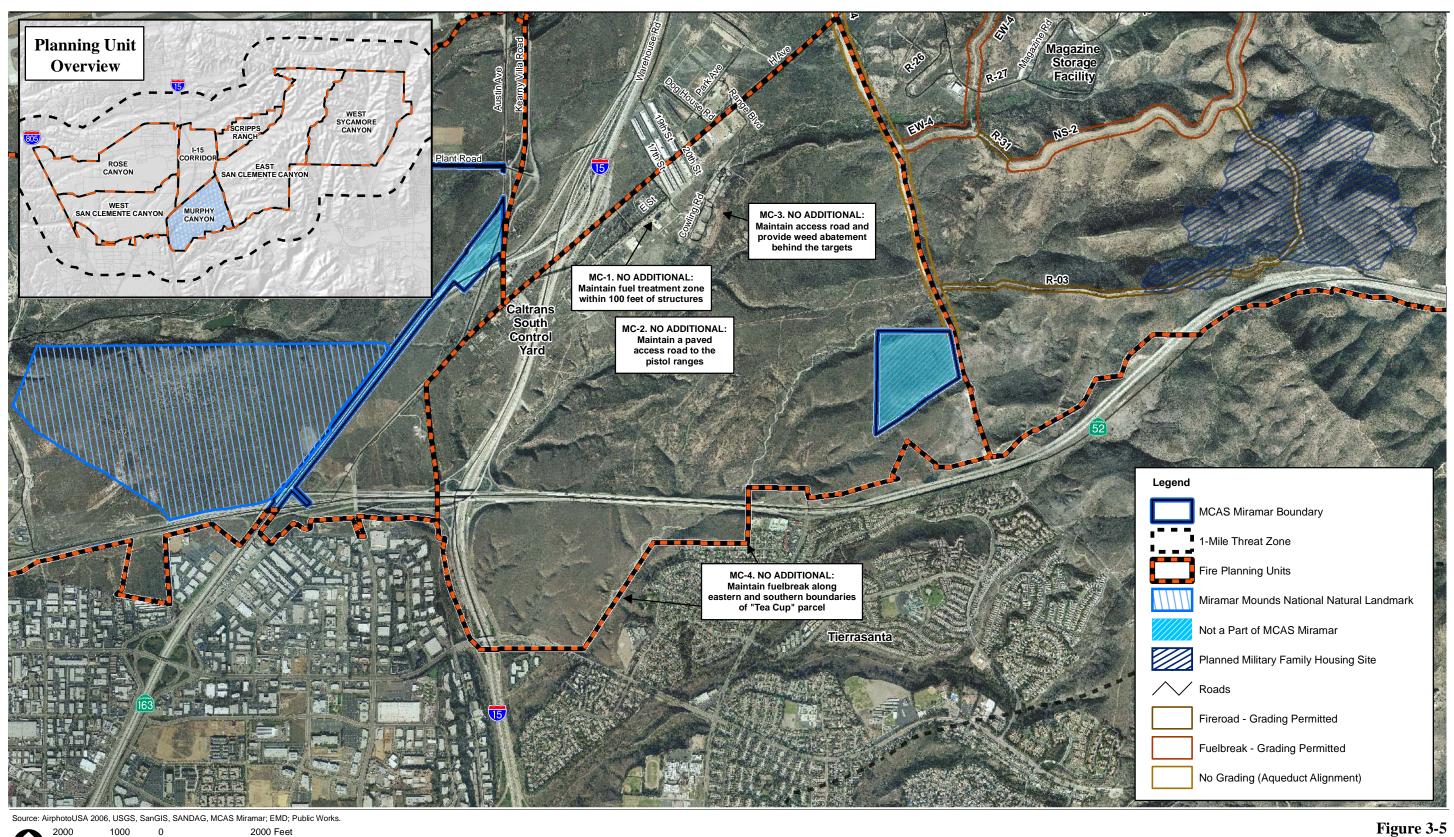


Figure 3-5 Murphy Canyon Planning Unit

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- County Sheriff/USMC Pistol Range
- Pistol Ranges
- Explosive Ordnance Disposal (EOD) Facility
- National Weather Service Facility
- Tierrasanta Community WUI

No projects will be designed that include impacts to occupied threatened and endangered species (e.g., San Diego fairy shrimp, California gnatcatcher, San Diego mesa mint, etc.) habitat.

Fire Environment

The Murphy Canyon Planning Unit is dominated by open mesas and two primary drainages that include Murphy Canyon and Elanus Canyon. The fuel distribution within the unit includes grasses and 5-year-old post-fire chaparral regrowth. Notable sensitive plant and animal resources include willowy monardella, coastal sage scrub, California gnatcatcher, vernal pools, and grasslands. Prevailing winds over the planning unit are dominated by a marine-influenced westerly flow.

Threat Zone

The threat zone along the southern border of the planning unit is dominated by residential communities within the wildland-urban interface and undeveloped open space. Fires originating within this zone may pose structure protection problems and a threat of spreading onto government land. A unified command approach to fire management is recommended in this area.

Primary Access Routes

Primary access routes are Kearny Villa Road, "H" Avenue, Range Boulevard, EOD Lane, "E" Street, Aqueduct Road at R-03, SDG&E easement, SR 52, Santo Road, I-15, and Clairemont Mesa Boulevard.

Management Response Strategy

The primary objective of the initial attack should be control and extinguishment of the fire with minimal acreage loss.

Fire Management Actions

This section addresses the current fire management actions. No new actions are proposed within this planning unit. Figure 3-5 shows the current actions for this planning unit.

Current Actions, No Additional Protection

Four fire management actions are currently conducted within the Murphy Canyon Planning Unit. These include maintenance of a fuel treatment zone and a fuelbreak, roadside brushing, and weed abatement.

- MC-1. A fuel treatment zone is maintained within 100 feet of existing structures at Camp Elliott and pistol ranges within this area through weed abatement and pruning of tree limbs up to 10 feet from the ground. This ongoing maintenance, as needed, reduces fuel load and horizontal and vertical continuity of fuels near the structures, thereby minimizing the risk of damage from fire in the surrounding area. Treatment shall be coordinated with Natural Resources Staff of Miramar Environmental Management Department to avoid adverse effects to cultural and natural resources within the following area.
- MC-2. A paved access road to the pistol ranges is maintained via roadside brushing out to 10 feet on either side of the road (per NFPA 1, Chap 17, para 17.3.5.3). This maintenance allows for a reduced fire response time to facilities in this area and firefighter safety zones.
- MC-3. The access road behind the targets is maintained through continued weed abatement as needed out to 20 feet of the target area and on either side of the road. This maintenance reduces the fuel load and horizontal continuity of fuels between the range and open space adjacent to Camp Elliott.
- MC-4. The on-Station fuelbreak along the eastern and southern boundaries of the "Tea Cup" parcel adjacent to Tierrasanta is maintained to allow for access along this Station boundary and defensible space along the urban interface between the fuels on-Station and Tierrasanta residences.

Proposed Actions

There are no proposed actions for the Murphy Canyon Planning Unit.

3.4.7 <u>Scripps Ranch Planning Unit</u>

Location

The Scripps Ranch Planning Unit is located south of the north-central boundary of the Station, east of I-15, north of Fireroad R-09, and west of Fireroad R-29 (Figure 3-6). The off-Station land uses include residences of the Scripps Ranch community, the campus of AIU, and the UCSD Ecological Reserve. The areas of the Station are undeveloped and consist mostly of native vegetation.

Planning Unit Priority

The fire concern for this area is the off-Station residential uses to the north in the Scripps Ranch community and both AIU and UCSD property. An on-Station fire could rapidly threaten these off-Station uses. The management objective for this area is to reduce the risk of a fire spreading off-Station. Areas of potential concern include:

- Scripps Ranch Community WUI
- AIU Campus
- Carroll Canyon Military Housing
- UCSD Ecological Reserve

No projects will be designed that include impacts to occupied threatened and endangered species (e.g., California gnatcatcher, Del Mar manzanita) habitat.

Fire Environment

The Scripps Ranch Planning Unit contains a series of north-south aligned drainages that empty into San Clemente Canyon. The distribution of fuels within the unit includes grasses and 5-year-old post-fire chaparral regrowth. Canyon drainage bottoms contain significant fine fuel loading following high seasonal (2005) rainfall totals. Large stands of eucalyptus trees grow in the northwest corner of the planning unit. Notable sensitive plant and animal resources include coastal sage scrub, Del Mar manzanita, and California gnatcatcher. The prevailing wind over the planning unit is dominated by a marine-influenced westerly flow. Significant winds across the ridge tops can be expected in the afternoon hours.

Threat Zone

The threat zone along the northern border of the planning unit contains significant expanses of privately owned, undeveloped wildland that is contiguous with government land. The remainder of the threat zone has extensive residential development and wildland-urban intermix and interface areas.

Primary Access Routes

Primary access routes are Rifle Range Road, R-06, R-09, R-12, R-13, R-14, R-29, NS-5, EW-3, Missile Road, Pomerado Road, and Carroll Canyon Road.

Management Response Strategy

The primary objective of the initial attack should be control and extinguishment of the fire with minimal acreage loss. The area is a high-risk urban-interface planning unit. The Incident Commander (IC) should give strong consideration to aerial suppression and canyon rim (structure protection) response forces. Relatively quick response time for suppression forces will be required. MIST guidelines may be appropriate in riparian areas.

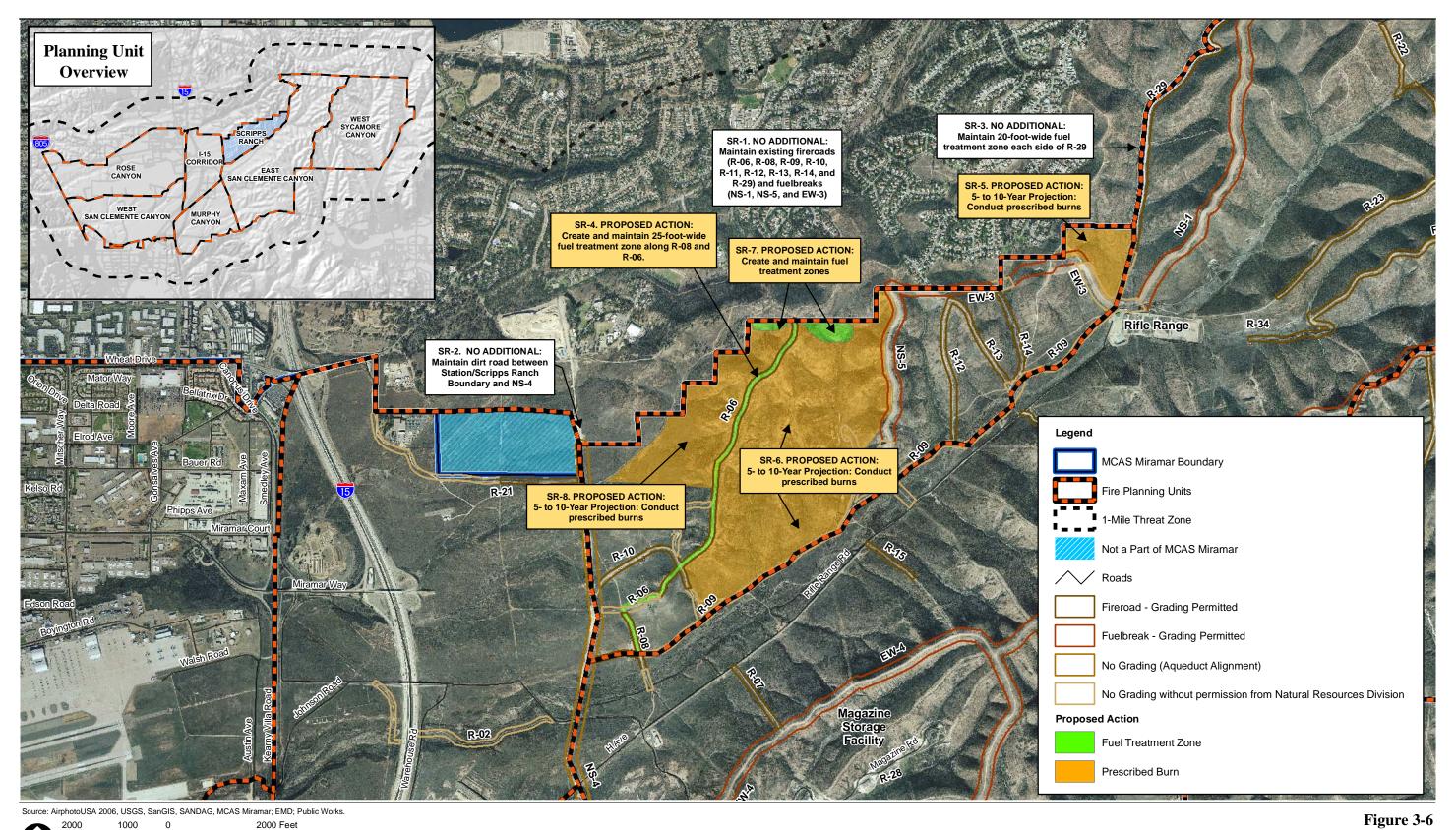
Fire Management Actions

This section addresses the current and proposed fire management actions. Figure 3-6 shows the current and proposed actions for this planning unit.

Current Actions, No Additional Protection

There are three fire management actions currently being conducted for the Scripps Ranch Planning Unit. These include maintenance of fireroads, fuelbreaks, and fuel reduction treatments.

SR-1. All existing fireroads (R-06, R-08, R-09, R-10, R-11, R-12, R-13, R-14, and R-29) and fuelbreaks (NS-1, NS-5, and EW-3) are maintained in accordance with the Station's existing fuelbreak and fireroad maintenance plan. This action maintains access to the planning unit in order to reduce response time and increase fire control, thus protecting off-Station residential areas.



Scripps Ranch Planning Unit

Scale: 1:24,000; 1 inch = 2,000 feet

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- SR-2. The existing dirt road between the northern Station/Scripps Ranch boundary and NS-4 is maintained as a fireroad. This action provides access to off-Station residential areas and reduces response time.
- SR-3. Fuel treatment occurs for up to 20 feet wide on either side of the entire length of R-29 via thinning of trees and shrubs/roadside brushing. This action provides a safety buffer for firefighting operations associated with protection of off-Station residential areas located along the Air Station boundary line.

Proposed Actions

There are five proposed fire management actions for the Scripps Ranch Planning Unit. These actions include creation and maintenance of fuel treatment zones and prescribed burning. Treatment shall be coordinated with Natural Resources Staff of Miramar Environmental Management Department to avoid adverse effects to cultural and natural resources within the following areas:

- SR-4. A fuel treatment zone is proposed along R-06 and a portion of R-08, and extending along the powerline easement road to the Station boundary. This action would provide access and reduce fireline intensities. It would also provide firefighter safety zones. This action is intended to reduce the risk of fire to off-Station residential areas. Sensitive habitats and resources will be avoided.
- SR-5. This action is proposed for a 5- to 10-year projection. Conduct annual prescribed burns of 5-to 10-acre mosaic patches for the 34-acre area between R-29, EW-3, and the Station boundary until the entire project area is treated. This area would then be followed up with periodic burns; however, no area would be burned more frequently than that approximately once every 35 years. This action would introduce maintenance burning to create age-class mosaics to reduce fuel load near off-Station residential areas.
- SR-6. This action is proposed for a 5- to 10-year projection. Conduct prescribed burns for the area between R-09, R-06, NS-5, and the Station boundary of 20-to 40-acre mosaic patches every other year until the entire project area has been treated. This area would then be followed up with periodic burns; however, no area would be burned more frequently that approximately once every 35 years. This action would introduce maintenance burning to create chaparral age class mosaics to reduce fuel load near off-Station residential areas and Training Area 4.

- SR-7. Fuel treatment zones are proposed on-Station along Scripps Ranch homes via mechanical thinning of dead trees, understory shrubs, and ladder fuels. This action would reduce fuel load and horizontal and vertical continuity of fuels near homes. This action would reduce the risk of fire to off-Station residential areas, military housing, and both AIU and UCSD property. All tree treatments shall be coordinated with Natural Resources Staff of Miramar Environmental Management Department to comply with Migratory Bird Treaty Act.
- SR-8. This action is proposed for a 5- to 10-year projection. Conduct annual prescribed burns of 15-to 20-acre mosaic patches for the northern portion of the area bordered by R-06 and the Station boundary until the entire project area has been treated. This area would then be followed up with periodic burns; however, no area would be burned more frequently that approximately once every 35 years. This action would introduce maintenance burning to create chaparral age class mosaics to reduce fuel loading near off-Station residential areas.

3.4.8 East San Clemente Canyon Planning Unit

Location

The East San Clemente Canyon Planning Unit is an extended area located diagonally across east Miramar beginning south of Beeler Canyon, east and south of Fireroads R-29 and R-09, east of NS-4, north of the southern station boundary, and west of Fuelbreaks NS-2 and NS-3 (Figures 3-7a and 3-7b).

Planning Unit Priority

The fire management objective is to protect the Magazine Storage facility, the Rifle Range, Training Areas, and surrounding riparian woodlands. The primary management strategy is to maintain defensible space around structures, maintain fuelbreaks and fireroads, and introduce vegetation age class management with periodic prescribed burning. As with the majority of East Miramar, the areas surrounding these facilities are undeveloped and consist of vegetation that poses a fire risk. Areas of potential concern include:

- Scripps Ranch Community WUI
- Rifle Range
- Station Ordnance Facility

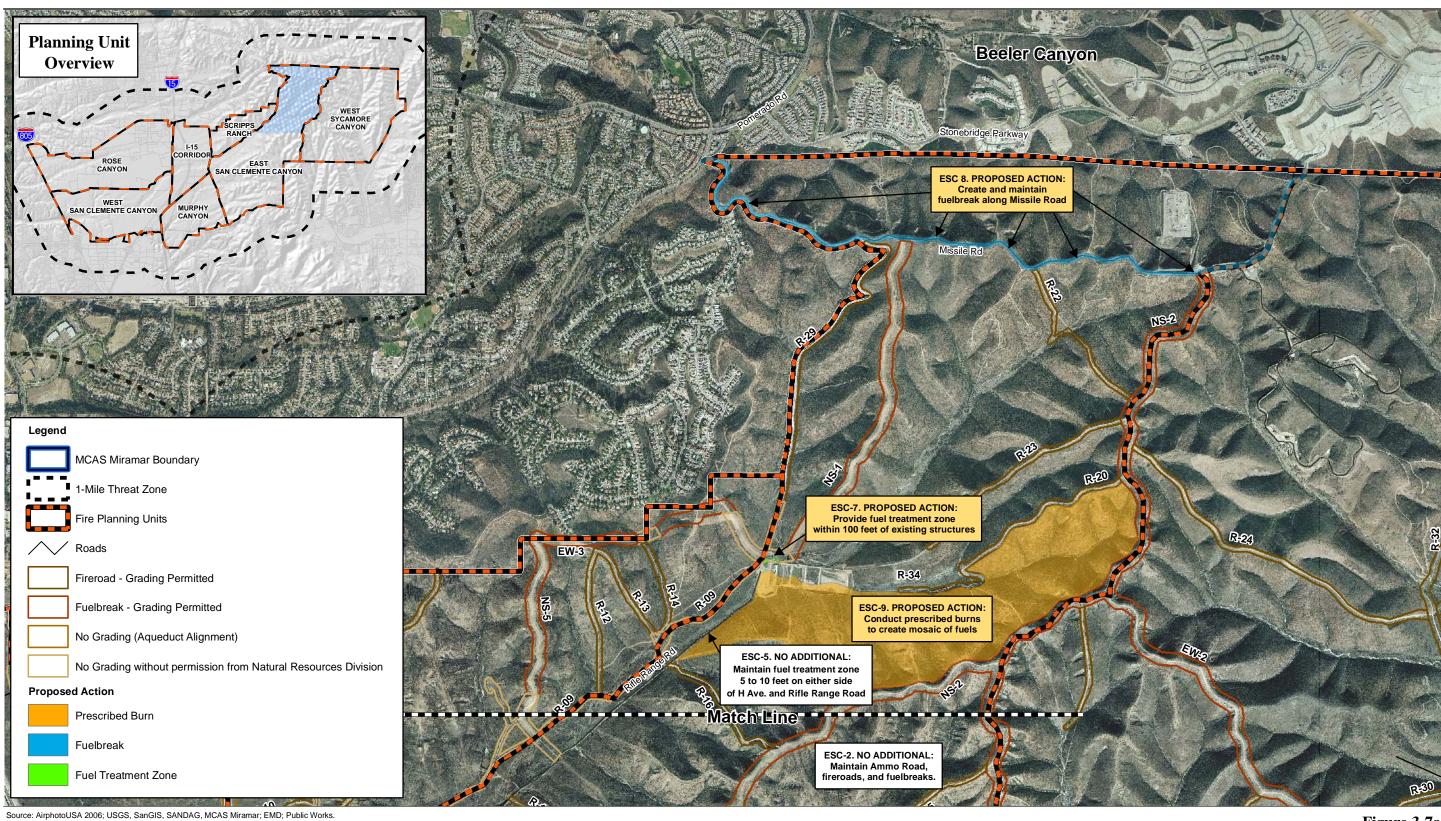
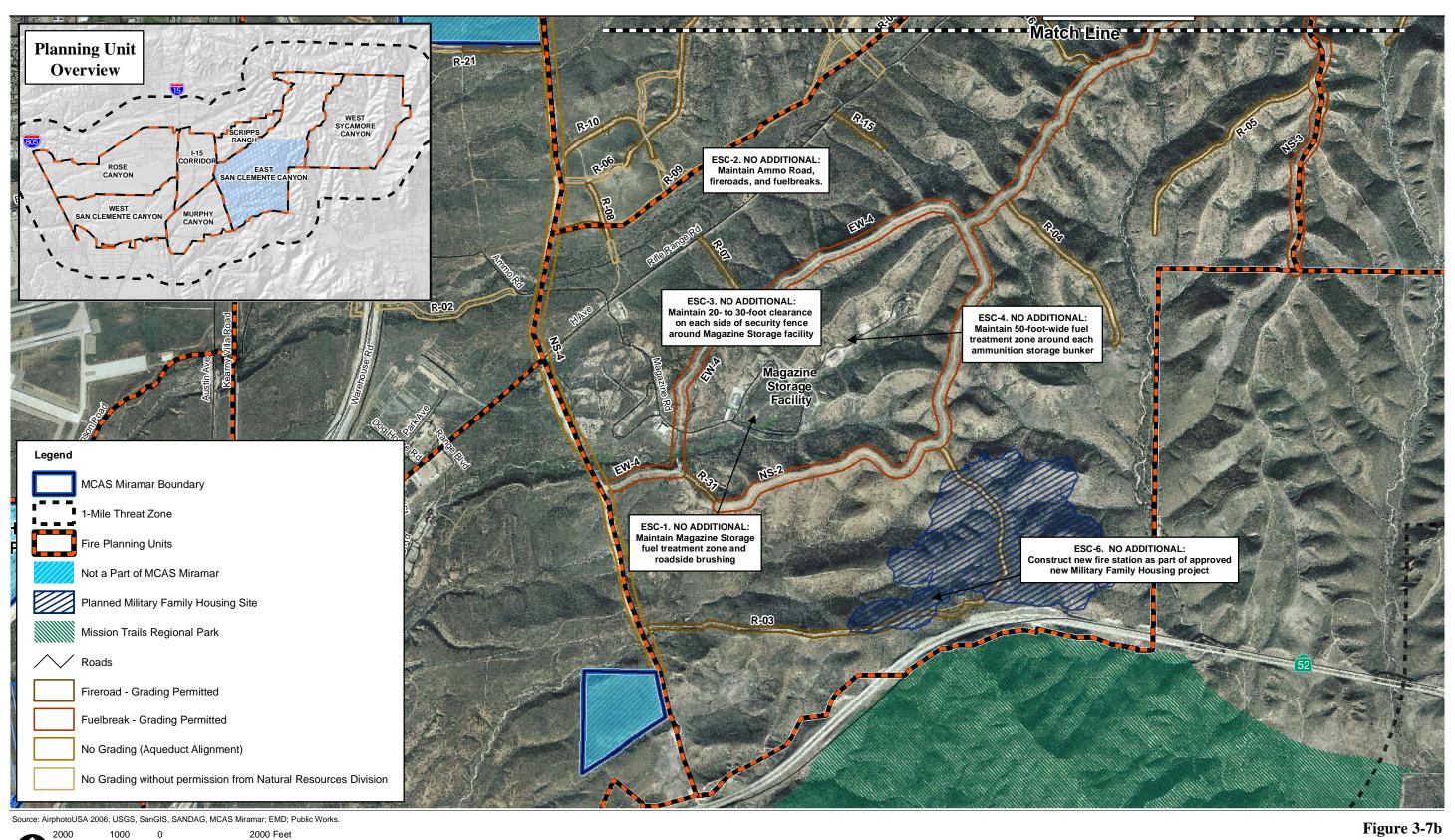


