

CHAPTER 2

MISSION, LAND USE, AND REGIONAL SETTING

2.1 LOCATION AND MISSION

2.1.1 Location

Camp Pendleton occupies approximately 125,000 acres of largely undeveloped land, with approximately 17 miles of coastline, in northwestern San Diego County of southern California Figure 2-1. Camp Pendleton is situated between two major metropolitan areas: Los Angeles, 82 miles to the north, and San Diego, 38 miles to the south. Nearby communities include Oceanside to the south, Fallbrook to the east, and San Clemente to the northwest. Camp Pendleton shares portions (approximately 8 miles) of its northern border with the San Mateo Wilderness Area of the Cleveland National Forest and its eastern border with the Fallbrook Naval Weapons Station. Aside from the Wilderness Area and the Naval Weapons Station (which are both largely undeveloped land), surrounding land use includes urban development, rural residential development, and agricultural farming and ranching.

2.1.2 Military Mission

The mission of Camp Pendleton is “to operate an amphibious training Base that promotes the combat readiness of operating forces by providing facilities, services, and support responsive to the needs of Marines, Sailors, and their families” (MCB Camp Pendleton 2002). Camp Pendleton is the Marine Corps’ premier amphibious training Base and its only west coast amphibious assault training center. The Base has been conducting air, sea, and ground assault training since World War II, providing a unique combination of natural and military resources for the training of Marines and other Department of Defense personnel. For almost 60 years, Camp Pendleton has served as one of the nation’s most important training bases and has contributed substantially to the success of our national security forces in conflicts and missions worldwide.

Camp Pendleton is arguably one of the busiest DoD installations in the United States. Approximately 40-45,000 training events are scheduled at Camp Pendleton each year. These events range from small unit training to Regimental and Marine Expeditionary Brigade (MEB) exercises. Nearly 60,000 Service members train at Camp Pendleton every year. The Base provides training facilities for many active duty and reserve Marine, Navy, Army, Air Force, and National Guard units, as well as other national, state, and local agencies.

The Base is the home to the First Marine Expeditionary Force (IMEF), the First Marine Division (1st MARDIV), First Force Service Support Group (1st FSSG), Marine Aircraft Group (MAG)-39 (an element of the Third Marine Aircraft Wing [MAW]), and many tenant units, including the Marine Corps Tactical Systems Support Activity (MCTSSA), Assault Craft Unit 5 (a U.S. Navy command), Naval Hospital Camp Pendleton, Naval Dental Clinic Camp Pendleton, the Field Hospital Operations and Training Command (a U.S. Navy command), an

Army Reserve Center and the Weapons and Field Training Battalion (an element of Marine Corps Recruit Depot, San Diego). Forces of the IMEF are continuously deployed worldwide to meet national security objectives as directed by the National Command Authority.

To accomplish the national security mission, Marines and other Department of Defense personnel must be trained in all requirements for responding to national security threats. Training activities include, but are not limited to: amphibious landings, use of tracked vehicles, infantry and vehicle maneuvers, artillery and small arms firing, aerial weapons delivery, engineer support operations, logistics support, field combat service support, communications, airlift support for troops and weapons, equipment maintenance, and field medical treatment. Camp Pendleton units train with some of the most modern and sophisticated weapon systems and equipment available. Such technology is constantly evolving to stay ahead of weapon system advancements by threat forces. Continual training to maintain personnel/unit proficiency is a critical component of combat power and is the primary mission of the Base.

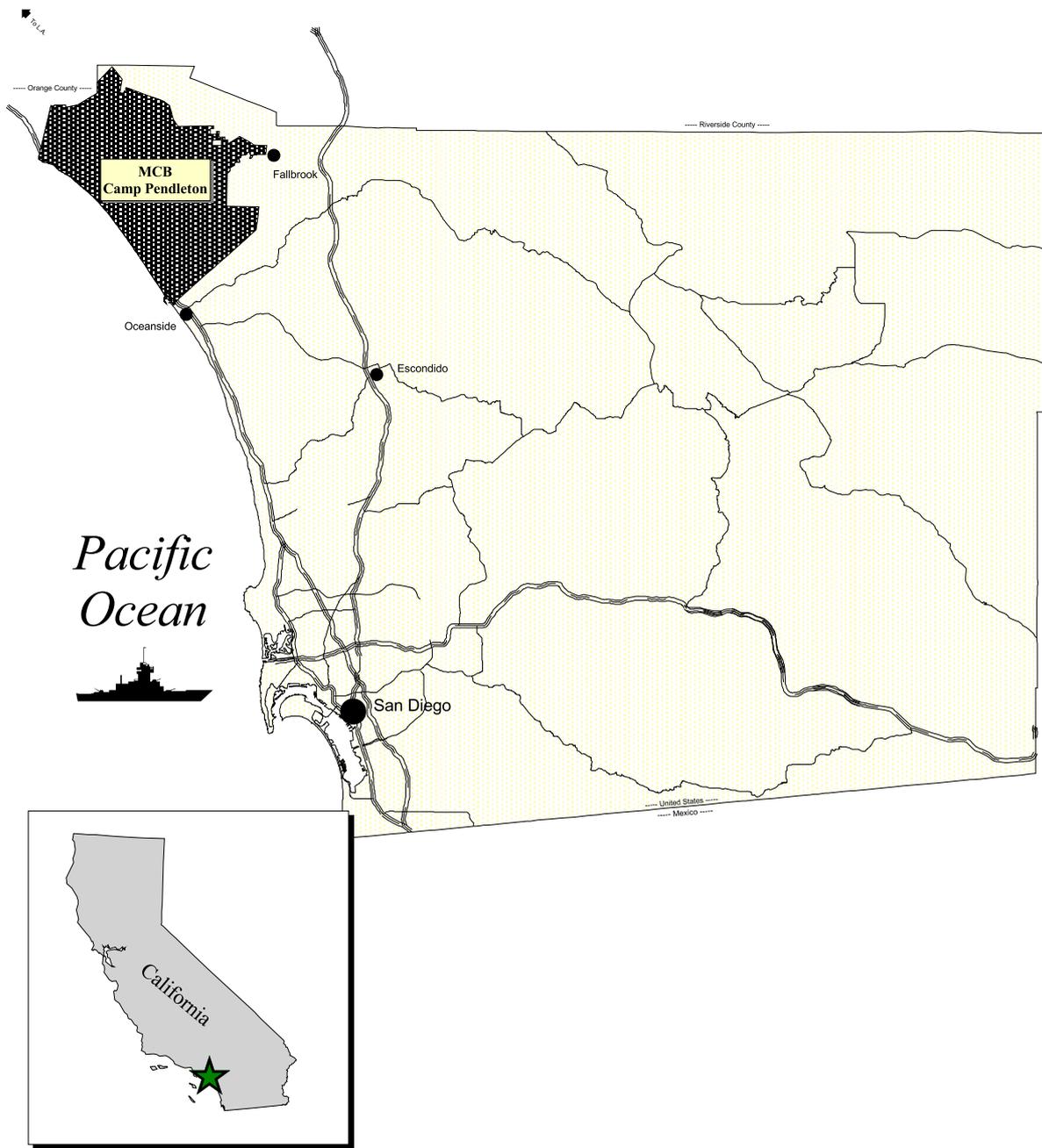
Training on Base is supported by a wide range of Marine Corps and Department of Defense service support activities, including: an airfield and aviation landing areas, ammunition storage areas, radar and communication facilities, supply warehouses, motor vehicle storage and maintenance facilities, recreational activities, bachelor and family housing facilities, medical and dental services, military security, child and family care services, and fire fighting.

2.2 HISTORIC LAND USE

Historic land uses and regional growth over the past 200 years, have significantly influenced not only the physical appearance of Camp Pendleton and its environs, but also the ecological setting in which the Base finds itself today. Much of southern California's biodiversity and its high degree of species endemism have been significantly impacted through historic land use and increasing human population and development.

The land currently occupied by the Base has a long history of human presence (>10,000 years), from prehistoric peoples through Spanish colonials (1769-1821) and Mexican (1821-1848) and American ranchers (1848-1942). Cattle grazing and, later, crop cultivation continued in the region until the U.S. government purchased the land in 1942. It is thought that the early Native Americans regularly burned patches of land in order to clear them. While fire ignitions and burn frequency at Camp Pendleton are much higher today than at the time the military acquired the property, burn patterns may reflect prehistoric ones more closely than those resulting from fire suppression policies in southern California (Minnich 1983).

During the Rancho period, agriculture and livestock were the economic base of the region. Former residents of Rancho Santa Margarita put the number of cattle grazed at "more than 25,000 head" (Grayler, pers. comm. 1989) on about 82,500 acres. It is believed that sheep were introduced in the late 1800s. Subsequent owners of the property also used the land for grazing, and grazing leases continued after the military took over the property during World War II. Camp Pendleton was reputed to have the finest grazing land in southern California during the early 20th Century.



Not to Scale

**Figure 2-1
Camp Pendleton
Regional and Vicinity Map**

-  Interstate Highways
-  Other Highways/Roads
-  San Diego County
-  MCB Camp Pendleton



Map Source:
AC/S Environmental Security
GIS Branch
October 2001



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Grazing and farming activities were supported by El Camino Real, the old thoroughfare used by the missionaries that became Highway 101 and used to follow the Basilone Road alignment before it was moved closer to the coast. Infrastructure development included a railroad, which ran from San Diego to Oceanside, inland along the Santa Margarita River to Temecula, and connected to the transcontinental railroad at San Bernardino. The tracks were generally ten to thirty feet above the riverbed in the canyon. Thirty miles of track were washed out in 1884 and again in 1891. This route was then replaced by a more secure route along the coast.

First established in the Las Flores/Las Pulgas basin in 1897, a bean farm covered approximately 1,980 acres by 1943. Other areas farmed on Camp Pendleton over the years include the Las Pulgas, San Mateo, and San Onofre valleys; Ysidora Basin; the Chappo area (now the Supply Depot and airfield); the coastal bench from Oceanside to San Onofre east and west of Interstate 5; and Stuart Mesa. At one time, farmed areas of the Base totaled around 10,000 acres (Zedler et al. 1997). Stuart Mesa was “a mixture of hog wallows and dune sand in 1938” (AC/S ES historical files). Coastal farms were un-irrigated, as were parts of the San Onofre and Las Flores areas. Irrigated farms included Ysidora Basin, Stuart Mesa, San Mateo, and parts of San Onofre. Truck farming started in the San Onofre valley in 1925. The Cristianitos area was first leased in 1948, and the Talega area was farmed until 1953. A 3,000-acre guayule (*Parthenium argentatum*) “Emergency Rubber Project” was in place that included most of the coastal bench lands north of Horno Canyon. Other historical crops included lemons, nursery stock, dry-land farmed lima beans, tomatoes, strawberries, sweet corn, barley, bulbs, and several types of vegetables, vegetable seed, flowers, and potatoes for the California Potato Experiment Station. In 1944 and 1945, the Base tried to cancel agricultural leases, but gave up after a general protest. It was decided that the “agricultural economy of the entire U.S. would have been affected,” particularly because of vegetable seed and poinsettia production.

In 1942, the Department of the Navy purchased 130,000 of the 181,000 total acres of the *Rancho Santa Margarita y Las Flores* property and converted these lands into a military training center for World War II. Later that year, President Franklin D. Roosevelt named the Base in honor of Major General Joseph H. Pendleton. By 1946, Camp Pendleton had become the headquarters for all Marine Corps activities on the west coast. Over the past 60 years, nearly 5,000 acres has been disposed of by the DoD, resulting in Camp Pendleton’s current size of approximately 125,000 acres.

Camp Pendleton is the Marine Corps’ only amphibious training base on the west coast and has been, is, and will continue to be responsible for the training and deployment of Marines throughout the Pacific Region. For nearly 60 years, the Base has provided a unique combination of natural and military resources for training Marines in every conflict since World War II, contributing substantially to the success of national security objectives around the world.

On August 7, 1942, the United States government landed Marines on Guadalcanal, as the first major American offensive of World War II. Camp Pendleton’s top priority became training Marines in amphibious assault landings. After the assault on Tarawa in 1943, amphibious training and facilities to support these activities increased ten-fold. From that point forward, thousands more Marines were trained for the Pacific Theater at Camp Pendleton during World War II, including the Third, Fourth, and Fifth Marine Divisions. On February 19, 1945 more

than 70,000 combat-ready Marines from 880 ships, most of them from Camp Pendleton, assaulted the beaches of Iwo Jima.

The First Marine Division left Camp Pendleton in 1950 to reinforce the Pusan perimeter in Korea, after a June 25, 1950 invasion of South Korea by eight divisions of the North Korean People's Army. An amphibious assault landing at Inchon followed on September 15, 1950 and at Chosin Reservoir, seven divisions of the Chinese Communist Army engaged Marines in a failed attempt to prevent them from leaving. In all, more than 200,000 Marines were trained at Camp Pendleton for service during the Korean Conflict. Development around the Base expanded as a result of this Conflict, with \$20 million spent on expanding existing facilities and constructing new ones at Camp Horno and the tank park at Las Flores.

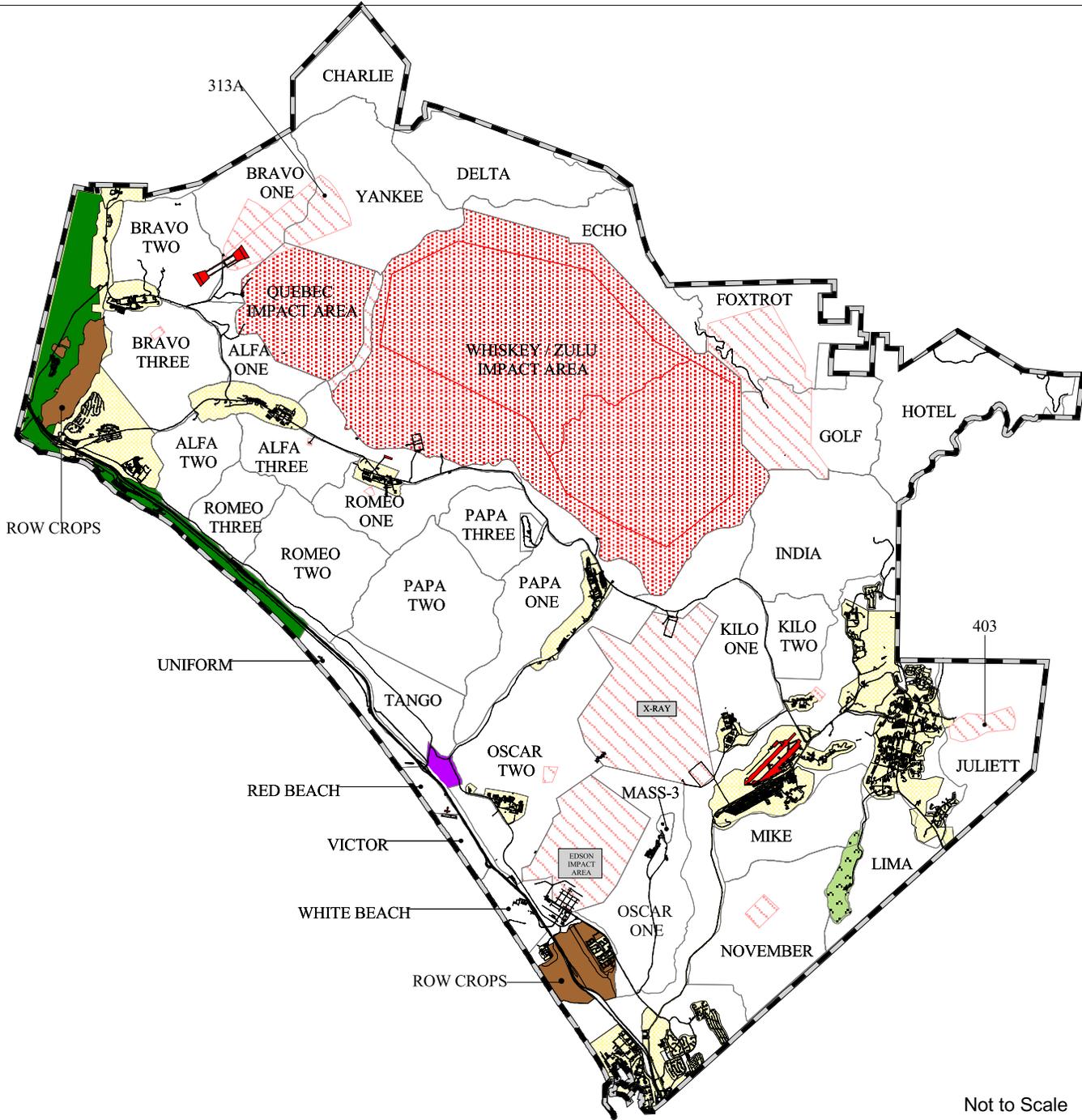
In Vietnam, Marines were providing assistance as early as 1962. In 1965, the 7th Marine Regiment saw the first major American engagements during Operations *STARLITE* and *PIRANHA*. By June 1966, the entire 1st Marine Division had left Camp Pendleton and was in action in Vietnam. For more than ten years, tens of thousands of Marines were trained at Camp Pendleton and sent to war in Vietnam. Development across the Base continued from 1958 through the mid-1970s, as Vietnam became a priority for Camp Pendleton.

