Draft
Legislative Environmental Impact Statement for the Renewal of the Chocolate Mountain Aerial Gunnery Range Land Withdrawal

Lead Agency:

U.S. Department of the Navy

Cooperating Agencies:

U.S. Department of the Interior

Bureau of Land Management

Bureau of Reclamation

AUGUST 2012

GENERAL INFORMATION ABOUT THIS DOCUMENT

What's in this document?

The United States Marine Corps, in cooperation with the Bureau of Land Management and Bureau of Reclamation, has prepared this Legislative Environmental Impact Statement to assess the potential environmental effects of the proposed renewal of the Chocolate Mountain Aerial Gunnery Range land withdrawal. The document describes why the land withdrawal renewal is being proposed; action and no-action alternatives; the existing environment that could be affected by the project; the potential impacts from each of the alternatives; and the cumulative effects of this action when considered with other past, present, and reasonably foreseeable future actions.

What should you do?

- Please read this Legislative Environmental Impact Statement and provide comments. Additional copies of this document are available for review at the Yuma County Library (Main Branch), Brawley Public Library, San Diego Public Library (San Ysidro Branch), Palo Verde Valley Library in Blythe, and Community Center Branch Library in El Centro, and can also be downloaded from the project website at http://www.chocolatemountainrenewal.com/html/documentsmaps.html.

- Participate in public meetings. Meeting dates and locations are expected to be announced on the project website at http://www.chocolatemountainrenewal.com/index.html.

We welcome your comments. If you have any comments regarding the Draft Legislative Environmental Impact Statement, send your written comments by November 30, 2012, to:

Ms. Kelly Finn
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1220 Pacific Highway
Building 1, Central IPT
San Diego, CA 92132

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Lead Agency:	U.S. Department of the Navy, U.S. Marine Corps
Cooperating Agencies:	U.S. Department of the Interior, Bureau of Land Management U.S. Department of the Interior, Bureau of Reclamation
Title of the Proposed Action:	Renewal of the Chocolate Mountain Aerial Gunnery Range Land Withdrawal
Location of the Proposed Action:	State of California, Counties of Imperial and Riverside
For Additional Information Contact:	Ms. Kelly Finn Naval Facilities Engineering Command Southwest Telephone: (619) 532-4452
Mail Comments on the Draft Legislative Environmental Impact Statement to:	Ms. Kelly Finn NAVFAC Southwest 1220 Pacific Hwy Building 1 Central IPT San Diego CA 92132
Submit Electronic Comments to:	http://www.chocolatemountainrenewal.com/Comment/Default.aspx
Comment Period:	A 90-day comment period for this Draft Legislative Environmental Impact Statement (LEIS) will close on November 30, 2012.

ABSTRACT

This Draft LEIS addresses the proposed renewal of the military land withdrawal and reservation of the Chocolate Mountain Aerial Gunnery Range (CMAGR) in Imperial and Riverside counties, California. To support a continuing military need for the CMAGR, renewal of the land withdrawal is required by the California Military Lands Withdrawal and Overflights Act of 1994 (Public Law [P.L.] 103-433) for the approximately 228,465 acres of public land in the CMAGR administered by the Bureau of Land Management (BLM). The remaining federal land in the range (approximately 229,903 acres) is permanently administered by the Department of the Navy (DoN). The renewal of the CMAGR is essential for developing and maintaining the readiness of Marine Corps and Naval Aviation forces. The CMAGR also supports the training of Marine Corps and Navy land combat forces; including naval special warfare forces. This LEIS addresses four renewal alternatives in detail. With Alternative 5, the no-action alternative, Congress would not renew the CMAGR land withdrawal. As a consequence, the current withdrawal of BLM land in the CMAGR would expire at the end of October 2014, the BLM land would no longer be available for military purposes, and the remaining DoN land would not provide an adequate restricted land-base to continue tactical aviation training. The effects of the alternatives on range and airspace operations, non-military land use, geological resources, water resources, air quality, biological resources, cultural resources, noise, visual resources, public health and safety, hazardous materials and waste, socioeconomic resources, and environmental justice are discussed.

EXECUTIVE SUMMARY

INTRODUCTION

The Department of the Navy (DoN) intends to ask the U.S. Congress to renew the withdrawal of approximately 357 square miles (about 228,465 acres) of federal public land and to reserve the withdrawn land for continued military training.[1] This public land, located in Imperial and Riverside counties, California, currently comprises almost half of the 716-square-mile "Chocolate Mountain Aerial Gunnery Range (CMAGR)." The land within the CMAGR is administered by the Bureau of Land Management (BLM, 228,465 acres), Bureau of Reclamation (162 acres) and the DoN (229,903 acres). This Draft Legislative Environmental Impact Statement (Draft LEIS) has been prepared by the DoN and the U.S. Marine Corps (hereafter, Marine Corps), in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, to address the potential environmental consequences of renewing the land withdrawal and continuing military training activities at the CMAGR.

The CMAGR is a live-fire training range that is essential for developing and maintaining the readiness of Marine Corps and Naval Aviation forces and Marine Corps and Navy land combat forces. These land forces are typically battalion-sized units and smaller.

The CMAGR supports training by units of the DoN, U.S. Air Force, U.S. Army, U.S. Reserve Components, and U.S. National Guard; however, the Marine Corps is the primary user of this range. Local command for military operation and administration of the CMAGR has been delegated by the Secretary of the Navy to the Commanding Officer, Marine Corps Air Station (MCAS) Yuma, Arizona. The majority of aircraft that are used in training at the range originate from squadrons based at MCAS Yuma and MCAS Miramar. Other regionally-based squadrons that regularly use the CMAGR are stationed in California, at MCAS Camp Pendleton and Naval Air Station (NAS) North Island, and in Arizona, at Luke Air Force Base. Aircraft that originate from other Marine and Naval air stations and Air Force bases or that are launched from DoN aircraft carriers in the Pacific Ocean are also frequently flown in training missions at the CMAGR. In total, roughly 100 squadrons from throughout the nation collectively fly more than 6,000 training sorties annually at the CMAGR.[2]

At its most basic form, the decision to be made by Congress is whether to renew the land withdrawal for the CMAGR or to allow the current withdrawal to expire on 31 October 2014, as currently provided by the "California Military Lands Withdrawal and Overflights Act" (hereafter, CMLWOA). A decision to renew the land withdrawal would permit continued use of the CMAGR for military training activities and other related defense purposes for at least the duration of the new withdrawal.

In accordance with the Council on Environmental Quality (CEQ) regulations for implementing NEPA, a legislative EIS, rather than an administrative EIS, has been prepared to address the proposed land withdrawal. An LEIS is the detailed environmental statement required by law for proposed actions that require legislative proposals to Congress for implementation.

Chapter 1.0 of the LEIS provides a description of the purpose of and need for the action as well as other introductory background information. Chapter 2.0 describes the proposed action and alternatives, including the no-action alternative. The affected environment is addressed in Chapter 3.0. Chapter 4.0 reports the projected environmental effects of the alternatives. The cumulative effects of the alternatives when added to other past, present, or reasonably foreseeable future actions are addressed in Chapter 5.0.

[1] The term "public land" generally means any land and interest in land owned by the United States within the several States and administered by the Secretary of the Interior through the BLM (43 U.S.C. 1702(e)).

[2] A *sortie* consists of a single military aircraft from take-off through landing, and includes a flying mission. For this LEIS, the term sortie is commonly used when summarizing an amount of flight activity from a base.

Chapter 6.0 summarizes the consultation and coordination processes, including agency and public outreach for public scoping and for seeking input on the Draft LEIS so that public comments are included in the Final LEIS. Chapter 7.0 includes a list of preparers, contributors, and reviewers, and Chapter 8.0 provides a list of references used in the preparation of the LEIS.

PURPOSE OF AND NEED FOR RENEWING THE CMAGR

As discussed further in Chapter 1, the purpose for renewing the CMAGR land withdrawal is to retain the training range, which is a component of the national defense training infrastructure indispensable to the continued and future readiness of Marine Corps and Navy air and ground forces, including Naval Special Warfare (NSW) Sea, Air and Land (SEAL) units and air combat training conducted by other branches of the Department of Defense. The need for quality training that provides a realistic approximation of the conditions that Marines, sailors, airmen, and soldiers will face in combat as individuals and in small or large units cannot be overstated. The U.S. military is fully invested in the principle that high quality training is essential to success and survival in combat. Access to ranges that offer flexible, diverse, and realistic training is essential to preparing tactical forces of the highest possible quality. Thus, the necessity of keeping the CMAGR fully in service can best be understood from two main perspectives: (1) the necessity of providing high quality training and (2) the superlative qualities of the CMAGR for supporting that training.

The primary and essential purpose of the proposed renewal of the CMAGR land withdrawal is to retain the use of this vital range for Marine Corps and Navy aviation training. The CMAGR is also critical for training Marine Corps ground units that support or participate in certain aspects of tactical aviation and for training small Marine Corps and NSW ground units for land combat missions. The boundary, duration of withdrawal, and management jurisdiction are decisions which must be made by Congress.

PUBLIC INTEREST AND ISSUES

The NOI to prepare this Draft LEIS was published in the *Federal Register* on 24 September 2010. In addition to the NOI, several methods were used to involve the public and facilitate exchange of updated project information throughout the planning process, including various types of announcements, agency and tribal coordination, and public scoping meetings.

Coordination with cooperating agencies, other agencies having responsibilities involving CMAGR land and airspace, public interest groups, and interested individuals has occurred throughout the preparation of the Draft LEIS. This has included various agency meetings, public open house meetings, newsletters, and a website. Notification letters were mailed to 49 agencies and 36 tribes expected to have an interest in the land withdrawal renewal or a regulatory review responsibility.

DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

Four alternative actions (Alternatives 1 through 4) for keeping the CMAGR available to support training and the no-action alternative (Alternative 5) of allowing the current land withdrawal to expire in October 2014 were developed in consideration of comments received from the public, Native American tribes, and government agencies during the scoping process.