Figure 3-7a
East San Clemente Canyon Planning Unit
Northern Portion

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East San Clemente Canyon Planning Unit
Southern Portion

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- Magazine Storage Facility
- San Clemente Canyon riparian woodland

No projects will be designed that include impacts to occupied threatened and endangered species (e.g., Del Mar manzanita, San Diego fairy shrimp, California gnatcatcher, etc.) habitat.

Fire Environment

The East San Clemente Canyon Planning Unit contains the San Clemente Canyon watershed with multiple tributaries that flow into this drainage. The unit is divided by the NS-2 fuelbreak, which runs roughly northeast and southwest, with many canyon drainages flowing from this prominent ridgeline. The fuel distribution within the unit is dominated by sycamore riparian woodland in the canyon bottom, and grasses, shrubs, and 5-year-old post-fire chaparral regrowth along the slopes. Notable sensitive plant and animal resources include coastal sage scrub, Del Mar manzanita, willowy monardella, California gnatcatcher, native grassland, riparian woodland, waters of the U.S., and several restoration sites.

Threat Zone

The threat zone bordering the southern boundary of this planning unit is an unbroken expanse of wildland that contains portions of the Mission Trails Regional Park. SR 52 lies within the threat zone and is a potential ignition source for fires. An ignition in this area, coupled with fire alignments of topography, wind, fuels, and slope, has the potential to cause wildfires to move onto federal lands within this zone. Given the remote location of the area, the potential for large fires is high. ICs should consider early aerial firefighting support, bulldozer support, and sufficient ground resources to mount a sustained initial and extended attack.

Primary Access Routes

Primary access routes are "H" Avenue, Rifle Range Road, Aqueduct Road (NS-4), NS-2, Missile Road, and Magazine Road.

Management Response Strategy

The primary objective of the initial attack should be control and extinguishment of fire for incidents involving the San Clemente Canyon drainage bottom; fires within the Magazine

Storage area; and fires originating on the north side of SR 52 and south of R-03. In riparian areas within the planning unit, strategies will follow MIST.

The management response for fires originating in the Surface Danger Zone (SDZ) of the Rifle Range should be confinement. Fires would be contained west of NS-2, south of R-23, north of R-16, and east of Rifle Range Road.

The management response for fire burning along the northwest slope of San Clemente Canyon from R-16 south to Magazine Road should be monitoring plus mitigation actions and confinement.

Fire Management Actions

This section addresses the existing and proposed fire management actions. Figures 3-7a and 3-7b show the current and proposed actions for this target area.

Current Actions, No Additional Protection

Six fire management actions are currently being conducted within the East San Clemente Canyon Planning Unit. These actions involve maintenance of fuel treatment zones, fireroads, and fuelbreaks; roadside brushing; and planned construction of a new fire station.

- ESC-1. The Magazine Storage fuel treatment zone is maintained. Additionally, roadside brushing of Magazine Road currently occurs. This action creates defensible space and provides a widened fire control line along the road.
- ESC-2. Ammo Road, existing fireroads, and fuelbreaks are maintained in accordance with the Station's existing fuelbreak maintenance plan. This action maintains access and reduces response time, specifically to the Magazine Storage facility and Training Area 5.
- ESC-3. Clearance of 20 to 30 feet on either side of the security fence is maintained around the Ammunition Storage facility. This action reduces fuel load around the Magazine Storage facility.
- ESC-4. A fuel treatment zone is maintained through weed abatement within 50 feet of each ammunition storage bunker in accordance with NAVSEA OP-5. This action reduces the fuel load around the bunkers.

- ESC-5. Maintenance and roadside brushing of "H" Avenue and Rifle Range Road currently occur. (This task extends into other planning units but is to be considered as an entire action under the East San Clemente Canyon Planning Unit.) This action provides a safety buffer for firefighting operations.
- ESC-6. A new fire station is planned in East Miramar within the approved new housing project. This action allows for reduced fire response time. Construction of this fire station is planned to occur in the year 2008 and would serve the fire protection needs created by the new military housing. If the MCAS Miramar Fire Department required emergency assistance prior to completion of the new fire station, it would notify the City of San Diego Fire Department per the mutual aid agreement.

Proposed Actions

This fire management action is proposed for the East San Clemente Canyon Planning Unit. It includes creation and maintenance of fuel treatment zones and prescribed burning. Treatment shall be coordinated with Natural Resources Staff of Miramar Environmental Management Department to avoid adverse effects to cultural and natural resources within the following area:

- ESC-7. Creation and maintenance of a fuel treatment zone is proposed through weed abatement and pruning of tree limbs up to 10 feet from the ground within 100 feet of existing structures around the Rifle Range facility. This action would reduce fuel load and horizontal and vertical continuity of fuels near structures.
- ESC-8. Creation and maintenance of a fuelbreak along Missile Road from Pomerado Road eastbound to the Station boundary (50 feet on either side of roads). This action would reduce fireline intensities and create firefighter safety zones. Because this would permanently convert the shrub vegetation types in areas treated, sites occupied by coastal sage scrub must not be altered until compensatory habitat has been identified with a commitment for execution.
- ESC-9. A prescribed burn project is proposed for a 350-acre area generally encircled by R-34, R-20, NS-2, and Rifle Range Road to create and maintain age class mosaics within the down-range SDZ of the Rifle Range (i.e., the Rifle Range Prescribed Burn Project). The entire area would not be burned at one time. Rather, 5- to 10-acre patches within the project boundary would be burned at 1-year intervals to create a mosaic of young age class vegetation. No area would be burned more frequently than once every 35 years.

This action would introduce maintenance burning to create age class mosaics, thereby reducing fuel loading. Treatment will avoid Del Mar manzanita.

3.4.9 West Sycamore Canyon Planning Unit

Location

The West Sycamore Canyon Planning Unit is located in the northeastern portion of the East Miramar Management Area (Figure 3-8). This planning unit is located southeast of Missile Road, east of NS-2, north of the southern station boundary, and west of the station's eastern boundary. The EOD Training Range is located in the remote east-central portion of the planning unit. The detonation of ordnance requires a remote location.

Planning Unit Priority

The training that occurs at the EOD Training Range includes ordnance detonation. There is one firing point (shot hole) where ordnance is detonated. Burning shrapnel can be thrown hundreds of feet from the firing point. This shrapnel can readily ignite surrounding vegetation. The surrounding area is undeveloped with vegetation susceptible to the spread of wildfire. Since 1998, two class E (between 300 and 1,000 acres) and several class A (one-fourth acre or less in size) fires have burned within the range as a result of ordnance disposal activities.

The fire management objective is to ensure that fires inadvertently started by EOD training do not spread outside the detonation sites. The resources targeted for protection include the EOD facilities and the surrounding natural resources. Areas of potential concern include:

- Santee Lakes
- Santee Community WUI
- Mission Trails Regional Park
- Santee Landfill
- West Sycamore Canyon Riparian Woodlands
- MCAS Miramar EOD Training Range

No projects will be designed that include impacts to occupied threatened and endangered species (e.g., willowy monardella, California gnatcatcher, etc.) habitat.

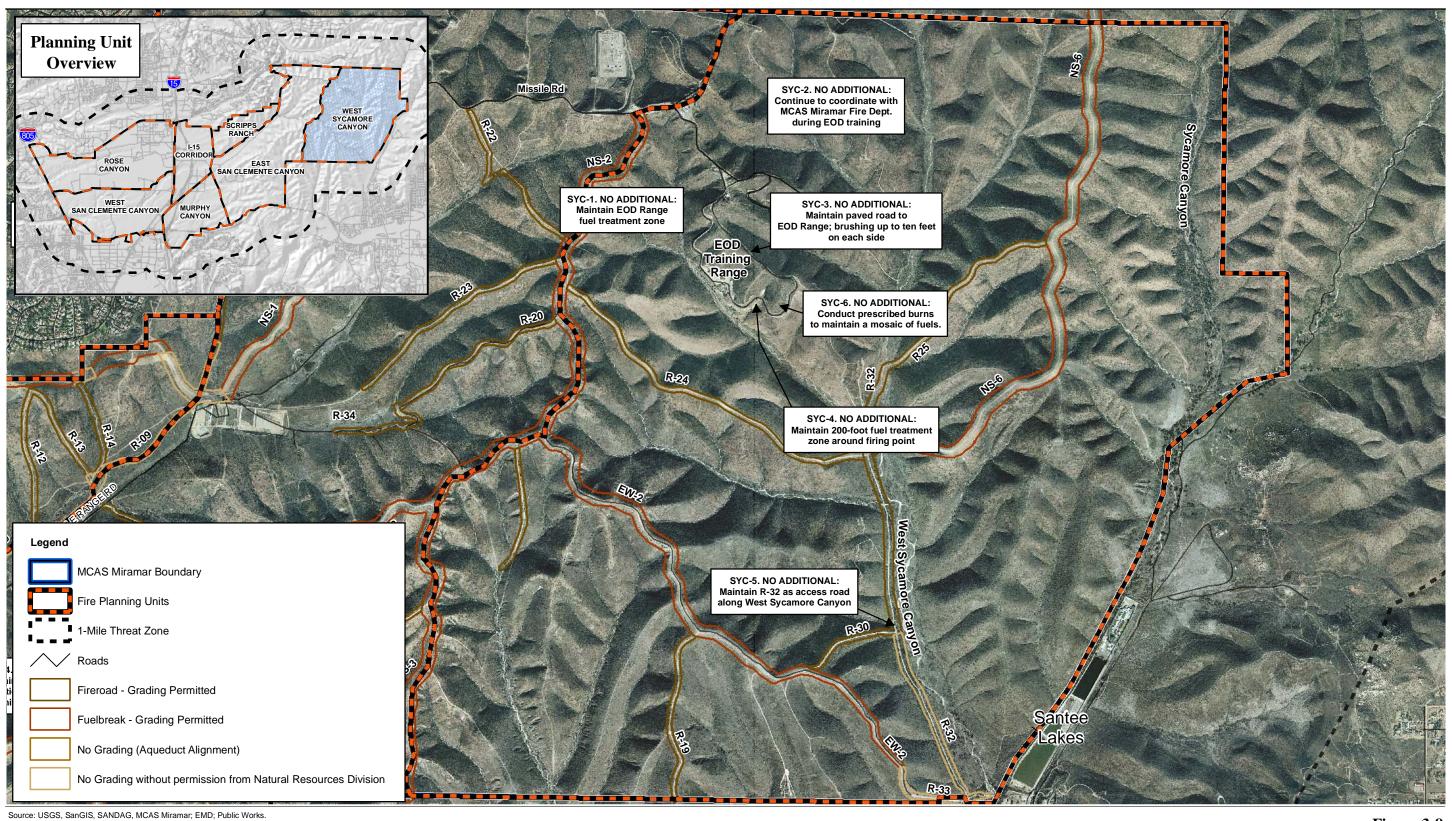


Figure 3-8 West Sycamore Canyon Planning Unit

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Fire Environment

The West Sycamore Canyon Planning Unit is dominated by the north-south aligned West Sycamore Canyon drainage and adjoining tributaries. Other prominent north-south drainages are Sycamore Canyon to the east, and Quail Canyon, Spring Canyon, and Oak Canyon to the west. Each of these drainages contains riparian areas. Other notable sensitive plant and animal resources include California gnatcatcher, coastal sage scrub, willowy monardella, and waters of the U.S. Fuels distribution throughout the planning unit includes sycamore tree and oak tree woodlands in the drainage bottoms with the mountain slopes covered by grasses, shrubs, and 5-year-old post-fire chaparral regrowth. Some isolated islands of older (8- to 20-year) chaparral are scattered across the unit. Significant ridge top winds can be expected in the afternoon hours dominated by a marine-influenced westerly flow.

Threat Zone

Fires originating on the north side of the SR 52 corridor and within the south Quail Canyon, Little Sycamore Canyon, Spring Canyon, and Oak Canyon drainages share jurisdictional boundaries with San Diego City and Santee fire departments and may pose a direct threat to Station lands. A unified command approach to fire management is recommended in this area.

Primary Access Routes

Primary access routes are Missile Road, NS-2, EW-2, NS-3, R-24, NS-6, R-32, Santee Lakes gate, Mast Boulevard and Santee Landfill Road, Highway 67, and Sycamore Park Drive.

Management Response Strategy

Fires originating within the EOD Training Range should be monitored and confined within the EOD Training Range fuel treatment zone (FTZ). The management response considered for fires originating outside of the EOD Training Range FTZ should be initial attack with the primary objective of control and extinguishment.

Fires originating in the southern portions of West Sycamore Canyon, Quail Canyon, and Spring Canyon should be considered for aggressive initial attack with control and extinguishment as the primary suppression strategy. ICs should assess the long response times and limited accessibility of ground forces to this planning unit and give consideration to aerial suppression resources and heavy equipment use. Additional management objectives would be to keep fire out of Sycamore

Canyon Preserve and Mission Trails Regional Park. In riparian areas within the planning unit, strategies will follow MIST.

Threat Zone

Fire originating on the north side of the SR 52 corridor and within the southern portions of Quail Canyon, Little Sycamore Canyon, Spring Canyon, and Oak Canyon share jurisdictional boundaries with San Diego City and Santee fire departments and may pose a direct threat to MCAS lands. A unified command approach to fire management is recommended in this area.

Fire Management Actions

This section addresses the current and proposed fire management actions. Figure 3-8 shows the current and proposed actions for this planning unit.

Current Actions, No Additional Protection

Four fire management actions are currently being conducted for the Sycamore Canyon Planning Unit. These involve maintenance of fuel treatment zones, roadside brushing, and coordination with the MCAS Miramar Fire Department.

- SYC-1. An EOD Training Range fuel treatment zone is maintained in and around the facilities and structures. This maintains a defensible space by reducing fuel load and controlling fires originating at the firing point (shot hole).
- SYC-2. EOD personnel coordinate with the MCAS Miramar Fire Department for fire conditions prior to all training operations. Fire Department personnel are present at the EOD Training Range prior to all explosive operations, and up to 20 minutes after.
- SYC-3. The existing paved access road to the EOD Training Range is maintained with roadside brushing up to 10 feet on either side of the road (per NFPA 1, Chap 17, para 17.3.5.3). Maintenance of the road provides access to the East Miramar planning units and the EOD Training Range.
- SYC-4. An FTZ (200-foot radius) is maintained around the firing point located within the EOD Training Range. The area within approximately 100 feet of the immediate firing point is maintained as bare ground (i.e., sand); vegetation within the outer 100 feet of the fuel

treatment zone is treated. This action reduces accidental ignition sources around the firing point.

SYC-5. Access is maintained along West Sycamore Canyon coincident with R-32. This action provides fire apparatus access, acts as a fire control line, and reduces response times for fire suppression resources.

SYC-6. Prescribed burning is conducted in the 11-acre area adjacent to the firing point and surrounded by the EOD Training Range Road and the fuelbreak west of the firing point. Annual prescribed burning is generally limited to the area adjacent to the firing point; the entire 11-acre area is treated in a manner that avoids habitat type conversion to grassland. Type conversion is avoided because backfires that consume only fine fuels are used. This action minimizes the risk of any EOD detonations igniting the surrounding vegetation by reducing the fuel load in and around the firing point. All prescribed burns conducted in this area include preparation of a burn plan and review and approval of the plan by the MCAS Miramar Fire Planner.

Proposed Actions

There are no proposed actions for the Sycamore Canyon Planning Unit.

3.4.10 <u>Miscellaneous Stationwide Actions</u>

The proposed fire management actions discussed in this section do not necessarily address a specific planning unit but are more appropriate to the Station as a whole. These actions include improvements at specific locations but also include Stationwide policies, training, and fire mutual aid agreements.

Location

The location for these actions includes all of the Station.

Planning Unit Priority

These current and proposed actions do not necessarily address a particular planning unit; instead, they apply to all planning units and to the Station as a whole.

Fire Management Actions

Current Actions, No Additional Protection

There are five management actions currently being conducted Stationwide. These include maintenance of fireroads and fuelbreaks, use of the Fire Danger Rating System, SOGs, and Basic Wildland Fire Fighting Training and Red Card certification.

- MISC-1. Maintenance of specific fireroads and fuelbreaks is noted for some of the individual planning units above; however, all the existing fireroads and fuelbreaks are maintained throughout the Station in accordance with the Station's existing fuelbreak and fireroads maintenance plan. By maintaining all the existing fireroads and fuelbreaks, access and response time are improved and the horizontal continuity of fuels is reduced.
- MISC-2. The Fire Danger Rating System will be used to reduce ignition sources and identify the current fire danger conditions (see Appendix D). This system serves to assist the MCAS Miramar Fire Department in preparedness and the planning of military operations on-Station. The system identifies the ignition risk and spread potential of a wildfire based on vegetation and climatic conditions (i.e., winds, fuel moisture content, humidity, and temperature) for that time period. Through use of the Fire Danger Rating System, activities are restricted during High+ fire danger conditions.
- MISC-3. SOGs will continue to provide suppression strategies to assist commanders of the firefighting crews when battling fires in environmentally sensitive areas. The guidance includes the appropriate management response to be implemented to avoid or minimize damage to sensitive resources and thus avoid significant impacts. This includes color-coded mapping identifying the recommended type of control action (i.e., burnout vs. direct attack with bulldozers).
- MISC-4. Basic wildland firefighting training and Red Card certification for all MCAS Miramar Fire Department personnel will continue to be provided. This training is conducted on the Station or at off-Station locations and does not result in environmental impacts.
- MISC-5. Mutual aid agreements with local, state, and federal fire protection agencies are kept current. The mutual aid agreements provide guaranteed backup support from surrounding jurisdictions should the Station request assistance in fighting a major fire.

Proposed Actions

There is one fire management action proposed Stationwide including fuel-load surveys and documentation.

MISC-6. Surveys and documentation of Stationwide fuel load conditions are proposed. This information would be useful to the generation of the fire danger rating system and would provide more accurate information on fuel loading.