Again, in August 1990, Marines from Camp Pendleton were among the first sent overseas. This time by President George Bush to assist in the defense of Saudi Arabia. Then, in February 1991, the 1st Marine Division supported by the 3^d MAW and 1st FSSG was called upon to initiate the attack to retake and liberate Kuwait from the occupying Iraqi Army.

In more recent times, military operations, other than war, have increased in frequency and Camp Pendleton Marines have been increasingly called upon to assist in these missions, including Operation *INTERFET* in East Timor, and Operation *ALLIED FORCE* in Kosovo. As stated in the USMC's *Strategy 21* doctrine, "Whether winning our Nation's battles or reducing human suffering due to man-made or natural disasters, the Marines unique qualities offer the Nation an unparalleled ability to respond to threats or crises, influence world peace, and promote peace and stability."

2.3 CURRENT LAND USE

A variety of land uses occur at Camp Pendleton, however, the priority of Camp Pendleton is and will continue to be military training and support of that military training. While some locations support only one type of activity (e.g., agricultural row crops and dud-producing impact areas), many areas on Base support multiple activities. The following categories illustrate the general locations and predominate types of land uses on Base (Figure 2-2): military training and training support facilities, Base infrastructure and mission support (including cantonment and recreational facilities), and real estate agreements and leaseholders.



Not to Scale

Figure 2-2
Camp Pendleton Land Use

-  CPMCB Boundary
-  Training Area Boundaries
-  Firing Range Impact Areas (Non-Dud Producing)
-  Marine Corps Air Station
-  Central Impact Area (Dud-Producing)
-  Buildings, Paved Roads & Parking Areas
-  Cantonment
-  Historical Site
-  Golf Course
-  Row Crop Agriculture
-  San Onofre State Park & Beach
- Helicopter Outlying Landing Field (HOLF)



Map Source:
AC/S Environmental Security
GIS Branch
October 2001



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2.3.1 Military Training and Training Support Facilities

Although the combat training environment, weapons, and tactics have changed over the years, Camp Pendleton's purpose has remained constant: *it is first and foremost a training base, designed to mold young men and women into the country's finest fighting force.* As a training base, Camp Pendleton must maintain its ability to provide ready, capable Marines in the right place, at the right time, and with the right training in order to excel in the uncertain challenges of the future.

Camp Pendleton actions are guided by the Commandant of the Marine Corps': "[Bases and stations] provide the means by which we develop, train and maintain a modern force that is prepared to win our Nation's battles. Installations are the platform from which we project expeditionary power by deploying and sustaining Marine Air-Ground Task Forces. They will continue to grow in importance as we fully implement our future doctrine and the 'reach back' requirements it demands." The following statement captures the sentiments of the Commandant regarding the future of training for the Marine Corps at Camp Pendleton: "Increased home training, combined with decreased overseas training, equals more training projected for Camp Pendleton." The Commandant further emphasized, "Without [Camp Pendleton], there is no place to live and no place to train" (Commanders Encroachment Brief, December 2000). Future warfighting guidance from the Commandant also captures the essence of natural resource management issues facing the Commanding General at Camp Pendleton: "Emerging warfighting concepts, plus [Base Realignment and Closure] impacts, and more home training, means Camp Pendleton is busy, and going to get busier, and this creates a dilemma for the Base CG." Regardless of the difficulties faced by Camp Pendleton, the Base must ensure that Marines, individually and as a unit, are ready to answer the Nation's call, anytime, anywhere.

Marines are required to be trained in all U.S. Marine Corps mandated requirements and to be combat ready for global deployment in pursuit of mandated national security missions. Training activities must include, but are not limited to: amphibious landings, use of tracked vehicles, personnel maneuvers, artillery and small arms firing, aerial weapons delivery, engineer support operations, logistics support, field combat service support, communications, airlift support (re-supply) of troops and weapons, equipment maintenance, and field medical treatment. Appendix I identifies Mission Essential Task Lists (METLs) for several of the tenant units of the Base.

Camp Pendleton provides training facilities for many active duty and reserve Marine, Navy, Army, Air Force, and National Guard units, as well as other national, state, and local agencies. Camp Pendleton's population can reach 90,000 people daily. Nearly 60,000 personnel train at Camp Pendleton every year, with 35,000 service members actually assigned to Camp Pendleton.

Camp Pendleton is most heavily used by and structured to support the IMEF. The IMEF is the command element for the 1st MARDIV, 1st FSSG, and 3d MAW. The latter is headquartered at MCAS Miramar. One of 3rd MAW's four Aircraft Groups, MAG-39, a helicopter Group, is based at MCAS Camp Pendleton. Forces of the IMEF are continuously deployed worldwide to meet national security objectives as directed by the National Command Authority. The Base

also supports several specialized schools, Headquarters and Support Battalion, Security Battalion, Assault Amphibious Schools Battalion, and a Reserve Support Unit. Camp Pendleton's training ranges are heavily used not only by active Marine and Navy units, but also by reserve Marines, Army National Guard, local community law enforcement agencies, and private research firms for weapons testing.

2.3.1.1 MANEUVER TRAINING

Camp Pendleton's use of more than 200 square miles of land space for training includes 31 training areas, a Central Impact Area (CIA) of more than 32,000 acres, more than 100 live-fire facilities, 4 amphibious assault landing beaches, and Special Use Airspace.

Amphibious Operations

The Base is situated next to a variety of offshore ocean training areas that extend Camp Pendleton's operational capabilities. The waters immediately west of the Base, known as the Camp Pendleton Amphibious Assault Area (CPAAA), contain 294 square miles of amphibious assault training and maneuvering areas, including the seaward portion of restricted airspace area R-2503A. The CPAAA includes an area dedicated to Landing Craft Air Cushion (LCAC) training and operations, as well as the Camp Pendleton Amphibious Vehicle Area. No live ordnance is utilized within the CPAAA during amphibious training operations except those operations that take place within the seaward portion of R-2503A; however, extensive Naval surface, subsurface, and aviation operations take place during such training evolutions. The ocean bottom is designated as the "floor" of the CPAAA while the "ceiling" is considered to be 700 feet mean sea level (MSL), except that portion that lies within R-2503A which extends to 2,000 feet MSL (Figure 2-3).

Although Camp Pendleton also has more than 17 miles of coastline, less than 10 miles of those are normally available for training activities, and only at four amphibious landing beaches (Red, Green, White, and Blue beaches). In addition, there are 11 ingress points under the Interstate 5, railroad, and utility line (e.g., energy and telephone) easement corridors that run parallel to the coastline and allow access to inland training areas of the Base. However, only one of these ingress points (underpasses) is capable of supporting use by *all* military vehicles, equipment, and personnel, including tanks and other amphibious assault equipment. Other physical constraints to amphibious training exercises include terrain (bluffs), other existing leases and easements (San Onofre Nuclear Generating Station, San Diego Gas & Electric, etc.) and a variety of environmental constraints that include species and habitats, wetlands, nesting sites, and archaeological resources. Each of these constraints restricts military and support activities on Camp Pendleton's beaches during amphibious landings, particularly for larger exercises such as Kernel Blitz, severely degrading Camp Pendleton's military readiness capability.

The majority of amphibious assault training activity occurs at Red Beach. Other amphibious assault training can take place at Green, White, and Blue Beaches; however, each of these has environmental and physical limitations that reduce effectiveness for ingress opportunities. Of

R-2503 C
(15,000 feet - Flight Level 270)

"High Angle Arty Only"

R-2503 B
(15,000 feet)

Camp Pendleton
Restricted Airspace

**V-23
AIRWAY ***

(4,000 - 17,000 feet)
(Commercial Airway)

R-2503 A
(2,000 feet)

Pacific Ocean

MCB Camp Pendleton

Not to Scale

Figure 2-3
Regional Aviation Airspace Profile
(Special Use and Restricted)



Map Source:
AC/S Environmental Security
GIS Branch
October 2001



* Heavily used by commercial and general aviation aircraft.

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the five amphibious landing beaches, Red Beach has the least amount of environmental and physical constraint to training activities.

Maneuver Corridors

Proficiency with the variety of military weapons and hardware used by Marines stationed at Camp Pendleton is crucial to the readiness of the Marine Corps and the military training mission of the Base. A key to developing weapons proficiency is ready access to the various firing ranges spread across the Base's interior, particularly those firing positions located around the perimeter of the Central Impact Area. One of the primary components of accessing interior ranges is the availability of inland transit routes, called "maneuver corridors" Figure 2-4. These maneuver corridors represent key locations where movement of military personnel, equipment and vehicles is facilitated, or at least relatively unrestricted by either terrain, vegetation, man-made constraints (e.g., buildings and developed areas) and/or rigid environmental regulations (e.g., designated Critical Habitat, sensitive species and archaeological locations, wetlands, etc.)

Training Areas

Camp Pendleton's 31 training areas and open space lands facilitate the intensive training mandated by Marines to acquire a full range of basic and advanced combat readiness skills, weapons proficiency, and leadership skills. The Base's natural resources are unique and irreplaceable to the Marine Corps because they combine over 17 miles of coastline and extensive, diverse inland training areas. Camp Pendleton is the only West Coast Marine Corps facility where amphibious training operations can be combined with elements of Marine aviation and other supporting combat arms to develop, evaluate, and exercise Marine Corps combat doctrine to the fullest extent.

Inland training areas consists of nearly 114,000 acres of live-fire ranges, impact areas, and training areas. Camp Pendleton's 31 training areas and ranges are designed to facilitate all phases of combat readiness training - from individual basic warrior (small arms) training to larger company/battalion sized training operations. Even larger live-fire combined arms training evolutions that include the use of artillery and Close Air Support are conducted aboard the Base.

The uniqueness and variety of Camp Pendleton's topography, combined with its contiguous offshore amphibious training areas, its live fire ranges, and its protective restricted airspace, offer maximum flexibility for establishing realistic combat training scenarios. This capability to remain flexible is essential. Camp Pendleton is truly the only complete amphibious training facility in the Pacific region and a precious national asset to be preserved.

2.3.1.2 IMPACT AREAS

Impact areas on Camp Pendleton have been specifically designated for the receipt of live-fire ordnance (projectiles and explosives) and serve as targeting areas for associated live fire

exercises for the various weapons used in training. Locations designated as impact areas cover approximately 33,200 acres of Camp Pendleton. Of this amount, nearly 4,200 acres (including the Range 409 impact area and Firing Ranges 312A, 313A, and 403) overlaps with the training area acreage provided above. Impact areas on Camp Pendleton are classified as either *dud-producing* or *non dud -producing* (Figure 2-4).

Dud-producing impact areas support the delivery of ground-to-ground and air-to-ground ordnance and may contain unexploded (dud) ordnance. Dud-producing impact areas include the Quebec, Whiskey, and Zulu impact areas, often referred to collectively as the Central Impact Area. The CIA contains most of live-fire ranges on Base and, as such, is bordered on all sides by safety zones and the remaining maneuver and training ranges.

Including safety zones and the Jardine Canyon area between Quebec and Whiskey/Zulu, the Central Impact Area totals over 29,000 acres. No maneuver activities are conducted within the CIA. Access to dud-producing impact areas is tightly controlled for safety reasons. Wildfire in these areas is not normally suppressed due to safety concerns. Firebreaks are used to contain wildfires in dud-producing impact areas.

Non dud-producing impact areas, referred to collectively as “secondary impact areas,” support training activities that utilize small arms firing and the use of non dud-producing ordnance in live fire exercises. Secondary impact areas are scattered across the Base and include Edson Range, X-Ray Impact Area, 409 Impact Area, and Firing Ranges 312A (currently inactive), 313A (currently inactive), and 403 located within the Juliett Training Area (Figure 2-4). Upon request, maneuver activities may be conducted within secondary impact areas.

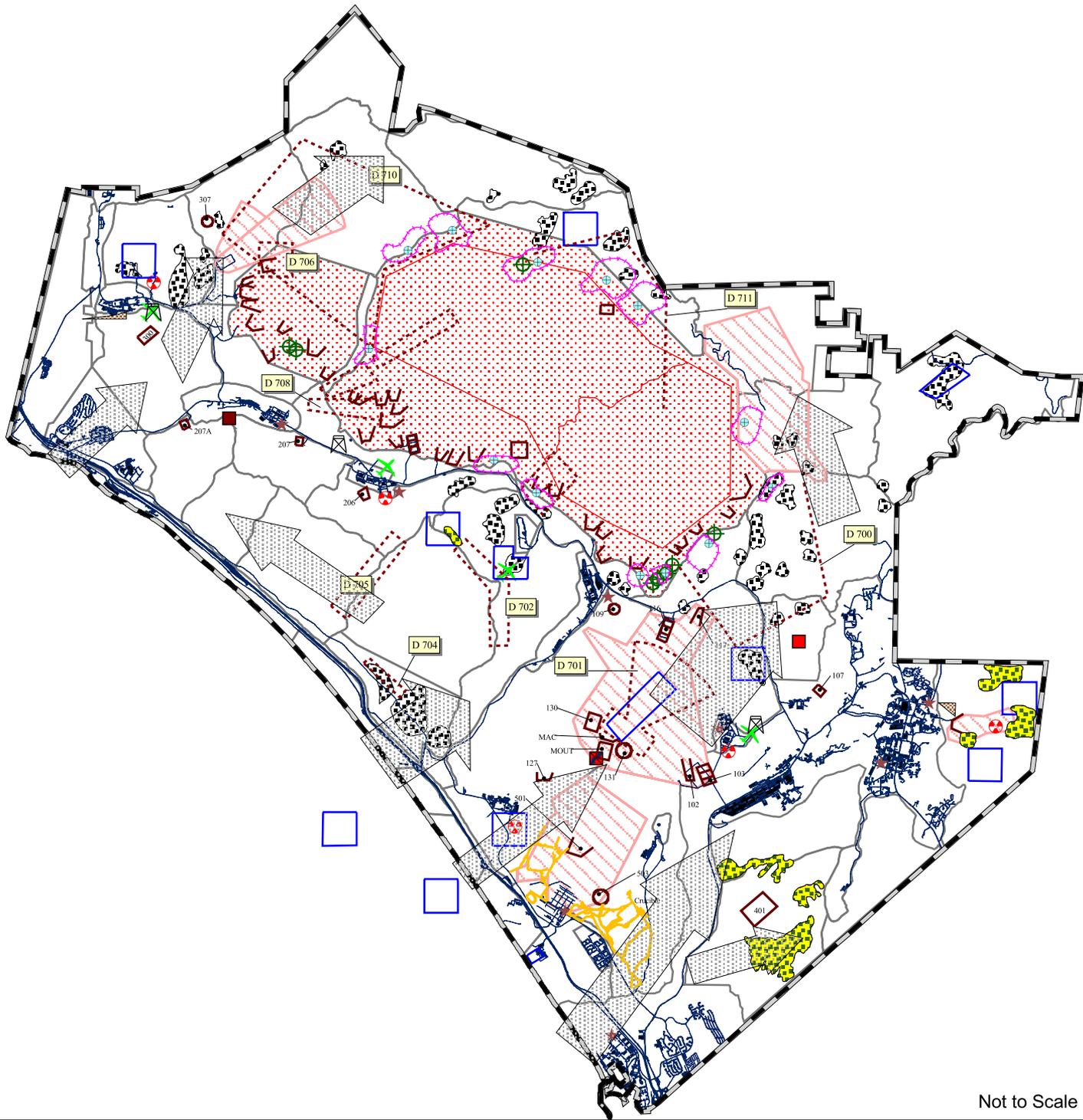
2.3.1.3 TRAINING SUPPORT FACILITIES

Camp Pendleton has numerous training related facilities to support the diverse sea, and land based training. These facilities range from combat training towns and rappel towers to designated areas for the use of live fire, explosives, and other potentially hazardous training. Training facilities in support of aviation operations are discussed in Section 2.3.1.4 below.

Live Fire, Explosives, Blanks, Pyrotechnics, Smoke, Chemical Munitions, and Lasers

Live fire is defined to include the use of weapons or weapon systems that produce projectiles (e.g., small arms, artillery, aviation ordnance, and other dud- and non dud-producing ordnance). For ease of coverage in this document, live fire does not include explosives, pyrotechnics, and other incendiary devices.

Training operations which involve the use of live fire are restricted to the following six types of locations across the Base (Figure 2-4): impact areas (described above); live fire facilities, including ranges, Artillery Firing Areas (AFAs), Mortar Positions (MPs), and Mortar Firing Areas (MFAs); and Live Fire And Maneuver (LFAM) areas. The Base currently operates nearly 100 live fire facilities and 12 LFAM areas.