Each of the four action alternatives addresses four elements:

- A proposed range boundary and land withdrawal area
- Either a set duration for the proposed land withdrawal with an option for requesting a subsequent renewal, or a land withdrawal without a termination date

- Proposals for redefining DoN and BLM management responsibilities for the CMAGR
- Provisions for the disposal and management of land released from the CMAGR

The Marine Corps is proposing to realign the CMAGR boundary in four locations. Two realignments on the eastern side of the range would parallel the Niland-Blythe Road. On the north side of the range, the boundary could be realigned to exclude CMAGR land parcels north of the Bradshaw Trail (a partial realignment) or could exclude the unneeded parcels and include acquisition of parcels south of the trail for a full realignment with the Bradshaw Trail. Excluded DoN land would be disposed of through existing General Services Administration (GSA) authorities and procedures. Another potential realignment on the southwestern end of the range would follow the Union Pacific Railroad and the Mesquite Regional Landfill Rail Spur. The four boundary realignment proposals create four boundary and land withdrawal options:

- Renew the CMAGR boundary and land withdrawal area without change from the existing condition (Alternative 1—no realignment option)
- Renew the CMAGR boundary and land withdrawal area per the existing conditions except incorporate the full Bradshaw Trail, UPRR, and south of Niland-Blythe Road realignments (Alternative 2—maximum realignment option)
- Renew the CMAGR boundary and land withdrawal area per the existing conditions except incorporate the full Bradshaw Trail and south of Niland-Blythe Road realignments (Alternative 3—intermediate realignment option)
- Renew the CMAGR boundary and land withdrawal area per the existing conditions except incorporate the partial Bradshaw Trail realignment (Alternative 4—minimum realignment option)

Three options are also proposed for the duration of the renewed CMAGR land withdrawal:

- 20 years
- 25 years
- indefinite

Three options are proposed for administering federal land management responsibilities for the DoN and BLM lands within the current CMAGR boundary and for BLM land that may be included in the range for the first time as a part of a proposed boundary realignment. The options include:

- Retain the existing DoN and BLM management assignments within the renewed CMAGR, which provide that the DoN is responsible for managing DoN land in accordance with the Sikes Act and the BLM is responsible for managing BLM land in accordance with the FLPMA (Alternative 1—existing condition)
- Transfer management responsibility for BLM land within the renewed CMAGR to the DoN for the duration of the land withdrawal, which would make the DoN responsible for managing both the DoN and withdrawn BLM lands within the range in accordance with the Sikes Act (Alternatives 2 and 4)
- Transfer jurisdiction for the BLM land within the renewed CMAGR to the DoN, which would make the DoN responsible for managing all land within the range in accordance with the Sikes Act until such time that the need for the range may end and it is deactivated and closed (Alternative 3)

The boundary realignment and land withdrawal area proposals of Alternatives 2, 3, and 4 would each release some BLM and DoN land from the CMAGR. Alternatives considered for the disposal and management of land released from range include:

- Released DoN land would be transferred to BLM; BLM would manage transferred DoN and formerly withdrawn BLM land per FLPMA (Alternative 2)
- Released DoN land would be disposed of through existing General Services Administration (GSA) authorities and procedures; DoN would manage released land per the Sikes Act until disposal is complete and BLM would manage formerly withdrawn BLM land per FLPMA (Alternatives 3 and 4)

Table ES-1 shows how the four elements—boundary alignment and withdrawal area, withdrawal duration, agency management responsibilities, and disposal and management of land released—for the proposed renewal of the CMAGR would be allocated among the four renewal alternatives. A summary of the no-action alternative is also included in Table ES-1.

Table ES-1 Summary of Alternatives for Renewing the CMAGR

Action Element	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Boundary Alignment and Withdrawal Area	Boundary and withdrawal area would remain unchanged from current condition	Boundary and withdrawal area would be changed to incorporate the full Bradshaw Trail, Union Pacific Railroad, and Niland-Blythe Road realignments	Boundary and withdrawal area would be changed to incorporate the full Bradshaw Trail and Niland-Blythe Road realignments	Boundary and withdrawal area would be changed to incorporate the partial Bradshaw Trail	No action taken, withdrawal expires in October 2014, and range would be closed; boundary would no longer define an active range, but would demarcate a post-range planning and cleanup area
Duration of Range Renewal	BLM land within CMAGR boundary would be withdrawn and reserved for 20 years	BLM land within CMAGR boundary would be withdrawn and reserved for 25 years	Authorization for CMAGR would not expire	Same as Alternative 2	CMAGR would not be renewed
Assignments for CMAGR Management Responsibilities	Would be unchanged from current condition; DoN would manage DoN land per Sikes Act and BLM would manage withdrawn BLM land managed per FLPMA	Responsibility for managing withdrawn BLM land would be transferred to DoN; DoN would manage DoN and BLM lands per Sikes Act	BLM land would be transferred to DoN; DoN would manage all CMAGR land per Sikes Act	Same as Alternative 2	All DoN and withdrawn BLM land would be released from CMAGR; DoN would continue to manage DoN land per Sikes Act until disposition of DoN land determined; BLM would manage BLM land managed per FLPMA; DoN would be responsible for any needed post-range cleanup
Disposal of and Management Responsibilities for Land Released from CMAGR	No land would be released	Released DoN land would be transferred to BLM; BLM would manage transferred DoN and formerly withdrawn BLM land per FLPMA; DoN would be responsible for any needed post-range cleanup	Released DoN land would be disposed of through existing GSA authorities and procedures; DoN would manage released land per Sikes Act until disposal complete; BLM would manage formerly withdrawn BLM land per FLPMA; DoN would be responsible for any needed post-range cleanup	Same as Alternative 3	DoN would continue to manage closed DoN range land per Sikes Act until disposition of DoN land determined; BLM would manage formerly withdrawn BLM land managed per FLPMA; DoN would be responsible for any needed post-range cleanup

Under Alternative 5, Congress would take no action to renew the CMAGR land withdrawal. As a consequence and as provided by the CMLWOA, the current withdrawal of BLM land in the CMAGR would expire at the end of October 2014, the BLM land would no longer be available for military purposes, and the remaining DoN land would not provide an adequate restricted land-base to continue tactical aviation training. From that point forward, the BLM would manage the BLM land in accordance with FLPMA.

If Congress decides not to renew the CMAGR land withdrawal, the Secretary of Defense would have to address the displacement of training and the level of clean-up that is appropriate for the type of future land use. The Secretary of Defense, acting through the DoN, would determine if lands that were once used for training and testing may contain unexploded ordnance, discarded military munitions, or munitions constituents.

Each of the action alternatives provides a set of range renewal elements that in aggregate is unique to that alternative. Although the four action alternatives do not include all possible combinations of the range renewal elements, the action and no-action alternatives combined represent the reasonable range of alternatives as indicated for consideration in this Draft LEIS by the continuing military need for the range, government and public input received during scoping, and guidance provided by the CMLWOA. Analysis of the action and no-action alternatives will evaluate and disclose the full spectrum of environmental consequences that may result from any potential combination of the range renewal or non-renewal options.

AFFECTED ENVIRONMENT ANALYSIS

The existing environment of the CMAGR region was inventoried so that the effects of alternatives could be assessed for their effect on the environment. Data collection included range and airspace operations, non-military land use, geological resources, water resources, air quality, biological resources, cultural resources, noise, visual resources, public health and safety, hazardous materials and waste, socioeconomic resources, and environmental justice.

After the data were collected and the existing environment was described, an impact assessment was completed for the resources affected by the LEIS alternatives. The results of this assessment were used to help compare the impacts of the alternatives. Table ES-2 summarizes the environmental effects of the alternatives for each resource.

ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES

The environmental effects associated with implementing the alternatives have been assessed for each element of the environment described in Chapter 3. The impacts of implementing the proposed action were analyzed based on the baseline environmental conditions. These baseline environmental conditions for the CMAGR reflect the influence of military use, which includes aircraft overflights, bombing and gunnery targets, munitions impact areas, roads, troop deployment areas, developed training sites, and range maintenance and other types of support areas.

An inventory of the CMAGR found that 99.48 percent of the range surface is used to support the military mission of the range. About 2,571 acres (0.56 percent) of the range that is north of the Bradshaw Trail has no assigned military mission. The levels of surface disturbance associated with military use of the CMAGR ranges from negligible to complete. However, only a small proportion of the range, less than 5 percent, supports surface uses that cause or may cause moderate to complete levels of physical disturbance to the ground surface, vegetative communities, and surface drainages. Most of the land associated with the range serves to protect public safety by providing the necessary space to contain the munitions, and effects of those munitions, expended during the conduct of military training.

While most environmental effects associated with the action alternatives occur within the CMAGR boundaries, some effects may extend to adjoining off-range areas by natural processes such as rainwater runoff, airborne propagation, or biological species movements. The extent to which adjoining off-range areas may be affected varies depending on the individual resources and processes involved. In general, because the proposed actions associated with Alternatives 1 through 4 do not include proposed changes in military operations, most off-range environmental effects would not discernably differ from existing conditions. Physical, biological, or cultural resource environments in off-range locations that may be affected by the proposed actions are disclosed in the affected environment description for each resource area. However, off-range environmental effects are generally minor to inconsequential given the lack of perennial or seasonally intermittent surface water flow from the CMAGR, the rarity of ephemeral surface storm water flows of any substantial volumes, the very limited extent of substantial surface disturbing activities at the range (less than 1 percent of the range surface), the relatively minor role that the range plays in seasonal migratory pathways of wildlife, and the very limited volume of vehicular traffic that is authorized to enter and leave the range. Off-range noise and air-quality effects do occur as a result of on-range activities, but these effects do not exceed regulatory criteria for either of these types of emissions.

Closure, decommissioning, and eventual reuse of the CMAGR, which would occur under Alternative 5, the no-action alternative, likely would affect the same physical, biological, and cultural resource environments as would Alternatives 1 through 4, but in a different way. At this time, the nature and extent of remediation or response actions is highly speculative, and would be subject to further study as well as funding priorities. Assuming that some level of decontamination would occur, the amount of surface disturbance associated with remedial actions could be substantially greater than from ongoing military operations, particularly on land primarily providing a safety buffer. The socioeconomic and environmental justice environments that would be affected by either renewal of the CMAGR under any of the action alternatives or closure of the range as result of the no-action alternative would initially include communities both near to and distant from the CMAGR that are socially or economically impacted by activities at the range. The key affected distant communities would be those in the vicinities of MCAS Yuma and MCAS Miramar from which most military training missions at the range are mustered. MCAS Yuma also provides administrative and management support for the CMAGR.