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CHAPTER 4.0 WILDLAND FIRE MANAGEMENT PROGRAM COMPONENTS

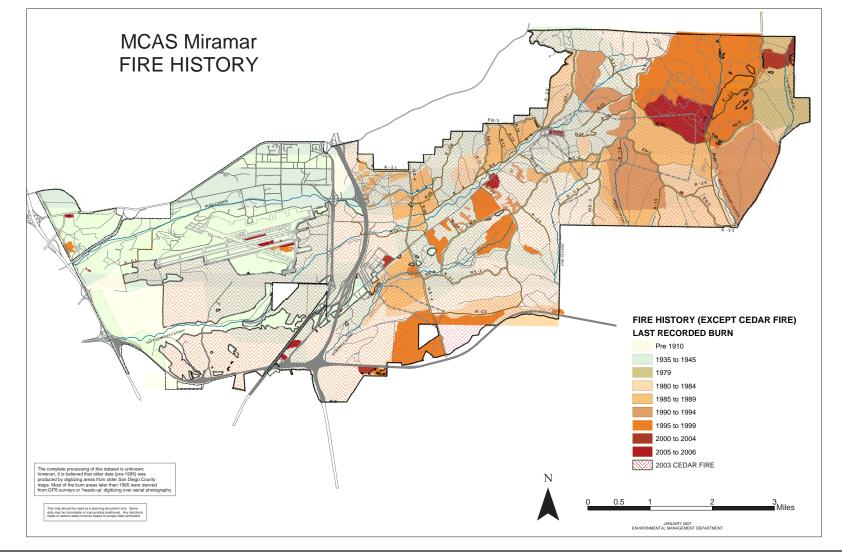
4.1 WILDLAND FIRE SUPPRESSION

The Station is a unique resource that is susceptible to wildfire for a number of reasons. Several factors have combined to help create a relatively large area of mostly undeveloped plant communities that, despite their many benefits, represent a potentially large-scale fire risk. Among those factors are past vegetation management practices, fire suppression, environmental constraints, and loss of native habitat adjacent to the site. Past fire management on the Station has resulted in localized fuel load reduction success, but this has been limited in distribution across the Station. Moreover, many of the past fire management approaches are now considered inappropriate by contemporary standards. Furthermore, an inconsistent attainment of fire management goals had resulted in high fuel loading in some areas of the Station. The extensive Cedar Fire of 2003 reduced the fuel loading throughout the majority of the Station; however, the pre-fire areas of concern will again become fire risk areas as vegetation recovers from the 2003 burn. The following sections summarize past and current practices, and fire history on the Station.

4.1.1 **Ignition Sources and Timing**

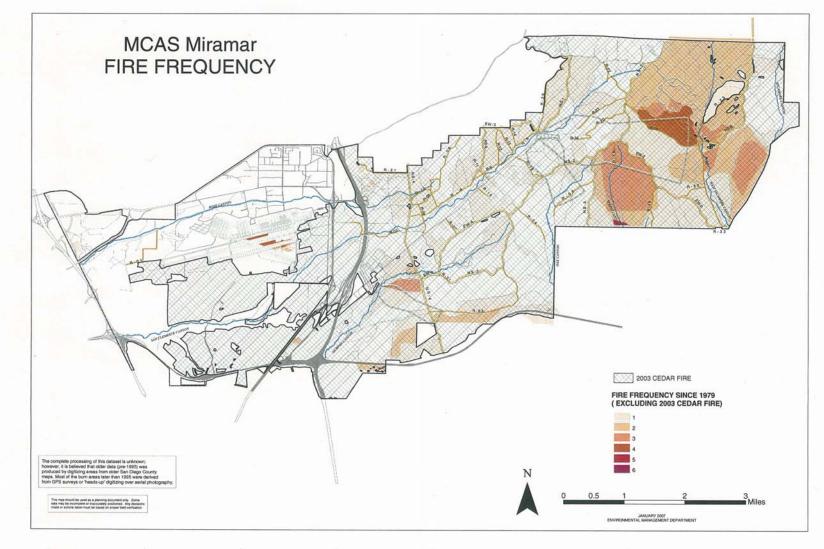
An understanding of why, when, and where fires typically occur on the Station is essential when determining locations for fire management to reduce fire hazards, modify fuel loading, or alter wildlife habitat. Areas recently burned by wildfire may not be suitable candidates for prescribed burns. Similarly, areas that have burned frequently throughout recorded history may be candidate sites for wildfire prevention practices such as fuelbreaks, fireroads, and limited prescribed burns. For these reasons, it is important to know what the primary causes of fire on the Station are and what areas are most susceptible to burning.

The local area fire history can provide clues for identifying Station areas with the greatest risk for ignition, areas with potentially dangerous fuel loads, and the expected rate of fire spread and its likely intensity. Fire history and frequency information for the Station was obtained from the Station's Environmental Management Department geographic information system (GIS) and the San Diego County Weights and Measures Watershed Management Division (Figures 4-1 and 4-2 and Table 4-1).



Source: MCAS Miramar 2007

Figure 4-1 MCAS Miramar Fire History



Source: MCAS Miramar 2007

Figure 4-2 MCAS Miramar Fire Frequency

Table 4-1 Recorded Fires from MCAS Miramar Since 1980

Date of Fire	Fire Size (Acres)	Fire Size Class	Cause of Fire
5 August 1980	52.9	С	Not known
18 June 1981	879.5	Е	Not known
June 1982	126.7	D	Not known
22 April 1987	0.12	A	Not known
18 June 1987	762.2	Е	Not known
19, August 1987	162.1	D	Not known
30 November 1989	98.2	С	Not known
28 October 1993	119.8	D	Not known
July 1994	515.7	Е	Not known
12 January 1994	355.2	Е	Not known
13 January 1995	178.2	D	Not known
7 July 1995	161.5	D	Plane crash
17 July 1995	1,753.2	F	Not known
15 September 1995	14.7	С	Not known
28 October 1995	2.2	В	Not known
7 May 1996	15.9	С	Cigarette
7 August 1996	<1.0	В	Not known
9 June 1997	<1.0	В	Bulldozer
25 June 1997	1.0	В	Field mowing
6 October 1998	30.3	С	Arsonist
7 October 1998	7.4	В	Arsonist
10 October 1998	0.26	В	Vehicle
22 October 1998	271	D	EOD Training Range Shot
1999	0.03	A	Illegal cook fire
2000	7.02	В	Not known
18 July 2000	1.82	В	Bulldozer
27 July 2001	0.14	A	Bulldozer
2002	0.002	A	Road maintenance
July 2002	0.003	A	Prescribed burn accidental spread
4 October 2002	1.52	В	Not known
8 October 2002	0.01	A	Brush cutting
17 June 2003	95.76	С	Bulldozer
October 2003	17,605.2	G	Human negligence
30 June 2004	0.12	A	Prescribed burn rekindle
20 August 2004	2	В	Smoldering humus
23 September 2004	0.25	A	Powerline
13 July 2005	4	В	Incendiary roadside start
19 July 2005	11	С	Incendiary roadside start
8 August 2005	1.5	В	Roadside start sparks from auto
14 August 2005	2.5	В	Incendiary roadside start
14 August 2005	0.5	В	Incendiary roadside start
17 August 2005	330	Е	EOD Training Range Shot
19 September 2005	0.1	A	Lightning Strike
11 October 2005	0.70	A	Vehicle fire
May 2006	spot	A	Electrocuted hawk
30 September 2006	spot	A	Vehicle fire
5 October 2006	spot	A	Transient campfire

Date of Fire	Fire Size (Acres)	Fire Size Class	Cause of Fire
14 October 2006	3.0	В	Airshow pyrotechnics
23 October 2006	spot	A	Caltrans workers using equipment
27 October 2006	6.0	В	Contract road workers/Welding
30 November 2006	24.0	C	F-18 Hornet crash
14 April 2008	spot	A	Bulldozer
23 June 2008	2	В	Roadside start, vehicle
15 July 2008	1	A	Surge in SDG&E powerlines

Fire records exist for about the last 25 years on the Station with a few additional records appearing in the database that date from pre-1910. Table 4-1 displays the recorded fires on the Station for the period August 1980 through September 2008. The accuracy of wildfire occurrence and cause determination data are most reliable beginning in 1997 when the MCAS Miramar Fire Department was established and began to record wildfire data through the MCAS Miramar Fire Department's incident reporting system. Note the lack of ignition source information for most of the earlier wildfires. Twenty-three wildfires have been documented on the Station between 2003 and 2008. The largest recorded fire burned 17,605 acres within the Station in October 2003. This fire was part of the larger Cedar Fire that originated off-Station and was one of three firestorms that raged in San Diego County in late October of that year. Additionally, large firestorms in October and November 2007 burned through the southern and northern portions of San Diego County although no acreage was burned as a result of these fires at MCAS Miramar.

Wildland fires within the Station are suppressed by the MCAS Miramar Fire Department with assistance from the U.S. Forest Service; CALFIRE, and local City fire departments, with non-Miramar assets supported through mutual aid agreements.

The principal ignition sources of wildland fire on the Station have historically been identified as primarily a result of human activity. Unlike many other military installations where the main cause of wildfire ignitions is military operations, most ignitions on the Station have resulted from nonmilitary activities. Lightning is a natural, nonhuman, and rare ignition. Human ignition sources include the following:

Nonmilitary Training Operations

- Arson
- Trespass activities of unauthorized personnel and off-road vehicles
- Careless smoking and open fires
- Utility lines
- Routine maintenance of infrastructure (fuelbreaks, roads, and airfield)

Military Training Operations

- Pyrotechnics
- Troop and other training
- Ordnance disposal

Analysis of the recorded fire history at the Station reveals that wildfires of significant size may occur year-round but are less likely to occur in the winter-spring months, especially December, February, March, April, and May. Timing of ignition on the Station is predictable and overlaps the historic and current fire season in southern California. As expected, most wildfires have occurred in the hot summer and early fall months of June through October. These months account for 88 percent of the documented wildfires on the Station. Fire frequency is lower November through May. However, these months account for 12 percent of recorded wildfires.

Analysis of wildfire size throughout the recorded fire history confirms the timing expectations for the highest and most intense fires. The largest fires on-Station, i.e., those exceeding 500 acres in area, have occurred in June, July, and October. The largest fire documented on the Station was the Cedar Fire that burned 17,605 acres in October 2003. Fire size is substantially lower in the more temperate months. These data have been based on a limited number of actual recorded wildfires and are not meant to serve any function other than to present historic data. For this region and the southern California fire season, the largest fires occur in the August to October time frame.

4.1.2 Fire Weather and Fire Danger

SOGs have been prepared by the MCAS Miramar Fire Department that identify fire weather monitoring procedures and a fire danger rating system. These SOGs establish procedures for collecting, recording, and disseminating daily fire weather readings, fire weather forecasts, and fire danger ratings throughout the fire department. This information will be used to assess fire department preparedness levels and as an aide to fire management and prevention decision making (see Appendix E for a summary of Wildland Preparedness Levels). These SOGs are based on *Interagency Standards for Fire and Aviation Operations National Fire Danger Rating System*. The scope, policy, and guidelines are provided below. Appendix D includes both the Fire Danger Rating Chart and the Weather Observation Data Sheet for use during fire weather monitoring and fire danger rating assessments on the Station.

Scope:

All operations and dispatch personnel will review the daily fire weather forecasts at the beginning of each duty day. Company officers or their designate will be responsible for providing a daily briefing of current and forecast fire weather conditions to their respective crew. Additionally, each fire station will collect and record the afternoon weather conditions at 1300 hours daily on a department weather observation data sheet.

Policy:

In compliance with Standard Fire Order #1: *Keep informed on fire weather conditions and forecasts;* MCAS Miramar Fire Department personnel shall brief the current and forecast fire weather outlook published by the National Weather Service or the Riverside Interagency Fire Weather Center on a daily basis. Each Fire Station will collect and record weather data elements that are applicable to the Fire Danger Rating chart each afternoon during the declared fire season (Appendix D).

Guidelines:

- 1. Fire Danger Rating weather data elements will include temperature, relative humidity, wind direction, wind speed, percent cloud cover, and the 10-hour fuel stick percentage.
- 2. The live fuel moisture content of living chaparral will be measured and tracked monthly using the oven drying and weighing method in accordance with PMS 814/NFES 2142, *Measuring Moisture Content in Living Chaparral: A Field User's Manual* (Countryman and Dean 1979). These data will be published and disseminated to all MCAS Miramar Fire Department personnel.
- 3. The Fire Danger Rating Chart will be referenced when Station training activities, public works projects, or contractor work is being performed within the East or West Fire Management Area. This information will provide guidance and restrictions to those activities based on the predicted fire danger rating for the period.
- 4. MCAS Miramar Fire Department operations personnel may also reference the current and forecast fire danger levels to aid in risk analysis and decision making for fire suppression activities, staffing levels, and response plans.
- 5. Additional fire season severity outlooks and daily fire danger forecasts are published by the *National Interagency Fire Center Predictive Services Group* and the *National Fire Danger Rating System*. This information will be coordinated with the MCAS Miramar Fire

Department's own fire weather data to monitor fire danger rating areas within the geographic region in order to provide fire crews with predicted burning indexes and forecast fire weather information.

- 6. The MCAS Miramar Fire Department's Remote Automated Weather Station will provide hourly weather readings that can be monitored on several websites and accessed directly via VHF radio modem. These data will supplement the daily weather observations collected at the fire stations.
- 7. A spot or site-specific weather forecast will be requested by the IC when a wildland fire escapes initial attack and suppression efforts extend into the next operational period; for fires exhibiting extreme fire behavior; or when the fire is located in an area where a Fire Weather Watch or Red Flag Warnings have been issued.

4.1.3 Fire Prevention, Public Relations, Education, and Outreach Program

The MCAS Miramar Fire Department will develop and implement fire prevention, education, and outreach programs that are designed to minimize wildfire risks on the Station. In particular, the education program will focus on a collaborative approach for working with the various sections within the Station (e.g., Training, Safety, Public Affairs, etc.) to educate and disseminate wildland fire safety and prevention information Stationwide. In addition, the MCAS Miramar Fire Department will coordinate with the MCAS Miramar Public Affairs Office to use the full range of multimedia technology to disseminate information on wildland fire activity, prescribed fire use, fuel treatment projects, and fire prevention programs conducted within the Station to both on-Station personnel and members of the public off-Station. Finally, as part of the public outreach program, the MCAS Miramar Fire Department will work collaboratively with neighboring communities that are at risk from wildfire within the Station, to develop and implement plans and projects to reduce the level of risk for the community.

The goals of this program include the following:

1. Design and implement fire prevention measures to minimize the threat of wildfires that originate on MCAS Miramar from burning off the Station boundary and threatening life, property, and natural resources in adjoining jurisdictions.

- 2. Administer a Fire Danger Rating program to limit and/or restrict activities, field training, and motor-vehicle access to high-risk wildland areas during periods of critical fire weather and fuel conditions.
- 3. Educate military units deployed to East Miramar Training Areas on the dangers and associated risks of wildfires and incorporate SOGs into the Training Area Management Office briefing for units in the field to follow.
- 4. Provide technical assistance and guidance to local communities that share a common boundary with the Station regarding vegetation management and hazardous fuel reduction methods and projects.
- 5. Initiate public outreach, information, and notification procedures when the MCAS Miramar Fire Department is conducting fuels treatment projects by way of neighborhood visits, town hall meetings, email, newspaper, radio, and television broadcasts.

Two divisions within the MCAS Miramar Fire Department will be responsible for the fire prevention, education, and outreach programs that will be implemented: the Fire Prevention Division and the Fire Operations Division. A general description of the responsibilities of these divisions is provided below.

MCAS Miramar Fire Prevention Division

Fire Prevention Inspectors within the MCAS Miramar Fire Department are responsible for conducting routine inspections and fire code enforcement on all buildings, facilities, and open areas within the Station. These inspectors are also responsible for providing fire safety and prevention guidelines to the MCAS Training Area Management Office in order to brief military units conducting field-training exercises on SOGs for pyrotechnic use. All training safety briefings contain directions for fire detection, reporting procedures, and evacuation planning, and utilize the Fire Danger Rating System to place restrictions on field activities that pose an ignition hazard. Fire Prevention Inspectors are also responsible for issuing burn permits and hot work permits to those conducting welding, pyrotechnic operations, and other high-risk ignition source work. Users of the permit program are required to comply with the terms and conditions of the permit.

MCAS Miramar Fire Operations Division

The Fire Operations Division is responsible for collecting, analyzing, and managing the Fire Danger Rating System throughout the Station. This division also provides fire apparatus and personnel to conduct fire and safety "standbys" when Station personnel are performing high-risk field operations.

Among the educational, public relations, and outreach services provided, the Fire Operations Division provides apparatus and personnel for public displays, fire prevention programs, and local events. This division also provides monthly briefs for "town hall meetings" that host local civic leaders. These informational meetings provide local municipalities with current and pending MCAS Miramar Fire Department actions. The Fire Operations Division also assists and coordinates with local Fire Safe Councils to address wildland fire risk reduction efforts both on-and off-Station.

When the MCAS Miramar Fire Department conducts prescribed burn operations, the MCAS Miramar Emergency Communications Center (ECC) coordinates with federal, state, and city agencies before and during the operation. Pre-burn notification guidelines for coordinating with other agencies are set forth in the Prescribed Fire Burn Plan.

4.1.4 **Training and Qualifications**

Safety Leadership

The MCAS Miramar Fire Department is committed to the safety of firefighters and the public. Leadership is influencing people—by providing purpose, direction, and motivation—while operating to accomplish the missing and improve the organization.

Every firefighter, every fireline supervisor, and every agency administrator should demonstrate leadership, as defined above, to ensure compliance with established safe fire management practices and to identify and report unsafe conditions.

Knowledgeable leadership is a significant safety factor when dealing with fire. Operational leaders must be experienced, well trained, and physically fit. Fire managers and agency administrators must have sufficient operational knowledge to make safe fire management decisions in order to ensure the health and welfare of personnel and the public.

Fireline Qualification Standards

The wildland firefighter training program and the qualification and certification process are outlined in the *Miramar Fire Department's Guide for Personal Growth and Career Development, Wildland & Prescribed Fire Qualifications* section. Only fully qualified and certified personnel will be assigned fire management or fire operations duties. All personnel must meet the training and experience requirements of the National Incident Management System (NIMS), Incident Command System (ICS) position they are performing (per NWCG 310-1) as adopted by the Department of Defense, Fire & Emergency Services Certification System. Firefighters and fire management personnel assigned to fireline duties must hold a current Interagency Fire Qualification Card (Red Card) and must have successfully completed the annual critical safety training (40 hour course).

Funding for annual training will be designated from P-1 funding each fiscal year.

Trainees

All trainee assignments are to be closely supervised by an individual fully qualified for the position. Trainees will meet training course and certification requirements for the position they are filling unless those requirements are waived in writing by an Operations Chief. These waivers will be evaluated on a case-by-case basis. All trainees will have a current Red Card and will have successfully completed annual critical safety training. Position Task Books (PTBs) for training positions will be submitted to the Training Chief for approval once all tasks are completed and the PTB has been reviewed by the Wildland Fire Management Officer (Assistant Chief).

4.1.5 Field Operations

Incident Management

Incident Management will follow the NIMS as directed by Homeland Security Presidential Directive-5 (HSPD-5). Qualified MCAS Miramar Fire Department personnel will assume command of all (Types 3, 4, or 5) wildland fire incidents occurring on the Station. Commanders will develop an incident action plan and conduct briefings for every operational period. Commanders will document and organize operations and brief personnel by using the standard ICS, Forms 201, 202, 204, and 206. A current fire weather forecast will be included in every briefing with either a daily forecast or a spot weather forecast requested specifically for the

incident. These are minimum ICS form requirements for an Incident Action Plan and will be expanded upon as the incident complexity dictates.

Operational Briefings

All personnel arriving at an incident must receive a briefing from the IC or delegate, prior to initiating any actions on an incident. The IC or delegate shall document all briefings. The Operational Briefing Checklist found in the *Incident Response Pocket Guide* (IRPG) or the *Fireline Handbook*, contains the minimum items required to brief all incoming crews, personnel, and resources.

Incident Complexity Analysis

Commanders should utilize the Extended Attack Transition and Incident Complexity Analysis checklist outlined in Appendix A of the *Fireline Handbook* or page 16 of the IRPG to aid in the decision-making process for ordering the next level of Incident Management support.

Risk Management Process

The risk management process helps ensure that critical factors and risks associated with fireline operations are considered during decision making. The five-step risk management process outlined in Chapter 1 of the *Fireline Handbook* or page 1 of the IRPG will be applied to all fire management operations.

Job Hazard Analysis

A job hazard analysis will be completed whenever tasks or activities have potential to cause serious injury or illness to personnel and/or damage to property, material, or the environment.

Spot Weather Forecast

Spot weather forecasts will be requested for fires that exhibit extreme fire behavior, exceed initial attack, or are located in areas where Fire Weather Watch and Red Flag Warnings have been issued. Additionally, predicted weather will be included in every operational briefing and updated if conditions are expected to impact predicted fire behavior.

Incident Status Summary

An incident extending past one operational period requires the completion of an Incident Status Summary (form ICS-209), and provided to the Dispatch Center. Accurate and timely completion of the Incident Status Summary is a critical factor in the allocation of available resources during multiple fire situations. The Dispatch Center will place resource orders through the Area Coordinator at the CDF Department of Forestry and Fire Protection in El Cajon.

4.1.6 Incident Safety

Incident Safety Officer

At least one person, operationally qualified at a level commensurate to the complexity of the incident, will be assigned the safety officer position. The safety officer will complete an Incident Action Plan Safety Analysis (form 215A), for each operational period. The safety officer should request additional help when any of the following exist, or as required by the complexity of the incident:

- A fire escapes initial attack or when extended attack is probable.
- There is complex or critical fire behavior.
- There are complex air operations.
- The fire is in the wildland-urban intermix/interface.

Standard Fire Fighting Orders

Personnel will observe and follow the Ten (10) Standard Fire Fighting Orders as defined by the NWCG. All 18 Watch Out Situations must be evaluated and mitigated before engagement or reengagement of wildland fire suppression activities.