Not to Scale

Figure 2-4
Ground Training Operations

- | | | | |
|--|--|--|---------------------|
| | Camp Pendleton Boundary | | NBC Facilities |
| | Training Area Boundaries | | 25 Area Combat Town |
| | LFAM | | 52 Area Combat Town |
| | Crucible | | MOUT |
| | Firing Ranges | | Maneuver Areas |
| | Mortar Firing Areas | | |
| | Heavy Equipment Training Sites | | |
| | AFAs | | |
| | Live Fire Impact Areas (Non-Dud Producing) | | |
| | Central Impact Area (Dud Producing) | | |
| | Dropzone | | |
| | RSOPs (NFAFAs) | | |
| | Rappelling Towers | | |
| | Obstacle Courses | | |
| | Mortar Positions | | |
| | Aircraft Mock-Ups/Hulks | | |



Map Source:
AC/S Environmental Security
GIS Branch
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A live fire range is a designated area equipped with a variety of targets and monitoring/scoring devices for live fire training. Live fire ranges are designed to accommodate a broad spectrum of weapons including pistols, rifles, machine guns, mortars, antitank assault weapons, grenades, missiles, and artillery. These include man-portable weapons, vehicle-mounted weapons systems, and rotary and fixed wing aircraft systems. Ranges are designed to provide combat conditions and scenarios to train personnel as well as test the capabilities of weapon systems. Live fire ranges must be continuously upgraded to keep pace with evolving technology. With few exceptions, the firing ranges are located within and along the perimeter of the central and secondary impact areas.

AFAs, MPs, and MFAs are designated locations for the firing of inert and explosive artillery and mortar ammunition into the impact areas. The Base currently has 45 AFAs and 7 MPs. Twelve MFA sites are proposed within the periphery of the Central Impact Area. AFAs are fairly large and relatively flat areas, usually free of brush and shrubs. MPs are similar, but much smaller in area. The proposed MFA sites are generally larger than MPs and are for simulating emergency suppression tactics. Specially designated AFAs are also used in conjunction with live fire operations by wheeled and tracked assault vehicles. AFA or MP training includes the burning of unused powder and charges. This is generally conducted in trenches and in accordance with the Range and Training Regulations, equipment technical manuals and operation manuals. There are six nonfiring AFAs on Base, called Reconnaissance, Selection, Occupation of Positions (RSOPs) that are used for AFA types of training without live fire. RSOPs are also included in Figure 2-4 as they receive the similar types of training related impacts (less the firing noise and associated impacts) as AFAs.

With few exceptions, MPs are located within and along the perimeter of the central and secondary impact areas; the AFAs, RSOPs, and LFAM areas are located in training areas throughout the Base.

Live Fire and Maneuver activities are field training exercises that practice the coordination of infantry, vehicle, flight operations, and combat service support operations during various offensive assault and attack scenarios. LFAM operations enable personnel to experience realistic simulations of combat scenarios. Twelve specific locations on Base designated for LFAM operations (Figure 2-4):

- D700 occupies an area that overlaps portions of several training areas, including India, Kilo One, Kilo Two, and the CIA buffer. This LFAM site has been selected to accommodate battalion sized or larger units in mobile assaults scenarios that integrate infantry, aviation, mechanized, and motorized units with direct live fire and supporting arms live fire.
- D701 occurs primarily within the X-Ray Impact Area. This LFAM site has been selected to integrate battalion sized or larger infantry and mechanized, aviation, and motorized assault units with scenarios that include minefield breaching operations and both direct live fire and supporting arms live fire.
- D702 occupies a small canyon situated in overlapping portions of three training areas: Papa One, Two, and Three. This LFAM has been selected to integrate company and

platoon sized or smaller infantry assault units with live fire and maneuver scenarios that include use of both direct live fire and supporting arms live fire.

- D703 primarily occupies lands within the CIA, northeast of Basilone Rd. across from the ASP facility, including a portion of AFA#10. This LFAM has been selected to integrate company and platoon sized or smaller infantry assault units within live fire and maneuver scenarios that include both direct live fire and supporting arms live fire.
- D704 occupies an area that lies exclusively within the Tango training area, overlapping with a portion of AFA#14, east of I-5. This LFAM has been selected to integrate company and platoon sized infantry maneuver activities within scenarios that include direct live fire. This LFAM will also integrate mechanized unsupported live fire and maneuver attacks.
- D705 occupies a portion of Horno Canyon that includes parts of several training areas: Papa Two, and Romeo One and Two. This LFAM site has been selected to accommodate company and platoon sized mobile assault scenarios that integrate both mechanized and motorized units in live fire offensive attacks.
- D706 is primarily situated within a portion of the Quebec Impact area but also includes portions of the Bravo One and Yankee training areas. This LFAM site has been selected to support platoon sized or smaller infantry assault units within a live fire ambush scenario.
- D707 is exclusively situated within the CIA, near Jardine Canyon. This LFAM site has been selected to support squad sized infantry units within an offensive range live fire scenario.
- D708 is primarily situated along a hillside overlooking the south fork of San Onofre Canyon, east of the 52 Area, near Jardine Canyon. This LFAM site has been selected to support squad sized infantry units conducting live fire assault scenarios.
- D709 is primarily situated along the drainage within the north fork of San Onofre Canyon, east of Jardine Canyon. This LFAM site has been selected to support aerial assaults on a mechanized enemy column using anti-armor weapons systems.
- D710 occupies a larger region of the northern part of the Base, overlapping portions of several training areas: Bravo One, Charlie, Yankee, Quebec Impact Area, and the northernmost reaches of the CIA, including Jardine Canyon. This LFAM site is designated as Live Fire And Maneuver Area #4 and has been selected to accommodate company and platoon sized units in mobile assault scenarios that integrate infantry, units with direct fire, and aerial support live fire, including the use of ordnance.
- D711 is primarily situated along the eastern margin of the CIA, adjacent to Echo Training Area, but also includes portions of the Whiskey-Zulu Impact Areas and its adjoining buffer zone. This LFAM site has been selected to support company sized

units in helicopter insertion of heavy weapons and coordinated live fire attacks in an offensive scenario.

Except for hand grenade training, use of explosives are limited to demolition training and to simulate battlefield conditions. Typical explosive devices involve trinitrotoluene (TNT), C4, shape charges, 1700-pound line charges, and demolition equipment. Demolition and explosives training involving ¼-pound blocks of TNT and C4 or smaller may be used on all ranges and training areas (or wherever a unit commander believes is safe, so long as usage complies with the fire danger rating and Base Order restrictions). Larger charges are permitted on ranges 219, 401, and 600 but require proper approvals for use on any other range or training area. Hand grenade training is restricted to ranges 109, 202, 307, and 503.

Blanks are non-projectile producing rounds that may be used with an array of small arms to simulate weapons firing without the safety risks involved with the use of live ammunition. Blanks may be used basewide in all training areas, so long as usage complies with the fire danger rating and Base Order restrictions.

Pyrotechnics are devices that create smoke and/or light for signaling or illumination (e.g., flares or smoke grenades) or for simulating battlefield conditions. Some devices are designed to produce smoke for targeting or for “self-screening” that are not typically considered pyrotechnics (e.g., white phosphorous, used largely for targeting, is not considered a pyrotechnic in the Range and Training Regulations manual). Pyrotechnics and smoke producing devices are permitted in training areas throughout the Base, so long as usage complies with the fire danger rating and Base Order restrictions.

Chemical munitions used during infantry training refer almost exclusively to nontoxic tear gas (chlorobenzylmalonitrile), which is used in designated nuclear, biological, and chemical (NBC) chambers, in Combat Training Towns, the Military Operations in Urban Terrain (MOUT), and throughout training areas in general (Figure 2-4).

Camp Pendleton has been certified for the use of a variety of man-portable, vehicle-mounted, and airborne laser targeting systems generally employed in target designation in ranges and impact areas. Laser systems may be operated only from observation posts and live fire ranges as specified in the Range and Training Regulations (paragraph 8005).

Obstacle Courses, Rappelling, Urban Terrain, etc.

The Base has a variety of facilities for ground based training exercises (Figure 2-4). These include, but are not limited to: two Combat Training Towns (CTTs, one each in Kilo Two and Alfa Two training areas), one MOUT (in X-Ray impact area), 19 obstacle courses, the Crucible course, 3 rappel towers, aircraft mock-ups (Hulks), and two heavy equipment training sites (discrete locations for bulldozer, etc. training).

The CTTs and the MOUT are facilities that simulate developed areas for urban terrain training and consist of one and two story concrete block and wood buildings to simulate infiltration, patrolling of built-up areas, building searches, etc. The 25 Area CTT (in Kilo Two), 52 Area

CTT (in Alfa Two), and the MOUT occupy approximately 62, 48, and 312 acres respectively (acreage estimates include ruderal land surrounding the facilities). Training conducted in the 52 Area CTT employs only small arms blanks and smoke grenades, whereas the combat scenario at the 25 Area CTT is further enhanced by the use of simulated artillery and machine gun fire (from propane cannons), tear gas, additional smoke devices, and pyrotechnics. In addition to the kinds of activities conducted at the CTTs, training at the MOUT involves detonation of ¼-pound TNT charges and use of six live fire stations situated at Range 131, all located within the X-Ray Impact Area.

2.3.1.4 AVIATION OPERATIONS

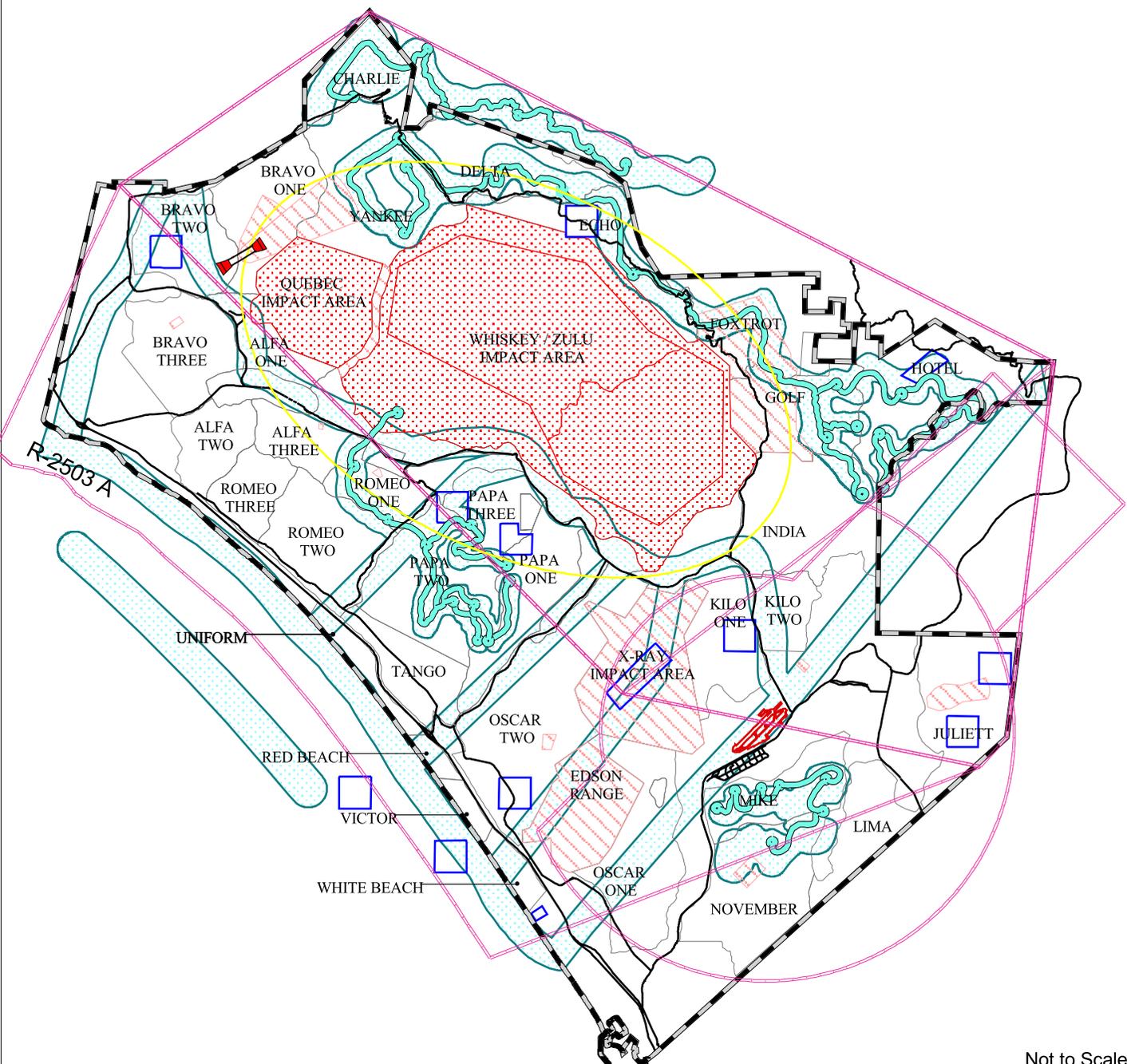
Camp Pendleton's Special Use Airspace includes military operations areas, a controlled firing area, and restricted airspace established to support military training and ground weapons firing per agreement with the Federal Aviation Administration (FAA). This Special Use Airspace is approved for military use from 6:00 AM to midnight, seven days a week, year around (Figure 2-5).

Special Use Airspace was established over Camp Pendleton to segregate hazardous military air operations and ground firing activities from nonparticipating civil aviation operations. The restricted airspace overlies most of the Base's landmass, including all of its inland training ranges. As many as five unlawful intrusions into Camp Pendleton's airspace occur each month from private civilian aircraft, raising the potential for collision. MCAS Camp Pendleton, with eight helicopter squadrons, 180 aircraft, and over 148,000 flight operations annually on a single runway, is the busiest helicopter airstrip in the Marine Corps (at peak periods, a military aircraft, usually a helicopter, takes off or lands at MCAS Camp Pendleton within the R2503-B airspace every two minutes). Adding to the situation, the commercial airway (V-23) located just off the coast from Camp Pendleton is considered the busiest in southern California. At peak periods, a commercial aircraft operates in this airspace every two minutes, as well. This situation has led the FAA to designate Camp Pendleton as a "High Midair Potential" area.

Commercial air traffic from the 40 airports within a 60-mile radius of Camp Pendleton severely degrades aviation training and adversely affects overall military readiness at Camp Pendleton. Requirements exist for expanding restricted airspace to support new warfighting tactics and equipment (e.g., MV-22 Osprey, multiple rocket artillery system, etc.).

Nearly 4,000 personnel and 180 rotary wing aircraft are stationed at MCAS Camp Pendleton. Rotary wing aircraft participating in flight operations on Base include the Huey (UH-1), Cobra (AH-1W), Sea Knight (CH-46E), Super Stallion (CH-53E), and Sea Stallion (CH/RH-53D). Additionally, rotary wing aircraft from Marine Corps Air Station Miramar and local Navy installations and ships, Coast Guard stations, the Air Force Bases, and Army facilities utilize the Central Impact Area and the various landing areas located across the Base.

Rotary wing operations include: ordnance delivery (e.g., rockets, gunnery), air-launched anti-armor missile training, night vision goggle training, parachute drops of supplies and personnel, vertical replenishment (VERTREP), from ship-to-shore and shore-to-ship operations, external load training, door gunner training, Low Altitude Antiaircraft Defense (LAAD) training, and



Not to Scale

**Figure 2-5
Aviation Operations
(Airspace)**

-  Camp Pendleton Boundary
-  Training Area Boundaries
-  Camp Pendleton Special Use Airspace
-  Main Roads
-  MCAS Camp Pendleton (23 Area Air Station)
-  Fixed Wing Close Air Support (CAS) Route
-  TERF Routes
-  HOLF
-  Central Impact Area (Restricted Access)
-  Live Fire (Non Dud-Producing) Impact Areas
-  Aviation Overflight Zones
- Drop Zone



Map Source:
AC/S Environmental Security
GIS Branch
October 2001



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Terrain Flight (TERF) route operations (Figure 2-5). Rotary wing training operations typically utilize aviation overflight zones (Figure 2-5) and five live fire ranges located in the dedicated impact areas of the Base. Helicopters also use the door gunner ranges (Door Gunner #1 and Door Gunner #2 ranges) located adjacent to Case Springs, which involves firing machine guns into the Whiskey impact area. Takeoffs and landings are conducted primarily from established landing zones (LZs), Confined Area Landing (CAL) sites, Vertical/Short Take Off and Landing (V/STOL) pads, the Helicopter Outlying Landing Field (HOLF) and simulated amphibious assault ship flight decks (LHA Pads) (Figure 2-6). However, helicopters may take off and land virtually anywhere within training areas, as required by individual training scenarios.