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Table ES-2 Comparison of Environmental Effects by Alternative

Resource	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5 No Action Alternative
Range and Airspace Operations	**Boundary/Withdrawal Area – unchanged from current condition:** • Military training capabilities, capacities, and operations at the CMAGR and associated special use airspace would be preserved and unchanged from existing condition. • About 647 acres of DoN land and 1,924 acres of BLM land that are not needed for either current or foreseeable future military purposes would be retained. • No improvements in the prominence, accessibility, and maintainability of the CMAGR boundary in the Bradshaw Trail area. • Existing National Airspace System structure and civil aviation operations would be unchanged from existing conditions.	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • Same as Alternative 1 for military training capabilities, capacities, and operations. • About 647 acres of DoN land and about 1,924 acres of BLM land that are not needed for either current or foreseeable future military purposes would be released. • Physically and visually prominent boundary that would be accessible for posting and maintaining prohibited entry signs, periodic monitoring, and patrol would be released. • Same as Alternative 1 for National Airspace System structure and civil aviation operations.	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • Same as Alternative 1 for military training capabilities, capacities, and operations. • Same as Alternative 2 for release of DoN and BLM land. • Same as Alternative 2 for establishing a physically and visually prominent boundary. • Same as Alternative 1 for National Airspace System structure and civil aviation operations.	**Boundary/Withdrawal Area:** Partial realignment along Bradshaw Trail: • Same as Alternative 1 for military training capabilities, capacities, and operations. • Same as Alternative 2 for release of DoN and BLM land. • Physically and visually prominent boundary that would be accessible for posting and maintaining prohibited entry signs, periodic monitoring, or patrol would be partially established. • Same as Alternative 1 for National Airspace System structure and civil aviation operations.	**Boundary/Withdrawal Area – Boundary would demarcate a post-range planning and cleanup area:** • CMAGR would be closed, decommissioned, and slated for non-military use. • Military training capabilities, capacities, and operations at the CMAGR would be lost. • R-2507N/S/E restricted airspace designation would likely be changed to a MOAA/ATCAA or possibly canceled. Existing MOAA/ATCAAs and MTRs may also be modified or cancelled. • Need for training capabilities and capacities at CMAGR would not end with range closure. • Recreating CMAGR training capabilities within the BSTRC, at BMGR East, or the MCAGCC would likely diminish some existing capabilities at the other ranges, cause training scheduling conflicts, and reduce the aggregate capabilities and capacities of these range complexes. This would also diminish the multidimensional and multi-tiered training system that has been developed at the integrated system of ranges, range complexes, and military bases in southern California and Arizona over decades for preparing MAGTFs. • NSWG training would have to be relocated. • New routing opportunities may be created for civil aviation operations in special use airspace areas associated with closed CMAGR.
	No realignment along UPRR: • No improvement in the prominence, accessibility, and maintainability of the CMAGR boundary in the UPRR area. • No development of additional range capabilities that could potentially support some training operations.	Realignment along UPRR: • Physically and visually prominent boundary would be established that would be accessible for posting and maintaining prohibited entry signs, periodic monitoring, and patrol. • Realignment would create a range area partially underlying R-2507S with the capabilities of potentially supporting some training operations.	No realignment along UPRR: • Same as Alternative 1.	No realignment along UPRR: • Same as Alternative 1.	
	No realignment along Niland-Blythe Road: • No improvement in the prominence, accessibility, and maintainability of the CMAGR boundary in the Niland-Blythe Road area.	Realignment along Niland-Blythe Road: • Physically and visually prominent boundary would be established that would be accessible for posting and maintaining prohibited entry signs, periodic monitoring, and patrol. • About 250 acres of BLM land that are not needed for either current or foreseeable future military purposes would be released.	Realignment along Niland-Blythe Road: • Same as Alternative 2.	No realignment along Niland-Blythe Road: • Same as Alternative 1.	

Table ES-2 Comparison of Environmental Effects by Alternative (continued)

Resource	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5 No Action Alternative
	Duration of Range Renewal – 20 years: • No effect on military training capabilities, capacities, or operations at the CMAGR and associated special use airspace. • Higher cost of administering range renewal cycles due to increased frequency of these cycles compared to Alternatives 2, 3, and 4.	**Duration of Range Renewal – 25 years:** • Same as Alternative 1 for military training capabilities, capacities, and operations. • Lower cost of administering range renewal cycles due to decreased frequency of these cycles compared to Alternative 1 but not compared Alternative 3.	**Duration of Range Renewal – no expiration:** • Same as Alternative 1 for military training capabilities, capacities, and operations. • The end of periodic range renewal requirements would provide the lowest cost of administering range compared to Alternative 1, 2, and 4.	**Duration of Range Renewal – 25 years:** • Same as Alternative 2.	**Duration of Range Renewal – no renewal:** • Not applicable.
	Management Responsibilities for CMAGR – unchanged from current condition: • No effect on military training capabilities, capacities, or operations at the CMAGR and associated special use airspace. • Split, dual agency management would likely raise costs and lower management efficiencies for administering the range compared to single agency management.	**Management Responsibilities for CMAGR – DoN would manage DoN and BLM lands:** • Same as Alternative 1 for military training capabilities, capacities, and operations. • Costs would likely be lower and management efficiencies higher for administering the range than would occur with a split, dual agency management.	**Management Responsibilities for CMAGR – DoN would manage DoN and BLM lands:** • Same as Alternative 1 for military training capabilities, capacities, and operations. • Costs would likely be lower and management efficiencies higher for administering the range than would occur with a split, dual agency management.	**Management Responsibilities for CMAGR – DoN would manage DoN and BLM lands:** • Same as Alternative 2.	**Management Responsibilities for CMAGR – BLM would manage BLM lands; DoN lands would be disposed of through existing procedures:** • Not applicable.
	Management Responsibilities for Lands Not Renewed – no lands released: • Not applicable.	**Management Responsibilities for Lands Not Renewed – transferred to BLM:** • No effect on military training capabilities, capacities, or operations at the CMAGR and associated special use airspace. • Averts DoN costs and other commitments for administering management and disposal of range land not needed for military purposes.	**Management Responsibilities for Lands Not Renewed – DoN lands disposed through existing procedures; BLM to manage BLM land:** • Same as Alternative 2 for military training capabilities, capacities, and operations. • DoN would incur costs and other commitments for administering management and disposal of range land not needed for military purposes.	**Management Responsibilities for Lands Not Renewed:** • Same as Alternative 2 for military training capabilities, capacities, and operations. • Same as Alternative 3 for administering management and disposal of unneeded range land.	**Management Responsibilities for Lands Not Renewed – DoN would manage closed DoN land until disposition determined; BLM would manage formerly withdrawn BLM land:** • Not applicable.
Non-military Land and Airspace Use (including Utilities, Surface Transportation, and Recreation)	**Boundary/Withdrawal Area – unchanged from current condition:** • Land development adjacent to and near the CMAGR would continue to be influenced by the military operations within the range. Lands within the CMAGR would continue to be reserved for military purposes. • No effects on environmental management plans and approved county plans. • Recreational opportunities would be unchanged. • No effects on transportation corridors.	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • Land acquired for CMAGR would be withdrawn from all forms of appropriation under the public land laws (including the mining laws and the mineral leasing and the geothermal leasing laws); land released could become available for appropriative uses. • Change in role for land acquired or released could prompt amendments to environmental management plans and/or county plans. • Would clearly demarcate range boundary from non- range lands and the public would be less likely to inadvertently enter the range. • BLM management of the trail and Riverside County maintenance of the trail could be accomplished without encroaching into the CMAGR. Realignment along UPRR: • Same types of effects as full realignment along Bradshaw Trail alternative listed above, except there is no trail to be managed by or maintained by the county.	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • Land released could become available for appropriative uses. • Change in role for land released could prompt amendments to environmental management plans and/or county plans. • Would improve demarcation of range boundary along the Bradshaw Trail and Niland-Blythe Road alignments. • Same as Alternative 2 for management and maintenance of Bradshaw Trail.	**Boundary/Withdrawal Area:** Partial realignment along Bradshaw Trail: • Land released could become available for appropriative uses. • Change in role for land released could prompt amendments to environmental management plans and/or county plans. • Same as Alternative 2 for management and maintenance of Bradshaw Trail.	**Boundary/Withdrawal Area – Boundary would demarcate a post-range planning and cleanup area:** • While military operations would be discontinued, there would be a planning effort to allocate current military operations and to begin a clean-up process for the range. In the near term, as decontamination processes are initiated and implemented, no alternative land uses could be introduced within the CMAGR. If land is processed and made available for other future uses, it could prompt extensive land and resource management planning efforts and plan amendments. • Former range boundary would demarcate a post-range planning and cleanup area.

Table ES-2 Comparison of Environmental Effects by Alternative (continued)

Resource	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5 No Action Alternative
		Realignment along Niland-Blythe Road: • Same types of effects as full realignment along Bradshaw Trail alternative listed above.	Realignment along Niland-Blythe Road: • Land released (250 acres) could become available for appropriative uses. • Would clearly demarcate range boundary from non- range lands and the public would be less likely to inadvertently enter the range.		
	Duration of Range Renewal – 20 years: • No effect.	**Duration of Range Renewal – 25 years:** • No effect.	**Duration of Range Renewal – no expiration:** • Would have the greatest potential to keep the CMAGR for military purposes in perpetuity and exclude the lands from other public purposes.	**Duration of Range Renewal – 25 years:** • No effect.	**Duration of Range Renewal – no renewal:** • Would have the greatest potential to make CMAGR lands available for non-military land uses, but it would be speculative to suggest when or what types of future uses might be allowed.
	Management Responsibilities for CMAGR – unchanged from current condition: • No effect.	**Management Responsibilities for CMAGR – DoN would manage DoN and BLM lands:** • Having a single agency responsible for land management would offer consistency and avoid the potential for duplication of similar efforts.	**Management Responsibilities for CMAGR – BLM land would be transferred to DoN:** • Same as Alternative 2.	**Management Responsibilities for CMAGR – BLM land would be transferred to DoN:** • Same as Alternative 2	**Management Responsibilities for CMAGR – BLM would manage BLM lands; DoN lands would be disposed of through existing procedures:** • The BLM would be responsible for addressing plan amendments to the CDCA Plan, the NECO and the Western Colorado Desert Routes of Travel Designations Plan as part of the planning for future non-military use of the former range land, assuming land is environmental cleared for other uses. • The DoN lands within the range would become excess property if the CMAGR were to close and would be either transferred to another federal agency, such as the BLM, or disposed of as surplus.
	Management Responsibilities for Lands Not Renewed – no lands released: • Not applicable.	**Management Responsibilities for Lands Not Renewed – transferred to BLM:** • Possible need to amend the BLM's current CDCA Plan, the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO) and the Western Colorado Desert Routes of Travel Designations Plan.	**Management Responsibilities for Lands Not Renewed – DoN lands disposed through existing procedures; BLM to manage BLM land:** • No effect.	**Management Responsibilities for Lands Not Renewed:** • No effect.	**Management Responsibilities for Lands Not Renewed – DoN would manage closed DoN land until disposition determined; BLM would manage formerly withdrawn BLM land:** • BLM would be the managing federal jurisdiction for the public lands located within the current boundary. • DoN land would become excess property and would be either transferred to another federal agency or disposed of as surplus through existing GSA authorities.