Lookouts, Communications, Escape Routes, and Safety Zones

A system for operational safety includes lookouts, communications, escape routes, and safety zones (LCES). Before safety is compromised, each firefighter must be informed on how LCES will be used. LCES must be continuously reevaluated as fire conditions change. Company officers or their delegate should brief the LCES Checklist found on page 6 of the IRPG prior to reporting to their fireline assignment.

While individual lookouts may be posted, all firefighters must be alert to changes in the fire environment and have authority to initiate communication regarding these environmental changes.

Extended Attack Safety Checklist

ICs transitioning from initial attack to an extended attack operation will reference the Extended Attack Safety Checklist found in Chapter 3 of the *Fireline Handbook* and repeat this analysis whenever there is a change in conditions on the fire or a predicted change in conditions.

Refusal of Risk Protocol

It is the right and obligation of every individual to report safety problems and contribute ideas regarding their personal safety. When an individual feels an assignment is unsafe he/she also has the obligation to identify safe alternatives for completing that assignment. Turning down an assignment is one possible outcome of managing risk. In the event of a "turn down," the individual(s) will follow the refusal of risk protocol outlined in the IRPG. Outcomes and decisions should be thoroughly documented in writing.

Firefighter Personnel Safety

All personnel on the fireline shall wear all proper protective clothing. Proper protective clothing includes wildland boots, yellow brush pants, brush jacket, helmet, shroud, and gloves. Only department-issued wildland personal protective equipment will be worn during drills and wildland fires.

All personnel on the fireline will carry safety glasses or goggles. All personnel shall don safety glasses or goggles when necessary to provide proper eye protection.

All personnel on the fireline will carry the *Hot Shield* respiratory filter and don when necessary.

Fire Shelters

Fire shelters will be issued and worn by all line personnel and those who might be exposed to fire hazard. They will be inspected regularly, and "training" shelters will be deployed annually at required refresher training. The shelter is viewed as a <u>last resort</u> and will not be utilized as a tactical tool. Supervisors and firefighters must never employ fire shelters instead of using well-

defined and pre-located escape routes. When deployed on a fire, fire shelters will not be removed pending approval of authorized investigators.

4.1.7 Management Response Options

An Appropriate Management Response to all wildland fires occurring on Station property will be selected from the full range of strategic and tactical options described in this WFMP. For fires being considered for any response option other than Initial Attack or Control and Extinguishment, a Wildland Fire Implementation Plan (WFIP) Strategic Fire Size-Up and a Wildland Fire Relative Risk Assessment will be completed and documented (see Appendix F). The number and type of suppression resources to be dispatched are determined by the daily Wildland Dispatch Plan (Appendix G).

- Monitoring on-site. Fire situations that require the physical placement of resources on the
 fire site to track the fire's spread, intensity, and characteristics, and to assess threat to life,
 property, or natural resources.
- Confinement. Actions taken when fires are not likely to have resource benefit or impact military mission requirements and an analysis of strategic alternatives indicates threats from the fire do not require a deployment of large numbers of suppression resources. Typically, these fires will have little on-the-ground activity and fire spread remains confined within a predetermined area bounded by fuelbreaks or natural barriers.
- Monitoring plus mitigation actions. Actions taken on fires managed for resource benefits that either pose real, but not necessarily immediate, threats or do not have a totally defensible boundary. These fires are monitored, but operational actions are developed and implemented to delay, direct, or check fire spread, or to contain the fire to a defined area. Considerations will be given to public safety and mission training impacts.
- **Initial attack.** Actions taken on a fire where the initial response is to contain and suppress the fire, consistent with firefighter and public safety and values to be protected.
- Large fire suppression with multiple strategies. This action categorizes fires where a combination of tactics such as direct attack, indirect attack, and confinement by natural or man-made barriers are utilized to accomplish protection objectives identified in the WFMP.
- Control and extinguishment. Actions taken on a fire when the selected management objective indicates a control strategy using direct attack. Sufficient resources are assigned to achieve control of the fire with minimum of acres burned.

4.1.8 **Suppression Tactics**

Strategy and Tactics

Determining initial attack strategy and tactics will be based on the appropriate management response outlined in this WFMP and the involved planning unit on which the fire is burning. Actions taken on responses off-Station with mutual aid agencies will be directed by that agency's IC. Other factors to consider are suppression objectives, values at risk, current and predicted fire behavior, weather conditions, and available resources and their condition.

Tactical options include:

- Direct Attack
- Indirect Attack
- Hotspotting
- Cold Trailing
- Mop Up
- MIST

All personnel will review and be familiar with the tactical watch-outs found in Chapter 1 of the *Fireline Handbook*.

Fire Cause Determination and Investigation

It is the responsibility of the IC to assist in determining the cause of fires originating on Station property and responsible persons or parties. Dollar loss amounts of property or natural resources will be calculated and reported. A checklist for Fire Cause Determination can be found in the IRPG.

Fire Suppression

The NWCG *Fireline Handbook* PMS 410-1 and the IRPG PMS 461 most current edition shall be used as guidelines for initial attack and extended attack operations.

Upon arrival at scene, the initial attack IC will report to Dispatch a complete scene size-up and report on conditions. In addition, the IC will:

- Establish command,
- Initiate the Risk Management Process,
- Develop a plan,
- Assign incoming resources,
- Review Initial Attack Safety Checklist, and
- Continually reassess the situation and provide updates.

The MCAS Miramar Fire Department shall observe and follow the "black line" policy whenever feasible. This should be accomplished by establishing a control line with no unburned fuel between the fire and the control line.

The MCAS Miramar Fire Department shall select initial attack tactics that will control, contain, and extinguish wildland fires in a safe and timely manner. Tactics should be selected based on the *Appropriate Management Response Plan* designated for that planning unit.

The MCAS Miramar Fire Department resources shall not consider a frontal assault operation unless there are threatened values in immediate danger, and disengagement and withdrawal may be made to an appropriate safety zone if fire conditions warrant.

Downhill line construction/hoselay assignments will adhere to the Downhill Line Construction Checklist found in Chapter 1 of the *Fireline Handbook*. This assignment requires the supervision of a Task Force Leader or Incident Command Type 4 qualified individual or higher.

The MCAS Miramar Fire Department resources shall use 1½-inch-diameter hose for initial attack operations. A progressive hoselay with 1-inch lateral hoselines shall be employed when there is a potential danger of spotting or flare-up along the fireline.

Mobile attack operations should be performed from within the burn area, along roads and fuelbreaks.

The MCAS Miramar Fire Department personnel shall not perform fire suppression operations with fire hose while riding on any portion of the apparatus. All hoseline operations will be performed while walking or stationary.

Firing operations are permitted to protect threatened values, to keep the fire to a minimum size, reduce the need for hoselays or line construction, and/or meet the black line policy. Firing operations shall be conducted in conjunction with indirect line tactics. Company leaders may

initiate burning-out operations along a direct line or when structures are threatened. Only the Operations Chief or the IC may initiate a backfire operation along an indirect line.

Wildland/Urban Interface Firefighting

Because of the hazardous and complex nature of firefighting in the WUI, ICs, company officers, and crew leaders will make a thorough assessment of their structure protection line assignment within the framework of the following guidelines found in Chapters 1 and 6 of the *Fireline Handbook*:

- Structure Assessment Checklist
- Wildland-Urban Watchouts
- Structure Triage Guidelines
- Structure Go/No-Go Protection Reference

Aviation Operations

The use of firefighting aircraft on wildland fires burning on the Station or posing a direct threat to Station lands will be considered by the IC when the tactical or strategic advantage of using aircraft supports the control objectives determined by the IC. Because of the hazardous and complex nature of managing rotary-wing and fixed-wing aircraft on a fire, the IC should make a thorough risk assessment of the situation and have sufficient and experienced command staff to manage aviation operations.

Generally speaking, aviation resources dispatched for initial attack are self-managing and have well-established protocols for tactical operations and air space management. Multi-operational periods may require planning and coordination expertise. Filling positions identified in the National Incident Management System, Air Operations organization chart (reference Chapter 10, *Fireline Handbook*) should be considered to safely and effectively manage incident aircraft.

A request for aircraft will be made through the MCAS Miramar ECC (then directed to either the San Diego Fire Communications Center or the San Diego County Office of Emergency Services Area Fire Coordinator at Monte Vista ECC) and the order should specify the "type" and number of aircraft needed, location of the incident (Thomas Brothers map grid, Global Positioning System coordinates, heading and miles if available), ground contact, and frequency. The IC should identify any hazards in the area and have potential helispots or helibases designated in

proximity to the incident. Landing helicopters may require a landing zone manager, engine company, and/or crash-fire-rescue standby.

Air operations will adhere to the standards of the agency providing and managing the aircraft. These guidelines will include one or all of the following:

- Interagency Standards for Fire & Aviation Operations; Chapter 17 (Federal Standards)
- San Diego Fire & Life Safety Services; Regional Fire & Rescue Helicopter Program, Air Operations Training Manual (City Standards)
- California Department of Forestry & Fire Protection, 8300 Manual (State Standards)

Use of firefighting aircraft on an incident in Station airspace may adversely affect Marine Corps air operations and should be considered when making the risk assessment and decision analysis. Additional information on aviation operations can be referenced in Chapter 10 of the *Fireline Handbook*.

Minimum Impact Suppression Tactics (MIST)

The wildlands of the Station are habitat to a number of threatened and endangered plant and animal species so designated and protected under the Endangered Species Act. Firefighters engaged in wildland fire suppression operations will make efforts to apply MIST, outlined by the MCAS Miramar Fire Department in SOG: 244 (included as Appendix H). This SOG identifies minimum impact tactics for dispatch and initial attack, mop-up phase, and burned area restoration. This SOG also refers to a map of the Station that identifies sensitive habitats and species, and notes one or more of five fire management tactics that should be adhered to when conducting fire management activities in areas that support sensitive biological resources. Use of this map and the MIST SOG will help avoid and minimize impacts to sensitive resources that are managed under the Station's INRMP.

4.1.9 Work-Rest Guidelines

To maintain safe, productive incident activities, incident management personnel must appropriately manage work and rest periods, assignment duration, and shift length for crews, overhead personnel, and support personnel. If multi-operational periods are anticipated, the IC must plan for and place resource orders through Dispatch as early as practicable to ensure adequate staffing for the next shift.

Operations Chiefs must assess their crews coming off fireline assignments for fatigue and consider appropriate rest periods or days off to mitigate fatigue.

Operational Periods

ICs will manage an incident through 24-hour operational periods. Work assignments will be given up to, but not to exceed, 24 hours in duration.

ICs will plan for and ensure that crews, overhead personnel, and support personnel are provided a 2-to-1 work ratio (for every 2 hours of work or travel, provide 1 hour of sleep and/or rest).

2-On, 3-Off Shift Assignments

Personnel working an incident on their first day that extends beyond the initial attack stage will be provided the appropriate rest period prior to being reassigned to normal Engine Company Operations. Personnel working an incident on their second day of duty that extends beyond the initial attack stage will be provided and must take the appropriate rest period prior to being released from duty.

4.1.10 After Action Reviews

An After Action Review (AAR) will be conducted following all wildfire and prescribed burn incidents and is initiated by the IC. An AAR should follow as closely as practicable to the termination of the incident and include the key personnel involved. This AAR can be as simple as a "tailgate" review of the operation or a more formal written document. All AARs should follow the format found in the *Fireline Handbook* and provide written documentation that the review was conducted.

4.2 WILDLAND FIRE USE

The Station will not use naturally ignited wildland fires to accomplish resource management objectives.

4.3 PRESCRIBED FIRE

4.3.1 Prescribed Fire History within the Station

Plant communities on the Station have been managed to support past, present, and future military readiness requirements. This has resulted in the conservation of undeveloped areas of high biological value. In general, the operational requirements of the Station (both MCAS Miramar and the former Naval Air Station [NAS] Miramar) have been conducive to maintaining a large amount of native vegetation, which supports a variety of plant and animal communities. As such, relatively large expanses of native plant communities have been maintained amongst an ever-encroaching urban sprawl.

San Diego County's rapidly increasing population brought accelerated and sustained development to once undisturbed native lands surrounding the Station. As native plant communities of adjacent lands became increasingly scarce, recognition of the importance of the natural communities on the Station grew. Preservation of these plant communities became the intent of regional conservationists. This early (1970s) approach did not typically include intentionally disturbing native plant communities with prescribed burning. Thus, early fuel management at the former NAS Miramar paralleled the existing wildfire management approach of the times, fire suppression. As fewer natural fires were allowed to burn through the chaparral, coastal sage scrub, and grasslands on the Station, increasing fuel loads became more significant as a risk factor for catastrophic wildfires.

Efforts to reduce the older age class distribution of chaparral with prescribed fire have been successful, albeit limited in their extent. Since 1979, the Navy and the Marines have conducted prescribed burning of more than 2,000 acres on the Station (Table 4-2). This total includes some repeat burning of the same area in different years, so the actual prescribed burn footprint is smaller than 2,000 acres. In particular, many fuelbreaks are maintained annually by prescribed burn methods instead of hand clearing or mechanical treatments. The Navy and the Marines consider the prescribed burn method an important component of their fire management program. Past burns have closely followed all applicable regulations. All prescribed burns were planned and implemented by the MCAS (or former NAS) Miramar Fire Department in conjunction with the Station's Environmental Management Department, the San Diego Air Pollution Control District (APCD), and the National Weather Service. Prescribed burns and opportunistic wildfires had accomplished some of the ongoing fuel management objectives up until the large-scale Cedar Fire of 2003, when fuel loads throughout the majority of the Station were reduced by this major conflagration.

Table 4-2 Prescribed Burn History at MCAS Miramar

Date	Acres
1979	4
1981	68
1982	189
September 1982	7
November 1985	86
October 1986	223
June 1987	102
January 1989	268
1990	264
January 1990	17
February 1990	169
27 December 1995	138
30 December 1995	59
January 1996	96
August 1996	0.5
August 1998	22
28 May 2002	6
July 2002	13
June 2003	26
August 2003	18
June/July 2004	127
September 2004	18
April-June 2005	88
September 2005	3
May/June 2006	67
April/June 2007	51
May/June 2008	48
September 2008	23
Total Acres Prescribed Burned	2,200.5 acres

4.3.2 Fire Regimes

An understanding of the fire regime for an area is an important component of fire management. A fire regime refers to the intensity, frequency (interval between fires), season of burning, extent, spatial distribution (i.e., patchiness), duration, behavior, and type of fire (i.e., ground vs. crown fires) that affected the area burned (Brown and Smith 2000; Whelan 1995). Whelan (1995) notes the application of the term "fire regime" as follows:

The term fire regime is becoming widely used in the fire ecology literature, but it appears to be gaining two meanings. First, it is used as a description of a particular fire, or of a prescription to be applied to an area. In this sense, it

indicates that all the ecologically significant aspects of a fire are being considered. The second, more common use of the term is to summarize the characteristics of the fires that typically occur at a site.

Plants utilize many mechanisms for regeneration that have adapted to a specific fire regime. Characteristics about the fire regime will vary from fire to fire at a particular location and do not affect post-fire vegetation recovery significantly. However, plants differ in their ability to successfully regenerate when fire occurs too often, too infrequently, or at sensitive periods of seed or plant life cycles, compared to the fire regime that they are adapted to. Therefore, frequency, intensity, and timing of fire can critically influence vegetation recovery, leading to potentially long-term changes in vegetation and flammability (Zedler et al. 1983).

Frequency

On the Station, typical fire return intervals (the number of years between two successive fire events at a specific site) vary amongst vegetation types. In general, estimates of the typical fire frequency for coastal sage scrub and chaparral range from approximately 20 years to 100 years and are dependent on many factors (Keeley et al. 1989; Barro and Conard 1991; Minnich 1995; Conrad and Weise 1998).

Due to the semi-inland location of East Miramar, it is conjectured that a fire regime for chaparral of between 30 and 70 years may more closely resemble the typical fire frequency of the area (Barro and Conard 1991). However, this is based on limited research and should not be solely utilized in developing fire plans for the Station. Currently, the majority of East Miramar is composed of vegetation that is less than 10 years old. Pockets of vegetation were not consumed in the 2003 firestorm; however, the majority of East Miramar and parts of West Miramar did burn. Based on the fire history map for the Station, large areas that burned during the Cedar Fire had burned as recently as approximately 8 to 12 years prior to that major firestorm (Figure 4-2). This resulted in a relatively short fire return interval for portions of the Station.

Season

Seasonal changes in plant carbohydrate production, flowering, and other phenological stages of plant growth will affect vegetation recovery post-burn (Brown and Smith 2000). From an ecological perspective, the best time for a fire is late summer and fall. Coastal sage scrub, chaparral, and grasslands are more likely to burn during this period when the vegetation is dormant. Facultative resprouters, obligate seeders, and obligate resprouters are more likely to

recover during these seasons because of the lower soil moisture content, which, when elevated can "cook" the seed or below-ground burls (lignotuber tissue). From a fire management standpoint, the desirable season for burning would be the time when the burn objective and the ability to manage the prescribed fire safely can be maximized. If the objective is to reduce heavy fuels, as found in some chaparral stands, perhaps the burning should be done in the fall, after rains but before the fuels become saturated. The advantages of fall burning are that the brush is dormant, cooler days are likely, and the chance of rain is increasing.

Intensity

Fire intensity can change with stand age, season, fuel type, topography, and stand density. It affects resprouting potential (through damage to resprouting organs), the number of viable seeds after a fire, and soil nutrient status (Malanson and O'Leary 1985; Moreno and Oechel 1991, 1994; Keeley 1998). Despite the uncertainty in typical fire frequency, many researchers feel that lengthening natural fire intervals may result in larger and hotter fires than would normally occur. Extreme fire intensity may kill dormant buds and seeds, which may impact regeneration success (Zedler 1995).

Burn Severity

Burn severity is a measure of the degree of environmental change caused by fire. Fire intensity determines burn severity. Typically, burn severity is measured, rated, and coded in the field on organic substrate and vegetation (aboveground plant parts) following fire in grassland, brush or shrubland, woodland, and forest areas. Burn severity data collection provides a measure of the likely effect of the fire on the vegetation and fuels condition of burned areas; it can also identify unburned areas within the fire perimeter. Burn severity can be used to estimate post-fire erosion potential, predict the susceptibility of a burned area to invasion by nonnative species, and assess the post-fire vegetation and fuels condition. The National Park Service has developed methods for measuring burn severity [adapted from Conrad and Poulton (1966), Ryan and Noste (1985), and Bradley et al. (1992)] as part of their fire monitoring program. The National Park Service's burn severity monitoring protocols include indices for grasslands and brush or shrublands that are applicable to evaluating burn severity at MCAS Miramar.

4.3.3 Effects of Prescribed Burn Treatments

Occasional burning through prescribed fire treatments can result in many benefits for both plant communities and wildlife. However, in some instances burning may have adverse effects.

Effects on Plant Communities

Among the benefits of prescribed burn treatments, an important one is the development of a patchy mosaic of vegetation age classes with nonlinear boundaries. A mosaic pattern of vegetation creates multiple modifications to the plant communities affected. Fire removes dead material or fuel accumulation on the ground and at the base of plants. The result is a mosaic of areas with younger age class vegetation consisting of lighter fuel loads and thinner layers of partly decayed organic matter. Subsequent fires through vegetation with a mosaic of age classes are typically smaller, more patchy, and of lower intensity. Conversely, fires occurring in large, mono-aged plant communities with contiguous high fuel loading would have a higher potential to be hotter and of a larger scale.

Fuel load is a measure of the amount of available and potentially combustible material (vegetation), measured in tons per acre, in a given area. Many studies substantiate that fuel loading in areas that have not burned in many years is high. Typically, plants accumulate dead wood as mature stems decline and die, thus increasing the dead-to-live fuel ratio, or fuel load, over time. The accumulation of fuels does increase with time; however, the annual incremental increase can be highly irregular (Brown and Smith 2000). For chamise, which is a common component of chaparral within the Station and elsewhere, a strong correlation between the percentage of dead branch material and stand age in southern California has yet to be established. Also, the rate of biomass accumulation tends to level off with age; therefore, age is not necessarily a good predictor of fire intensity past a relatively young age (Zedler 1995). In addition, because of variability in site productivity and species composition, it cannot be said that every stand of chaparral of a certain age on the Station has similar fuel loads, or that these stands are more flammable than those of a younger age.

The amount of fuels varies widely depending on the vegetation type but, without exception, reductions in fuel loading reduce the heat output, flame length, and intensity of fire. Surveys conducted in 1994 on portions of the Station resulted in findings of high fuel loading within several survey plots (Eisele et al.). As noted previously, the extensive Cedar Fire of 2003 reduced the fuel loading throughout the majority of the Station, including the areas assessed in 1994; however, as vegetation recovers from the 2003 burn, fuel loading will increase and again present potentially high fire risk to the adjacent high-value areas.

The existing fuelbreaks on the Station, many with a 20-foot-wide fuel-free dirt road down the center, are an effective component of the fire management program. Fuel load reductions between the breaks are an important component of fire management also. The greater the fuel

buildup in these blocks of vegetation, the less effective the fuelbreak would be under any set of weather conditions. Therefore, the use of fuelbreaks, fireroads, and mechanical manipulation in conjunction with prescribed burning provides a well-balanced fire prevention system for the Station.