Rotary wing flight operations are typically conducted 100-700 feet above ground level (AGL), depending upon the training scenario and the number of aircraft involved. TERF routes afford aircraft low altitude (50-100 ft AGL) navigation training through passes, canyons, flat terrain, and along rivers. Aviation live fire training events are restricted to the dedicated impact areas. Aviation operations, fixed and rotary wing occur year-round at the Bases various aviation facilities.

The Base recently completed construction of the HOLF (Phase 1) at Range 313A. This facility became operational August 2000 and supports night vision goggle operations, increased helicopter training efficiency (e.g., by providing both grass strip and hard surface runways for skid-mounted, as well as wheeled helicopters), and enhances combat readiness for helicopter squadrons (Ogden 1998).

At present, no fixed wing aircraft are permanently stationed at MCAS Camp Pendleton. Fixed wing turbo prop and jet aircraft from MCAS Miramar and other local military facilities, however, use the Central Impact Area and the various landing areas located across the Base. Fixed wing aircraft participating in flight operations on Base include the Harrier (AV-8), Thunderbolt (A-10), Hornet (F/A-18), Tomcat (F-14), Viking (S-3), Orion (P-3), Hercules (C-130), Star Lifter (C-141), Greyhound (C-2), and numerous aircraft of civilian design/manufacture.

Flight operations involving fixed wing aircraft include: Close Air Support (CAS), command and control, air reconnaissance, transport of troops and equipment, parachute operations for the deployment of personnel and equipment, vertical and short take off and landings, and LAAD training. Fixed wing ground support aircraft, with the exception of AV-8Bs, confine their take off and landing operations to the air station. AV-8Bs can perform takeoffs and landings at the V/STOL pad located south of Red Beach, the LHA pad in the Tango Area, the V/STOL Two pad in the Oscar Two Area, and the designated Road Operations area on old Highway 101 east of I-5 in the Tango area (Figure 2-6). Parachute operations occur within designated Drop Zones (Figure 2-6). Fighter and attack aircraft conduct CAS activities with live and inert ordnance in the Zulu Impact Area located in the center of the Base (Figure 2-6). Simulated CAS in support of ground maneuver operations may occur within all training areas.

2.3.2 Base Infrastructure and Mission Support

Camp Pendleton's military training mission is sustained by a wide range of mission support activities and facilities. Similar to local municipalities, the Base provides Marines, Sailors, and their families with support facilities and services, including housing, water and sewage service, solid waste disposal, medical and dental services, schools, child care, employment assistance, and recreation opportunities. The importance of providing this support in close proximity to training areas cannot be understated.

The Base is home to as many as 41,000 residents: 18,000 single service members, 6,000 married service members, and another 17,000 family members. In addition, almost 10,000 civilian workers (e.g., San Onofre Nuclear Generating Station, DoD, State Parks, etc. personnel) transition on and off Base each day.

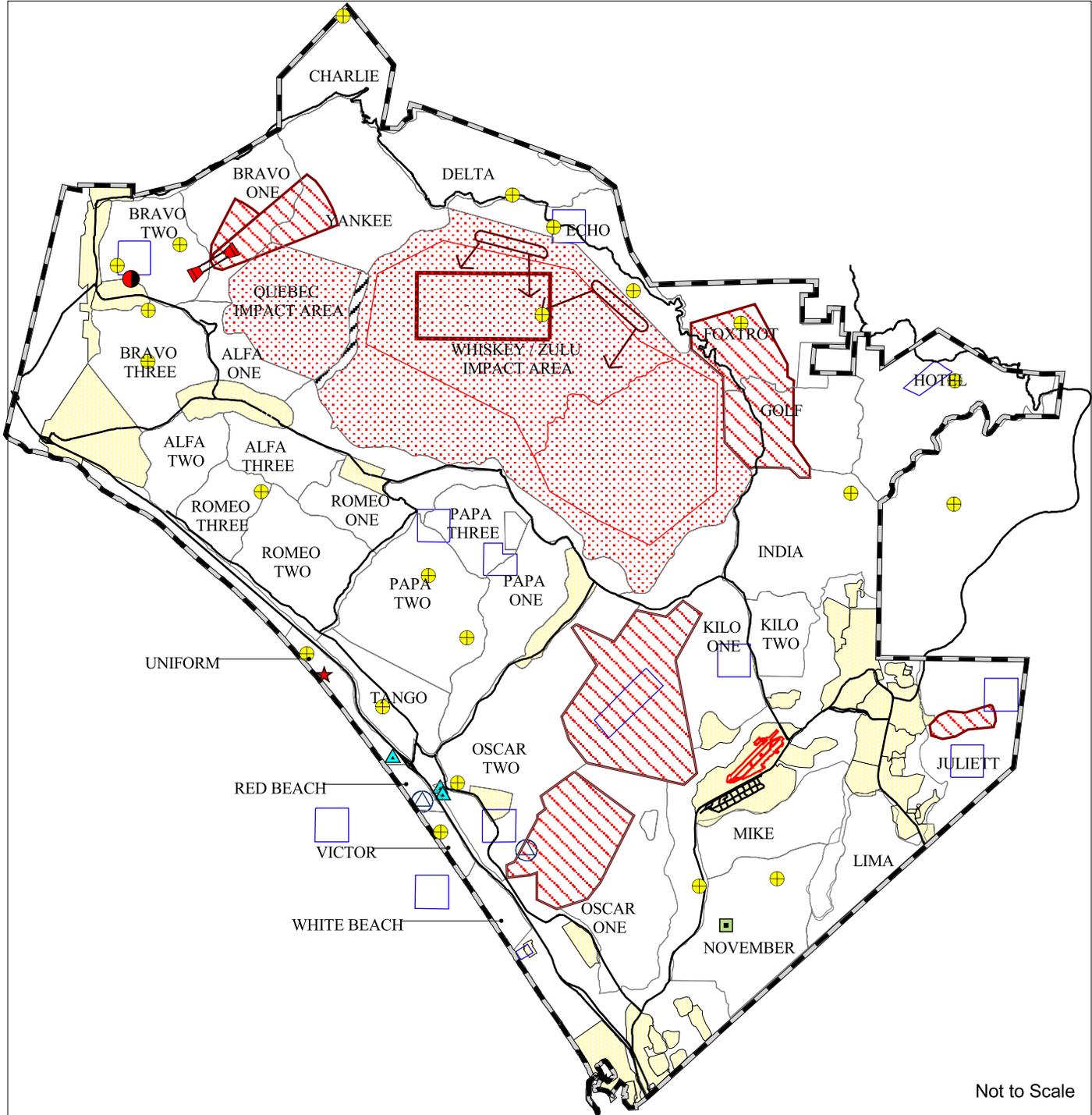
Camp Pendleton currently has more than 5,000 buildings and structures, 500 miles of roads, and nearly 1,000 miles of utility lines basewide (Figure 2-7). The estimated current value of land and physical assets is over \$2.9 billion, not including military hardware and personnel. These assets are located on approximately 10,000 acres (cantonment areas) scattered across the Base in pockets of development. Much of the infrastructure development of Camp Pendleton over its nearly 60 year history has occurred on lands previously disturbed by cattle ranching and farming activities that covered approximately 82,500 acres of the former *Rancho Santa Margarita y Las Flores*.

2.3.2.1 CANTONMENT AREAS

Cantonment areas are portions of the Base that generally contain infrastructure development (Figure 2-2), including more than 5,000 buildings and other permanent structures. Cantonment areas are designated on Base maps, however, some portions of designated cantonment areas contain open space and may be used for training, recreation, etc. Likewise, designated training areas may contain some buildings and infrastructure development. Areas designated as cantonment total approximately 10,800 acres. Sometimes included in the acreage designated as cantonment are a cultural resource area (*Estancia de las Flores*) and/or the golf course, adding 180 acres and 380 acres, respectively, to the cantonment total. Actual developed areas on Base, not including roads, are estimated to total 9,800 acres.

Seven separate cantonment areas for infantry and artillery regiments and schools are located along Basilone and San Mateo Roads, namely San Mateo, San Onofre, Horno, Las Pulgas, Margarita, Vado Del Rio, and Talega. Two cantonment areas, Las Flores and Edson Range, are located on the coastal plain east of I-5 and three other cantonment areas, Del Mar, MCTSSA, and Assault Craft Unit 5 are located on the coastal plain west of I-5.

The largest concentration of development is in the southeastern corner of the Base, close to Fallbrook and San Luis Rey gate, where major community support facilities and four family housing areas are located. The U.S. Naval Hospital, another family housing area, Chappo industrial area, and MCAS Camp Pendleton lie in the Santa Margarita River valley.



Not to Scale

- Camp Pendleton Boundary
- Training Area Boundary
- Main Roads
- Drop Zone (DZ)
- Central Impact Area (Dud-Producing)
- Live Fire Impact Areas (Non Dud-Producing)
- Aircraft Strafing Range
- Cantonment
- Helicopter Outlying Landing Field (HOLF)
- Vertical/Short Take Off and Landing (V/STOL)
- Confined Area Landing Site (CALs)
- Helicopter Heavy Lift Pad (HLZ)
- Helicopter Doorgunner Range
- LHA Pad
- TALA
- VERTREP

**Figure 2-6
Aviation Operations
(Facilities)**



Map Source:
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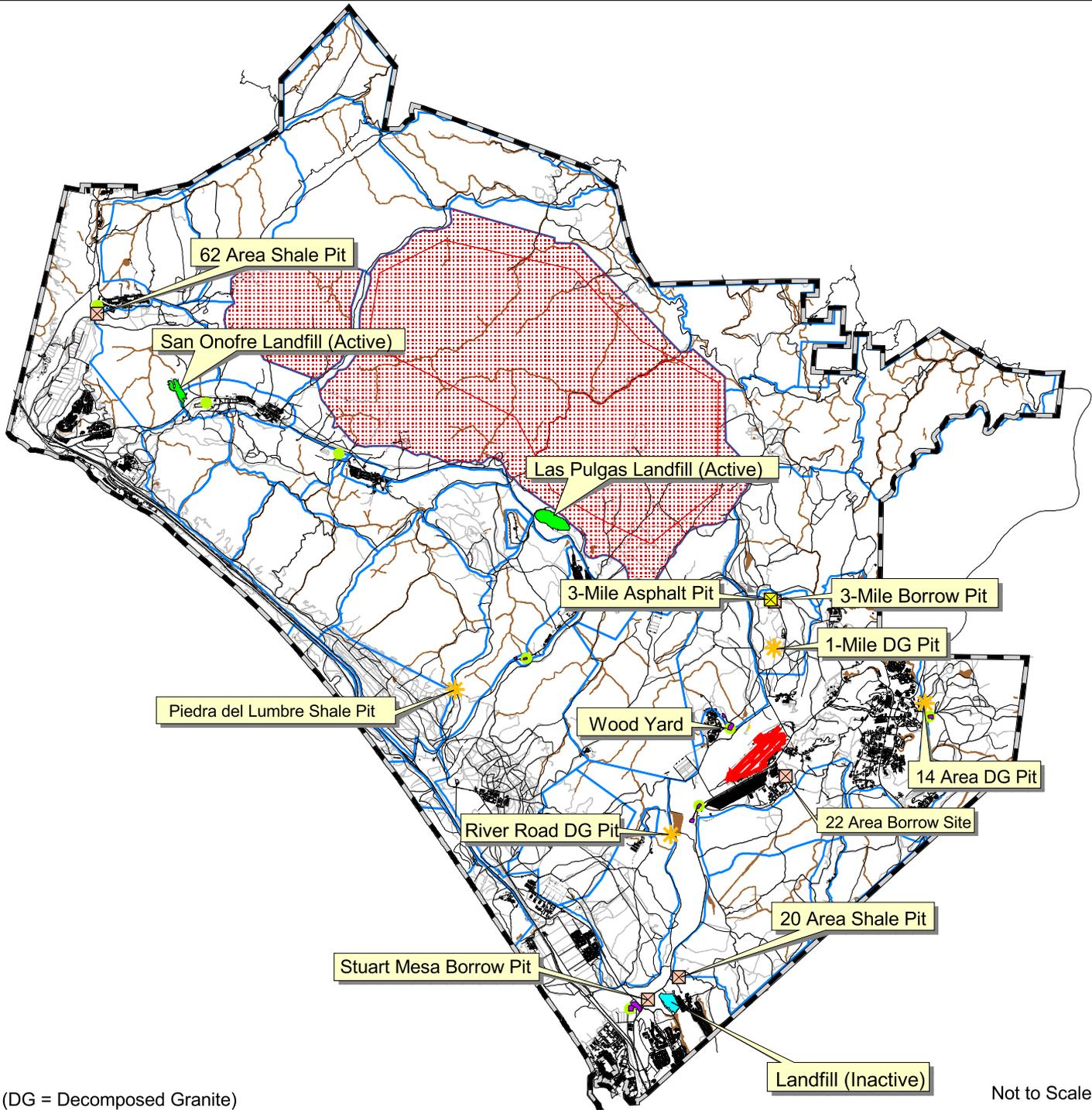


Figure 2-7
Camp Pendleton Support Facilities

-  Camp Pendleton Boundary
-  Training Area Boundary
-  Unimproved (Dirt) Roads
-  Firebreaks
-  MCAS Camp Pendleton
-  Central Impact Area
-  Buildings, Roads and Parking Areas
-  Recycle Facility
-  Wastewater Treatment Facility
-  Inactive Borrow Site
-  Active Borrow Site
-  Active Asphalt Pit



Map Source:
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The second largest concentration of development occurs in the southwestern corner of the Base. Wire Mountain, the largest family housing area, is located just east of I-5 at the Oceanside Gate. The Del Mar boat basin and additional family housing lie to the west of I-5. A large family housing community (1,166 units), Stuart Mesa housing, is south of Edson Range. Another family housing area and a shopping center are located near the San Onofre gate at the northwestern corner of the Base. The San Mateo Point family housing area contains 76 attached residential units.

2.3.2.2 RECREATION AREAS

The Base recreation program provides a variety of recreational opportunities to Base patrons, including members of the public. Chapter 5 identifies the locations of recreational opportunities on Base, as well as the extent of public access for the purpose of fish- and wildlife-oriented recreation/education. Many recreational activities occur in cantonment areas (e.g., fitness centers, bowling, and cinemas), on roads or trails (jogging, bicycling), or training areas (hunting, camping). Few areas on Base are dedicated solely for recreational purposes. These are the equestrian facilities (stables, rodeo grounds, horse pastures [1,309 and 123 acres]) and the golf course (380 acres). Although primary purpose of Lake O'Neill is as an aquifer recharge, the lake also provides recreational opportunities for fishing, camping, boating, and the like. Even the State Park is not solely devoted to recreational usage as it is also available for training operations with prior coordination.

2.3.2.3 ROADS, TRAILS, FIREBREAKS, ETC.

Primary and secondary roads, parking lots, and culverts are widely distributed across the Base (Figure 2-7). Primary roads consist of paved and improved roads, while secondary roads are dirt roads with decomposing granite, gravel, or shale as a surface covering. Approximately 103 secondary roads exist. The Base has more than 500 miles of roadways. In addition, the Base has established an extensive network of 85 firebreaks and 1 fuel break (MCB Camp Pendleton 1998), totaling nearly 1,300 acres and covering approximately 186 linear miles. A firebreak is any natural or constructed barrier bladed or disked to bare earth and used to segregate, stop, and control the spread of fire. A fuelbreak is a natural or constructed barrier that includes mowed or modified vegetation and is used to segregate, slow, and control the spread of fire or provide a control line from which to work. Fuelbreaks are wider than firebreaks and are not designed to completely stop a fire like a firebreak; rather fuelbreaks allow more time for the fire's heat to dissipate before reaching the firefighter.

2.3.2.4 BORROW SITES, LANDFILLS, AND WOOD YARD

The Base Facilities Maintenance Division operates 6 active borrow sites (Figure 2-7): 20 Area Shale Pit, 62 Area Shale Pit, Stuart Mesa Borrow Site, 22 Area Chappo Site, Three Mile Concrete/Asphalt Site, and the Three Mile Decomposed Granite Pit. An additional 4 borrow sites are inactive: the Piedra de Lumber Shale Pit and the River Road, 14 Area, and One Mile Decomposed Granite Pits. Borrow sites are used at various times for excavation of fill material

for construction projects and maintenance actions, such as the extraction of shale material for use in resurfacing and repairing secondary roadways and unpaved parking lots.

Camp Pendleton also operates and maintains two active landfills for the acceptance, disposal, and daily capping of non-regulated solid waste generated on Base (Figure 2-7): the Las Pulgas and San Onofre landfills. A third landfill site, the Box Canyon Landfill, is currently inactive and is in process of final cap and closure.

The wood yard is a central staging area for woody debris (e.g., tree stumps, logs, limbs), not to include leaf matter, green waste, or lumber/scrap wood. The woody debris within the wood yard is generated from maintenance and construction projects and provides a source of firewood for military personnel.