Table ES-2 Comparison of Environmental Effects by Alternative (continued)

Resource	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5 No Action Alternative
Geological Resources	**Boundary/Withdrawal Area – unchanged from current condition:** • Military surface use impacts on geological resources would not change. • Soils currently disturbed by military surface use would continue to be disturbed and subject to increased wind and water erosion or increased runoff. • Mineral and energy resources currently withdrawn from the public domain would continue to be unavailable for exploration and/or development. Continued land withdrawal preserves potential resources for future development and use.	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • Boundary realignment would not affect the lands currently impacted by military surface use. Impacts on geological resources by military surface use would be the same as Alternative 1. • Potential mineral or energy resources on released lands could be developed and impact geological resources. Realignment along UPRR: • Same types of effects as full realignment along Bradshaw Trail alternative listed above. Realignment along Niland-Blythe Road: • Same types of effects as full realignment along Bradshaw Trail alternative listed above.	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • Same as Alternative 2. Realignment along Niland-Blythe Road: • Same as Alternative 2.	**Boundary/Withdrawal Area:** Partial realignment along Bradshaw Trail. • Same as Alternative 2.	**Boundary/Withdrawal Area – Boundary would demarcate a post-range planning and cleanup area:** • Military surface use would cease. Impacted soils may be cleaned up or have restricted land use. Disturbed soils in the surface use areas would likely stabilize and, with time, may revegetate and reduce erosion or runoff. • Remediation may disturb soils in areas that currently experience negligible surface use, increasing potential for erosion. If cleared for alternative uses, the future use also may cause more surface disturbance than current military operations, although the extent of remedial action and potential for future use cannot be estimated at this time.
	Duration of Range Renewal – 20 years: • No effect.	**Duration of Range Renewal – 25 years:** • No effect.	**Duration of Range Renewal – no expiration:** • Existing requirements of a land withdrawal application (including mineral potential) would no longer apply. By eliminating the need for this evaluation, there may be a less clear future understanding of the mining opportunities that would be unavailable by continuing the military reservation status of the CMAGR.	**Duration of Range Renewal – 25 years:** • No effect.	**Duration of Range Renewal – no renewal:** • Same as above regarding withdrawal area.
	Management Responsibilities for CMAGR – unchanged from current condition: • Current management responsibilities would remain the same and would have no new impacts on geological resources.	**Management Responsibilities for CMAGR – DoN would manage DoN and BLM lands:** • Changed management responsibilities would have no effect on geological resources.	**Management Responsibilities for CMAGR – BLM land would be transferred to DoN:** • No effect.	**Management Responsibilities for CMAGR – DoN would manage DoN and BLM lands:** • No effect.	**Management Responsibilities for CMAGR – BLM would manage BLM lands; DoN lands would be disposed of through existing procedures:** • No effect.
	Management Responsibilities for Lands Not Renewed – no lands released: • Not applicable.	**Management Responsibilities for Lands Not Renewed – transferred to BLM:** • No effect.	**Management Responsibilities for Lands Not Renewed – DoN lands disposed through existing procedures; BLM to manage BLM land:** • No effect.	**Management Responsibilities for Lands Not Renewed:** • No effect.	**Management Responsibilities for Lands Not Renewed – DoN would manage closed DoN land until disposition determined; BLM would manage formerly withdrawn BLM land:** • No effect on most of the lands, however, the mineral rights on some of the released lands may revert to the State and be available for exploration and development.

Table ES-2 Comparison of Environmental Effects by Alternative (continued)

Resource	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5 No Action Alternative
Water Resources	**Boundary/Withdrawal Area – unchanged from current condition:** • Military surface use impacts on water resources would not change. Surface water use on the CMAGR prohibited by law. • Ephemeral surface water drainages currently disturbed by military surface use would continue to be impacted by increased sediment loads and sedimentation. • Ground water resources would not be impacted as they are not used as a water supply by the military. Ground water use beneath the CMAGR is prohibited by law. **Duration of Range Renewal – 20 years:** • No effect. **Management Responsibilities for CMAGR – unchanged from current condition:** • Current management responsibilities would remain the same and would have no new impacts on water resources. **Management Responsibilities for Lands Not Renewed – no lands released:** • Not applicable.	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • Boundary realignment would not affect the lands currently impacted by military surface use. Impacts on water resources by military surface use would be the same as Alternative 1. Realignment along UPRR: • Same types of effects as full realignment along Bradshaw Trail alternative listed above. Realignment along Niland-Blythe Road: • Same types of effects as full realignment along Bradshaw Trail alternative listed above. **Duration of Range Renewal – 25 years:** • No effect. **Management Responsibilities for CMAGR – DoN would manage DoN and BLM lands:** • Changed management responsibilities would have no effect on water resources. **Management Responsibilities for Lands Not Renewed – transferred to BLM:** • No effect.	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • Same as Alternative 2. Realignment along Niland-Blythe Road: • Same as Alternative 2. **Duration of Range Renewal – no expiration:** • No effect. **Management Responsibilities for CMAGR – BLM land would be transferred to DoN:** • No effect. **Management Responsibilities for Lands Not Renewed – DoN lands disposed through existing procedures; BLM to manage BLM land:** • No effect.	**Boundary/Withdrawal Area:** Partial realignment along Bradshaw Trail. • Same as Alternative 2. **Duration of Range Renewal – 25 years:** • No effect. **Management Responsibilities for CMAGR – DoN would manage DoN and BLM lands:** • No effect. **Management Responsibilities for Lands Not Renewed:** • No effect.	**Boundary/Withdrawal Area – Boundary would demarcate a post-range planning and cleanup area:** • Military surface use would cease. Impacted ephemeral surface water drainages may be cleaned up or have restricted land use. Disturbed soils in the surface use areas and drainages would likely stabilize and return to their natural state and reduce or eliminate sediment impacts to surface water. • Remediation may disturb soils in areas that currently experience negligible surface use, increasing potential for sediment loads and sedimentation. If cleared for alternative uses, the future use also may cause more surface disturbance than current military operations; however, the extent of remedial action and potential for future use cannot be estimated at this time. **Duration of Range Renewal – no renewal:** • Same as above regarding withdrawal area. **Management Responsibilities for CMAGR – BLM would manage BLM lands; DoN lands would be disposed of through existing procedures:** • No effect. **Management Responsibilities for Lands Not Renewed – DoN would manage closed DoN land until disposition determined; BLM would manage formerly withdrawn BLM land:** • No effect.
Air Quality	**Boundary/Withdrawal Area – unchanged from current condition:** • Current emissions sources at the CMAGR would continue unchanged. • No new impacts are anticipated.	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • Current emissions sources at the CMAGR would continue unchanged. • Emissions increases associated with boundary demarcation and erecting signs would be small, infrequent and within the range maintenance activities currently occurring at CMAGR.	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • Same effects as Alternative 2.	**Boundary/Withdrawal Area:** Partial realignment along Bradshaw Trail. • Same effects as Alternative 2.	**Boundary/Withdrawal Area – Boundary would demarcate post-range planning and remedial response area:** • Emissions associated with military aircraft operations would be substantially lessened, and emissions associated with air-to-ground operations would cease altogether. • Any necessary remediation response is highly speculative. It is anticipated that a remedial response would have a greater effect if the remedial activities increase ground disturbance in areas with negligible military surface use.

Table ES-2 Comparison of Environmental Effects by Alternative (continued)

Resource	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5 No Action Alternative
		Realignment along UPRR: • Same effects as full realignment along Bradshaw Trail alternative listed above. Realignment along Niland-Blythe Road: • Same effects as full realignment along Bradshaw Trail alternative listed above.	Realignment along Niland-Blythe Road: • Same as Alternative 2.		
	Duration of Range Renewal – 20 years: • No effect. **Management Responsibilities for CMAGR – unchanged from current condition:** • No effect. **Management Responsibilities for Lands Not Renewed – no lands released:** • Not applicable.	**Duration of Range Renewal – 25 years:** • No effect. **Management Responsibilities for CMAGR – DoN would manage DoN and BLM lands:** • No effect. **Management Responsibilities for Lands Not Renewed – transferred to BLM:** • No effect.	**Duration of Range Renewal – no expiration:** • No effect. **Management Responsibilities for CMAGR – BLM land would be transferred to DoN:** • No effect. **Management Responsibilities for Lands Not Renewed – DoN lands disposed through existing procedures; BLM to manage BLM land:** • No effect.	**Duration of Range Renewal – 25 years:** • No effect. **Management Responsibilities for CMAGR CMAGR – DoN would manage DoN and BLM lands:** • No effect. **Management Responsibilities for Lands Not Renewed – DoN lands disposed through existing procedures; BLM to manage BLM land:** • No effect.	**Duration of Range Renewal – no renewal:** • Not applicable. **Management Responsibilities for CMAGR – BLM would manage BLM lands; DoN lands would be disposed of through existing procedures:** • No effect. **Management Responsibilities for Lands Not Renewed – DoN would manage closed DoN land until disposition determined; BLM would manage formerly withdrawn BLM land:** • No effect.
Biological Resources	**Boundary/Withdrawal Area – unchanged from current condition:** • Current effects on biological resources from military operations would continue. • OHV trespassing onto CMAGR would continue due to boundaries that are difficult to identify, adversely impacting biological resources.	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • Impacts to biological resources in acquired land areas would be insignificant because these areas would predominantly function as buffer zones and incorporation within CMAGR would eliminate damage from public uses. • Prominent feature for the range boundary may reduce potential for OHV or other inadvertent trespass into the range, which may help to minimize impacts to biological resources. Realignment along UPRR: • The land added to the CMAGR by realigning the boundary with the UPRR could contain fringe habitat for dune specialists. No military operations are currently proposed within this land and the nearby Algodones Dunes provide core habitat for these species. Disturbance within the acquisition area, if warranted, would not have a significant impact on the survival of these species. Realignment along Niland-Blythe Road: • No effect.	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • Same as Alternative 2. Realignment along Niland-Blythe Road: • Same as Alternative 2.	**Boundary/Withdrawal Area:** Partial realignment along Bradshaw Trail: • Same as Alternative 3.	**Boundary/Withdrawal Area – Boundary would demarcate a post-range planning and cleanup area:** • Anticipated physical disturbance due to CMAGR deactivation, post-range planning activities, or cleanup would be expected to result in some loss of or damage to biological resources, although future actions would be evaluated under NEPA. • Impacts from alternative land uses and associated mitigation measures would be evaluated through additional NEPA documentation following a public planning process for the future use of these lands.

Table ES-2 Comparison of Environmental Effects by Alternative (continued)

Resource	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5 No Action Alternative
	Duration of Range Renewal – 20 years: • Other environmental documentation and LEIS would be prepared and impacts to biological resources would be re-evaluated in 20 years.	**Duration of Range Renewal – 25 years:** • Other environmental documentation and LEIS would be prepared and impacts to biological resources would be re-evaluated in 25 years.	**Duration of Range Renewal – no expiration:** • Biological resource impacts would not be re-evaluated for a withdrawal renewal under NEPA at a set expiration date.	**Duration of Range Renewal – 25 years:** • Same as Alternative 2.	**Duration of Range Renewal – no renewal:** • Impacts associated with military activities would no longer occur. • Land uses presently prohibited under military withdrawal, such as mining and off-highway-vehicle use, may be allowed to occur. The potential for the public to use released land that remain under DoN jurisdiction would have to be determined through planning to evaluate the extent that such use would not be inconsistent with hazards that may be present from UXO.
	Management Responsibilities for CMAGR – unchanged from current condition: • No effect.	**Management Responsibilities for CMAGR – DoN would manage DoN and BLM lands:** • DoN would manage CMAGR under the Sikes Act. Under the Sikes Act, the DoN is required to prepare an Integrated Natural Resource Management Plan (INRMP) that should be updated every 5 years. There is currently no such plan for DoN land at CMAGR. • DoI land is currently managed under FLPMA with CMAGR included in the NECO. Following management transfer to DoN, this plan would no longer be applicable to DoI land at CMAGR. • DoN-exclusive management of CMAGR could reduce management focus on BLM sensitive species and CNPS rare plants because the DoN is under no legal obligation to protect these species. • Protection for federally threatened and endangered species such as the desert tortoise would continue under the management transfer; therefore, the management transfer would not impact these species.	**Management Responsibilities for CMAGR – BLM land would be transferred to DoN:** • Same as Alternative 2.	**Management Responsibilities for CMAGR:** • No effect.	**Management Responsibilities for CMAGR – BLM would manage BLM lands; DoN lands would be disposed of through existing procedures:** • No effect.
	Management Responsibilities for Lands Not Renewed – no lands released: • Not applicable.	**Management Responsibilities for Lands Not Renewed – transferred to BLM:** • No effect.	**Management Responsibilities for Lands Not Renewed – DoN lands disposed through existing procedures; BLM to manage BLM land:** • Same as Alternative 2.	**Management Responsibilities for Lands Not Renewed:** • Same as Alternative 2.	**Management Responsibilities for Lands Not Renewed – DoN would manage closed DoN land until disposition determined; BLM would manage formerly withdrawn BLM land:** • No effect.