Another benefit of a mosaic pattern of vegetation is reduced erosion. Although erosion is a natural process, it is considered destructive in most instances involving resources such as topsoil, native habitat, water quality, and property, especially when erosion is accelerated by human activity. Erosion by wind, water, or gravity often increases following a fire, sometimes occurring for several years after burning (Wright and Bailey 1982). Despite the usual reduction in the amount of soil-holding ground cover following fire, prescribed burning and erosion control are compatible. Smaller burn areas, cooler fires, and less plant mortality associated with regular burning help retain the important root systems that provide structure to underlying soils. This minimizes soil loss, especially on steep slopes that can be vulnerable to erosion following fire (Krammes and Osborn 1969). Vegetation on the Station is generally adapted to fire, which minimizes the potential for complete removal of soil-stabilizing vegetation material and lessens the likelihood of increased erosion. Even so, high erosion rates can result when precipitation follows a fire.

While burning can produce benefits for some plant communities that are adapted to fire, it may also have negative effects. Vegetation type conversion may result from repeated fires at a site occurring within a time frame that does not allow native vegetation sufficient time to recover. In such a case, nondesirable species may proliferate and become the dominant plant type. On the Station, the existing shrub communities could be converted to annual grassland or possibly to invasive weed-dominated land, including more nonnative or exotic species of shrubs and other herbaceous plants. Vegetation type conversion may be largely influenced by the dominant shrub type in a plant community and also by the time of year that burning occurs. The presence of fuelbreaks and roads adjacent to and within chaparral stands provides ready sources of nonnative seeds and may increase the risk of weed invasion within the native plant communities on the Station (Keeley 2004).

Short intervals between fires may have negative effects on regeneration of nonsprouting species that do not have the opportunity to accumulate a sufficient seed reserve between fires, or that have exhausted all dormant buds and have not produced new buds prior to the next fire (Zedler 1995). For chaparral that has burned repeatedly at 10- to 20-year fire return intervals, there is a risk for type conversion depending on summer drought and individual site conditions (Haidinger and Keeley 1993; Keeley 1995; Zedler 1995; Jacobson et al. 2004). Coastal sage scrub shows

similar responses to decreasing fire intervals (Keeley and Keeley 1984; Hobbs 1983; Freudenberger et al. 1987). As such, no prescribed burns are proposed for areas on the Station that burned in the 2003 Cedar Fire during the planning timeframe of this WFMP (i.e., 2010-2015). As noted above, the vegetation on the Station has adapted to fire and research shows that vegetation types like chaparral are resilient to a fairly large range of fire frequencies (Barro and Conard 1991). However, more research may be necessary to determine the appropriate fire frequency for the Station.

Plants stressed through drought, disease, insect infestations, old age, or a combination of these factors are likely to be negatively impacted by burning regardless of how they would respond if healthy. Even plant communities that are adapted to low-frequency fires or those that are adapted to small, frequent, and lower-intensity fires may be negatively impacted by fire that is not typical to the fire regime.

Effects on Wildlife

Occasional fire fosters multiple successional stages and age classes of vegetation types that can benefit many species of wildlife, thereby maintaining overall ecological diversity (Smith 2000). Improved edge effects, water yields, nitrogen-fixing plant growth, and post-fire successional plant species are all important wildlife benefits from occasional small fires. Increases in plant nutrient density, earlier green-up, and an extended period of palatability are usual occurrences following fire (Brown 1989; Smith 2000), benefiting wildlife that use the plants for forage.

Habitat diversity is increased with multiple small, patchy or irregular burns, especially in areas with only one or a few communities all in relatively the same structural condition such as exists in much of East Miramar. Increased habitat diversity and resultant increases in edge effects make more niches available for wildlife use and are often considered good for species richness (Thomas et al. 1979; Anderson 1990; Smith 2000). This is not always the case, however, as increased fragmentation of habitat caused by maximizing edge can eliminate those species requiring larger tracts or that inhabit stand interiors (Reese and Ratti 1988; Smith 2000). In such a case, it may be critical to create linkage of habitat rather than small islands of habitat often resulting from prescribed burns.

In addition to the pattern of burning, fire frequency can have an important effect on wildlife. Wildlife may lose valuable vegetative cover and structure as well as some highly valued food items if burning is too frequent. Most animal species are not dependent on the individual plant species in their habitat as much as they are dependent on the structure and cover provided by that

habitat (Lawrence 1966). Germano and Lawhead (1986) found that the addition of a single structural element to a plant community can greatly enhance wildlife species diversity. Additionally, the loss or lack of a single structural component can eliminate some species and be as lethal as a direct mortality factor (Knopf et al. 1988; Smith 2000). The plant complexity associated with developing structural diversity is also significant, particularly when the richness of animal species is the objective (Germano and Lawhead 1986). This is important to remember when considering fire as a management tool. The differential effect fire has on wildlife is typically noted in realignment of species, as some species become favored over others as a result of changes in abundance of food and cover.

Since most animal species will readily use various successional stages for feeding but are more specific regarding cover, escape, or reproduction, it is critical to plan burns that will not eliminate large proportions of these habitat components. Structural components of habitat are generally developed through time. Because wildlife succession typically follows vegetation succession, some wildlife species can be displaced from an area if fire causes a type conversion. Short fire intervals tend to maintain or promote early successional conditions typified primarily by herbaceous species and comparatively limited structural diversity. Conversely, long fire intervals favor community development, normally resulting in greater horizontal and/or vertical structural diversity, but also increasing risk of larger wildfires.

The future needs and requirements of both plant and animal species should be considered while accomplishing fire management objectives. Objectives of prescribed fires should be integrated with overall land management objectives, addressing the potential for interaction among disturbances such as grazing, flood, windthrow, and predation. Regardless of the goals for management of vegetation with fire, wildlife habitat value must be considered strongly as a guiding factor.

Floral and Faunal Considerations for Prescribed Burn Treatments

The frequency, intensity, and timing of fire can critically influence vegetation recovery and establishment, leading to potentially long-term changes in vegetation type and flammability (Zedler et al. 1983). Many timing-related factors must be analyzed when determining when and where to prescribe fire. Among the many factors are the season of a prescribed burn, the number of years since the last fire in the area, presence or absence of endangered species or their habitat, pertinence of migratory bird regulations, and plant regeneration and seed germination requirements during and following fire. Many issues must be coordinated to meet regulations pertaining to prescribed fire and maximize the benefits to plant and animal communities. In

addition, chaparral and coastal sage scrub are distinctly different from each other in both composition and fire regimes. Consequently, different fire management plans should be developed for each.

The relatively small scale of the Station may not allow full implementation and realization of the factors discussed in this section. It is possible, for example, that attempting to create a patchy mosaic of habitat would render most or all remaining habitat unusable by the very species it was intended to benefit. Habitat patches could easily become too small and not suitable for supporting a sustainable population of a given species. The factors discussed in this section should be considered and incorporated, where feasible, into the decision-making process when determining the scope of prescribed burns on the Station.

4.3.4 Air Quality and Smoke Management

This section addresses the various issues related to smoke that is produced when vegetation on the Station is burned under controlled conditions. Controlled burns (prescribed burns) have been conducted periodically since the late 1970s on the Station to reduce the buildup of dead vegetation, lessen the wildfire hazard, and because fire is a natural component in this ecosystem. Concern about airborne pollutants and new regulations require that a smoke management plan be submitted to the APCD before vegetation management burns can take place.

In 1967 the Congress passed the Clean Air Act to protect the air resources and public health. The Act established National Ambient Air Quality Standards and gave the states primary responsibility for air quality management. Each state developed a State Implementation Plan, which describes how the state will meet the air quality standards. Land managers must be certain that their actions comply with federal, state, and local air pollution regulations.

The County of San Diego APCD is the local enforcement agency in place to ensure that air pollution standards are met in San Diego County. The APCD reports directly to the County of San Diego Board of Supervisors. The San Diego Air Basin includes much of San Diego County with the exception of areas to the east of the mountainous divide running roughly from Live Oak Springs in the south to Hot Springs Mountain in the north. The APCD is responsible for analyzing the meteorological conditions and declaring whether it is a permissive burn day in the San Diego Air Basin. It is important to realize that the APCD makes their determination based solely from the perspective of air quality and potential for impacts on public health. In contrast, the local fire agency (MCAS Miramar Fire Department on the Station) is responsible for determining if open burning can be performed in a safe and controlled manner. The CDF will

issue a no-burn proclamation for state responsibility areas when atmospheric conditions are conducive to the rapid spread of wildfires. Ultimately, the MCAS Miramar Fire Department will determine if a prescribed fire can be safely used and controlled on any proposed burn day. The MCAS Miramar Fire Department would have the authority to issue a permit and allow a prescribed burn to proceed even if CDF has declared it to be a no-burn day on state responsibility lands.

For a prescribed burn to be conducted, it is necessary that it be a permissive burn day as declared by both the APCD and the local fire agency. This is a point where there is sometimes confusion because both the APCD and the local fire agency can use similar terminology to declare no-burn days.

The APCD Smoke Management Program requirements are organized into three tiers based on the size of the prescribed burn and the projected tons of particulates that will be produced. The first tier includes requirements for burn projects that are between 10 and 100 acres in size or estimated to produce more than 1 ton of particulate matter. It is anticipated that most of the controlled burns being conducted on the Station will fit into this acreage category. The tier 1 requirements are as follows:

- Registration with the APCD of all planned burn projects.
- Description of location, types, and amounts of material to be burned.
- Expected duration of the fire from ignition to extinction.
- Identification of responsible personnel, including telephone contacts.
- Identification and location of all smoke sensitive areas.

The second regulatory tier includes those burn projects that are between 100 and 250 acres in size or are expected to produce more than 10 tons of particulate matter. Tier 2 burn projects require the items needed for tier 1 burns in addition to the following:

- Identification of meteorological conditions necessary for burning.
- Designation of smoke management criteria for making ignition decision.
- Projections, including a map, of where the smoke from burns are expected to travel, both day and night.

- Specification of contingency actions (suppression or containment) that will be taken if smoke impacts occur or meteorological conditions deviate from those specified in the smoke management plan.
- Evaluation of alternatives to burning considered; if an analysis of alternatives has been
 prepared as part of the environmental documentation required for the burn project pursuant to
 NEPA or the California Environmental Quality Act, as applicable, the analysis shall be
 attached to the smoke management plan in satisfaction of this requirement.

The third tier of requirements applies to prescribed fires larger than 250 acres or when the smoke may impact "smoke sensitive areas." The following is a list of requirements that must be met in addition to those needed in both tiers 1 and 2:

- If smoke sensitive areas may be impacted by the prescribed fire, then the smoke management plan will include appropriate monitoring, which may include visual monitoring, ambient particulate matter monitoring, or other monitoring approved by the APCD. Smoke monitoring is required for burn projects that are greater than 250 acres, projects that will continue burning or producing smoke overnight, or projects conducted near smoke sensitive areas; or as otherwise required by the APCD.
- For multi-day burns that may impact smoke sensitive areas, daily coordination will be conducted between the land manager or his/her designee and the APCD to affirm that the burn project remains within the conditions specified in the smoke management plan, or that contingency actions are necessary.
- The APCD must review and approve all smoke management plans and provide notice and consult with the California Air Resources Board on large or multi-day burns.
- The land manager or his/her designee conducting a prescribed burn will ensure that all conditions and requirements stated in the smoke management plan are met on the day of the burn event and prior to ignition.
- A post-burn smoke management evaluation by the burner will be prepared for fires greater than 250 acres.
- Procedures will be developed for public notification and education. These will include appropriate signage at burn sites, and reporting of all smoke complaints made by the public.

- When feasible, and considering fire safety and other factors, prescribed fire will be conducted when vegetation is in a condition that will minimize the smoke emitted during combustion.
- All material to be burned must be piled unless silvicultural practices or ecological goals dictate otherwise.
- Material to be burned shall be piled in a manner that will minimize smoke when burned.
- If the prescribed burn will be conducted primarily for improvement of land for wildlife and game habitat, then the permit applicant will file with the APCD a statement from the California Department of Fish and Game (CDFG) certifying that the burn is desirable and proper. CDFG may specify the amount of brush treatment required, along with any other conditions deemed appropriate.

"Smoke sensitive areas" are defined as populated areas and other areas where a district determines that smoke and air pollution can adversely affect public health and welfare. Such areas can include, but are not limited to, towns and villages, campgrounds, trails, populated recreational areas, hospitals, nursing homes, schools, roads, airports, public events, shopping centers, and mandatory Class I areas. From this definition it is apparent that the Station is itself a "smoke sensitive area" surrounded by numerous communities that would also be considered "smoke sensitive areas." A Class I area is a mandatory visibility protection area designated under the federal Clean Air Act. The only area designated as Class I within San Diego County is the Agua Tibia Wilderness Area on the north side of the Palomar Mountain range.

4.3.5 Prescribed Fire Planning and Approval

A Prescribed Fire Burn Plan will be prepared for all prescribed fires planned within the Station. The Prescribed Fire Burn Plan is a stand-alone document that provides the Prescribed Fire Burn Boss all the information needed to implement the project. Prescribed fire projects must be implemented in compliance with the written plan. The MCAS Miramar Fire Department has prepared a format for preparing a Prescribed Fire Burn Plan; all elements of the format must be completed.

All prescribed burns within the Station must comply with the following policy:

1. The safety of firefighters and the public is the number one priority when planning and implementing fuels treatment projects.

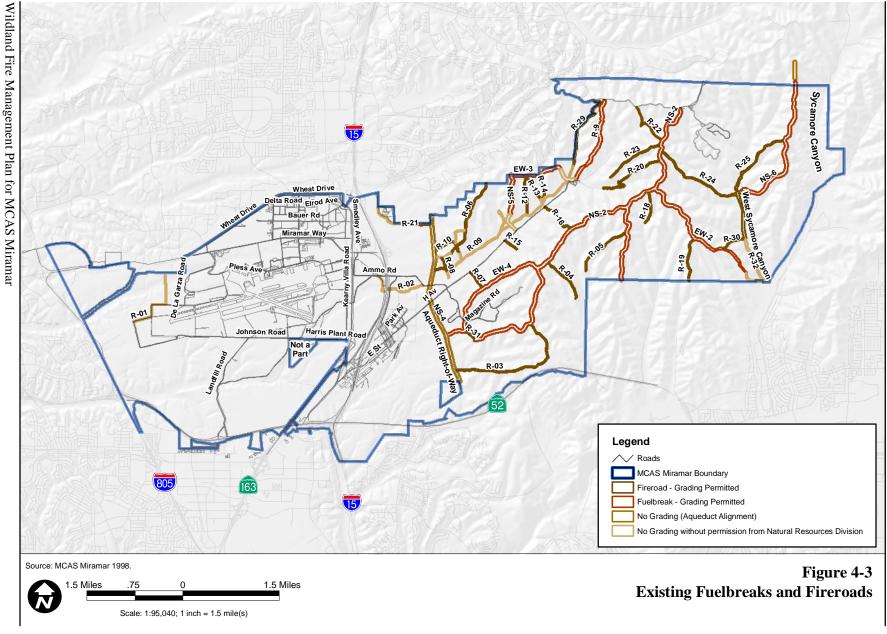
- 2. All prescribed fire projects will have an approved prescribed burn plan prior to ignition.
- 3. All prescribed fire plans will contain measurable objectives, a predetermined prescription, and an escaped fire contingency plan.
- 4. All prescribed fire plans will contain the required elements outlined in the agency-prescribed fire guide.
- 5. All fuels treatment projects will be in compliance with NEPA requirements.
- 6. All fuels management projects will be tracked and progress reported to include elements of cost, fuel load removal and reduction in tons per acre, treatment method used, man-power utilization, and identification of impediments to project completion.
- 7. All fuels treatment projects will be monitored to determine if treatment objectives were met and evaluation reports completed and maintained in a project file.
- 8. All fuels treatment projects will support resource management objectives set forth in the MCAS Miramar INRMP.

4.4 FUELBREAKS AND FIREROADS

The existing system of fuelbreaks and fireroads within the Station is an important component of fire management. Currently, there are 9 fuelbreaks and 29 fireroads that comprise approximately 20 and 29 miles of large-scale fire prevention, respectively (Figure 4-3) (see also Appendix B). Fuelbreaks are described below. Additional fireroads (i.e., roads used primarily for wildland fire management within the Station) are described in Section 4.4.2.

4.4.1 Fuelbreaks

Fire management on the Station has been dominated by an extensive system of fuelbreaks and limited prescribed fire. A fuelbreak is a strategically located wide block, or strip, of land on which a cover of dense, heavy, or flammable vegetation has been permanently changed to one of lower fuel volume or reduced flammability as an aid to fire control. The location and maintenance of the fuelbreaks were not standardized until 1992. Prior to that standardization, more than 50 fuelbreaks many miles long were managed at various times. For example, in the late 1970s, fuelbreaks were located somewhat serendipitously and often were created in locations that were not consistent with sound wildfire management practices. Examples of fuelbreaks located with no strategic advantage include those along the tops of spur ridges and paralleling typical fire spread routes, providing little measurable large-scale fire-spread prevention.



The Navy attempted to rectify this situation, but due to terminology errors and lack of monitoring, the fuelbreaks more closely resembled firebreaks (definitions of fire terminology used in this report are included as a glossary, see Appendix C), a fire management feature that is currently prohibited on the Station. Maintenance of the fuelbreaks was often conducted by Navy heavy equipment operators who had little or no training regarding the proper care of fuelbreaks. This created multiple, unsightly, bare-ground swaths of fire protection that were, in many cases, not necessary for the protection of life and property and were actually increasing erosion from hillside slopes. A Fuelbreak Management Plan for NAS Miramar was prepared in 1992 to rehabilitate unnecessary fuelbreaks, standardize the terminology for fuelbreaks and firebreaks, and maximize protection of life and property while minimizing impacts to the environment. Until 1998, all fuelbreak maintenance was the responsibility of the Navy.

The MCAS Miramar Fire Department is responsible for planning and implementing the maintenance of fuelbreaks in coordination with the Station Public Works Department and the Environmental Management Department. The 1992 Fuelbreak Maintenance Plan was updated in 2003 to address changes that occurred in the intervening years. Those changes include the realignment of the Station to the Marine Corps, which created new fire management needs, additional development adjacent to the Station, and new natural resource issues. The 2003 update also provides standard operating procedures (SOPs) to guide individuals who conduct and manage fuelbreak maintenance. Current standards call for a 120-foot-wide fuelbreak wherein the vegetation is maintained at a height of 1 foot using a variety of maintenance methods, e.g., bulldozer tracking, mowing with a brush hog, prescribed burns, chemical treatments, etc. A 20-foot-wide fireroad is maintained in the center of the fuelbreak (i.e., 50 feet of short vegetation on each side of the fireroad). Fuelbreaks are managed to maintain sparse, low-growing vegetation, which minimizes the potential non-point source water pollution impacts in compliance with the Best Management Practices of the National Pollutant Discharge Elimination System Permit CAS000001 and the associated Storm Water Pollution Prevention Plan. Fireroads, on the other hand, are scraped to bare soil annually and have the potential to result in greater non-point source water pollution impacts.

The SOP included in the maintenance plan was developed to provide the MCAS Miramar Fire Department and heavy equipment operators with detailed instruction for annual maintenance of fireroads and fuelbreaks. Proper fuelbreak and fireroad maintenance is necessary to maintain a stable, smooth running surface and retain proper drainage. Several fuelbreaks are located within or adjacent to natural resource areas with wetlands and/or endangered species that could be affected by maintenance activities. The fireroad/fuelbreak SOP outlines how maintenance must occur in these areas to avoid impacting the natural resources. Detailed maps are provided in the

SOP that show the location of all fireroads and fuelbreaks, topography, and natural resource areas of concern.

The main purpose of a fuelbreak and fireroad system is to break up continuous natural vegetation to aid in confining fires to protect communities, military facilities, recreation areas, or other high value areas. The design of the system provides strategically located control lines that can be safely manned by the MCAS Miramar Fire Department and effectively held under a wide range of burning conditions. These potential control lines are located within a wide strip (a fuelbreak) on which a permanent, stable cover of low fuel has been established. Fuelbreaks support low-growing and low-volume vegetation that helps to reduce erosion while providing a safe place for firefighters to make a stand.

Fuelbreaks alone are not intended to stop the head of a hot, fast-moving fire. Fuelbreaks are only effective when coupled with appropriate fire suppression capabilities and a strategic fire management plan. Fuelbreaks aid in controlling wildfires burning under conditions that hinder control efforts in unbroken fuels on steep terrain. Wildfires burning under adverse weather conditions quickly overrun preconstructed breaks, often regardless of the width of a break. Prepared breaks, however, help stop the lateral spread of fire and make it possible for firefighters to confine fires and reduce the burned acreage, suppression costs and resource damage.

Maintenance of fuelbreaks may begin when road surfaces are dry and the threat of seasonal rains is past and/or long enough after the winter rains that the ground is dry enough to permit the operation of heavy equipment. Fuelbreaks on slopes greater than 10 percent should have waterbars constructed on them to divert accumulated water. Waterbar construction must be observed by the Environmental Management Department to provide technical assistance to the bulldozer operators. Occasional small isolated bushes within the fuelbreaks should be left in place. Cutting or mowing operations will leave vegetation approximately 1 foot high. These bushes are of no fire concern, control erosion, benefit wildlife using the fuelbreaks, and are aesthetically pleasing.

Mechanical manipulation, controlled burns, or herbicides are several management options that can be used to maintain the 50-foot-wide zone of light fuel separating the road and the existing vegetation. To maintain a low volume (approximately 1 foot in height) ground cover, the following operations are currently used:

- **Mowing** using an industrial brushcutter to cut or "mow" vegetation.
- **Mechanical treatment** an alternate method employing a bulldozer to drive over and crush vegetation in place where slope and terrain preclude the use of the brushcutter.