2.3.2.5 UTILITY LINES AND FENCING

Underground and aboveground utility lines are located throughout the Base. Utility repair is conducted on an emergency basis only and may occur during the day or night. Operational checks and preventive maintenance are conducted throughout the year and typically during daylight hours.

Underground utility maintenance for the repairs and/or upgrading of systems is uncommon and may require excavation of buried utility lines. Maintenance of utilities accessible through manholes, however, only results in ground disturbance from off-road vehicle operation to remote sites. If digging is necessary to gain access to underground utilities, notification of a locator service is required. Equipment used during underground utility maintenance activities ranges from lightweight trucks to heavy trucks and backhoes. Backhoes are frequently used.

Aboveground telephone and fiber optic cables typically follow major roads throughout Camp Pendleton. Periodic herbicide application and vegetation cutting is required to maintain access to the cables and to protect them from overgrowth. Tree trimming is continuously required to protect overhead lines from damage. Herbicides are applied and vegetation is cleared around the base of telephone poles and pedestals in a 10-foot radius. Pipeline maintenance activities for aboveground pipelines include routine examinations for leaks and deterioration, operational inspections, and preventive maintenance. Herbicides are applied with a backpack spray system and hand tools. Weed eaters, swing blades, and hand-held trimmers are used to cut vegetation. Lightweight vehicles are commonly used in routine maintenance and repair activities.

The majority of fences on Base are chain link; however, there are also some barbed wire and wood fences. Fences are concentrated in developed areas and around facilities, with additional fencing on some portions of the Base boundary and some range boundaries. Most fence maintenance involves minor repairs on existing fence lines and requires only the use of lightweight trucks, hand tools, and augers. Fence maintenance is conducted on an as-needed basis, typically during daylight hours.

2.3.2.6 POTENTIALLY CONTAMINATED SITES

There are 62 locations (Figure 2-8) on Camp Pendleton that have been identified as sites where the disposal or discharge of hazardous wastes may have resulted in potential environmental contamination. Once identified, these sites are researched, investigated and remediated through the Camp Pendleton Installation Restoration (IR) program. The IR program is designed to comply with procedural and substantive requirements of the Comprehensive Environmental Response, Compensation, and Liability Act, the Superfund Amendments and Reauthorization Act (SARA), with regulations promulgated under these Acts and other relevant federal and state laws including the Endangered Species Act.

Contamination at Camp Pendleton has primarily resulted from past waste disposal practices, many of which are no longer accepted (due to the evolution of environmental regulatory guidelines). These wastes resulted from Base operations, such as maintenance and repair of trucks, tanks, and aircraft. Vehicle fluids and solvents have been the principal wastes generated on Base. Camp Pendleton has grouped its 62 locations into five operable units based on similarities such as the types of environmental issues, selected cleanup methods, and/or geographic location (see Table 2-1). Appendix J provides the status of these sites and a description of sites still undergoing evaluation or remedial action.

As required by CERCLA, Section 120 (e), Camp Pendleton has developed and signed a Federal Facilities Agreement (FFA) with the Environmental Protection Agency (EPA) and the State of California for the management, conduct and approval of the cleanup process. The Camp Pendleton FFA established a FFA management team consisting of the EPA; San Diego Regional Water Quality Control Board, California Department of Toxic Substances Control, Southwest Division, Naval Facilities Engineering Command (SWDIV); and Camp Pendleton for the purpose of ensuring all "applicable or relevant and appropriate requirements (ARAR)," such as Federal, state, and local standards (including those for protection of sensitive species), are taken into account, and establishing schedules and remedial actions to be taken.

CERCLA and EPA guidance further requires that regulatory agencies and the public be informed of the results of studies and investigations as they occur and that their input is sought at certain stages of environmental investigation and cleanup work, for example, upon completion of draft feasibility studies, remedial action plans/proposed plans or their equivalent. To ensure that EPA, resource agencies, appropriate state and local officials and the general public are provided adequate opportunity to review and comment on assessments/studies and proposals, Camp Pendleton has implemented a proactive public information program and established a Technical Review Committee. Formal public comment periods of at least 30 days have been and will continue to be held as required and will be announced through fact sheets and published notices in the *San Diego Union-Tribune*, *Scout*, and *North County Times*. Following each public comment period, a responsiveness summary will be prepared to document the DoN's responses to significant public comments and explain how public comments have been addressed.

Table 2-1. Camp Pendleton operable units and Installation Restoration (IR) program sites. ¹

Operable Unit	Site Number	Name (Affected Medium)	ROD Completed
OU-1	4	Marine Corps Air Station Drainage Ditch (soil)	Yes (12/95)
	4A	Marine Corps Air Station Concrete-Lined Surface Impoundment (soil)	Yes (12/95)
	9	Stewart Mesa Waste Stabilization Pond in 41 Area (soil, groundwater)	Yes (12/95)
	24	Morale, Welfare and Recreation Maintenance Facility in 26 Area (soil, groundwater)	Yes (12/95)
OU-2	2B	Grease Disposal Pit in 32 Area (soil, groundwater)	Yes (9/97)
	3	Pest Control Wash Rack (soil, groundwater)	Yes (9/97)
	5	Firefighter Drill Field (soil, groundwater)	Yes (9/97)
	6	DPDO (DRMO) Scrap Yard and Bldg. 2241 (soil)	Yes (9/97)
	8A	Las Pulgas Landfill and Las Flores Creek (soil, groundwater)	Yes (9/97)
	19	ACU-5 (LCAC) Surface Impoundments in 31 Area (soil, groundwater)	Yes (9/97)
	20	Las Pulgas Vehicle Wash Rack in 43 Area (soil, groundwater)	Yes (9/97)
	22	Unlined Surface Impoundment in 23 Area (soil, groundwater)	Yes (9/97)
	28	Trash Hauler's Maintenance Area in 26 Area (groundwater)	Yes (9/97)
	31	Bldg. 210801 Transformer (soil, groundwater)	Yes (9/97)
	43	Santa Margarita Basin Groundwater Study (groundwater)	Yes (9/97)
	44	Santa Margarita Basin Surface Water & Sediment Study (surface water, sediment)	Yes (9/97)
45	Santa Margarita Coastal Wetland Study (soil, groundwater, sediment)	Yes (9/97)	
OU-3	1A	Refuse Burning Ground in 14 Area (soil, groundwater)	No
	1B	Refuse Burning Ground in 11 Area (soil, groundwater)	Yes (3/99)
	1C	Refuse Burning Ground in 1.3 Area (soil, groundwater)	Yes (3/99)
	1E	Refuse Burning Ground in 32 Area (soil, groundwater)	Yes (3/99)
	1F	Refuse Burning Ground in 43 Area (soil, groundwater)	Yes (3/99)
	1I	Refuse Burning Ground in 63 Area (soil, groundwater)	Yes (3/99)
	2A	Grease Disposal Pit in 14 Area (soil, groundwater)	Yes (3/99)
	2C	Grease Disposal Pit in 33 Area (soil, groundwater)	Yes (3/99)
	2D	Grease Disposal Pit in 43 Area (soil, groundwater)	Yes (3/99)
	2E	Grease Disposal Pit in 53 Area (soil, groundwater)	Yes (3/99)
	2F	Grease Disposal Pit in 62 Area (soil, groundwater)	Yes (3/99)
	2G	Grease Disposal Pit in 31 Area (soil, groundwater)	Yes (3/99)
	7	Box Canyon Landfill (soil, groundwater)	No
	10	Sewage Sludge Composting Yard in 26 Area (soil, groundwater)	Yes (3/99)
	16	Bldgs. 22151 and 22187 Ditch Confluence and Ditch in 22 Area (soil)	Yes (3/99)
	17	Bldg. 22187 Marsh and Ditch in 22 Area (sediment, surface water)	Yes (3/99)
18	Bldg. 1687 Spill and Ditch in 13/16 Area (soil, groundwater)	Yes (3/99)	
27	Ditches Behind Bldg. 22210 in 22 Area (soil)	Yes (3/99)	

Table 2-1. Continued.

Operable Unit	Site Number	Name (Affected Medium)	ROD Completed
	32	Drum Storage Area and Drainage Between Bldgs. 41303 and 41366, (soil, groundwater)	Yes (3/99)
	34	Combat Engineers Maintenance Facility, Bldgs. 62580-62583 (soil, groundwater)	Yes 3/99)
	35	Former Sewage Treatment Plant Facility in 25 Area (soil, groundwater)	Yes (3/99)
	36	Debris Pile Area Behind Ponds at Sewage Treatment Plant II (soil, groundwater)	Yes (3/99)
	37	Pesticide and POL Handling Areas at San Clemente Ranch (soil, groundwater)	Yes (3/99)
	38	Sewer Line, Bldg. 52188 in 52 Area (soil, groundwater)	Yes (3/99)
	39	Sewer Line, Bldgs. 41300 and 41346 in 41 Area (soil, groundwater)	Yes (3/99)
	40	Sewer Line, Bldg. 13103 in 13 Area (soil, groundwater)	Yes (3/99)
	41	Sewer Line, Bldg. 13128 in 13 Area (soil, groundwater)	Yes (3/99)
	42	Sewer Line, Bldg. 13129 in 13 Area (soil, groundwater)	Yes (3/99)
OU-4	1D	Refuse Burning Ground in 2o Area (groundwater)	No
	1E1	Subsite of Refuse Burning Ground in 32 Area (soil)	No
	1H	Refuse Burning Ground in 62 Area (soil, groundwater)	No
	4	Marine Corps Air Station Drainage Ditch (groundwater)	No
	4A	Marine Corps Air Station Concrete-Lined Surface Impoundment (groundwater)	No
	6	DPDO (DRMO) Scrap Yard and Bldg. 2241 (groundwater)	No
	16	Bldgs. 22151 and 22187 Ditch Confluence and Ditch in 22 Area (groundwater)	No
	17	Bldg. 22187 Marsh and Ditch in 22 Area (groundwater)	No
	27	Ditches Behind Bldg. 22210 in 22 Area (groundwater)	No
	30	Firing Range Soil Fill in 31 Area (soil)	No
OU-5	1A1	Second Refuse Burning Ground in 14 Area (soil, groundwater)	No
	6A	DRMO Scrap Area (soil)	No
	21	Surface Impoundment (and adjacent fuel tanks) in 14 Area (groundwater)	No
	33	Armory (Bldg. 520452) and Drainage to Southwest in 52 Area (soil, groundwater)	No
	62	Former Asphalt Batch Plant in 62 Area (soil)	No
	1111	Burn Layer in 26 Area (soil, groundwater)	No
Multiple UST sites		Underground storage tanks (USTs) with CERCLA Constituents (soil, groundwater)	No

¹ Acronyms/Abbreviations in Table: (**ACU**) Amphibious construction unit, (**LCAC**) Landing craft air cushion, (**DPDO**) Defense Property Disposal Office, (**POL**) Petroleum, oil, lubricant, and (**DRMO**) Defense Reutilization and Marketing Office.

The Technical Review Committee was established in 1991 to review and comment on actions and proposed actions with respect to releases and to facilitate input from all parties affected by environmental investigation and cleanup. The Technical Review Committee consists of 17 individuals or organization representatives, including representatives from the California Department of Fish and Game, the U.S. Fish and Wildlife Service, and the National Oceanic

and Atmospheric Administration. The Technical Review Committee meets as needed, for example, before a major project document is released for review and provides comments and recommendations to the FFA team.

When a Remedial Action or ‘no further action’ alternative is selected by the FFA team a Record of Decision (ROD), or decision document to record the decision-making process, is developed. As required by CERCLA, Section 117 (b), notice of a final ROD is published, and the ROD is made available to the public and the Technical Review Committee before adopting any Remedial Action or ‘no further action’ alternative. Any significant comments, criticisms, and new data submitted by the public requires a response and must be made available to the public before the commencement of any Remedial Action. The ROD is forwarded to the EPA for concurrence. If agreement is not reached on the selection of a Remedial Action or ‘no further action’ alternative, the EPA must make the selection, ensuring ARARs are taken into account. ‘No further action’ alternatives are selected when investigations and analysis of a site indicates that the site does not possess a risk to human health or the environment.

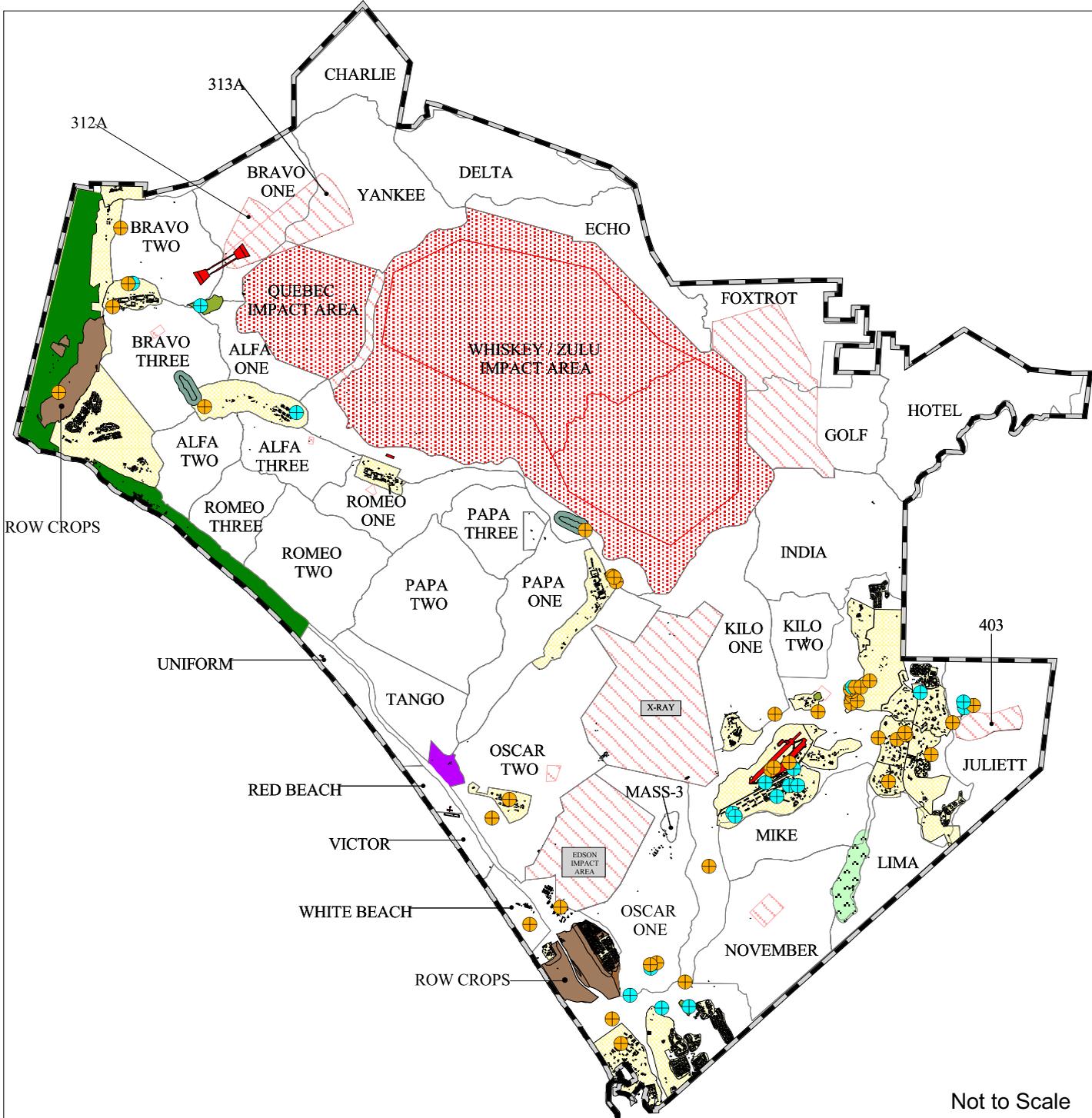
Provisions followed throughout the IR process ensure close coordination with regulatory agencies and the public. The EPA, the Technical Review Committee and appropriate state and local officials and agencies are given adequate opportunity to review and comment on assessments/studies and proposals. Remedial Program Managers solicit early involvement of other Marine Corps/Navy specialists, including natural and cultural resources personnel to ensure that the Endangered Species Act, Section 7, the National Historic Preservation Act, Section 106, and related requirements are identified and the intent of those laws are met.

Camp Pendleton natural resources staff also participate as appropriate, in the IR process to identify potential impacts to natural resources caused by the release of contaminants, communicate natural resource issues, review and comment on documents and ensure that response actions, to the maximum extent practicable, are undertaken in a manner consistent with the goals and objectives set forth in this INRMP. In addition, natural resources staff review IR maps and documents and coordinate with IR personnel to ensure that potential impacts from environmental contaminants are fully considered when planning and implementing natural resource conservation measures on the Base.