Table ES-2 Comparison of Environmental Effects by Alternative (continued)

Resource	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5 No Action Alternative
Cultural Resources	**Boundary/Withdrawal Area – unchanged from current condition:** • Existing uses of the CMAGR would continue, unchanged; no new impacts anticipated. • Potential impacts to cultural resources may occur as a result of low-level flight maneuvers or supersonic flight speeds, but this is unchanged from the current condition.	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • Same as Alternative 1 for existing CMAGR. • Better demarcated boundary may reduce impacts to the extent that recreational based activities would no longer occur south of the Bradshaw Trail. Public activity along the north side of the trail corridor may affect cultural resources that may be present, but the release of the land from the CMAGR would leave this potential unchanged from the present condition. Realignment along UPRR: • Cultural resources present within the land that would be added to the CMAGR through the boundary realignment could potentially be impacted by a future military use, although none is proposed at this time. Realignment along Niland-Blythe Road: • Released land could become more accessible and potentially increase impacts to cultural resources in this area.	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • Same as Alternative 1 for existing CMAGR. • Better demarcated boundary may reduce impacts to the extent that recreational based activities would no longer occur south of the Bradshaw Trail. Public activity along the north side of the trail corridor may affect cultural resources that may be present, but the release of the land from the CMAGR would leave this potential unchanged from the present condition. Realignment along Niland-Blythe Road: • Same as Alternative 2.	**Boundary/Withdrawal Area:** Partial realignment along Bradshaw Trail: • Same as Alternative 1 for existing CMAGR. • Public activity along the north side of the trail corridor may affect cultural resources that may be present, but the release of the land from the CMAGR would leave this potential unchanged from the present condition. Realignment along Niland-Blythe Road: • Same as Alternative 2.	**Boundary/Withdrawal Area – Boundary would demarcate a post-range planning and cleanup area:** • Impacts associated with military activities would no longer occur. • Anticipated physical disturbance due to CMAGR deactivation, post-range planning activities, or cleanup to cultural resources would be expected to result in some loss of or damage to cultural resources, although actions would be evaluated for compliance with NEPA and NHPA. • To the extent that former CMAGR land is made available for other uses, there could be physical disturbances to cultural resources due to potential increase in public access (e.g., vandalism, destruction, or looting, inadvertent damage caused by pedestrian or vehicular traffic) or other development of the land.
	Duration of Range Renewal – 20 years: • No effect.	**Duration of Range Renewal – 25 years:** • No effect.	**Duration of Range Renewal – no expiration:** • No effect.	**Duration of Range Renewal – 25 years:** • No effect.	**Duration of Range Renewal – no renewal:** • Land uses presently prohibited under military withdrawal, such as mining and off-highway-vehicle use, may be allowed to occur. The potential for the public to use released land that remain under DoN jurisdiction would have to be determined through planning, which would include evaluation of cultural resource impacts.
	Management Responsibilities for CMAGR – unchanged from current condition: • No effect.	**Management Responsibilities for CMAGR – DoN would manage DoN and BLM lands:** • No effect.	**Management Responsibilities for CMAGR – BLM land would be transferred to DoN:** • No effect.	**Management Responsibilities for CMAGR:** • No effect.	**Management Responsibilities for CMAGR – BLM would manage BLM lands; DoN lands would be disposed of through existing procedures:** • No effect.
	Management Responsibilities for Lands Not Renewed – no lands released: • Not applicable.	**Management Responsibilities for Lands Not Renewed – transferred to BLM:** • No effect.	**Management Responsibilities for Lands Not Renewed – DoN lands disposed through existing procedures; BLM to manage BLM land:** • No effect.	**Management Responsibilities for Lands Not Renewed:** • No effect.	**Management Responsibilities for Lands Not Renewed – DoN would manage closed DoN land until disposition determined; BLM would manage formerly withdrawn BLM land:** • No effect.

Table ES-2 Comparison of Environmental Effects by Alternative (continued)

Resource	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5 No Action Alternative
Noise	**Boundary/Withdrawal Area – unchanged from current condition:** • Ambient noise exposure at all areas in the vicinity of CMAGR is expected to remain similar to current conditions. • No new impacts are anticipated. **Duration of Range Renewal – 20 years:** • No effects. **Management Responsibilities for CMAGR – unchanged from current condition:** • No effect. **Management Responsibilities for Lands Not Renewed – no lands released:** • Not applicable.	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • Noise-producing ground-based and airborne operations are not expected to change as a result of boundary realignment. • No new impacts are anticipated. Realignment along UPRR: • Same effects as full realignment along Bradshaw Trail alternative listed above. Realignment along Niland-Blythe Road: • Same effects as full realignment along Bradshaw Trail alternative listed above. **Duration of Range Renewal – 25 years:** • No effect. **Management Responsibilities for CMAGR – DoN would manage DoN and BLM lands:** • No effect. **Management Responsibilities for Lands Not Renewed – transferred to BLM:** • No effect.	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • Same as Alternative 2. Realignment along Niland-Blythe Road: • Same as Alternative 2. **Duration of Range Renewal – no expiration:** • No effect. **Management Responsibilities for CMAGR – BLM land would be transferred to DoN:** • No effect. **Management Responsibilities for Lands Not Renewed – DoN lands disposed through existing procedures; BLM to manage BLM land:** • No effect.	**Boundary/Withdrawal Area:** Partial realignment along Bradshaw Trail • Same as Alternative 2. **Duration of Range Renewal – 25 years:** • No effect. **Management Responsibilities for CMAGR:** • No effect. **Management Responsibilities for Lands Not Renewed:** • No effect.	**Boundary/Withdrawal Area – Boundary would demarcate a post-range planning and cleanup area:** • Non-renewal would severely curtail the opportunities for military training and thus eliminate most of the associated noise-producing sources from the ambient sound environment. • No immediate new impacts are anticipated. Cannot speculate as to what future noise sources and corresponding impacts may be present. **Duration of Range Renewal – no renewal:** • Not applicable. **Management Responsibilities for CMAGR – BLM would manage BLM lands; DoN lands would be disposed of through existing procedures:** • No effect. **Management Responsibilities for Lands Not Renewed – DoN would manage closed DoN land until disposition determined; BLM would manage formerly withdrawn BLM land:** • No effect.
Visual Resources	**Boundary/Withdrawal Area – unchanged from current condition:** • No effect.	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • Negligible visual impacts as seen from land along and beyond the CMAGR perimeter. **Realignment along UPRR:** • Negligible visual impacts as seen from land along and beyond the CMAGR perimeter. **Realignment along Niland-Blythe Road:** • Negligible visual impacts as seen from land along and beyond the CMAGR perimeter.	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • Same as Alternative 2. **Realignment along Niland-Blythe Road:** • Same as Alternative 2.	**Boundary/Withdrawal Area:** Partial realignment along Bradshaw Trail: • Same as Alternative 2.	**Boundary/Withdrawal Area – Boundary would demarcate a post-range planning and cleanup area:** • Additional studies would be conducted to determine the extent and priority of range clean-up activities and future use of the range. Depending on the nature of the remediation activities, views of the CMAGR landscape from perimeter lands may change and result in a greater degree of visual contrast.

Table ES-2 Comparison of Environmental Effects by Alternative (continued)

Resource	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5 No Action Alternative
	Duration of Range Renewal – 20 years: • Negligible to low visual impacts from ongoing military use, as seen from land along and beyond the CMAGR perimeter. **Management Responsibilities for CMAGR – unchanged from current condition:** • No effect. **Management Responsibilities for Lands Not Renewed – no lands released:** • Not applicable.	**Duration of Range Renewal – 25 years:** • Same as Alternative 1. **Management Responsibilities for CMAGR – DoN would manage DoN and BLM lands:** • Same as Alternative 1. **Management Responsibilities for Lands Not Renewed – transferred to BLM:** • No effect.	**Duration of Range Renewal – no expiration:** • Same as Alternative 1. **Management Responsibilities for CMAGR – BLM land would be transferred to DoN:** • Same as Alternative 1. **Management Responsibilities for Lands Not Renewed – DoN lands disposed through existing procedures; BLM to manage BLM land:** • Same as Alternative 2.	**Duration of Range Renewal:** • Same as Alternative 1. **Management Responsibilities for CMAGR:** • Same as Alternative 1. **Management Responsibilities for Lands Not Renewed:** • Same as Alternative 2.	**Duration of Range Renewal – no renewal:** • Not applicable. **Management Responsibilities for CMAGR – BLM would manage BLM lands; DoN lands would be disposed of through existing procedures:** • Same as Alternative 1. **Management Responsibilities for Lands Not Renewed – DoN would manage closed DoN land until disposition determined; BLM would manage formerly withdrawn BLM land:** • Same as Alternative 2.
Public Health and Safety	**Boundary/Withdrawal Area – unchanged from current condition:** • Health and safety issues would remain the same as current conditions. **Duration of Range Renewal – 20 years:** • No effect. **Management Responsibilities for CMAGR – unchanged from current condition:** • No effect. **Management Responsibilities for Lands Not Renewed – no lands released:** • Not applicable.	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • The CMAGR boundary would be more readily identified by the use of prominent geographic features, reducing the potential for inadvertent trespass into the CMAGR and thus reducing public health and safety risks. Realignment along UPRR: • Same effects as full realignment along Bradshaw Trail alternative listed above. Realignment along Niland-Blythe Road: • Same effects as full realignment along Bradshaw Trail alternative listed above. **Duration of Range Renewal – 25 years:** • No effect. **Management Responsibilities for CMAGR – DoN would manage DoN and BLM lands:** • No effect. **Management Responsibilities for Lands Not Renewed – transferred to BLM:** • No effect. • DoN responsible for cleanup	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • Same as Alternative 2. Realignment along Niland-Blythe Road: • Same as Alternative 2. **Duration of Range Renewal – no expiration:** • No effect. **Management Responsibilities for CMAGR – BLM land would be transferred to DoN:** • No effect. **Management Responsibilities for Lands Not Renewed – DoN lands disposed through existing procedures; BLM to manage BLM land:** • No effect. • DoN responsible for cleanup	**Boundary/Withdrawal Area:** Partial realignment along Bradshaw Trail: • Same as Alternative 2, although the northern range boundary would be more difficult to identify than with Alternative 2. **Duration of Range Renewal:** • No effect. **Management Responsibilities for CMAGR:** • No effect. **Management Responsibilities for Lands Not Renewed:** • Same as Alternative 3.	**Boundary/Withdrawal Area – Boundary would demarcate a post-range planning and cleanup area:** • Additional studies would be conducted to determine the extent and priority of range clean-up activities and future use of the range. Extensive cleanup procedures would be needed prior to any reuse of the CMAGR for purposes other than military operations to ensure protection to public health and safety. **Duration of Range Renewal – no renewal:** • Not applicable. **Management Responsibilities for CMAGR – BLM would manage BLM lands; DoN lands would be disposed of through existing procedures:** • No effect. **Management Responsibilities for Lands Not Renewed – DoN would manage closed DoN land until disposition determined; BLM would manage formerly withdrawn BLM land:** • No effect. • DoN responsible for cleanup.