- **Prescribed burning** controlled burns used to burn off strips of vegetation to reduce the fuel volume on fuelbreaks. Fire retardant foam or handlines can be used along the edges of the fuelbreaks to prevent fires from escaping into the wildland areas. This method has minimal impact on soil surface and plant root structure and may aid in reducing soil erosion.
- Chemical treatment chemical spraying of shrub sprouts and seedlings. Herbicides can then be used to control any regrowth that develops while shrubs are still small. This method has minimal impact to soils. Treatment shall be coordinated with Natural Resources Staff of Miramar Environmental Management Department to avoid adverse effects to cultural and natural resources.

In grading the road in the middle of the fuelbreak, the road is to be graded but not separated from the fuelbreak. The zone from the fireroad (a 20-foot mineral soil road) to the fuelbreak (50 feet of light fuel) should be a smooth transition with no berm at the edge of the road. The high point of the road should generally be in the center.

Waterbars are effective in diverting accumulated water from the road surfaces into the vegetation. These are shallow, abrupt excavated dips built at an angle across the road. The Environmental Management Department will provide technical assistance with the construction of waterbars. Waterbars should be constructed prior to the beginning of the rainy season because traffic easily cuts through the soft berm and fills the adjacent dip.

4.4.2 Fireroads

In addition to the fireroads that are located in the center of fuelbreaks, there are 29 roads used primarily for fire management activities that require annual or semiannual maintenance to maintain safe driving conditions. Fireroads are graded consistent with the annual fuelbreak and fireroad maintenance plan using a road grader to a width of 15 feet. A poorly maintained road surface will channel water, reduce road life, and increase erosion and sediment pollution to streams. Also, it may be difficult or hazardous to drive on and may damage vehicles and equipment. The fireroads that are maintained are described in Appendix B.

4.5 EMERGENCY REHABILITATION AND RESTORATION

Following a wildfire, the site and surrounding area would be surveyed for damage intensity and size, plant community, erosion, soil type, endangered/threatened plant locations, and weed community. Restoration activities would be adjusted according to the site survey and would include:

- Mark endangered/threatened plant locations.
- Address any Endangered Species Act Section 7 consultation requirements.
- Identify possible erosion areas and assess appropriate methods of control.
- Identify vegetation recovery needs.
- Identify appropriate funding.

Technical support provided by Environmental Management Division, Natural Resources Division would include:

- Establish success criteria.
- Assist with erosion control efforts before the fall/winter rains.
- Develop plant list for affected area.
- Facilitate orders for seeds, plants, mulch, and erosion control items.
- Guide seasonal planting and mulch application schedule, if needed.
- Develop additional watering schedules.
- Develop weed control plan.
- Monitor restoration for success.
- Coordinate any remedial effects.

CHAPTER 5.0 ORGANIZATIONAL STRUCTURE

The current organizational structure of the MCAS Miramar Fire Department is presented in a chart included in Appendix I. Also included in Appendix I is a chart depicting proposed changes to the organizational structure, and information on the anticipated changes in the total number of personnel.

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CHAPTER 6.0 MONITORING AND EVALUATION

Annual monitoring and reporting of fires and fire management activities are required. The required types of monitoring and reporting are summarized below.

- All fuels treatment projects will be monitored to determine if treatment objectives are met.
 Post-burn evaluations will document burn-day conditions, fire behavior, smoke dispersal, first order fire effects, and costs per acre of treatments.
- Post-burn reporting elements are outlined in the MCAS Miramar Fire Department Prescribed
 Fire Burn Plan and will be completed by the Prescribed Burn Boss following the burn
 project.
- An annual AAR will be published following the prescribed fire season (April-June) to document acres treated, costs, staffing requirements, operations, safety, and recommendations for future actions.
- Acres treated with prescribed fire will be documented on the MCAS Miramar Fire Department Prescribed Fire Incident Report and archived by the Fire Dispatch Office.
- Wildfire incidents will be documented on the MCAS Miramar Fire Department Wildland Fire Incident Report and archived by the Fire Dispatch Office.
- Acres treated mechanically will be documented in the AAR report.
- Fuels treatment project sites will be surveyed and evaluated within the framework of the National Park Service *Fire Effects Monitoring Handbook*. This methodology will provide general guidelines to field monitoring but will not supersede monitoring methods or requirements recommended in the MCAS Miramar INRMP.
- Fire Effects Monitoring may include Implementation Monitoring, Validation Monitoring, Effectiveness Monitoring, and Biological Monitoring.
- Burn areas resulting from wildfires occurring on-Station may be evaluated and monitored to assess impacts on cultural and natural resources.
- A fire history map and database will be maintained.
- All wildland fire incidents and prescribed fires will be reported to the National Fire and Aviation Management Web Applications Situation Report.

•		Miramar or program		nent's	Fire	&	Fuels	Management	Officer	will	be

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APPENDIX A FIRE MANAGEMENT ACTIVITY CONSERVATION MEASURES

Fire Management Activity Conservation Measures

No.	Conservation Measure					
General	Measures					
1	Keep vehicles on existing approved access roads. Turn vehicles around only in designated areas.					
	Potential hydrologic impacts will be minimized through the use of best management practices such as					
	water bars, silt fences, mulching, and other measures as needed for areas newly disturbed by fire					
2	management activities. These measures will be designed to minimize ponding; eliminate flood hazards;					
	and avoid erosion and siltation into any creeks, streams, or other bodies of water.					
	The MCAS Miramar Fire Department will comply with applicable environmental laws and regulations					
3	including, but not limited to, those regulating and protecting air quality, water quality, and sensitive					
	biological and cultural resources.					
_	When planning all fire management activities, the MCAS Miramar NEPA Checklist and Sensitive					
4	Resources Map will be reviewed to avoid impacts to natural and cultural resources.					
	Fire management activities undertaken during the initial implementation period of the WFMP will be					
_	designed and conducted in manners that will avoid potential adverse effects to listed species. This will be					
5	accomplished through close coordination between the Miramar Fire Department and Environmental					
	Management Department.					
	Fire management activities undertaken during the initial implementation period of the WFMP will be					
	conducted in manners that will avoid potential discharges of fill into waters regulated under the Clean Water					
6	Act. In particular, vegetation cut from and immediately adjacent to federal jurisdictional waters will be					
U	removed for disposal at an appropriate upland site. This will be accomplished through close coordination					
	between the Miramar Fire Department and Environmental Management Department.					
	All MCAS Miramar Fire Department fire crews will obtain training to learn about the established					
7	protocols and measures necessary to avoid and minimize impacts to sensitive natural and cultural					
,	resources during fire management activities.					
	Prior to conducting fire management activities, the boundaries of sensitive vegetation communities, plant					
	populations, cultural resources, and other resources will be identified, and marked in the field as					
8	determined necessary by Miramar Fire Department and Environmental Management Department. Where					
0						
	necessary, a specialist will be present to monitor the work to ensure impacts to sensitive resources are avoided.					
9	No wildlife, including rattlesnakes, will be harmed except to prevent serious injury or death.					
,	Hazardous materials will not be disposed of or released onto the ground, into underlying groundwater, or					
	into any surface water. If abandoned hazardous waste is encountered due to implementation of fire					
10	management activities, Waste Management Division would be contacted for disposal instructions (858)					
	577-1108.					
	Fuelbreak and Fire Road Maintenance will be conducted in accordance with the existing Standard					
	Operating Procedure (SOP) that is reviewed and updated annually by the Miramar Fire Department,					
11	Facilities Maintenance, and Environmental Management Department. This SOP contains site-specific					
Emorgo	conservation and environmental protection measures that are implemented during maintenance activities. ncy Responses					
Linergel	MIST fire suppression tactics will be applied when possible, including in riparian areas, to minimize					
12	impacts to sensitive species.					
	<u> </u>					
	During emergency responses, MIST will be followed to the fullest extent practicable. Once the emergency					
13	has been abated, unavoidable impacts to regulated resources will be reported to the U.S. Army Corps of					
	Engineers (USACE), U.S. Fish and Wildlife Service (USFWS), Regional Water Quality Control Board					
Colla II	(RWQCB), State Historic Preservation Officer (SHPO), and/or other applicable regulatory agencies. Soils, Hydrology, and Water Quality					
Sons, Hy						
14	Fire management activities involving disturbance of soils will be scheduled to avoid the rainy season					
	when feasible.					
15	Vegetation-clearing activities to reduce fuel loads and create fuel modification zones would not involve					
	the complete removal of plants, but would leave root systems intact.					
16	The area of ground disturbance will be limited to the approved fire management activity area.					
17	Excavations, if needed, will be backfilled with original and surrounding soil.					

No.	Conservation Measure
	al Resources – Listed Invertebrate Species
	Where San Diego fairy shrimp and/or Riverside fairy shrimp occur within a specific management unit, the
18	specific action will be designed to avoid effects to the species.
Biologic	al Resources – Listed and MBTA-Protected Avian Species
	Where least Bell's vireo occurs within a specific management unit, the specific action will be designed to
	avoid effects to the species. Fire management activities will not alter habitat documented as having been
19	used as breeding territories and activities that would cause disturbance at breeding territories would not be
	implemented during the breeding season (March 15 through August 31), unless protocol-level surveys by
	a qualified biologist have determined that the species is not present.
	Where coastal California gnatcatcher occurs within a specific management unit, the specific action will be
	designed to avoid effects to the species. Maintenance activities will not alter habitat documented as having
20	been used by breeding gnatcatchers following the 2003 Cedar Fire and activities that would cause
20	disturbance at breeding territories would not be implemented during the breeding season (February 15
	through August 31), unless protocol-level surveys by a qualified biologist have determined this species is
	not present.
21	Fire management activities occurring during the bird nesting season will avoid damage or destruction to
21	any active bird nests encountered. A 25-foot buffer zone around any active nests encountered will
D' l '	subsequently be maintained until after the nesting activities have been completed for the year.
Biologic	al Resources – Sensitive Habitats and Listed Plant Species
22	Tree removal debris will be disposed of at the Miramar Landfill Green Waste Recycling Facility or a
22	designated location on MCAS Miramar that is not sensitive habitat or regulated area.
23	Treatments will be conducted in a manner to reduce fuel and avoid habitat type conversion.
	If fire management activities must occur within areas supporting listed plants (Del Mar manzanita, San Diago button colory, enroding payerratic willows managed less San Diago mass mint, and California
	Diego button celery, spreading navarretia, willowy monardella, San Diego mesa mint, and California
	orcutt grass), the boundaries of the listed plant populations will be identified, and marked in the field as determined necessary by Miramar Fire Department and Environmental Management Department. Where
	necessary, a specialist will be present to monitor the work to ensure impacts to listed plants are avoided.
	Also where determined necessary by Miramar Fire Department and Environmental Management
	Department, measures to protect individuals/populations of listed plant species may include pre-treatment of
24	adjacent areas to create a buffer around the sensitive resource. Pre-treatment of fuels within the buffer area
	may be accomplished by hand clearing; focused burning (i.e., creation of a "black line"); or use of an
	environmentally approved foam application to retard fire spread into the sensitive area. Additionally, the
	provision that a water source must be available (from engine hoses or portable water packs) near
	individuals/populations at risk from potential fire spread during prescribed burning would be enforced. The
	appropriate approach to protect federally listed plant species is location-specific and would be addressed in
	the prescribed burn plan for the area.
25	Within vernal pool watersheds, only hand clearing of above-ground vegetation will be conducted; no
25	disturbance will occur within the vernal pool basin.
	If fire management activities must occur within sensitive vegetation areas that are unoccupied by listed
26	species, such as riparian or coastal sage scrub vegetation communities, mitigation will be required as
	designated in the MCAS Miramar INRMP (see Tables 6.2.2.1a and 6.2.2.1b).
Cultura	Resources
	Disturbance of known cultural resources will be avoided. If avoidance is not possible, then the
	"undertaking" involved will require Section 106 National Historic Preservation Act consultation with the
	California Office of Historic Preservation (OHP), Indian tribes, and other interested parties prior to
27	execution. Resource(s) not already evaluated for eligibility for listing on the National Register of Historic
	Places (NRHP) will be evaluated by a qualified archaeologist for eligibility. If resources are found to be
	eligible for the NRHP, then mitigation in compliance with a Historic Properties Treatment Plan will be
	required in consultation with the OHP.
28	Where existing roads cross cultural resources, no grading or equipment work will be authorized in native
	soil. Necessary repairs will be completed by adding new material to the existing roadbed. Only hand
	clearing of vegetation will be conducted within locations of known cultural resources. If previously unidentified cultural resources are revealed during fire management activities, then further
29	activity that may affect the resource will be stopped until MCAS Miramar can have a qualified
	activity that may affect the resource will be stopped until MCAS Milania can have a qualified

No.	Conservation Measure
	archaeologist evaluate the resource relative to eligibility for the HRHP and a discovery can be coordinated
	with the SHPO. Procedures specified in the MCAS Miramar Integrated Cultural Resources Management
	Plan for "Inadvertent Discovery" will be implemented. Potential adverse effects will be resolved through
	the consultation process required under 36 CFR 800.
Air Qua	lity
30	All prescribed burns will be conducted in compliance with the APCD Smoke Management Program.
31	A Prescribed Burn Plan will be prepared for all prescribed fires planned within the Station.
	Visible dust plumes will be confined to the local work area. In case of high winds, work should be
32	stopped, or the areas being worked on should be watered as frequently as necessary to prevent dust from
	traveling beyond the bounds of the work site.
Traffic :	and Transportation
33	Traffic control will be implemented for fire management activities that encroach on a public roadway.

APPENDIX B

FIREROAD/FUELBREAK MAINTENANCE PLAN AND STANDARD OPERATING PROCEDURES MARINE CORPS AIR STATION MIRAMAR

EAST MIRAMAR FIREROADS & FUELBREAKS MAINTENANCE PLAN

MIRAMAR FIRE DEPARTMENT



Rx Burning on Fuelbreak NS-6

FIREROAD/FUELBREAK MAINTENANCE PLAN AND STANDARD OPERATING PROCEDURES

MARINE CORPS AIR STATION MIRAMAR

Proposed by Miramar Fire Department

Approved: Fire Chief Jerry Sack

Technical Review: Paul Tompkins; Assistant Fire Chief JoEllen Kassebaum; Environmental Management Department

January 2009

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Attachment C: Fuelbreak/Fireroad Maintenance Checklist

EXECUTIVE SUMMARY

This revised fuelbreak/fireroad management plan updates the previous management plans and includes a detailed Standard Operating Procedure (Appendix 1) for maintenance of fuelbreaks and fireroads on Marine Corps Air Station (MCAS) Miramar.

Prior to 1992, practices for locating and maintaining fuelbreaks at MCAS Miramar had not been standardized, and consequently, more breaks were constructed than necessary for the protection of life and property. In 1982 the Public Works Department Instruction (PWDINST) 11000.1 NAS Miramar Fuelbreak System; Establishment and Maintenance of, intended to standardize fuelbreak maintenance procedures to provide efficient fire protection, cost-effective maintenance of fuelbreaks, and to minimize the environmental impacts of the breaks. This instruction established the existence of ten major fuelbreaks for adequate fire protection at the Naval Air Station (NAS) Miramar. No other fuelbreaks were to be authorized or permitted except in an emergency. The 1992 Fuelbreak Management Plan (NAS Miramar 1992) reevaluated the existing fuelbreaks, to include the removal and revegetation of some fuelbreaks and provided instructions on how to maintain and manage fuelbreaks. Using the data from the BEHAVE fire modeling program, the 1992 fire management plan implemented a 120-foot wide fuelbreak that has a 20-foot firebreak road in the center and 100-foot (50 feet on each side) of short vegetation.

The Fireroad/fuelbreak Maintenance Plan developed here updates the 1992 management plan. This maintenance plan incorporates new information about sensitive natural resources and more details about proper maintenance of fireroads and fuelbreaks. The Station maintains approximately 29 miles of fireroads and 20 miles of fuelbreaks. In the past, fuelbreaks were maintained annually by mechanically crushing the vegetation using bulldozers. Current standards (as of 2002) call for the vegetation to be cut (or mowed) using an industrial brush cutter attached to a rubber-tread tracked vehicle. A fireroad is maintained annually in the center of the fuelbreak that serves as both a road and a firebreak. Roads are maintained on a two-year rotational cycle unless a particular road needs attention because of erosion.

The Standard Operating Procedure (SOP) included in the maintenance plan was developed to provide the Fire Department and heavy equipment operators with detailed instruction for annual maintenance of fireroads and fuelbreaks. Proper fuelbreak and fireroad maintenance is necessary to maintain a stable, smooth running surface and retain proper drainage. Fireroads are graded to bare mineral soil using a road grader to a width of 15 feet. Fuelbreaks are maintained with a 20-foot-wide fireroad in the center and a 50-foot wide low growing fuel on both sides of the road. Several fuelbreaks are located within or adjacent to natural resource areas with wetlands and/or endangered species that could be affected by maintenance activities. This SOP outlines how maintenance must occur in these areas to avoid impacting the natural resources. Detailed maps

are provided in the SOP that shows the location of all fireroads and fuelbreaks, topography, and natural resource areas of concern.

1.0 INTRODUCTION

1.1 Background

In the late seventies practices for locating and maintaining fuelbreaks on then NAS Miramar had not been standardized, and consequently, more firebreaks were constructed than necessary for the protection of life and property. The PWDINST 11000.1 attempted to standardize fuelbreak maintenance procedures and provide efficient fire protection, cost effective maintenance of fuelbreaks, and minimize environmental impacts. Unfortunately, the definition of a fuelbreak was inaccurate and the instruction was not monitored, thus the fuelbreak system on what was then NAS Miramar, was covering more area than necessary for effective fire management.

To remedy the situation, a Fuelbreak Management Plan (NAS Miramar 1992) was prepared in 1992 that documented the historical fuelbreak management on the Station and designed the current fuelbreak and fireroad system that exists on MCAS Miramar. Fuelbreak maintenance on MCAS Miramar has followed the guidelines within that document since it was implemented.

This document updates the 1992 management plan to address changes since it was developed. Some changes since the original plan include the realignment to a Marine Corps installation creating new fire management needs, development adjacent to the Station, and new natural resource issues. This document also provides an SOP (Appendix 1) to guide individuals conducting and managing fuelbreak maintenance. Any new fuelbreaks or fireroads will be added to this plan and maintained in accordance with the guidelines presented here.

1.2 Purpose of Fuelbreaks

The main purpose of a fuelbreak/fireroad system is to break-up continuous natural vegetation to aid in confining fires to protect communities, military facilities, recreation areas, or other high value areas. The design of the system provides strategically located control lines that can be safely manned by the fire department and effectively held under a wide range of burning conditions. These potential control lines are located within a wide strip (a fuelbreak) on which a permanent, stable cover of low fuel has been established. Fuelbreaks support low growing and low volume vegetation that helps to reduce erosion while providing a safe place for fire fighters to make a stand.

Fuelbreaks alone are not intended to stop the head of a hot, fast-moving fire. Fuelbreaks are only effective if they coincide with Miramar's fire suppression capabilities and strategic fire management plan. Fuelbreaks aid in controlling wildfires burning under conditions that hinder control efforts in unbroken fuels on steep terrain. Wildfires burning under adverse weather conditions quickly overrun preconstructed breaks often regardless of the width of a break. Prepared breaks, however, help stop the lateral spread of fire and makes it possible for firefighters to confine fires, reducing the burned acreage, suppressing costs and resource damage.

Fireroads and fuelbreaks are a major source of erosion and sedimentation on MCAS Miramar. Road surfaces increase the rate of runoff and can transport sediment into nearby stream channels. Most of the soils in East Miramar are rated as having severe erodibility (Kellogg 1991). Thus, the fireroads and fuelbreaks must be maintained to minimize soil erosion. Minimizing erosion is accomplished by maintaining a low fuel, low volume layer approximately 1 foot in height of vegetation on the fuelbreaks. This maintains the root structure that holds that soil together and prevents erosion. The greater the amount of vegetative cover on the soil surface, the lower the chances of erosion occurring while providing a barrier to fire. Bare soils lacking a vegetative cover are susceptible to the eroding forces of wind and rain creating rills and gullies. Subsequently, deposits of valuable topsoil sediments flow into drainages, reservoirs, and other areas which decreases water quality. Vegetation reduces erosion by reducing raindrop impact, water flow velocities, increases infiltration, and channeling.

2.0 RESPONSIBILITIES

The implementation of the Fuelbreak Maintenance Plan is the responsibility of the MCAS Miramar Fire Department. The Environmental Management Department provides technical assistance to the Fire Department with regard to environmental impacts and regulatory compliance of maintenance work. The Fire Department and Environmental Management Department also coordinate with the Facilities Maintenance Division on projects and maintenance to be conducted regarding fuelbreak development and design.

3.0 EXISTING CONDITIONS

The 1992 Fuelbreak Management Plan evaluated the existing firebreaks and fireroads and developed a consistent program for fuelbreak management that continues to be successful in protecting "high value" resources from fire and in containing fires within the Station boundary.

3.1 Fuelbreaks

The 1992 Fuelbreak Management Plan identified nine fuelbreaks as being essential for fire protection on the Station (Appendix 1, Attachment A). Using data from the BEHAVE fire modeling program, the 1992 fire management plan implemented a 120-foot-wide fuelbreak that has a 20-foot firebreak road in the center and 100-foot (50 feet on each side) of short vegetation, typically grasses. The fuelbreaks are maintained on an annual basis using prescribed burning, dozer tracking, and an industrial brushcutter (2002). Road surfaces are graded using a road grader. However, road surfaces should only be graded when needed to maintain a stable, smooth running surface and to retain the original drainage. Maintenance of fuelbreaks may begin when road surfaces are dry and threat of seasonal rains is past and/or long enough after the winter rains that the ground is dry enough to permit the operation of heavy equipment. Roads that occur in areas with coastal California gnatcatcher are graded after the August 30 to avoid disturbing the birds. Fuelbreaks on slopes greater than 10% should have waterbars constructed on them to divert accumulated water. Waterbar construction must be observed by the Natural Resources Division to provide technical assistance to the bulldozer operators. Occasional small isolated bushes within the fuelbreaks should be left in place. Cutting or mowing operations will leave vegetation approximately 1-foot high. These bushes are of no fire concern and have the benefit of controlling erosion, benefiting wildlife using the fuelbreaks, and are aesthetically pleasing.