2.3.3 Real Estate Agreements and Leaseholders

A number of long-term leases and easements have become part of the land use practiced on the Base. These include Interstate 5 and the U.S. Border Patrol Checkpoint, North County Transit District railroad right of way, a 50-year lease for San Onofre State Park, utility easements, Oceanside and Fallbrook public schools, and the San Onofre Nuclear Generating Station (SONGS). A list of current leases and real estate agreements is provided in Appendix K.

Existing Base real estate agreements (e.g., leases, easements, assignments) cover approximately 28,500 acres of the Base (not inclusive of leased acreage within cantonment areas) (Figure 2-9). These agreements include easements for public utilities and transit corridors; leases to public educational and retail agencies; State Park leases; and agricultural leases for row crop production, seed collection, and grazing. Much of the real estate agreement



Not to Scale

-  Camp Pendleton Boundary
-  Training Area Boundaries
-  Buildings, Paved Roads & Parking Areas
-  Firing Range Impact Areas (Non-Dud Producing)
-  Marine Corps Air Station
-  Central Impact Areas (Dud-Producing)
-  Cantonment
-  Historical Site
-  Golf Course
-  Row Crop Agriculture
-  San Onofre State Park & Beach
-  Landfills (Active)
-  HOLF
-  Installation Restoration (IR) Sites (No ROD)
-  Installation Restoration (IR) Sites (ROD)

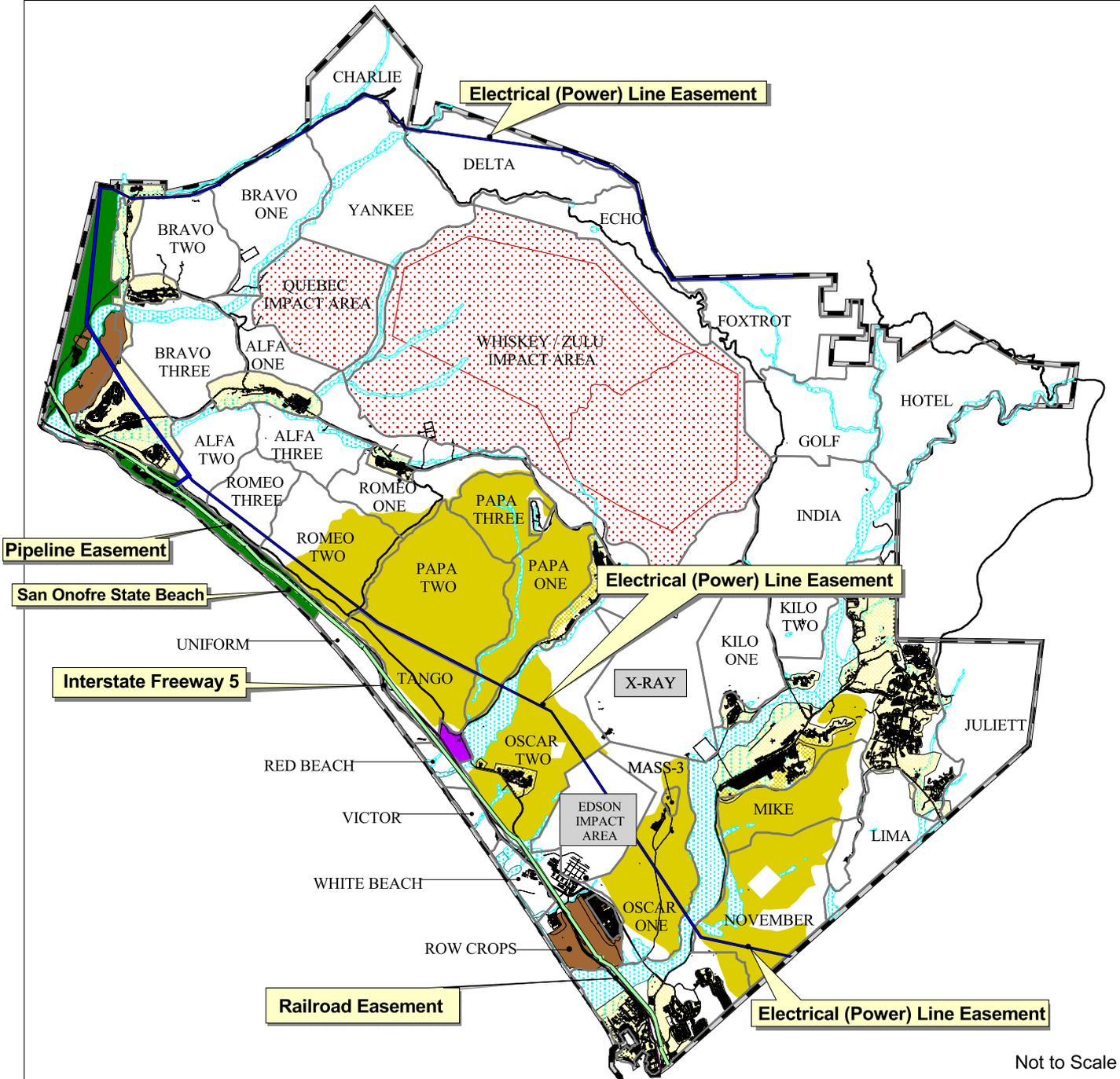
Figure 2-8
Installation Restoration (IR) Sites



Map Source:
AC/S Environmental Security
GIS Branch
October 2001



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Not to Scale

-  **Camp Pendleton Boundary**
-  **Training Area Boundary**
-  **Cantonment**
-  **Paved Roads and Buildings**
-  **Riparian, Beach & Estuarine Habitats**
-  **Interstate Highway (I-5) Easement**
-  **Railroad Easement**
-  **Electrical Transmission Line Easement**
-  **Pipeline Easement**
-  **Agricultural Lease**
-  **Sheep Grazing Lease**
-  **Boy Scout Lease (Historical Site)**
-  **San Onofre State Park & Beach Lease**

Figure 2-9
Real Estate Agreements and Leases



Map Source:
AC/S Environmental Security
GIS Branch
October 2001



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acreage is also available to training (e.g., utility corridors, State Park land, and land used for grazing); only an estimated 3,600 acres is not available for training.

2.3.3.1 AGRICULTURE

The Base leases approximately 24,000 acres for intermittent livestock grazing and 1,300 acres for row crop production (Figure 2-9). In addition, an undetermined amount of land is available under a lease agreement for native seed harvesting. Each lease specifies soil and water conservation practices required to protect and improve land productivity and fertility, a schedule for application of the required practices, and provisions for restoration of the land upon termination of the lease. Additionally, each plan includes agricultural and pest management practices that are consistent with state and federal regulatory requirements and the overall goals of the Base per MCO 5090.2A (USMC Environmental Compliance and Protection Manual). Per 10 U.S. Code §2667 and the Navy Real Estate Manual P-73, funds obtained from agricultural leases can only be used for administrative support of agricultural leases and financing multiple land use management programs.

Livestock Grazing

Cattle grazing was historically the principal form of land use at Camp Pendleton. It is thought that livestock grazed the land since the late 1700s. According to interviews with previous residents of the Base, it is estimated that in excess of 25,000 head of cattle were grazed on about 82,500 acres of the Rancho.

Currently, approximately 24,000 acres of land at Camp Pendleton are outleased for sheep grazing. The acreage available for grazing overlays active training areas and thus can only be utilized when grazing will not interfere with military training. This reduces overall grazing pressure. The Land Management Branch is responsible for establishing animal carrying capacity, which has been set at approximately 44,000 sheep-unit months (a sheep-unit month is the amount of forage a single ewe-lamb pair will consume in a month).

Grazing generally occurs on annual grasslands south of the Santa Margarita River and on perennial grasslands north of the river in portions of several training areas: Oscar One and Two; Papa One, Two, and Three; and Romeo One and Two (Figure 2-9). Grazing also has been utilized as vegetation control. Selective sheep grazing has been used for vegetation control in years past within the fenced compound at the Las Pulgas Ammunition Supply Point and to abate fire hazards on specific ranges (D. Lawson, pers. comm. 1995).

The grazing season typically occurs from 1 January through 31 May each year and can be extended or reduced at the discretion of the Base, depending upon available forage and military training requirements. Animal numbers are verified by government sheep counts periodically conducted by the Land Management Branch to ensure the accuracy of monthly animal number reports.

Row Crop Production

Approximately 1,300 acres of land are leased for farming. These current row crop parcels represent the remaining portion of approximately 6,000 acres that were leased for farming in the 1940s and 1950s. Even larger areas (as many as 10,000 acres) were farmed before the military purchased the property. This reduction in farmed acreage has occurred piecemeal due to both military requirements for the land and lack of suitable water available for irrigation.

Agricultural row crop acreage comprises nearly 1,300 acres of the Base. The largest contiguous row crop lease on the Base covers nearly 600 acres and is located in the San Mateo Valley adjacent to the San Onofre State Park and San Mateo Creek. The remaining row crop acreage, covered by three separate leases and totaling nearly 690 acres, is located on both sides of Interstate 5 at Stuart Mesa. All leases are due to expire in 2003.

Native Seed Collection

Contractors have commercially harvested seeds from native plants on Base since 1988. Native seeds have commercial value as stock for native vegetation restoration programs and for ornamental landscaping. In addition to gaining revenue from the commercial sale of the seeds (approximately \$10,000 per year), Camp Pendleton uses the seeds for restoration purposes on Base. The use of seeds from the Base helps ensure a genetic stock that is adapted to the environmental conditions of the area and saves money spent on site restoration.

Over 200 species are approved for harvest (a species list is provided to the contractor), but no more than 30% of the annual seed crop of a tree, brush, forb, or grass species in any individual location shall be harvested each year. All seed harvesting is done by hand and/or with hand carried vacuum type devices. Mechanical harvesting is not allowed. No mechanical injury to plants is allowed. The harvesting of endangered, threatened, or proposed endangered and proposed threatened species is regulated by the USFWS by permit. Some native plant species are harvested from October to December, while other species are harvested between April and July. Because seed collecting activity is conducted on foot, most locations on Base (excluding impact areas) are available for seed collection.

2.3.3.2 PUBLIC RECREATION - SAN ONOFRE STATE PARK

The largest single leaseholder on the Base is the State of California, Department of Parks and Recreation, which accounts for approximately 2,000 acres. Leased from Camp Pendleton on 1 September 1971 for a 50-year term, the San Onofre State Park system is divided into the San Onofre Beach Park and the San Mateo Park. The San Mateo Park lies within the San Mateo drainage, immediately adjacent to and along the north side of the creek. In general, the Park areas are used for public recreation and are subject to state regulatory requirements. Maintenance operations in the parks include maintaining the existing camping and recreational facilities, landscape maintenance, and erosion control. Military training is permissible within the parkland with advanced coordination.

2.3.3.3 SAN ONOFRE NUCLEAR GENERATING STATION (SONGS)

The San Onofre Nuclear Generating Station was established on Camp Pendleton in July 1963, when Congress passed Public Law 88-82 authorizing the Secretary of the Navy to grant Southern California Edison and San Diego Gas & Electric Company an easement for the purpose of constructing and operating a nuclear power facility. Unit 1, the first reactor, was completed in 1964. Over the past 36 years, the SONGS facility has expanded to include two more reactors (Units 2 and 3) and more land. SONGS real estate rights on Camp Pendleton are vested in nine Department of Navy issued easements and two leases. These real estate documents apply to a total of approximately 438 acres and generate more than \$900,000 in revenue annually to the U.S. Government (Note, that unlike the agricultural lease revenues on Base, by agreement, only half of SONGS revenue is received by Camp Pendleton for use in maintenance of real property. The remaining half is directed to the U.S. Treasury.) Current real estate grants authorize SONGS to maintain a presence on Camp Pendleton through approximately 2024.

Camp Pendleton is the only DoD installation in the country where a nuclear power plant has been constructed and is operated on its property.

2.3.3.4 SAN DIEGO GAS AND ELECTRIC COMPANY (SEMPRA ENERGY)

San Diego Gas & Electric (SDG&E), through its parent company Sempra Energy, holds more than 153 acres of leased land agreements with the Base. Most of these leases are jointly operated and managed in concert with the Southern California Edison Company, including the SONGS and various transmission and communication corridor easements, and associated support facilities.

2.3.3.5 INTERSTATE HIGHWAY 5 (I-5 FREEWAY)

The I-5 freeway occupies a linear corridor approximately 500 ft wide and 17 miles long that traverses the entire length of Camp Pendleton in a north-to-south direction between the cities of San Clemente and Oceanside. Comprising approximately 726 acres, the I-5 freeway is located on DoN owned land. It has been constructed within a right-of-way easement granted in perpetuity to the State of California (Department of Transportation) by DoN in the 1960s. The I-5 freeway stretches along Camp Pendleton's coastal area and is located in a scenic corridor through the Base adjacent to coastal bluffs and undeveloped beach areas. Currently, there are 11 separate underpasses (ingress/egress points) located along the 17-mile Camp Pendleton portion of I-5, which are available for the transition of military personnel, vehicles and equipment from the beach side of I-5 to inland training areas on the inland side of this freeway. These underpasses were created at the time of I-5's initial construction through Camp Pendleton in the mid-1960s. As a result of increasing vehicle size which came along with the development of new upgraded and modernized Marine Corps amphibious assault equipment over the last 40 years, only one of the current 11 underpasses remains capable of supporting passage of all military vehicles, equipment, hardware and personnel.

2.3.3.6 NORTH COUNTY TRANSIT DISTRICT RAIL LINE AND MAINTENANCE YARD

North San Diego County Transit Development Board, also known as the North County Transit District (NCTD) owns and operates a commuter rail train system between the City of Oceanside (Oceanside Transit Center) and the City of San Diego (Santa Fe Depot). This NCTD commuter rail system, known as the Coaster, provides service to one portion (the coastal communities of San Diego County) of a regional commuter rail transportation system operating within parts of San Diego, Orange, Los Angeles Ventura, and Riverside Counties. As the operator of the Coaster commuter rail system, NCTD also owns and maintains all the rail line located between the San Diego/Orange County boundary line and the City of San Diego, including the approximately 18 miles of rail line which traverses Camp Pendleton. This rail line through the Base parallels I-5, and like the I-5 freeway, it runs along the coastal area of Camp Pendleton. NCTD's railroad corridor through Camp Pendleton is contained within a 100' by 40' right-of-way easement, which has been granted to NCTD in perpetuity by the Department of the Navy to support NCTD's operation of the Coaster commuter rail system through the Base.

As owner of this rail line between the City of San Diego and the Orange County border, NCTD also coordinates and approves use of this railroad line by other train operators including the Metrolink commuter rail trains that serves Orange and Los Angeles Counties, Amtrak trains, and Burlington-Northern Santa Fe (BNSF) freight trains. Currently, approximately 50 trains per day pass through Camp Pendleton on this track.

In support of their commuter rail operations, NCTD also maintains and operates a 24-hour Commuter Rail Maintenance Facility located on Camp Pendleton. This Commuter Rail Maintenance Facility, located within the Stuart Mesa area of Camp Pendleton, is situated immediately adjacent to NCTD's railroad right-of-way through the Base. It's existence and construction was authorized by a second and separate easement in perpetuity, granted by DoN to NCTD in 1994 for operation of this Maintenance Facility. This NCTD easement also supports the operation of a BNSF railroad switching yard that is located adjacent to the Maintenance Facility. Altogether the easement for the NCTD Commuter Rail Maintenance Facility and BNSF switching yard operations total approximately 20 acres.

2.4 REGIONAL LAND USE AND CONSERVATION PROGRAMS

Regional land use provides a context for understanding the circumstances under which the Base currently operates and a starting point for understanding its conservation role as a result of land development trends, regional socio-economics, land planning decisions made by agencies other than the DoD and regional conservation efforts. Understanding regional land uses and conservation efforts also provide a context for predicting future trends. Camp Pendleton cannot manage its resources and operate in isolation of the surrounding region. Just as the presence of the Base affects surrounding communities land use decisions, land use and conservation efforts in the region affect the Base.