Table ES-2 Comparison of Environmental Effects by Alternative (continued)

Resource	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5 No Action Alternative
Hazardous Materials and Waste	**Boundary/Withdrawal Area – unchanged from current condition:** • Handling and storage of hazardous materials would remain the same as current conditions. Existing protocol and procedures provide for safe use of hazardous materials and for response should there be an inadvertent spill or release. **Duration of Range Renewal – 20 years:** • No effect. **Management Responsibilities for CMAGR – unchanged from current condition:** • No effect. **Management Responsibilities for Lands Not Renewed – no lands released:** • Not applicable.	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • No change in the locations in which hazardous materials would be used or in the protocol and procedures for safe handling of hazardous materials. Therefore, same as Alternative 1. Realignment along UPRR: • Same effects as full realignment along Bradshaw Trail alternative listed above. Realignment along Niland-Blythe Road: • Same effects as full realignment along Bradshaw Trail alternative listed above. **Duration of Range Renewal – 25 years:** • No effect. **Management Responsibilities for CMAGR – DoN would manage DoN and BLM lands:** • No effect. **Management Responsibilities for Lands Not Renewed – transferred to BLM:** • No effect. • DoN responsible for cleanup	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • Same as Alternative 2. Realignment along Niland-Blythe Road: • Same as Alternative 2 **Duration of Range Renewal – no expiration:** • No effect. **Management Responsibilities for CMAGR – BLM land would be transferred to DoN:** • No effect. **Management Responsibilities for Lands Not Renewed – DoN lands disposed through existing procedures; BLM to manage BLM land:** • No effect. • DoN responsible for cleanup	**Boundary/Withdrawal Area:** Partial realignment along Bradshaw Trail: • Same as Alternative 2. **Duration of Range Renewal:** • Same as Alternative 2 **Management Responsibilities for CMAGR:** • Same as Alternative 2 **Management Responsibilities for Lands Not Renewed:** • Same as Alternative 3.	**Boundary/Withdrawal Area – Boundary would demarcate a post-range planning and cleanup area:** • DoN would determine which lands that have been used for training and testing may contain UXO, munitions, or munitions constituents. Studies would be required to determine the extent and degree of the hazard, appropriate remedial actions, and funding requirements. It is anticipated that removal of all hazards, particularly at core impact areas for targets, would require extensive cleanup. **Duration of Range Renewal – no renewal:** • Not applicable. **Management Responsibilities for CMAGR – BLM would manage BLM lands; DoN lands would be disposed of through existing procedures:** • No effect. **Management Responsibilities for Lands Not Renewed – DoN would manage closed DoN land until disposition determined; BLM would manage formerly withdrawn BLM land:** • No effect. • DoN responsible for cleanup.
Socioeconomic Resources	**Boundary/Withdrawal Area – unchanged from current condition:** • No new impacts anticipated. • Beneficial economic effects in the vicinity of the installations that primarily use the range for training would continue.	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • Same as Alternative 1. Realignment along UPRR: • Same as Alternative 1. Realignment along Niland-Blythe Road: • Same as Alternative 1.	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • Same as Alternative 2. Realignment along Niland-Blythe Road: • Same as Alternative 2.	**Boundary/Withdrawal Area:** Partial realignment along Bradshaw Trail: • Same as Alternative 1.	**Boundary/Withdrawal Area – Boundary would demarcate a post-range planning and cleanup area:** • Effects from military use of the range would cease. • Negative economic impacts anticipated in the vicinity of the installations that primarily use the range for training. • There could be impacts to communities in the vicinity of the range depending on non-military land uses, although the future use of the range is undetermined.

Table ES-2 Comparison of Environmental Effects by Alternative (continued)

Resource	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5 No Action Alternative
	Duration of Range Renewal – 20 years: • No effect. **Management Responsibilities for CMAGR – unchanged from current condition:** • No effect. **Management Responsibilities for Lands Not Renewed – no lands released:** • Not applicable.	**Duration of Range Renewal – 25 years:** • No effect. **Management Responsibilities for CMAGR – DoN would manage DoN and BLM lands:** • No effect. **Management Responsibilities for Lands Not Renewed – transferred to BLM:** • No effect.	**Duration of Range Renewal – no expiration:** • Greatest potential of the action alternatives to continue the beneficial socioeconomic effects in perpetuity for the military installations that use the CMAGR for training. **Management Responsibilities for CMAGR – BLM land would be transferred to DoN:** • No effect. **Management Responsibilities for Lands Not Renewed – DoN lands disposed through existing procedures; BLM to manage BLM land:** • No effect.	**Duration of Range Renewal – 25 years:** • No effect. **Management Responsibilities for CMAGR:** • No effect. **Management Responsibilities for Lands Not Renewed:** • No effect.	**Duration of Range Renewal – no renewal:** • Not applicable. **Management Responsibilities for CMAGR – BLM would manage BLM lands; DoN lands would be disposed of through existing procedures:** • No effect. **Management Responsibilities for Lands Not Renewed – DoN would manage closed DoN land until disposition determined; BLM would manage formerly withdrawn BLM land:** • No effect.
Environmental Justice	**Boundary/Withdrawal Area – unchanged from current condition:** • Continued military operations of the CMAGR would not be anticipated to cause disproportionately high and adverse human or environmental effects on low-income or minority communities. **Duration of Range Renewal – 20 years:** • No effect. **Management Responsibilities for CMAGR – unchanged from current condition:** • No effect. **Management Responsibilities for Lands Not Renewed – no lands released:** • Not applicable.	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • Same as Alternative 1. Realignment along UPRR: • Same as Alternative 1. Realignment along Niland-Blythe Road: • Same as Alternative 1. **Duration of Range Renewal – 25 years:** • No effect. **Management Responsibilities for CMAGR – DoN would manage DoN and BLM lands:** • No effect. **Management Responsibilities for Lands Not Renewed – transferred to BLM:** • No effect.	**Boundary/Withdrawal Area:** Full realignment along Bradshaw Trail: • Same as Alternative 2. Realignment along Niland-Blythe Road: • Same as Alternative 2. **Duration of Range Renewal – no expiration:** • No effect. **Management Responsibilities for CMAGR – BLM land would be transferred to DoN:** • No effect. **Management Responsibilities for Lands Not Renewed – DoN lands disposed through existing procedures; BLM to manage BLM land:** • No effect.	**Boundary/Withdrawal Area:** Partial realignment along Bradshaw Trail: • Same as Alternative 1. **Duration of Range Renewal – 25 years:** • No effect. **Management Responsibilities for CMAGR:** • No effect. **Management Responsibilities for Lands Not Renewed:** • No effect.	**Boundary/Withdrawal Area – Boundary would demarcate a post-range planning and cleanup area:** • Effects from military use of the range would cease. • Negative economic impacts anticipated in the vicinity of the installations that primarily use the range for training, although this is unlikely to fall disproportionately on a community of concern for environmental justice. **Duration of Range Renewal – no renewal:** • Not applicable. **Management Responsibilities for CMAGR – BLM would manage BLM lands; DoN lands would be disposed of through existing procedures:** • No effect. **Management Responsibilities for Lands Not Renewed – DoN would manage closed DoN land until disposition determined; BLM would manage formerly withdrawn BLM land:** • No effect.

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LIST OF ACRONYMS AND ABBREVIATIONS

°C	degrees Centigrade
°F	degrees Fahrenheit
µg/m^3	micrograms per liter
µPa	micropascals
A.D.	Anno Domini (in the year of our Lord)
ACBCI	Agua Caliente Band of Cahuilla Indians
ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
ADOE	Archaeological Determinations of Eligibility
AFA	Artillery Firing Area
AFC	Application for Certification
AGL	above ground level
AIM	Aeronautical Information Manual
AIRFA	American Indian Religious Freedom Act
ARB	Air Reserve Base
ARPA	Archeological Resource Protection Act
ASM	ASM Affiliates
ASP	Ammunition Supply Point
ATC	Air Traffic Control
ATCAA	Air Traffic Control Assigned Airspace
AUX	auxiliary
B.P.	Before Present
BASH	Bird/Animal Aircraft Strike Hazards
BLM	Bureau of Land Management
BMGR	Barry M. Goldwater Range
BO	1996 Biological Opinion
BSTRC	Bob Stump Training Range Complex
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAMA	California-Arizona Maneuver Area
CARB	California Air Resources Board
CAS	close air support
CD	compact disk
CDCA	California Desert Conservation Area
CDD	California Desert District
CDFG	California Department of Fish and Game
CDP	Census Designated Place
CDWR	California Department of Water Resources
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFA	Controlled Firing Area
CFR	Code of Federal Regulations
CH_4	methane
CHL	California Historical Landmarks
CHRIS	California Historical Resources Information System

CL_{dn}	C-weighted L_{dn}
CMAGR	Chocolate Mountain Aerial Gunnery Range
CMLWOA	California Military Lands Withdrawal and Overflights Act of 1994
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
$CNEL_{mr}$	Onset-Rate Adjusted Monthly variant of CNEL
CNIC	Commander, Navy Installations Command
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalent
CPHI	California Points of Historical Interest,
CRHR	California Register of Historical Resources
CSM	conceptual site model
CSP	California State Parks
CVMSHCP	Coachella Valley Multiple Species Habitat Conservation Plan
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
dBC	C-weighted decibel
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
DoI	Department of the Interior
DoN	Department of the Navy
DMM	discarded military munitions
DTC	Desert Training Center
DWMA	Desert Wildlife Management Area
ECR	El Centro Ranges
EIC	Eastern Information Center
EIS	Environmental Impact Statement
EO	Executive Order
EOD	Explosive Ordnance Disposal
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
ESA	Endangered Species Act
eWRIMS	Electronic Water Rights Information Management System
FAA	Federal Aviation Administration
FAC	forward air controller
FARP	forward arming and refueling point
FEIS	Final Environmental Impact Statement
FERC	Federal Energy Regulatory Commission
FL	Flight Levels
FLPMA	Federal Lands Policy and Management Act
FLTFA	Federal Land Transaction Facilitation Act
FRM	Federal Reference Method
FTA	Federal Transit Administration
FY	Fiscal Year