Mechanical manipulation, controlled burns, or herbicides are several management options that can be used to maintain the 50-foot layer of light fuel separating the road and the existing vegetation. To maintain a low volume (approximately 1 foot in height) ground cover the following operations are currently used (2004):

- 1) *Mechanical treatment* using an industrial brushcutter to cut or "mow" vegetation. An alternate method may employ a dozer to drive over and crush vegetation in place where slope and terrain preclude the use of the brushcutter.
- 2) Prescribed burning controlled burns can be used to burn off strips of vegetation to reduce the fuel volume on fuelbreaks. Fire retardant foam or handlines can be used along the edges of the fuelbreaks to prevent fires escaping into the wildland areas. This method has minimal impact on soil surface and plant root structure and may aid in reducing soil erosion.
- 3) *Chemical treatment* chemical spraying of shrub sprouts and seedlings. Herbicides can then be used to control any regrowth that develops while shrubs are still small. Minimal impact to soils.

In grading the road in the middle of the fuelbreak, the road is to be graded but not separated from the fuelbreak. The zone from the firebreak (a 20-foot mineral soil road) to the fuelbreak (50 feet of light fuel) should be a smooth transition with no berm at the edge of the road. The high point of the road should generally be in the center.

Waterbars are effective in diverting accumulated water from the road surfaces into the vegetation. These are shallow, abrupt excavated dips built at an angle across the road. The Natural Resources Division will provide technical assistance with the construction of waterbars. Waterbars should be constructed prior to the beginning of the rainy season because traffic easily cuts through the soft berm and fills the adjacent dip.

3.2 Fireroads

The 1992 Fuelbreak Management Plan identified 28 roads that require annual or semiannual maintenance to maintain safe driving conditions. A poorly maintained road surface will channel water, reduce road life and increase erosion and sediment pollution to streams. Also, it may be difficult or hazardous to drive on and damage vehicles and equipment. The fireroads to be maintained are described in (SOP) for Fuelbreak/Fireroad Maintenance (Appendix 1, Attachment B).

4.0 ENVIRONMENTAL CONSIDERATIONS

- a. Wetlands. Wetlands are found throughout the Station but are typically found in valley bottoms and are characterized by soil types, hydrology, and specific vegetation. Their distribution is not limited to "wet" areas. Many wetlands on Miramar have no water during the dry parts of the year. Activities in wetlands involving soil disturbance may require a permit, and impacts to wetlands supporting threatened or endangered species will require special consultation and approval.
- b. <u>Vernal Pools</u>. Vernal pools are wetlands usually holding water for only one to four months during late winter and spring, and are known to occur in the area west of the aqueduct right-of-way on MCAS Miramar. Vernal pool watersheds on MCAS Miramar are habitat for five federally listed endangered species (e.g. San Diego mesa mint) and one threatened species.
- c. <u>California gnatcatcher</u>. Federally threatened gnatcatchers live in open to dense coastal sage scrub areas. These songbirds are year round residents throughout MCAS Miramar and in training area one, two, four, and five. These birds are most sensitive to human interaction (fire, smoke, loud noise, crushing or removing brush, etc.) during the breeding season

between 15 February and 30 August. To protect this endangered species, the following measures should be followed when conducting the maintenance activities:

- (1) Use extreme caution when conducting activities likely to cause a fire.
- (2) Vehicle/equipment operation must be kept to existing roads and fuelbreaks. Avoid unnecessary noise and conduct NO activities that involve brush destruction, removal, or soil excavation outside the existing fuelbreak and fireroad boundaries. Any changes in the existing fireroads or fuelbreaks must be reviewed and approved by the Environmental Management Department.

5.0 REFERENCES

Kellogg. 1991. Soil Erosion Inventory of the Miramar Naval Air Station. Tierra Data Systems.

Naval Air Station Miramar. 1992. Fuelbreak Management Plan.

- USDA Forest Service. 1977. Fuelbreaks and Other Fuel Modification for Wildland Fire Control. Pacific Southwest Forest and Range Experiment Station.
- USDA Soil Conservation Service. 1994. *Handbook for Forest and Ranch Roads*. Mendocino County Resource Conservation District.
- USDA Soil Conservation Service. 1983. *Guide to Building Small Roads*. Mendocino County Resource Conservation District.

APPENDIX 1

STANDARD OPERATING PROCEDURE FOR FUELBREAK/FIREROAD MAINTENANCE

STANDARD OPERATING PROCEDURE FOR FIREROAD/FUELBREAK MAINTENANCE

GENERAL GUIDELINES

Maintenance of the fuelbreak and fireroad network is the responsibility of the MCAS Miramar Fire Department in coordination with the Public Works Division and Environmental Management Department. The Environmental Management Department will provide technical assistance to the Miramar Fire Department regarding environmental impacts during fuelbreak maintenance.

- Approximately one month prior to beginning work, a meeting will be held with the Fire Department, Environmental Management Department (Natural Resources Division), Public Works Division (Facilities Maintenance) and road maintenance personnel to discuss the procedures outlined in this Standard Operating Procedure (SOP).
- In accordance with the Migratory Bird Treaty Act, nesting birds and nests must be avoided during all road maintenance. Concentrated activities or clearing must maintain a distance of 25 feet around all nest sites. If necessary, removal or relocation of nests must be accomplished by permitted personnel only. Contact Public Works Center through the Public Works Division, Trouble Desk, (858) 577-1609.
- Fireroad maintenance (grading) should occur after April 1 each year and/or long enough after the winter rains that the ground is dry enough to permit the operation of heavy equipment. Road surfaces graded when they are too dry will not compact and result in greater erosion. Industrial brushmowers may be utilized on a continual basis outside of the fire season to maintain the vegetation located on the fuelbreaks given the tracked nature of the vehicle and relatively lightweight. All maintenance should be completed before the most extreme fire conditions begin.
- Fuelbreak maintenance may be conducted year-round after sensitive species and fire danger considerations are assessed by the Natural Resource Division and Fire Department respectively, prior to beginning work.
- Not all roads are maintained yearly to avoid unnecessary grading and excessive soil loss. Maintenance schedule for each road is outlined in the next section.

Fuelbreaks and fireroads within areas containing sensitive natural resources must be maintained in coordination with the Environmental Management Department, Natural **Resource Division.** Maintenance of these fuelbreaks and fireroads must be approved by the Environmental Management Department prior to conducting work to ensure compliance with environmental requirements. The fireroads of concern are R-1, R-2, R-9, R-12, R-13, R-14, R-28, R-29, R-32 south of R-30 to R-33, and R-33.

- Areas with special natural resource concerns are highlighted on maps available at the MCAS Miramar Fire Department.
- Fuelbreaks are described in Attachment A.
- Fireroads are described in Attachment B.
- All maintenance personnel are required to attend fire response training from Miramar Fire Department.
- All maintenance personnel are required to attend an environmental briefing and receive a brochure prior to conducting the work.
- Many parts of east Miramar have no boundary fence, so all operators need to be cautious not to use or grade roads that are off the Station.
- Maintenance must be done to prevent water from ponding on road surfaces.
- A checklist is included that identifies actions to taken before, during, and after maintenance activities to ensure compliance with this SOP (see Attachment C).

FUELBREAK MAINTENANCE

- Nine (9) fuelbreaks that make up approximately 20 miles are maintained annually (see Attachment A).
- Fuelbreaks are maintained with a 20-foot-wide fireroad in the center and a 50-foot-wide low-growing, low-volume fuel (mostly grasses no greater than 12 inches) on either side. Fuelbreaks are maintained only once per year. (All fuelbreak and fireroad widths are approximate taking into account landscape limitations and fuelbreak effectiveness.)
- The center fireroad is graded to bare mineral soil using a road grader to a width of <u>20</u> feet.
- The 50-foot low-volume zone is maintained by mowing, crushing, burning, or chemically treating the grass and other vegetation. Cutting vegetation is accomplished using an industrial brushcutter. An alternate method is to drive a dozer over the vegetation without utilizing the dozer blade to crush the vegetation in place. This may be necessary in some

cases due to slope limitations of the mowers. Additionally, prescribed burning the fuelbreaks will be a primary method of treatment. This will leave the majority of plant roots undisturbed to prevent erosion on the slopes of the fuelbreaks.

• **No berm** should be left between the center-road and the fuelbreak. Roads on flat topography should be crowned in the middle using the side castings produced from grading. Fireroads that run along slope contours should be out-sloped. Outsloped roads disperse and drain runoff along the entire outside edge of the road. Do not leave the road in a state that will pond any form of precipitation.

FIREROAD MAINTENANCE

- Thirty (30) fireroads making up approximately 29 miles are maintained on an annual or semi-annual basis (see Attachment B).
- Each fireroad on the Station must be inspected prior to yearly maintenance to determine which roads or portions of roads need grading.
- Road surfaces should be graded only when needed to maintain a stable, smooth running surface and to retain the original surface drainage. Over-grading results in unnecessary erosion and increases road surface rock wear. Raise the blade wherever grading is not needed.
- Fireroads are graded to bare mineral soil using a road grader to a width of approximately 15 feet. Grading refers to the mechanical smoothing of the roadbed to maintain a free-draining, smooth traveling surface. A bulldozer should be used only to repair roads where severe erosion has caused deep ruts or when the topography is too steep for grader operation.
- **No berm** shall be left on the shoulder of the graded fireroads.
- Roads (particularly on flat topography) should be crowned in the middle using the side castings produced from grading. Fireroads that contour slopes should be outsloped. Outsloped roads disperse and drain runoff along the entire outside edge of the road. Do not leave roads in a condition that will pond any form of precipitation.
- Drive all fuelbreaks and fireroads shown on maps to determine which require
 maintenance and which can be passed over until the next year. Fireroads are maintained
 on a two-year rotational cycle to minimize soil loss from erosion caused by overgrading
 (* signifies roads requiring coordination with the Environmental Management
 Department, Natural Resources Division):

- Cycle one (even years): R-01*, R-03, R-05, R-06, R-07, R-08, R-09*, R-12*, R-14*, R-16, R-18, R-23, R-24, R-28*, R-32*, and R-33*.
- Cycle two (odd years): R-02*, R-04, R-10, R-11, R-13*, R-19, R-20, R-21, R-22, R-25, R-29*, R-30, R-31, R-34.
- Do not repair, R-1, R-2, R-9, R-12, R-13, R-14, R-28, R-29, R-32 south of R-30 to R-33, and R-33 without permission of the Environmental Management Department, Natural Resources Division to ensure compliance with environmental requirements.

SPECIAL NATURAL RESOURCE CONCERN FUELBREAKS AND FIREROADS

- Areas with special natural resource concerns are highlighted on maps available at the MCAS Miramar Fire Department.
- R-1, R-2, R-9, R-12, R-13, R-14, R-29, R-32 south of R-30 to R-33, and R-33 are within California gnatcatcher habitat or vernal pools and must not be graded or driven on by graders or bulldozers without first coordinating with the Environmental Management Department, Natural Resources Division ([858] 577-6426, [858] 577-1125, [858] 577-4088). Maintenance of fuelbreaks and fireroads within active gnatcatcher breeding territories may not be allowed without Endangered Species Act consultation with the U.S. Fish and Wildlife Service.
- R-28 is the perimeter fence road around the magazine. The road has been modified by construction and cannot be graded. Do not grade without first coordinating with the Environmental Management Department, Natural Resources Division and Ordnance personnel.
- A small part of fuelbreak NS-1, east of R-9 contains a wetland and must not be graded.
- NS-4 cannot be bladed with a grader or dozer at anytime. San Diego County Water Authority maintains the road, which has easements on either side. However, maintaining the fuelbreak (low vegetation volume zone) on either side of the road is permitted. Since the aqueduct pipe is buried beneath the fuelbreak maintenance area, care must be practiced when using equipment along this zone. Miramar Fire Department specifically requires the use of an industrial brushcutter along Aqueduct Road due to weight limitations. Prescribed burning the fuelbreak is an alternate action. Vegetation along the entire length of NS-4 will be mowed no lower than 12 inches above the ground. Maximum mower weight specifications are 10,000 pounds. Brush mowers will not cut within 6 feet of all above ground pipes and fixtures connected with the aqueduct. Any closer vegetation removal will be accomplished by hand.

• Do not grade the drainage that crosses EW-3 just west of R-14. The wetland located there requires a permit prior to blading it or dragging soil into it. There is a one-lane crossing through this drainage that may be utilized by bulldozers, graders and mowers with the blade up.

STAGING AREAS AND FUELING POINTS

- Locations of approved staging areas and fueling points for graders, bulldozers, and brush mowers are shown on attached maps. Additional areas can be determined in coordination with the Environmental Management Department.
- Approved points to refuel graders, bulldozers, and mowers are:
 - o R-16 staging area
 - Intersection of R-29 and Missile Road
 - o Intersection of NS-1 and Missile Road
 - o Intersection of NS-2 and Missile Road
- Refueling: Precautions must be exercised to prevent a fuel spill. A fuel container with a sealed spout, drip pan with absorbing material, plastic bag(s) to contain contaminated absorbent, and fire extinguisher <u>must be on-site and available and must be used if an accident occurs.</u>
- Each staging area must be cleaned of any debris or materials when maintenance is completed. The soil at the staging areas must be smoothed and repaired to remove any marks left by the equipment.

VEHICLE OPERATION

- Vehicles must utilize authorized fuelbreaks and fireroads only. Speed limit is 25 MPH on hard surface roads and 15 MPH on undeveloped roads unless otherwise posted.
- Spill containment measures are required. Spill response equipment must be available at all times to the bulldozer operators. Personnel trained in spill response must be on site. Road maintenance personnel and the Fire Department are responsible for the initial response containment. All spills must be reported to the Environmental Management Department, Waste Management Division ([858] 577-1108).

Tracked vehicles may only operate on fuelbreaks and fireroads. Tracked vehicles may not
operate on paved roads. Road-crossing material (for example, large rubber tires) must be
used when crossing paved surfaces.

FIRE PROTECTION AND SAFETY

- Equipment operators should use caution while grading fuelbreaks and fireroads since fire starts have occurred from sparks caused by vehicles operating in dry grass. Daily fire danger ratings will be determined by Miramar Fire Department and monitored during the course of mowing and grading operations. When ratings are VERY HIGH or above, field operations will cease for the day (Temp > 90 & RH < 35 %).
- Equipment operating in the field must have a fire extinguisher on site. These should be located within ten (10) feet of equipment at all times.
- A fire apparatus from the Fire Department must be in the immediate area during fuelbreak/fireroad maintenance.
- Unexploded ordnance (UXO) shall be left alone and reported immediately to the Fire Department standby crew or Fire Dispatcher. SOPs for reporting UXO shall be followed.
- Units must have a digital/analog cell phone or other communication equipment at all times to be able to contact the Provost Marshall Office (PMO) or Fire Department Dispatchers in the event of an emergency.

PROHIBITED AND RESTRICTED ACTIVITIES

- SMOKING is allowed in East Miramar within designated areas only per Station Orders and daily Fire Danger Rating to prevent accidental fires.
- Grading or repairing roads not depicted on the maps is not permitted.
- Off-road driving is NOT PERMITTED.
- Personnel must not disturb or injure wildlife, including snakes and other reptiles. Contact the Public Works Division Trouble Desk at 7-1609 if problem wildlife is encountered.
- NO TRASH shall be deposited in work or natural areas.
- Vehicles may not drive on the unvegetated fuelbreak north of NS-6 off MCAS Miramar property.

PHONE NUMBERS OF KEY PERSONNEL

Fire Department: (858) 577-6136, (858) 577-7783

Installations & Logistics, Public Works Division: (858) 577-8633 (Engineering Technician),

(858) 577-6889 (Contracts Specialist)

Environmental Management Department, Natural Resources Division: (858) 577-6426,

(858) 577-1125, (858) 577-1108

ATTACHMENT A DESCRIPTION OF FUELBREAKS

DESCRIPTION OF FUELBREAKS

- North-South-1 (NS-1). Originates at the intersection of the EW-3 near the northern property boundary, turns east to cross Rifle Range Road at a point just north of the Rifle Range and continues north along the ridgeline to Missile Road. DO NOT grade the small wetland within the fuelbreak just north of Rifle Range.
- North-South-2 (NS-2). Begins on the ridgetop south of the Ammo bunkers at R-31and runs in a northern and northeasterly direction. It follows ridgelines west and north of Oak Canyon, south of the Rifle Range, and west of the Atlas sites until it intersects Missile Rd.
- North-South-3 (NS-3). Runs north-south from the intersection of NS-2 to the southern Miramar boundary (the large Eucalyptus tree).
- North-South-4 (NS-4). Parallels the San Diego Aqueduct Road between the boundaries of Marine Corps land from International University to the north and Hwy. 52 to the south.
- North-South-5 (NS-5). Runs north-south originating at the intersection of EW-3 to R-09.
- North-South 6 (NS-6). Extends from the northern property line following the ridge between West Sycamore and Sycamore Canyon. The fuelbreak terminates on the ridgetop and continues to the bottom of the canyon as a fireroad.
- East-West-2 (EW-2). Intersects NS-2 northeast of NS-3 and runs on a ridgeline north of Spring and Quail Canyons in a southeasterly direction toward Santee to the MCAS Miramar boundary. The fuelbreak stops at R-33.
- East West 3 (EW-3). Originates west of the Rifle Range on NS-1, runs west along the property line, south of Scripps Ranch, East to the intersection of NS-5. This fuelbreak will be maintained with a low grass cover. No access road is graded through the center of the break.
- East-West-4 (EW-4). Begins at the intersection of NS-4 and climbs the ridge north of the magazine area in an easterly direction to the intersection of NS-2.

ATTACHMENT B DESCRIPTION OF FIREROADS

DESCRIPTION OF FIREROADS

- Road-01 (R-01). A 15-foot-wide fireroad that follows the outside of the airfield fence beginning at the northwest corner of main station perimeter fence at the Municipal Wastewater District sewerline road and then heads east.
- Road-02 (R-02). A 15-foot-wide fireroad that originates at the intersection of Johnson Road and Ammo Road. The road goes east under the I-15 tunnel and terminates at Ammo Road. The Natural Resources Office must approve grading. California gnatcatchers and vernal pools are adjacent to the road.
- Road-03 (R-03). A 15-foot-wide fireroad that begins at the intersection of NS-4 (Aqueduct Road) and proceeds east on the ridge of the property line and connects to NS-2. California gnatcatchers at east end of the road.
- Road-04 (R-04). A 15-foot-wide fireroad that originates at NS-2, proceeds southeasterly, and ends at the ridge above Oak Canyon.
- Road-05 (R-05). A 15-foot-wide fireroad that originates at NS-3 and travels in a southwest to the end of the ridge.
- Road-06 (R-06). A 15-foot-wide fireroad that originates at the north end of R-8 and travels east toward the Linda Vista Cemetery and then northeast to the northern MCAS Miramar boundary. The Cemetery is off limits to all personnel
- Road-07 (R-07). A 15-foot-wide fireroad that originates at the intersection with Rifle Range Road and runs south along the hillside to the point where it intersects EW-4.
- Road-08 (R-08). A 15-foot-wide fireroad that originates at the corner of rifle range Road and Ammo Road (the road to the Magazines. The road travels north and turns into R-06.
- Road-09 (R-09). A 15-foot-wide fireroad that originates east of NS-4 and travels east to EW-3. The road parallels Rifle Range Road through San Clemente Canyon. The Natural Resources Office must approve grading because California gnatcatchers occur adjacent to the eastern half of the road.
- Road-10 (R-10). A 15-foot-wide fireroad that intersects R-09 and travels northwest until it intersects NS-4.

- Road-11 (R-11). A 15-foot-wide fireroad that originates at the intersection of R-09 at the Homestead Reservoir and travels north. The road terminates at a Water Guzzler.
- Road-12 (R-12). A 15-foot-wide fireroad east of NS-5 and originates at R-09, travels north along a ridge and terminates at the MCAS Miramar boundary.
- Road-13 (R-13). A 15-foot-wide fireroad that travels north from R-09 along the ridge and terminates at the MCAS Miramar boundary.
- Road-14 (R-14). A 15-foot-wide fireroad that travels north from R-09 in the canyon bottom and terminates at the intersection of EW-4 at the northern boundary of the Station.
- Road-15 (R-15). A 15-foot-wide fireroad that travels south from R-09 up the hillside and terminates at the intersection of EW-4. This road is permanently CLOSED and is under restoration. (as of 2002)
- Road-16 (R-16). A 15-foot-wide fireroad that travels south off of Rifle Range Road and terminates at the intersection of NS-2.
- Road-18 (R-18). A 15-foot-wide fireroad that originates south of NS-2 and then terminates at the ridge above Spring Canyon.
- Road-19 (R-19). A 15-foot-wide fireroad that originates south of EW-2 and then follows the ridgeline to the boundary of MCAS Miramar.
- Road-20 (R-20). A 15-foot-wide fireroad that originates west of NS-2 and terminates at the Rifle Range.
- Road-21 (R-21). A 15-foot-wide fireroad that originates at the northeast gate of the Naval-Marine Corps Reserve Center and travels south around the perimeter of NMCRC. The road travels east around the perimeter of the University of California at San Diego Research Facility and terminates at NS-4. The west and south sides of this road contains vernal pools.
- Road-22 (R-22). A 15-foot-wide fireroad that originates at the northern portion of NS-2 and travels northwest to Missile Road.