Land uses and regional growth over the past 200 years, have significantly influenced not only the physical appearance of Camp Pendleton and its environs, but also the ecological setting in which the Base finds itself today. Southern California has a substantial number of federally listed threatened and endangered species due primarily to the loss of habitat caused by increasing human population and development. Military installations in southern California, with their requirement for large open spaces for training, are among the last remaining places for the region's listed and sensitive species. Camp Pendleton has managed to maintain more than 90% of its military training lands as undeveloped. By virtue of this land mass, location, and open space, Camp Pendleton contributes significantly to the continued survival of the threatened and endangered plant and wildlife species in San Diego County. Of the 38 federally listed threatened and endangered species in San Diego County, 18 occur on or transit Camp Pendleton, which has only about 4.6% of the total land area of the county. With dwindling habitat remaining in the region for many of these species, the Base's resources represent a substantial contribution to the remaining populations and habitats of these species. Camp Pendleton currently represents:

- Approximately 20% of the least tern (*Sterna antillarum browni*) population breeding in California;
- 12% of the region's coastal California gnatcatcher (*Polioptila californica californica*) populations;
- Nearly 6% of the region's coastal sage scrub habitats;
- More than 50% of the region's least Bell's vireo populations (*Vireo bellii pusillus*);
- Approximately 12% of the southern California southwestern willow flycatcher (*Empidonax trailli extimus*) population and 24% of San Diego County southwestern willow flycatcher population (Kus 2001);
- 42% of San Diego Counties breeding western snowy plovers (*Charadrius alexandrinus nivosus*) (Pers. comm. Jill Terp, USFWS; data provided by U.S. Geological Survey and USFWS field monitors);
- 75% (3 of 4 sites) of the known populations of Pacific pocket mouse (*Perognathus longimembris pacificus*);
- Western-most coastal populations of Stephens' kangaroo rat (*Dipodomys stephensi*);
- 100% of the known tidewater goby (*Eucyclogobius newberryi*) populations in Orange and San Diego Counties (USFWS 2000a);
- Most abundant populations of Arroyo toad (*Bufo californicus*) in three major drainages;
- Approximately 10% of the remaining vernal pools in San Diego County. Additionally, the Department of Defense lands (Camp Pendleton and Miramar) represent 88% of the remaining vernal pools in San Diego County;
- More than 30% of the region's thread-leaf brodiaea populations (*Brodiaea filifolia*);

2.4.1 Regional Environment: Adjacent Land Use and Trends

Increasing population growth and the resulting pressure to accommodate more and more people within southern California is the primary driving force for land use and trends in the region surrounding Camp Pendleton. Statewide, more than 34 million people currently live in California, with nearly 20 million people in southern California, including Imperial, Los

Angeles, Orange, Riverside, San Bernardino, San Diego, Santa Barbara, Ventura Counties (Census 2000 population numbers; California Department of Finance 2001). Projected population growth figures suggest the situation will only worsen. California is predicted to increase to 40 million as it approaches 2010, 45 million in 2020, and nearly 60 million in 2040 (December 1998 projections; California Department of Finance 1998). According to a press release (3 May 2000) from the Demographic Research Unit of the California Department of Finance, the top five fastest growing counties in the state based on numerical population increases are Los Angeles, San Diego, Riverside, Orange, and San Bernardino Counties. Southern California (defined using the same counties listed previously) is projected to increase to populations over 23, 26, and 34 million in 2010, 2020, and 2040, respectively (December 1998 projections; California Department of Finance 1998).

The southern California landscape is rapidly changing due to the increasing urbanization and unimpeded development needed to support the region's population growth. Urbanization and development pressures have occurred, and are expected to continue to occur, along the coastal strip stretching from metropolitan Los Angeles to San Diego. Consequences of this urbanization and development include a decrease and displacement of agricultural acreage and open spaces, an increase in habitat fragmentation and isolation, and an increase in the number of native and endemic species and habitats that are becoming threaten with extinction. A recent report by The Nature Conservancy tallied all known extinctions in the U.S. state-by-state since the 17th century. California led the list for the continental U.S. with 46 known or suspected extinctions of plants and animals. Dobson et al. (1997) tallied the number of rare and federally listed threatened and endangered species county-by-county across the continental U.S., and San Diego County led the list.

Camp Pendleton and the adjacent Cleveland National Forest occupy some of the last significant open space and wildlife habitats in the coastal areas of southern California. A two-year research study (Steinitz 1996) conducted as a collaborative effort by Harvard University, Utah State University, National Biological Service, the U.S. Department of Agriculture Forest Service, EPA, The Nature Conservancy, and the Biodiversity Research Consortium concluded that, "By 2030, urbanization will completely surround Camp Pendleton, with the exception of the Cleveland National Forest (approximately 12 kilometers along [Camp Pendleton's] northern boundary), and the Pacific Ocean." In fact, within the last 5-7 years, 19 new residential developments were either approved for construction or have been built in communities and other open space lands surrounding Camp Pendleton.

2.4.1.1 COMMUNITIES OF DELUZ AND FALLBROOK

Northeast of Camp Pendleton and south of the Cleveland National Forest is an unincorporated area of San Diego County that includes the communities of DeLuz and Fallbrook. These lands are currently designated as estate residential, which limits development to residential units of a density no greater than one unit per two acres of unimproved land. This does not limit large tracts of real estate from being developed at once as long as the overall average meets the requirements for estate residential. DeLuz is the closest buildable area to training areas on Camp Pendleton without any type of buffer to minimize land use conflicts between residential uses and military training. Although Camp Pendleton's impact areas are separated from

residential areas by space allocated for maneuvers, this space is of limited size and potential use, leaving a potential for conflict similar to that which has occurred on the Base's southern boundary near the San Luis Rey gate on Vandergrift in eastern Oceanside. This is most evident in the area around DeLuz and north of the developed Fallbrook community. The area surrounding the developed portion of Fallbrook and to its south is somewhat buffered by the Naval Weapons Station Seal Beach, Fallbrook Annex. The land use is industrial; however, the interval of operation is regulated and separation is such that any nuisance associated with its operation does not impact areas outside of the facility.

Developments in unincorporated areas submitted for approval to San Diego County in the last three years have tended to congregate around the developed portion of Fallbrook. Approximately 50 percent of the proposed developments are located in or adjacent to Fallbrook proper. The remaining planned developments are to the east of Fallbrook closer to the I-15 corridor. The total amount of proposed development in the area, both approved and unapproved by the county since 1993 consists of about 800 units on 1,065 acres. Most of these have been constructed by 2000. The scale of development in northeastern San Diego County is only a fraction of that in San Clemente.

2.4.1.2 CITY OF OCEANSIDE

The southeastern boundary of Camp Pendleton is shared entirely with the City of Oceanside. The western portion of Oceanside, its commercial district, has grown along with the growth of the Base itself. The types of land uses found in this area are common to both sides of the boundary. A mixture of residential, commercial, and light industrial areas abounds in Oceanside as well as in the adjacent southwestern area of Camp Pendleton. New development in Oceanside, which consists mainly of housing and its related entities, has pushed east to previously vacant land and now constitutes a large percentage of the common boundary with the Base.

The largest portion of the new development in Oceanside is residential units adjacent to training areas just south of the Headquarters Area along Vandergrift Boulevard. A review of city records shows that this development is consistent with their existing General Plan; however, the Oceanside General Plan makes no mention of noise from training activities on Camp Pendleton.

2.4.1.3 CITY OF SAN CLEMENTE

Except for a downturn period in the economy during the early 1990s, development within the City of San Clemente, located adjacent to Camp Pendleton's northern border, has proceeded at a relatively fast pace over the last decade. Practically all developable property along San Clemente's southern boundary with the Base has been developed to its full potential, with the exception of one area of the community located along the northeastern corner of Camp Pendleton. The San Clemente approved that portion of the city, known as the Talega area for development in 1998. The Talega project, which began construction in 1999 and is expected to

reach full build-out by 2010, will be a 4,000-unit residential housing development along with several small parcels of supporting commercial property.

The increased numbers of residential housing areas and growing San Clemente population now found along Camp Pendleton's northern boundary is expected to result in increased incidents of noise complaints arising from this community area north of the Base. This growth in San Clemente's population over the last decade is not unlike the same increased levels of growth that has been occurring throughout all communities in Orange, San Diego, and Riverside Counties (the three counties along Camp Pendleton boundaries) during the last ten years. This regional population growth is expected to place ever increasing demands on an already overburdened regional transportation and infrastructure system. One such example of how this continued regional population growth can potentially affect Camp Pendleton can be seen in an Orange County joint powers agency (the Transportation Corridors Agency [TCA]) proposal to construct a future toll road transportation project on this Base. In that case, the TCA proposes to build this road project through five miles of Camp Pendleton along the Base's northern boundary adjacent to the City of San Clemente. The status of this proposed transportation project continues to be monitored by the Marine Corps.

2.4.1.4 CLEVELAND NATIONAL FOREST

Roughly 25 percent of the eastern boundary of Camp Pendleton is contiguous with the Cleveland National Forest or holdings of the Bureau of Land Management that are virtually uninhabited. This open space represents an important habitat linkage and wildlife corridor for the Base. The only conflict that occurs in this area is the infrequent violation of the Base boundary by visitors to the forest. These infrequent violations may be misguided hikers, willful trespassers, and/or game poachers. While such occurrences are a relatively minor concern, they are monitored and any proposed change of the wilderness designation of the National Forest that would increase access to the area would be of concern to the Marine Corps. Areas with the wilderness designation are closed to all forms of mechanized transportation and are currently lightly traveled due to their isolation and limited access.

2.4.1.5 PACIFIC OCEAN

Development along Camp Pendleton's western boundary is limited by the Pacific Ocean. The only type of permanent development feasible would be facilities to support offshore oil exploration and drilling. This has been proposed in the past and considered by the Department of the Interior for the granting of leases to the oil industry. The status of the leases is being monitored by the Marines as well as many environmental groups.

2.4.2 Natural Communities Conservation Planning (NCCP) Programs

Over the past decade, southern California has become a focal point for regional conservation planning efforts that focus on ensuring the continued survival of sensitive plant and wildlife species their associated habitats. These efforts have been facilitated by the Natural Community

Conservation Planning (NCCP) Act of 1991 passed by the State of California. The NCCP process was developed to encourage the conservation of natural communities before species within those communities are threatened with extinction. The NCCP program goals are to provide long term protection for natural communities on a regional basis while allowing continued urban development and growth. It is designed to be a voluntary, collaborative effort, primarily involving landowners, local government, and state and federal agencies. The NCCP approach represents an ecosystem view.

NCCP program goals were developed to provide a regional framework for long term protection of natural communities and species, while allowing continued development and economic growth of selected private lands (CDFG 1992). NCCP members include state and local governments, developers, conservation groups, and small landowners, but not federal agencies. Since coastal sage scrub represents a community in southern California with many sensitive species, including the coastal California gnatcatcher, this community became the first focus of the program. The planning area includes parts of San Diego, Orange, Riverside, Los Angeles, and Santa Barbara counties. Natural communities on private land may be protected through regulation, land purchases, transfer, conservation easements, and other strategies. Completed “landscape conservation” plans are legally binding and based on CDFG criteria and guidelines (Peck 1993).

Three subregional plans are being developed in San Diego County under the NCCP program umbrella, and several sub-area plans are in the works or have been completed recently. The subregional plans approved or pending completion include: the Multiple Species Conservation Plan or MSCP (City and County of San Diego) approved in 1996, the Multiple Habitats Conservation Plan or MHCP (includes seven incorporated cities in north county) (pending completion) and the County of San Diego Multiple Habitats Conservation and Open Space Plan (MHCOSP) (pending completion). Regions to the north and east of Camp Pendleton are also participating in the NCCP program with the development of three NCCP subregional plans in Orange County, including the Southern (pending completion), Northern (pending completion), and Central-Coastal NCCPs (approved) (Figure 2-10)

2.4.2.1 MULTIPLE SPECIES CONSERVATION PROGRAM

Since the early 1990s, San Diego County became a focal point in the state and the nation for regional conservation and management planning efforts resulting from the NCCP program described above. The Multiple Species Conservation Program was completed (signed) in 1996, and the process of building the reserve initiated by local jurisdictions and resource management agencies. Once all subarea plans are approved the MSCP is expected to encompass 582,000 acres and establish 172,000 acres of preserve in southwestern San Diego County (City of San Diego 1997) and provide coverage for 85 species of plants and animals and 23 vegetation types.

The MSCP encompasses eleven planning Subareas that are in various stages of plan development. Approved Subarea Plans to date include the La Mesa Subarea Plan, Poway Subarea Plan, City of San Diego Subarea Plan, and the County of San Diego Subarea Plan.

2.4.2.2 MULTIPLE HABITAT CONSERVATION PLANNING (MHCP) AND NORTH COUNTY WILDLIFE FORUM

The MHCP is a comprehensive habitat conservation planning process being developed to address multiple species needs and the preservation of native vegetation residing within seven city jurisdictions across northern San Diego County, namely Carlsbad, Encinitas, Escondido, Oceanside, San Marcos, Solana Beach, and Vista. These cities encompass a 183-square-mile (about 119,000-acre) area. The MHCP is recognized as a subregional plan that helps fulfill the requirements of the NCCP Act. Although the San Diego Association of Governments (SANDAG) is coordinating the MHCP for these North County cities, it will be implemented through individual sub-area plans prepared by each local jurisdiction, and potentially by other public entities, and will allow local jurisdictions to maintain land use control and development flexibility. The plan is designed to streamline procedures for review and permitting of projects.

2.4.2.3 MULTIPLE HABITAT CONSERVATION AND OPEN SPACE PROGRAM (COUNTY OF SAN DIEGO MHCOSP)

The County of San Diego has deferred planning within this subregion until it completes its North County Sub-Area Plan amendment to the MSCP.

2.4.2.4 SAN DIEGO GAS & ELECTRIC (SDG&E) COMPANY SUBREGIONAL PLAN

The NCCP Subregional Plan for SDG&E, extending from southern Orange County to the Mexican border, was the first plan approved in San Diego County (in 1995). The project provides coverage for 110 plant and animal species and emphasizes avoidance of impacts. The plan establishes mitigation requirements, which may include revegetation or use of up to 240 acres of mitigation credits, set aside in several land parcels purchased by SDG&E, as mitigation banks. SDG&E's properties and easements play an important role in the NCCP region in providing habitat connectivity in areas where little natural habitat remains.

2.4.2.5 SOUTH ORANGE COUNTY SUBREGIONAL PLAN

Development of a subregional plan for south Orange County is currently underway. This southern subregion of Orange County is one of eleven NCCP subregions, within the five county southern California ecoregion, that has been identified by the southern California NCCP program to focus on coastal sage scrub conservation. The South Orange County Subregional Plan is expected to set aside tens of thousands of acres of a variety of habitats.

This subregional plan extends as far north as Dana Point along the coast north of Camp Pendleton, and inland to the Santa Ana Mountains in the Cleveland National Forest.



(Data Source: <http://ceres.ca.gov/CRA/NCCP/cssreg.htm>)

Not to Scale

Figure 2-10
Southern Coastal Sage Scrub
NCCP Region

-  Southern Coastal Sage Scrub NCCP Region
-  Marine Corps Base, Camp Pendleton
-  North San Diego MHCP
-  County of San Diego Sub-Area (MSCP)
-  City of San Diego MSCP
-  San Diego County HCOSP
-  Orange County Central/Coastal Subregion
-  Orange County Northern Subregion
-  Orange County Southern Subregion
-  Palos Verdes Peninsula NCCP
-  Western Riverside County MSHCP
-  San Bernardino County Subregion



Map Source:
 AC/S Environmental Security
 GIS Branch
 October 2001



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2.4.2.6 CENTRAL COASTAL ORANGE COUNTY SUBREGIONAL PLAN

The Central Coastal Orange County Subregional Plan was approved in July 1996. It established a reserve system covering more than 37,300 acres, 12 regional habitat types, and 39 different sensitive plant and wildlife species.

2.4.3 Other Regional Conservation and Management Programs

Other local, state and federal entities are developing NCCP-equivalent or ecosystem based natural resource conservation and management plans similar to, but independent of, the State NCCP process. For example, Riverside County gave substantial consideration to the State NCCP program, initially drafting the Western Riverside County MSHCP. Ultimately, however, this plan evolved into the Riverside County Integrated Planning (RCIP) program, with increased stakeholder involvement and founded on the principles and concepts of ecosystem management identified by the States NCCP process (pending completion) (Figure 2-10).

Also playing a major role in regional planning efforts are the many DoD installations scattered across the southern California landscape. Local DoD installations, such as MCAS Miramar, MCB Camp Pendleton and the U.S. Navy, although continually active in resource management activities throughout their history in the region, have been moving forward in their efforts to move from a species-by-species approach to resource management, toward a more landscape scale, ecosystem approach through development and implementation of (and updating) Integrated Natural Resource Management Plans.

2.4.3.1 RIVERSIDE COUNTY INTEGRATED PLANNING PROGRAM

The County of Riverside decided not to participate in the southern California NCCP program. Rather, the Riverside County elected to develop its own regional conservation planning and management program independent of direct NCCP participation. However, planning efforts by the county are being conducted in cooperation with all county stakeholders, including landowners and state and federal resource management agencies. A draft of the Riverside County Integrated Planning program is pending completion of formal review. Camp Pendleton continues to monitor the RCIP progress and development.

The RCIP program provides a framework that affects future decisions on land use, habitat conservation, and transportation planning. The decisions addressed required an integrated approach that is stakeholder-driven. The approach attempts to focus technical analysis to respond to the common vision as agreed to by all regional stakeholders. The goals of the RCIP program include: (1) update the County General Plan, (2) create a Multiple Species Habitat Conservation Plan (MSHCP), and (3) identify transportation corridors to solve the County's future transportation needs.