GAP	Gap Analysis Program
GHG	greenhouse gas
GIS	geographic information system
GOPR	Governor's Office of Planning and Research
GPO	Government Printing Office
GPS	Global Positioning System
GSA	General Services Administration
GTP	Gas Turbine Plant
GWP	global warming potential
HABS	Historic American Buildings Survey
HAER	Historic American Engineering Record
HAP	hazardous air pollutants
HE	high explosive
HMH	Marine heavy helicopter squadron
HMLA	Marine light/attack helicopter squadron
HMLAT	Marine light attack helicopter training squadron
HMM	Marine medium helicopter squadron
HMMT	Marine medium helicopter training squadron
HMX	octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine
hp	horsepower
HPD	Historic Property Data File
HVAC	heating, ventilation, and air conditioning
Hz	Hertz
ICAPCD	Imperial County Air Pollution Control District
ICM	improved conventional munitions
ICRMP	Integrated Cultural Resources Management Plan
IFR	Instrument flight rule
IGR	Intergovernmental Review
IID	Imperial Irrigation District
INRMP	Integrated Natural Resources Management Plan
IR	Instrument (Flight Rule [IFR]) Route
IRP	Installation Restoration Program
ISDRA	Imperial Sand Dunes Recreation Area
JDAM	Joint Direct Attack Munition
KGRA	known geothermal resource area
KOP	Key Observation Point
kV	kilovolt
laser	Light Amplification by Stimulated Emission of Radiation
lb	pound
L_{dn}	day-night sound level
L_{dnmr}	Onset-Rate Adjusted Monthly variant of L_{dn}
LEED	Leadership in Energy and Environmental Design
LEIS	Legislative Environmental Impact Statement
L_{eq}	equivalent continuous noise level
L_{max}	maximum L_{eq}
L_{min}	minimum L_{eq}
LORS	laws, ordinances, regulations, and standards

L_p	sound pressure level (or SPL)
L_w	sound power level (or PWL)
LWCF	Land and Water Conservation Fund
LZ	Landing Zone
MACG	Marine Air Control Group
MAG	Marine Aircraft Group
MAGTF	Marine Air Ground Task Force
MAW	Marine Aircraft Wing
MAWTS-1	Marine Aviation Weapons and Tactics Squadron One
MC	munitions constituents
MCAGCC	Marine Corps Air Ground Combat Center
MCAS	Marine Corps Air Station
MCB	Marine Corps Base
MCI West	Marine Corps Installations West
MCL	maximum contaminant limit
MCO	Marine Corps Order
MCRP	Marine Corps Reference Publication
MCWP	Marine Corps Warfighting Publication
MEC	munitions and explosive of concern
mg/L	milligrams per liter
Midway	Midway Gas Turbine Plant and Substation
MLWA	Military Lands Withdrawal Act
MM	millimeter
MOA	Military Operations Area
MOU	Memorandum of Understanding
MUC	Multiple-Use Class
MW	megawatt
MRP	Munitions Response Program
MRSPP	Munitions Response Site Prioritization Protocol
MSL	mean sea level
MTR	Military Training Route
MUC	Multiple-Use Class
MW	megawatt
N_2O	nitrous oxide
NA	Numbers of Events At or Above a Specified Noise Threshold
NAAQS	National Ambient Air Quality Standards
NAB	Naval Amphibious Base
NADB	National Archaeological Database
NAF	Naval Air Facility
NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
NAS	Naval Air Station
NAVFAC	Naval Facilities Engineering Command
NECO	Northern and Eastern Colorado Desert Coordinated Management Plan
NEPA	National Environmental Policy Act
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NIPTS	Noise Induced Permanent Threshold Shift
NM	nautical miles
NO_2	nitrogen dioxide

NOA	Notice of Availability
NOI	Notice of Intent
NOTAM	Notice to Airmen
NOx	oxides of nitrogen
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSW	Naval Special Warfare
NSWG-1	Naval Special Warfare Group 1
NWI	National Wetlands Inventory
O_3	ozone
OBCF	octave band center frequency
OHP	Office of Historic Preservation
OHV	off-highway vehicle
OHWM	ordinary high water mark
OPNAV	Office of the Chief of Naval Operations
OSS	Operations Support Squadron
PA	preliminary assessment
P.L.	Public Law
Pb	lead
PFYC	Potential Fossil Yield Classification
PGM	precision-guided munitions
PM_{10}	suspended particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$	fine particulate matter less than or equal to 2.5 microns in diameter
ppb	parts per billion
ppm	parts per million
PWL	sound power level (or Lw)
RARD	Regional Archaeological Research Design
RCO	Range Control Officer
RCRA	Resource Conservation and Recovery Act
RDX	hexahydro-1,3,5-trinitro-1,3,5-triazine
REC	Recognized Environmental Condition
Reclamation	U.S. Bureau of Reclamation
REEA	West Chocolate Mountains Renewable Energy Evaluation Area
RETI	Renewable Energy Transmission Initiative
REVA	Range Environmental Vulnerability Assessment
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
ROG	reactive organic gases
ROI	Region of Influence
RONA	Record of Non-Applicability
ROW	right-of-way
RTA	Range and Training Area
RY	Reporting Year
SAR OPS	Search and Rescue Operations
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCIC	South Coastal Information Center
SDLA	Sanitation Districts of Los Angeles County

SDSU	San Diego State University
SDZ	surface danger zone
SEAL	Sea, Air and Land
SECNAVINST	Secretary of the Navy Instruction
SEL	Sound Equivalent Level
SHPO	State Historic Preservation Officer
SI	site investigation
SIP	State Implementation Plan
SLF	Sacred Lands File
SO_2	sulfur dioxide
SoCal Gas	Southern California Gas
SOP	Standard Operating Procedures
SPL	sound pressure level (also Lp)
SR	State Route
SRA	State Recreational Area
SSAB	Salton Sea Air Basin
StaO	Station Order
STATSGO2	State Soil Geographic Database
SWAT	special warfare training area
TAC	toxic air contaminants
TACTS	Tactical Aircrew Combat Training System
TCP	traditional cultural places
TDS	total dissolved solids
THPO	Tribal Historic Preservation Office
TNT	trinitrotoluene
TNW	Traditional Navigable Water
TRI	Toxics Release Inventory
U.S.C.	United States Code
UAS	unmanned aircraft systems
UPRR	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USMC	U.S. Marine Corps
UXO	unexploded ordnance
V	Victor
VFR	Visual Flight Rule
VMA	Marine attack squadron (Harrier)
VMFA	Marine fighter jet attack squadron
VMFAT	Marine fighter jet attack training squadron
VMGR	Marine aerial refueler and transport squadron
VMM	Marine medium tilt-rotor squadron
VMU	Marine unmanned aerial vehicle squadron
VOR	very high frequency omnidirectional range
VR	Visual (Flight Rule [VFR]) Route

WCB	West Coast Basing
WDZ	Weapons Danger Zone
WECO	Western Colorado Desert Routes of Travel Designations
WRCC	Western Regional Climate Center
WTI	Weapons Tactics Instructor
WWII	World War II
YPG	Yuma Proving Ground
YTRC	Yuma Training Range Complex

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GLOSSARY

Air defense systems – Typically include surface-to-air missiles or anti-aircraft artillery and radars or infra-red heat detection systems that are used to track aircraft and control missile or artillery fire directed at them.

air-to-air – The art of maneuvering a combat aircraft in order to attain a position from which an attack can be made on another aircraft.

air-to-ground (or air-to-surface) – Flights designed to attack surface targets.

air traffic control assigned airspace – Airspace having a defined vertical and lateral limit, assigned by an FAA air traffic control facility for the purpose of providing air traffic segregation between the specified activities being conducted within this assigned airspace and other IFR traffic within the surrounding vicinity. ATCAAs are normally designated for military utilization and established at altitudes of 18,000 feet mean sea level and above. They are usually placed above a MOA.

battalion – A military unit of around 300 to 1,200 soldiers usually consisting of between two and seven companies. For the CMGR, a battalion is typically 300 to 400 troops.

commercial air carrier – Scheduled airlines, charter airlines, and commercial operators such as Federal Express.

controlling agency – A designated FAA air traffic control facility which maintains overall cognizance and controlling authority over the use of any parcel of Special Use Airspace or airspace for special military use. Typically one of the FAA's 23 individual Air Route Traffic Control Centers is the designated Controlling Agency for any particular parcel of Special Use Airspace, and as such, may authorize transit through or flight within that parcel of airspace.

controlled firing area – A block of nonregulatory special use airspace designated by the FAA in which firing activities are conducted under controlled conditions so as to eliminate hazards to nonparticipating aircraft, and to ensure the safety of persons and property on the ground.

criteria pollutants – Air pollutants for which primary standards for the protection of human health and secondary standards for the protection of human welfare have been established.

cultural resources – Archaeological and historic resources that could potentially be affected by a given project. Cultural resources include any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion, in the NRHP. Historic properties also include resources determined to be National Historic Landmarks (NHL).

cumulative impact – The impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

direct effects – Effects which are caused by the action and occur at the same time and same place (40 CFR 1508.8(a)).

endangered species – Any species which is in danger of extinction throughout all or a significant portion of its range other than a species of the Class Insecta determined by the Secretary [of Interior] to constitute a pest whose protection under the provisions of [the Endangered Species] Act would present an overwhelming risk to man (the Endangered Species Act of 1973, as amended; Section 3(6)).

fixed-wing aircraft – A generic term used in this document to reference the broadest class of aircraft—those in which aerodynamic lift is generated when the airframe including the fixed- or nonrotating-wing is moved through the air by forward thrust from a jet engine or engine driven propeller.

general aviation – That portion of civil aviation other than scheduled airlines, charter air carriers, and large aircraft commercial operators (such as Federal Express). Examples of general aviation operations range from pleasure or business flights in small single-engine aircraft such as a Piper Super Cub, Cessna 172 or Beechcraft Bonanza to corporate flight activities in high performance aircraft such as the Beechcraft King Air, Cessna Citation business jet, or Gulfstream business jets.

guzzler – Metal structures built in suitable wildlife habitats to provide an additional source of water for wildlife of all types and sizes. The structure collects rainwater in a pond and stores it in tanks; the tanks then feed the water to a drinker that can be accessed by wildlife.

habitat – Place where an animal or plant normally lives, often characterized by a dominant plant form or physical characteristic.

indirect effects – Effects which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems (40 CFR 1508.8(b)).

legislative EIS – a detailed environmental statement for proposed actions that require legislative proposals to Congress for implementation. NEPA requires administrative agencies to prepare environmental impact statements for all proposals of legislation that might significantly affect the quality of the human environment (Sec. 102 [42 USC S 4332(C)]).

live-fire training (live ordnance training) – refers to training in which ordnance is discharged from weapons, such as an aircraft cannon, or released, such as the dropping of a bomb or the firing of an air-to-air or air-to-surface missile. Ordnance that is fired or released for training purpose may be grouped in two general classes: live and inert. Live ordnance is fused and charged for actual warfighting.

military operations area – Airspace of defined vertical and lateral dimensions which has been established by the FAA below Class A airspace (i.e., at altitudes of less than 18,000 feet mean sea level) to separate/segregate certain military aviation activities from Instrument Flight Rules traffic, and to identify where these activities are conducted for Visual Flight Rules traffic. Only non-hazardous activities may be conducted within a MOA.

military training route – Routes established generally below 10,000 feet mean sea level (MSL) for use by military aircraft to conduct low-altitude, high-speed navigation, and tactical training at airspeeds in excess of 250 knots. A MTR is made up of several route segments with each individual segment having a designated route width and vertical altitude block within which the aircraft using the route must remain. Additionally, there are two types of MTRs: IR Routes (IFR MTRs) and VR Routes (VFR MTRs). MTRs designated as VR routes require that all flights be conducted in accordance with visual flight rules except that flight visibility shall be 5 miles or more, and no flights will be conducted below a ceiling of less than 3,000 feet above ground level.

mitigation – Measures taken to minimize adverse environmental impacts. Mitigation could reduce the magnitude and extent of an impact from a level of significance to a level of insignificance. Mitigation includes:

a. Avoiding the impact altogether by not taking a certain action or parts of an action.
b. Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
c. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
d. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
e. Compensating for the impact by replacing or providing substitute resources or environments (40 CFR 1508.20).