- Road-23 (R-23). A 15-foot-wide fireroad that originates at NS-2 and terminates at the Rifle Range. R-23 is between R-20 and R-22.
- Road-24 (R-24). A 15-foot-wide fireroad that originates at NS-2, follows that ridgeline immediately to the south of the Atlas Missile Test Facility (abandoned) in a southeasterly direction down into West Sycamore Canyon.
- Road-25 (R-25). A 15-foot-wide fireroad that originates in West Sycamore Canyon at the northern end of R-32. The road travels east up a ridge to the intersection of NS-6.
- Road-26 (R-26). A 30-foot-wide fireroad encircles on the outside of the fence and a 20-foot-wide fireroad exists on the inside of the fence in Group 1 of the East Magazine Area. Group 1 is the westerly series of the magazine area (Road is no longer a designated "Fireroad")
- Road-27 (R-27). A 30-foot-wide fireroad encircles on the outside of the fence and a 20-foot-wide fireroad is maintained inside of the fence in Group 2 of the East Magazine Area. Group 2 is the largest of the East Magazine areas. (Road is no longer a designated "Fireroad")
- Road-28 (R-28). A 30-foot-wide fireroad encircles on the outside of the fence and a 20-foot-wide fireroad exists on the inside of the fence in Group 3 of the Magazines Area. Group 3 is farthest east in the Magazine Area. (Road is no longer a designated "Fireroad")
- Road-29 (R-29). A 15-foot-wide fireroad that begins at the east end of R-09 and extends to the gate at Missile Road.
- Road-30 (R-30). A 15-foot-wide fireroad that originates at EW-2 and runs east down the hillside to the intersection with R-32.
- Road-31 (R-31). A 15-foot-wide fireroad that originates at the southwestern end of NS-2 and connects to EW-4.
- Road-32 (R-32). A 15-foot-wide fireroad that originates at the southern border of the Station in West Sycamore Canyon and runs north to R-25. Must notify Natural Resource Division prior to working on this road.
- Road-33 (R-33). A 15-foot-wide fireroad that originates at the southern end of EW-2 and runs east to R-32. The Natural Resources Office must approve grading this road because California gnatcatchers occur adjacent to the road.

ATTACHMENT C

FUELBREAK/FIREROAD MAINTENANCE CHECKLISTAPPENDIX

FUELBREAK/FIREROAD MAINTENANCE CHECKLIST

Before Maintenance

	Read Fuelbreak Maintenance Plan and Standard Operating Procedures.
	Schedule kick-off meeting with Fire Department, Natural Resource Division, and Facilities Maintenance Department one month prior to start.
	Drive all fuelbreak and fireroads shown on the maps to determine which need maintenance and which can be passed over until the next year.
	Conduct a site visit to review areas of special natural resource concern with a representative from the Station Natural Resources Division.
	Confirm access routes to and from fireroads and fuelbreaks with the Natural Resources Division
	Determine access routes and timing of maintenance for roads and fuelbreaks in special natural resource areas with a Natural Resources Division representative. (R-1, R-2, R-9, R-12, R-13, R-14, R-28, R-29 and R-33).
	Conduct fire safety and environmental briefing for all personnel conducting maintenance.
	For fire detection & prevention, Miramar Fire Department will provide an apparatus and personnel to standby during maintenance operations when fire danger levels warrant.
Durin	g Maintenance
	Review maps and procedures daily to identify fuelbreaks and roads to be maintained and areas of natural resource concern.
	Measure indistinct fuelbreak boundaries prior to maintenance to maintain a maximum 120-foot fuelbreak width.
	Work with Fire Department and Natural Resources Division to confirm that fuelbreaks are maintained properly.
	Conduct site visits with a Natural Resources representative to the areas with natural resource concern as needed.
	Conduct proper spill containment and waste management activities.

	Do not grade roads that already have a stable, smooth running surface and to retain the original surface drainage.
	No smoking while conducting maintenance to prevent wildfires.
After	Maintenance
	Review Fuelbreak Maintenance Plan with the Fire Department and Natural Resources Division to identify improvements to the program and detailed in a written after action report (AAR).

APPENDIX C

GLOSSARY

APPENDIX C

GLOSSARY

The following are key fire management terms that are used throughout this document. A general definition is included for each word or phrase.

Burn Severity Index

The degree of environmental change caused by fire. Ecological criteria used to judge burn severity include but are not limited to the following: physical and chemical changes to the soil, conversion of vegetation and fuels to inorganic carbon, and structural or compositional transformations that bring about new microclimates and species assemblages.

Fire Frequency

The number of fires per unit of time.

Fire Regime

A general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention but including the influence of aboriginal burning. A fire regime is the nature of fire occurring over long periods and the prominent immediate effects of fire that generally characterize an ecosystem. These include the type of fire, intensity, rate of spread, frequency, interval (time between fires), and season of burn.

Fire Regime Condition Class

A measure of the degree of departure from reference conditions, possibly resulting in changes to key ecosystem components, such as vegetation characteristics (species composition, structural stage, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated disturbances, such as insect and disease mortality, grazing, and drought.

Firebreak

Any area that, because it fails to provide additional fuel to the fire, serves to substantially impede or stop the progress of a wildfire. Firebreaks can be man-made or may be natural barriers. However, other than the fireroads and firelines described in the MCAS Miramar WFMP, wider man-made firebreaks are prohibited within the Station. Existing barriers such as roads, barren rocky areas devoid of vegetation, streams, and lakes may also serve as firebreaks.

Firelane

An access line, prepared either ahead of a fire or in advance of the fire season, to provide a foot or machine route at a strategic location. The line may later be cleared to serve as a fireline during suppression of a fire.

Fireline

A fire control line from which all vegetation is removed and scraped down to mineral soil. The fireline may be a roadway or simply a strip cleared by hand or machine, strictly for fire control purposes.

Fireroad A 15- or 20-foot-wide road, from which all vegetation is removed down to

the mineral soil designed to provide access for fire apparatus.

Firing Point Also known as a shot hole, this is an area where ordnance, ammunition,

and various weapons are destroyed with a detonation of explosives by

EOD personnel.

Fuel Loading The volume of all vegetation susceptible to wildland fires (as in

grasslands, coastal sage scrub, and chaparral) expressed in pounds or tons

An area modified through weed abatement or pruning vegetation to reduce

per acre for a given area.

Fuel Treatment

Zone fuel loads.

Fuelbreak A strategically located wide block, or strip, on which a cover of dense,

heavy, or flammable vegetation has been permanently changed to one of lower fuel volume or reduced flammability as an aid to fire control. A fuelbreak has a low-growing ground cover that protects the soils against erosion. It should have light fuel volume so that, if it burns, heat output will be low. It should produce fewer flying sparks or embers that may start

spot fires across the break.

Fuelbreak System A network of fuelbreaks to separate relatively large areas of naturally open

vegetation, to defend urban development and natural resources from wild

fires, and to define land management areas.

Management Area One of two geographic areas comprising the eastern or western portions of

MCAS Miramar, roughly divided by I-15. Each management area contains multiple planning units. Management areas are considered for landscape

level fire management planning priorities.

Planning Unit A fire management area defined by geographic boundaries based on

prominent topographic features and fire management considerations.

Prescribed Burn A controlled fire set by land managers under prescribed circumstances to

reduce fuel loads in order to reduce the risk of wildland fire hazard.

Weed Abatement The reduction of ground fuels, which are generally herbaceous and

relatively fine, with mechanical equipment. This also includes the removal

of plant litter.

APPENDIX D

FIRE DANGER RATING CHART AND WEATHER OBSERVATION DATA SHEET

MCAS MIRAMAR FIRE DEPARTMENT FIRE DANGER RATING CHART

FIRE DANGER RATING	PROBABILITY OF IGNITION HAZARD	PRECAUTIONS AND RESTRICTIONS
LOW	Use normal caution	Normal precautions.
T < 70 RH 45%- 60%	Low ignition hazard	No restrictions.
MODERATE T< 80 RH 30%-45%	Use normal caution Medium ignition hazard	Normal precautions. Heat sources are hazardous; "easy" burning conditions. No restrictions.
HIGH T < 90 RH 25%-40%	Use extra caution High ignition hazard; fires start easily	Smoking is permitted in clear areas only. Heat/flame sources in maneuver area will be limited to cleared areas. "Moderate" burning conditions.
VERY HIGH T >90 RH 15%-30%	Use extreme caution Very high ignition hazard Fires become difficult to control	Smoking is permitted in clear areas only. Off-road driving restricted to roadbeds. Use of fire or pyrotechnic devices prohibited. Dangerous burning conditions. Quick ignition and rapid buildup of fires.
EXTREME T 70+ RH < 15%	Use extreme caution Extreme ignition hazard Fires nearly impossible to control Associated with "Santa Ana" wind events	All heat sources are dangerous and prohibited. Vehicles should remain on paved roads. Smoking is permitted under strict supervision and in clear areas only. Extreme burning conditions with high potential for spot fires.

NOTE: Temperature (T) and relative humidity (RH) inputs are required. If a "prediction" is to be made for a given day's activities, weather trends and the daily "Fire Weather Forecast" should be referenced for decision making and planning purposes. A fundamental knowledge of fire weather/behavior principles is implied with use of this chart.

MCAS MIRAMAR FIRE DEPARTMENT WEATHER OBSERVATION DATA SHEET

Month/	Year

			Wind		10-hour Fuel	Eine Danaan
Date/Time	Temperature	R.H. %	Speed & Direction	% CCVR	Stick	Fire Danger Adjective
1		23,020,70		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		110000000
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
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13						
14						
15						
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17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						

Notes: Optimum time for weather observations is 1300 hours daily. Record significant rainfall in the Fuel Stick column.

Record % cloud cover as a single digit (i.e., 4 = 40% obscuration)

APPENDIX E WILDLAND PREPAREDNESS LEVELS

MIRAMAR FIRE DEPARTMENT

WILDLAND PREPAREDNESS LEVELS

Preparedness	Fire Activity	Suppression Resource Status
LEVEL 1	Light Initial Attack Activity in the County	Resources Available: Committed: 6 Engines None 1 Water Tender 2 Overhead
LEVEL 2	Light Initial Attack activity in the County.	Resources Available: Committed: 5 Engines 1 Type I 1 Water Tender or 2 (or 1) Overhead Water Tender
LEVEL 3 LEVEL 4	Moderate Initial Attack activity. Type 3 Fires in County or Zone 3 resources committed Out of County Moderate- High fire activity in the County or resources committed Out-of- County. Active Type 1, 2 or 3 incidents.	Resources Available: Committed: 4 Engines (2) Type I's 2 (or 1) Overhead or (Water Tender) (1) Type I/Water Tender or (1) Type III Resources Available: Committed: 3 Engines 1 Type I 1 Overhead (1) Type III Water Tender (2) Overhead (Reserve Unstaffed)
LEVEL 5	High fire activity in the County or multiple Zone 3 resources committed Out-of-County. Active Type 1 or multiple Type 2 & 3 incidents.	Resources Available: Committed: 3 Engines (1) Type 1 1 Overhead or (2) Type III (Reserve Unstaffed) Water Tender 1 Overhead

NOTES: Total number of committed personnel cannot exceed ten (10). Maximum draw-down of resources cannot exceed 3 ENGINES and one (1) Overhead. Heavy commitment of local resources and/or High+ FDR indices should be factored into decision-making.

ENGINES = Type 1 & Type 3 combined.

COMMITTED = Unavailable regardless of reason (apparatus OOS, etc.)

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APPENDIX F

WILDLAND FIRE IMPLEMENTATION PLAN (WFIP), STRATEGIC FIRE SIZE-UP, AND WILDLAND FIRE RELATIVE RISK ASSESSMENT

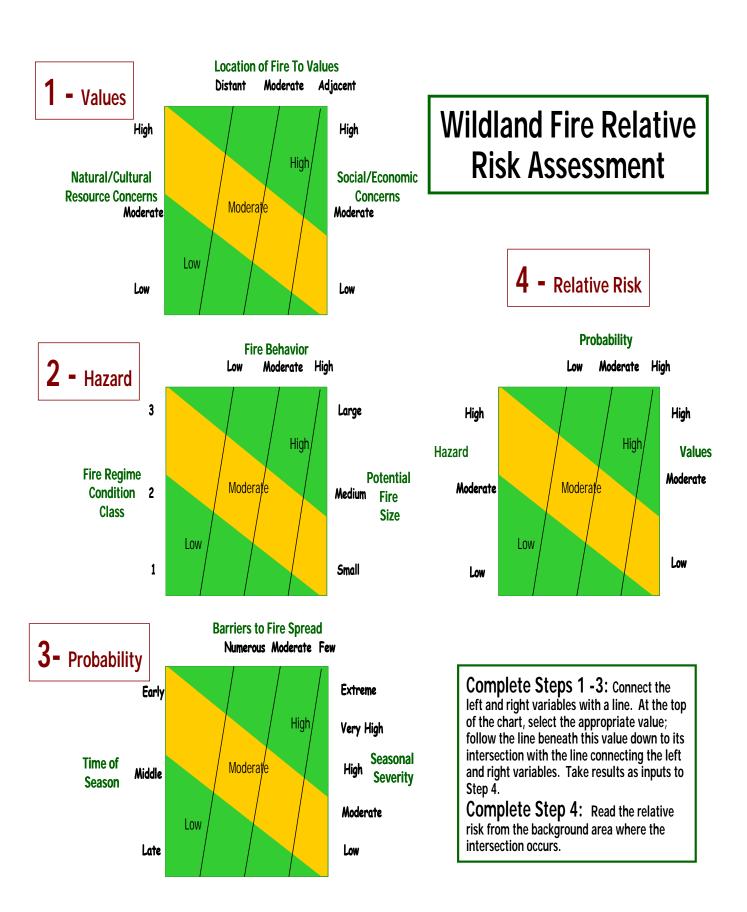
Wildland Fire Implementation Plan (WFIP)

Strategic Fire Size-Up for Confinement/Monitoring/Mitigation Response

Fire Name					
Incident Number					
Agency Jurisdiction					
Start Date/Time					
Discovery Date/Time					
Current Date/Time					
Current Size					
Fuel Model					
Current Weather					
Observed Fire Behavior					
Location: Management Area & Planning Unit					
Latitude Longitude					
Local Description					
Planning Unit (circle appropriate P.U. situation)		Monitoring/Mitigation NOT Approved		ement/Monito Response Ap	oring/Mitigation oproved
Cause					
C 4 1 114 6		<u> </u>		T */* T	D / /EV
Suitability for Confine/Monitor/ Mitigate Strategy (circle situation)	Suppression	Confinement/Monitoring tion Candidate - Continue with Decision	_	Initials	Date/Time

Decision Criteria Checklist

Decision Element		Yes	No
Is there a threat to life,	property, or public and firefighter safety that cannot be mitigated?		
Are potential effects on effects?	cultural and natural resources outside the range of acceptable		
Are relative risk indica Agency Administrator	tors and/or risk assessment results unacceptable to the appropriate		
Is there other proximat fire?	e fire activity that limits or precludes successful management of this		
Are there other Agency response action.	Administrator issues that preclude Confine/Monitor/Mitigate		
	ecklist is a process to assess whether or not the situation warrants continued response to any element on the checklist indicates that the appropriate mariented.		response
Recommended Response Action (check one)	Signature/Position	I	Date
Suppression Response			
CMM Response			
Justification for Suppl	ression Response:		



APPENDIX G WILDLAND DISPATCH PLAN

MIRAMAR FIRE DEPARTMENT WILDLAND DISPATCH PLAN

FIRE DANGER ADJECTIVE	RESPONSE PLAN	RESOURCES STRUCTURE PROTECTION DISPATCHED UPGRADE
	LOW	WILDLAND
LOW / MODERATE T< 80 RH 30%-45% 10hr Fuel 10%-12%	1	2 TYPE 3 1 WATER TENDER 1 TYPE 1 1 DUTY CHIEF
	MEDIUM	WILDLAND
HIGH T < 90 RH 25%-40% 10hr Fuel 8%-9%	2	4 TYPE 3 1 WATER TENDER 1 TYPE II COPTER 2 DUTY CHIEF 2 TYPE 1 1 PREVENTION 1 AIR ATTACK 2 SUPER SCOOPERS (HAND CREWS)
	HIGH	WILDLAND
VERY HIGH / EXTREME T >90 RH 15%-30% 10hr Fuel 5%-7%	3	4 TYPE 3 2 WATER TENDERS 2 TYPE II COPTERS 2 DUTY CHIEFS 1 PREVENTION 3 TYPE 1 1 AIR ATTACK 2 SUPER SCOOPERS (HAND CREWS)
		CL-415 Super Scoopers are Type III Air Tankers LRA Air Attack is a Aero Commander 690 (AA690) Frequencies: 800 mHz; County RED2; CDF A/G; BLM A/G

UPDATED 9/08

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APPENDIX H

MINIMUM IMPACT SUPPRESSION TACTICS SOG: 244



MIRAMAR FIRE DEPARTMENT

P.O. Box 452006 • SAN DIEGO, CALIFORNIA 92145-2006 • PHONE (858) 577-1962 • FAX (858) 577-6535

OPERATIONS SOG: 244

TITLE: MINIMUM IMPACT SUPPRESSION TACTICS

PURPOSE: Establish policy and procedures related to applying minimum impact on

wildlands by fire suppression tactics.

SCOPE: This Standard Operating Guideline applies to Miramar Fire Department personnel

who are assigned to fire line duties.

POLICY: Firefighters of the Miramar Fire Department will exercise professional efforts to

apply "minimum impact tactics" on wildland fires.

ENCL: Sensitive Resources map

REF: (1) MCAS Miramar Integrated Natural Resource Plan and the

(2) NWCG Incident Response Pocket Guide, NFES #1077, January 2004

PROCEDURES:

1. <u>Dispatch and Initial Attack to Wildland Fires:</u>

- a. First arriving Company Officer or Chief Officer will determine and report the location of the wildland fire to the Fire Dispatcher of the Miramar Fire Department.
 The Fire Dispatcher will relay the information to the MCAS Miramar Natural Resource Department
- b. The Company Officer or the Chief Officer will refer to the Station wildland/resource map and determine if sensitive habitat or threaten and endangered species are potentially affected by the fire
- c. Incoming crews will be advised of sensitive natural resources that may be in the area.
- d. When fire behavior conditions allow, minimum suppression tactics should be considered by the Incident Commander within the sensitive or critical areas.

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2. <u>Minimum Impact Suppression Tactics:</u>

a. Practice the following procedures to prevent or reduce an adverse impact on the environment;

- (1) Select tools, tactics and equipment that least impact the environment.
- (2) Avoid "off road" driving and have apparatus and vehicles remain on the roadbed.
- (3) Lay hose instead of mobile pumping.
- (4) Consider water application as the tactic with the least impact to habitat.
- (5) In light fuels consider allowing fire to burn to natural or manmade barriers.

 Consider burning out from barriers or from a wetline instead of line construction.
- (6) If constructed fire line is necessary, use minimum width and depth to check fire spread.
- (7) In medium/heavy fuels consider limbing aerial and ladder fuels that are adjacent to the fire's edge instead of cutting down trees. Use water and dirt to check fire spread in burning trees or snags instead of cutting down trees. Unless there is a hazard to personnel.
- (8) Scrape around the bases of trees and large chaparral shrubs near the fire line if duff and litter layer is hot.
- (9) If trees must be felled, cut stumps flush with ground.
- (10) When in proximity to vernal pools, avoid pulling hoselines, foot and vehicle traffic, or handline construction through them.
- (11) The use of a dozer is discouraged on sensitive habitat and near vernal pools.

3. Minimum Impact Mop-up Phase:

- a. Practice the following procedures to prevent or reduce an adverse impact on the environment.
 - (1) Cold trail areas adjacent to unburned fuels.

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(2) Conduct minimal spading or scraping of the ground. Restrict spading to hot areas near the fire line.

- (3) Minimize the bucking of logs to check for hot spots. Attempt to roll logs and extinguish fire and then roll back.
- (4) Consider allowing logs to burn out or burn down near the fire line.
- (5) Refrain from making boneyards. Downed or cut fuels should be scattered and arranged as natural as possible.
- (6) Remove or limb only those fuels that if ignited would cause fire to spread outside the fire line.

4. Burned Area Restoration:

- a. The MCAS Miramar Natural Resource Division is responsible for the rehabilitation and restoration of burned areas.
- b. Post fire monitoring and analysis will be conducted by Natural Resource personnel. Any know damage to endangered species, sensitive habitat or natural resources will be reported to the MCAS Miramar Natural Resource Division.

SUMMARY:

- a. The wildlands of MCAS Miramar are habitat to a number of threatened and endangered (T&E) plant and animal species so designated and protected under the National Environmental Policy Act.
- b. Firefighters engaged in wildland fire suppression operations should make efforts to apply "minimum impact tactics" within these areas to minimize disturbance of the T&E habitat. The intent of these tactics is to suppress a wildfire with the least impact to the land. Fire conditions and good judgment dictate the actions taken. Firefighter safety and threat to life and property override all other priorities.
- c. The tactics of wildland fire suppression should have less adverse impact than those caused by the fire.

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Approved by:				
James G. Magill Fire Chief Miramar Fire Department	DATE	Cipi Enriquez President IAFF Local	F-289	DATE
Reviewed	DATE	Reviewed		DATE

APPENDIX I ORGANIZATIONAL STRUCTURE CHARTS