Prior to the RCIP effort, nine jurisdictions, including the County of Riverside, prepared a MSHCP and a Planning Agreement that was expected to be signed by 1997. The MSHCP was being developed by the Riverside County Habitat Conservation Agency (RCHCA). The

MSHCP attempted to build upon the previously approved Stephens' Kangaroo Rat Habitat Conservation Plan. Core area reserves in the Stephens' Kangaroo Rat Habitat Conservation Plan included habitats such as riparian, oak woodland, and up to 15,000 acres of coastal sage scrub. The RCHCA established a scientific advisory group to assist in providing scientific information to the RCHCA. Information developed as part of the RCIP planning effort is expected to form the basis for completing the County's Multiple Species Habitat Conservation Plan.

2.4.3.2 DEPARTMENT OF DEFENSE INSTALLATIONS

Department of Defense lands are used for a wide variety of purposes, including munitions testing, deployment of weapons systems, and combat training, recreational opportunities (e.g., hunting and fishing) and agriculture. Designated airspace is used to train pilots and test fighter planes and air-based weapons systems. The DoD is also steward for some of the nation's most important biological resources. Many installations include substantial areas where natural ecological communities have not been substantially altered, in contrast to surrounding areas where landscapes often have been converted as part of urbanization or for agricultural purposes. These open areas may be particularly diverse and rich in species and habitats. This is especially true in San Diego County, where DoD installations such as Camp Pendleton and MCAS Miramar contain a majority of some remaining native species and habitats once prevalent throughout San Diego County (e.g., 80-85% of remaining vernal pools, 75% of known sites supporting Pacific pocket mouse, more than 50% of least bell's vireo locations, etc. [see introduction to Section 2.4]).

On DoD installations valuable regional biological resources remain due to the mission requirement for large contiguous undeveloped areas for training or as buffer/safety areas around critical facilities such as airfield and ordnance storage areas. A wide variety, as well as significant quantity and quality, of regionally important habitat types that support many locally rare, state sensitive, and federally listed species of plants and animals occur on these installations. Additionally, DoD lands provide valuable regional habitat linkages. In Camp Pendleton's case from the Santa Ana Mountains of the Cleveland National Forest to the southern California coastline, and linkages necessary to connect habitats of southern Orange County with those remaining open space lands identified in the MHCP in northern San Diego County.

DoD, in adopting an ecosystem-based philosophy and approach to managing the many natural resources found on its many military installations, is preparing, developing and implementing INRMPs that are installation-specific. These INRMPs will promote the use of DoD resources in a manner consistent with the DoD's mission, while ensuring the continued conservation and survival of many of the region's dwindling sensitive species and habitats. The combination of partnership, development and integrated planning provides a means for integrating biodiversity conservation with existing military activities and other regional conservation initiatives surrounding the installation. INRMPs address large-scale, landscape planning and management effort on military lands to support regional planning efforts and incorporate the philosophy, standards, guidelines and goals of ecosystem management within its resource management programs and processes.

2.5 REGIONAL ISSUES AFFECTING CAMP PENDLETON'S MISSION

Camp Pendleton is, and will continue to be, affected by the geographic, socioeconomic, and ecological setting of the region within which it is located. Land use planning and growth management efforts of local and regional jurisdictions have a potentially significant influence on the Base's land use, planning, environmental compliance, and natural resource utilization and management. For the past fifty years, the southern California region has been marked by rapid urbanization, unimpeded development, and spiraling population growth. Projected population growth figures for the region suggest the situation will only intensify (Section 2.4.1). Trends in conservation planning, new since this study was made, may preserve additional open space in the region, however, most of these plans are still being developed or are in the early stages of implementation.

These regional influences ultimately constrain the Base's ability to train Marines. The individual and cumulative effects of these regional influences represent encroachment on the Base's ability to accomplish its mission. In this context, the term encroachment refers to "any action planned or executed in the vicinity of a Marine Corps installation's normal area of operations which inhibits, curtails, limits, or possesses the potential to impede the Marine Corps' interests" (HQMC 1987). Nonmilitary projects adjacent to or within Camp Pendleton's borders that are continually proposed must be acknowledged by Base planners, military trainers, and the surrounding developing communities, as part of actual or potential encroachment. For example, leases and easements, particularly above ground utilities such as the SONGS, SDG&E, I-5, and railway lines, represent a severe constraint to military training activities, particularly to amphibious landing exercises along the Base's entire western boundary. Currently, only one underpass (out of 11 total) along the entire 17 miles of beach allows for passage of all types of military vehicles. Ultimately, this encroachment degrades military training and readiness capability, as well as constrains natural resource management on Camp Pendleton.

Urbanization, unimpeded development, and spiraling population growth in the region have created pressure along the Base's boundaries affecting how Marines train. Ultimately, this encroachment degrades military readiness capability. This same unchecked development that is creating encroachment pressure on the Base has also placed San Diego County in the position of having more listed rare, threatened, and endangered plant and wildlife species than any other county in the continental United States. Indirectly, this, too, has created a form of encroachment pressure for Camp Pendleton with an increasing dependence on the Base and any remaining open space for habitat for these species.

Throughout its nearly 60 years in the region, Camp Pendleton has endeavored to work closely with surrounding communities, local jurisdictions, and private entities. However, the Base lands have been, and continue to be, subject to both direct and indirect pressures from surrounding communities and the region for land use (e.g., leases and easements) and mission restrictions (e.g., noise). Moreover, Camp Pendleton is concerned that, as regional development continues to encroach on natural habitats off Base, its land will become increasingly, and disproportionately, important to regional habitat and sensitive species conservation. This presents another pressure on the Base. For example, as more species are federally listed as threatened or endangered (regardless of whether the species have thrived

locally on Base), the Base is burdened with additional regulatory requirements and management needs. Such encumbrances are viewed as encroachment threats to the military mission as they affect how Marines train and potentially degrade military readiness. As regional populations increase, pressures from encroachment are expected to only worsen. The Base wants to ensure that its training lands do not become viewed as opportunities for further development expansion (e.g., for commercial airports, additional transit corridors) or as regional preserves in which training activities are then undesirably constrained or prohibited altogether. It is important that Camp Pendleton's efforts to maintain open, undeveloped land within its borders is not viewed by the region as "the solution" for land use needs due to the perceived minimal economic and political cost of using the Base's land (Creswell 1993).

Ultimately, the increased value in the Base's land has the potential to jeopardize the long term sustainability of the military mission. Yet it is the very presence of the Marine Corps at Camp Pendleton for nearly sixty years that has made the land so valuable in the first place. Several encroachment issues have been identified by Camp Pendleton's CG and other military personnel as serious threats to Camp Pendleton's very existence as a military training base. Several of these encroachment threats are presented within this section to help maintain vigilance and to foster a greater understanding of these issues by both the Base and surrounding communities.

2.5.1 Public Interstate Freeways, Railroad Right-of-Ways, and Future Transportation Corridors

An easement of approximately 726 acres, for the construction, operation, and maintenance of I-5, along with additional easements for operation of two Interstate Rest Stop areas, two California Highway Patrol Truck Weigh Stations, and an Immigration & Naturalization Service Border Patrol Checkpoint facility, have all been granted to State and federal agencies for the operation of these facilities on Camp Pendleton land by the Department of the Navy. All of these easements have been granted in perpetuity. The I-5 easement, in particular, presents a significant impact to the Camp Pendleton training mission because of its creation of an artificial barrier between the beach area and inland portions of the Base. I-5 runs the entire length of Camp Pendleton along the coastal bluff area of the Base, and as a result of its presence, it actually separates the entire length of Camp Pendleton's beaches from all of the Base's inland training areas. This man-made barrier severely restricts the transition of amphibious training operations to the Base's interior training areas where the majority of field training occurs. Only a limited ability is currently available to cross this I-5 barrier through the use of small underpass tunnels for crossing under the freeway. These underpass crossings were constructed to support the movement of troops and equipment in use at the time this freeway was built in the 1960s. While not totally preventing Base training operations to occur, in today's day and age of larger amphibious vehicles and weapons systems, large scale movements of troops and equipment are greatly hindered due to the small size of these freeway underpasses. Unfortunately, the I-5 freeway represents the only direct means of public highway access between San Diego and Los Angeles, two of the largest cities in the United States. With the huge political and financial pressures it places on the system, this Interstate highway will remain a permanent fixture of Camp Pendleton landscape.

Running adjacent and parallel to I-5 is a railroad line that also traverses the entire length of Camp Pendleton in a north to south direction. Like I-5 does for vehicles, this rail line provides the only direct rail linkage between the cities of Los Angeles and San Diego. The presence of this rail line through the Base actually dates back to the late 1880s when it was initially constructed as the very first rail line connection between these two large metropolitan areas. Over the course of its hundred-plus years of existence on land that's now Camp Pendleton, the alignment of this rail line has been adjusted on several different occasions. Generally speaking, however, this rail line has continued to remain a landmark and permanent fixture along the entire coastal portion of Camp Pendleton. Like I-5, this rail corridor, located parallel and adjacent to I-5, also creates an access barrier between the beach areas of the Base and Camp Pendleton's inland training areas. It presents one more man-made obstacle that must be negotiated (through crossing over or under) by military personnel and vehicles during amphibious training exercises.

As previously stated in Section 2.3.3.6, the North San Diego County Transit Development Board, also known as the North County Transit District, is the current owner and operator of this rail line through the Base. This rail corridor is primarily used to support commuter rail train operations serving communities in both San Diego and Orange Counties; but this rail corridor also supports Amtrak and freight train operations on a daily basis. Approximately 50 trains per day pass through Camp Pendleton on this track.

The Southern Orange County Transportation Infrastructure Improvement Program (SOCTIIP) is a planned 4-lane toll road approximately 16 miles in length. It's being planned and developed by the Transportation Corridor Agencies, a Joint Powers Agency in Orange County, to serve as a transportation alternative to I-5. Once built, it would connect the inland portion of central Orange County with the northern portion of San Diego County. SOCTIIP will complete the last of three new toll roads being constructed in Orange County by the TCA, all designed to help alleviate existing traffic gridlock and mitigate the increased traffic growth forecast to occur in southern Orange County by the year 2010. The TCA has already completed 51 miles of this planned tollway system; SOCTIIP will add the final piece in completing Orange County's 67-mile network of toll roads.

In 1988 the Marine Corps Commandant agreed that the TCA could evaluate an on-Base alignment of the proposed SOCTIIP toll road project, subject to the following stipulations: (1) that other off-Base alignment alternatives must also be considered and evaluated in an equal manner; (2) that any planned Camp Pendleton alignment must closely adhere to the Base's northern boundary; (3) that any adverse environmental impacts created as a result of siting this route on the Base must be fully and properly mitigated; and most importantly, (4) that any on-Base alignment must not impact the Marine Corps' mission nor interfere with the Base's operational flexibility. This Marine Corps position has remained steadfast throughout the years of TCA planning for this proposed toll road; and the Marine Corps continues to monitor and sometimes participate in TCA's further planning efforts for this proposed transportation improvement project. If constructed on Camp Pendleton, only one alignment alternative, meeting the above stipulations, is considered acceptable to the Marine Corps.

2.5.2 Public Utilities

Easements for public utilities (and access roads/corridors to maintain those utilities) are located throughout the Base. These facilities include supporting structures for power lines, telephone lines, cellular towers, radio repeaters, fiber optic cables, and pipelines. While each easement may not seem significant in its own right, when taken as a whole they do have the potential to restrict or constrain amphibious and aviation training opportunities. The physical structures located in these easements (e.g., power poles and telephone poles) pose restrictions on ground and air movement.

The San Onofre Nuclear Generating Station is another non-DoD tenant facility located on Camp Pendleton along the coastal area of the Base on approximately 450 acres of leased property. This facility is contained within two separate lease areas on each side of I-5

2.5.3 Commercial Airport Facilities

At least 40 airports exist within a 60-mile radius of the Base. Most airports in southern California are operating at or near maximum capacity. It has been projected by most regional planning agencies that by the year 2025, air travel and passenger volume in southern California will double. SANDAG, San Diego County's regional transportation planning agency, is currently in the process of evaluating whether there is a potential to locate a new commercial airport facility somewhere within the regional area to meet San Diego County's growing passenger and air cargo needs. As has occurred in several previous airport siting studies, Camp Pendleton has been suggested as a potential location for the siting of such an airport, or even if an airport were not to be sited here, the Base could serve as the host site for relocation of other military activities from other DoD installations considered more favorable as a commercial airport site. This airport siting issue was most recently raised during the November 2000 election campaign for the City of San Diego Mayoral election.

There are no areas on Camp Pendleton where a large commercial airport could be located without a devastating impact on training operations and natural resources. The relatively level coastal plain, where a commercial airport might be most suited, is extensively occupied by most of the remaining vernal pools (and associated threatened and endangered flora and fauna) in San Diego County and three of the four remaining locations of the endangered pocket mouse.

2.5.4 Recreational Use and Access

Camp Pendleton receives numerous requests to access the Base for recreational purposes. This is largely due to the fact that the Base has one of the last remaining extensive tracts of undeveloped coastal land in southern California, from the Mexican border to Ventura County; and the Base is situated between two of the largest population centers in the state, San Diego and Los Angeles. Base policies support recreational access when it does not conflict with mission, security, and safety requirements. Chapter 5 provides detailed information on recreational and public access programs. Any proposed development of non-military land uses

along the coastal area of the Base is of great concern because of the need to ensure continued access to landing beaches and inland access routes in conjunction with amphibious training activities. This is also the area of most recreational encroachment with the Marine Corps' use of the Base's northern beaches already limited by the lease to the State Park for the San Onofre State Park

On occasion, trespassing occurs on the Base by civilian beach users, campers, hikers, mountain bikers, and off-road vehicle operators, which interferes with training operations, the Base's own recreational programs, and natural resource management actions. Unauthorized access continues to adversely impact sensitive habitat, damage trails, roads, and firebreaks and increase the potential for erosion.

During any given year, Camp Pendleton receives any number of requests from outside agencies, business entities, and even individual persons, all asking for some form of access to the Base.

2.5.5 Environmental Encroachment Issues

While the Marine Corps and Camp Pendleton support the conservation of natural resources, particularly sensitive biological resources, conservation planning and natural resource management efforts on Base must provide for *operational flexibility* and avoid the potential for creating preserves on lands specifically established by Congress for military training. The Marine Corps believes that most military activities can be generally compatible with the conservation of sensitive biological resources (Brabham 1995). However, many environmental laws and regulations do not consider the military's unique use of resources and, as written, create conflicts between congressionally mandated military training and congressionally mandated resource management.

The federal Endangered Species Act is a significant environmental law for Camp Pendleton because of the presence of so many federally threatened and endangered species on Base. With the addition of several thousands of acres of potential habitat (currently unoccupied), the percentage of Base lands subject to ESA requirements increases dramatically. Under the ESA, the Base is required to avoid and minimize adverse impacts to federally listed species and their habitats, and to provide compensatory mitigation for impacts that do occur, and to ensure that Base actions do not jeopardize the continued survival of the species.

The designation of critical habitat for federally threatened or endangered species on Base is viewed by the Marine Corps as another encroachment issue. Critical habitat designation identifies geographic areas that are important for the conservation of the species and may require special management considerations, requiring federal agencies to consult with the Service on activities they undertake, fund, or permit that may affect critical habitat. Critical habitat could impede the flexibility that is required to accomplish Camp Pendleton's military mission. Under the Endangered Species Act, the USFWS is required to designate critical habitat upon listing a species as federally threatened or endangered, to the maximum extent prudent. Camp Pendleton's management policy for federal threatened and endangered species is to manage the habitat and ecosystem upon which the species depends to ensure that the

primary constituent elements that are essential for the primary biological needs of foraging, nesting, rearing of young, intra-specific communication, roosting, dispersal, genetic exchange, or sheltering are provided to preclude the need for additional or special management considerations. The designation of critical habitat for federally listed species on Camp Pendleton has been addressed on an individual basis by the USFWS. For some species, areas on Base have been identified as critical habitat whereas, for other species, existing management and training requirements have precluded listing.

Camp Pendleton understands its lands and associated natural resources can and do play a crucial role in regional conservation efforts and stewardship initiatives. Camp Pendleton welcomes its role of responsibly managing its lands and natural resources consistent with current federal policies and regulations. However, local, state, and federal jurisdictions in the region must share an understanding that Base lands have been set aside by Congress specifically for military training, mission support, and preparedness activities in support of National Security mandates. Further, Camp Pendleton's position has always been, and will continue to be, that conservation initiatives in the southern California ecoregion must be shouldered by all stakeholders in the region, with the Base's, vast open spaces and wealth of natural resources, being just one part of that regional conservation strategy.