National Register of Historic Places – A federal listing of historic resources protected under the National Historic Preservation Act of 1966.

PM_{10} – Particulate matter less than 10 microns in diameter. (One micron is equal to one-millionth of a meter.)

precision guided munitions – A missile, bomb or artillery shell equipped with a terminal guidance system that guides its last phase of flight to precisely hit a selected target. PGMs follow optical, infrared, laser, radar, or Global Positioning System signals to guide them to the target.

restricted area – Airspace having defined vertical and lateral dimensions which has been established by the FAA within which the flight of aircraft, while not wholly prohibited, is subject to restriction. Restricted Areas are established to contain or segregate activities, such as ordnance delivery or air-to-air gunnery, which would be hazardous to other non-participating aircraft.

rotary-wing aircraft or helicopters – The more elaborate reference to this category of aircraft places emphasis on the fact that the lift and forward thrust that allows the machine to fly is generated by the rotating wing or rotor.

scheduling agency – The organization or military command which has been designated as the primary point of contact and/or coordinating activity for scheduling the use of a particular parcel of Special Use Airspace or a particular type of airspace for special military use, such as a MTR.

segregation – BLM segregation of the affected lands removes them from all forms of appropriation under the public land laws to allow time for the land withdrawal issue to be decided.

sensitive species – includes species that could easily become endangered or extinct in the state.

significant impact – According to 40 CFR 1508.27, "significantly" as used in NEPA requires consideration of both context and intensity:

a. Context. This means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant.
b. Intensity. This refers to the severity of impact. Responsible officials must bear in mind that more than one agency may make decisions about partial aspects of a major action. The following should be considered in evaluating intensity:

1. Impacts that may be both beneficial and adverse. A significant effect may exist even if the federal agency believes that on balance the effect will be beneficial.
2. The degree to which the proposed action affects public health or safety.
3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.
4. The degree to which the effects on the quality of the human environment are likely to be highly controversial.
5. The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.
6. The degree to which the action may establish a precedent for future action with significant effects or represents a decision in principle about a future consideration.
7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.
8. The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.
9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.
10. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

sortie – A single military aircraft from take-off through landing, and including a flying mission. For this LEIS, the term sortie is commonly used when summarizing an amount of flight activity from a base.

special use airspace – Airspace of defined dimensions wherein activities must be confined because of their nature, and/or wherein limitations may be imposed upon non-participating aircraft.

squadron – A squadron in air force, or naval aviation is mainly a unit comprising a number of military aircraft, usually of the same type, typically with 12 to 24 aircraft.

surface danger zone – The mathematically predicted area in which a projectile will impact upon return to earth. This area has specific dimensions for the expected caliber of the weapon(s) being fired so that all projectile fragments will be contained in this area. No part of an SDZ may extend off of the installation property.

tactical aviation – the whole spectrum of moves and counter-moves that aircrews and aircraft perform to fight a war against enemy forces within the air-to-air (i.e., aircraft versus aircraft) or air-to-ground (i.e., aircraft versus ground forces) combat arenas or that provide air transport (i.e., airlift) support to friendly ground forces in the battle area.

threatened species – Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range (the Endangered Species Act of 1973, as amended; Section 3(19)).

tilt-rotor aircraft – Combine capabilities of both fixed-wing and rotary-wing aircraft; the MV-22 is the only U.S. military example.

tinajas – ephemeral pools that develop after seasonal storm events found in narrow canyons in bedrock depressions that occur below waterfalls or are carved out by spring flow or seepage.

weapons system – An aircraft combined with its target acquisition equipment (for example, radar, optical television tracking system, laser or infrared targeting system, gun sight) and weapons (guns, rockets, bombs, or missiles) are considered to be a weapons system.

1. PURPOSE OF AND NEED FOR ACTION

1.1 INTRODUCTION

The Department of the Navy (DoN) intends to ask the U.S. Congress to renew the withdrawal of federal public land within the Chocolate Mountain Aerial Gunnery Range (CMAGR) and to reserve the withdrawn land for continued military training. Federal public land[1] currently comprises almost half of the CMAGR, which encompasses a total area of about 458,530 acres (approximately 716 square miles) located in Imperial and Riverside counties, California (Figure 1-1). This Legislative Environmental Impact Statement (LEIS) has been prepared by the DoN and the U.S. Marine Corps (hereafter, Marine Corps), in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969 (42 U.S. Code [U.S.C.] 4321-4370h), to address the potential environmental consequences of renewing the land withdrawal and continuing military training activities at the CMAGR.

The CMAGR is a live-fire training range that is essential for developing and maintaining the readiness of Marine Corps and Navy aviators. The range is also vital for training select Marine Corps and Navy land combat forces; including Naval Special Warfare (NSW) forces.

The CMAGR was initially established during World War II and has been indispensable for military aviation training ever since. The range currently supports training by units of the DoN, U.S. Air Force, U.S. Army, U.S. Reserve Components, and U.S. National Guard; however, the Marine Corps is the primary user of this range. Local command for military operation and administration of the CMAGR has been delegated by the Secretary of the Navy to the Commanding Officer, Marine Corps Air Station (MCAS) Yuma, Arizona. The majority of aircraft that are used in training at the range originate from squadrons based at MCAS Yuma and MCAS Miramar, California. Other regionally based squadrons that regularly use the CMAGR are stationed at MCAS Camp Pendleton and Naval Air Station (NAS) North Island in California and Luke Air Force Base in Arizona. Aircraft that originate from other Marine and Naval air stations and Air Force bases or that are launched from DoN aircraft carriers in the Pacific Ocean are also frequently flown in training missions at the CMAGR. In total, aircrews from roughly 100 squadrons located throughout the nation collectively fly more than 6,000 training sorties annually at the CMAGR.

Land combat training at the CMAGR also began during World War II with the opening of a Marine Corps artillery school. The use of the range for training NSW forces dates from 1966 and is oriented toward individual fighting skills and small team tactics. Since the late 1970s, training of Marine land forces has typically emphasized integration with Marine air forces but has also included training of infantry combat teams. NSW and Marine Corps land warfare training at the CMAGR typically involves battalion-sized or smaller units. The CMAGR is not used for training land forces in mechanized or armored warfare.

The CMAGR currently includes about 228,465 acres (nearly 357 square miles) of withdrawn federal public land administered by the Department of the Interior (DoI) Bureau of Land Management (BLM) and about 229,903 acres (359 square miles) of federal land administered by the DoN. Approximately 162 acres (about 0.25 square mile) of land administered by the U.S. Bureau of Reclamation (Reclamation) is located inside of the CMAGR boundary; the Reclamation land is not withdrawn for military purposes.

[1] The term "public land" generally means any land and interest in land owned by the United States within the several States and administered by the Secretary of the Interior through the BLM (43 U.S.C. 1702(e)).

The withdrawn public land (hereafter BLM land) in the CMAGR is currently withdrawn and reserved[2] for use as a military range by the California Military Lands Withdrawal and Overflights Act of 1994 (CMLWOA) (Public Law [P.L.] 103-433) (see Appendix A). CMLWOA states that the public lands in the CMAGR are withdrawn from all forms of appropriation under the public land laws (including the mining laws and the mineral leasing and the geothermal leasing laws) and are reserved for use by the Secretary of the Navy for testing and training for aerial bombing, missile firing, tactical maneuvering and air support, and other defense-related purposes. The BLM and DoN lands in the CMAGR are generally interspersed in a checkerboard pattern of one square-mile (640 acre) sections, but are used collectively and in common to support the air combat training missions and other defense activities that occur at the range (Figure 1-2). The Reclamation land is located in several dispersed parcels near the western perimeter of the range. Dikes have been constructed on the Reclamation parcels to protect the Coachella Canal from flooding.

The authority provided by the CMLWOA to use the BLM land within the CMAGR for military purposes will terminate at the end of October 2014. However, the Act also provides that the Secretary of the Navy may request a renewal of the withdrawal if there will be a continuing military need for the range after that date (P.L. 103-433 § 806(a)). The Secretary of the Navy has determined that the CMAGR will be needed to support national defense missions assigned to the Marine Corps and Navy beyond October 2014 and proposes that the CMAGR land withdrawal be renewed. The CMLWOA (P.L. 103-433 § 806(b)) requires the DoN to prepare a Draft LEIS concerning a proposal to renew the national defense land withdrawal for the CMAGR. A Final LEIS, which will include public comments on this Draft LEIS and DoN responses to those comments, will be submitted to Congress as part of the DoN's application for the proposed renewal of the CMAGR. Congress has reserved the authority for renewing the CMAGR land withdrawal for itself, through the Defense Withdrawal Act of 1958 (43 U.S.C. §§ 155-158)[3] and the CMLWOA (P.L. 103-433 § 806(c)), and will make the final decision as to whether or not to renew the CMAGR land withdrawal to support its continued military use.

1.1.1 Decision to be Made

The fundamental decision to be made by Congress is whether to renew the land withdrawal for the CMAGR or to allow the current withdrawal to expire at the end of October 2014, as provided by the CMLWOA. A decision to renew the land withdrawal would permit continued use of the CMAGR for air and ground combat training and other related defense purposes for at least the duration of the new withdrawal. Presumably, Congress would once again provide the Secretary of the Navy with the option of requesting a subsequent renewal of the CMAGR land withdrawal if it were still needed to support national defense purposes beyond the duration of the renewal proposed in this LEIS.

[2] As provided by the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1702(j)) "withdrawn" federal lands are those that are withheld from settlement, sale, location, or entry, under some or all of the general land laws, for the purpose of limiting activities under those laws in order to maintain other public values in the area or reserving the area for a particular public purpose or program; or transferring jurisdiction over an area of Federal land, other than "property" governed by the Federal Property and Administrative Services Act, as amended (40 U.S.C. 472) from one department, bureau or agency to another department, bureau or agency.

[3] Also referred to as the Engle Act of 1958.

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Figure 1-1

CMAGR Vicinity

CMAGR Land Withdrawal Renewal LEIS

Legend

- Existing Chocolate Mountain Aerial Gunnery Range (CMAGR)
- Bradshaw Trail
- Coachella Canal
- Military Airfield
- City\Town
- Railroad
- Interstate
- Highway
- County Boundary

Coordinate System: WGS 1984 UTM Zone 11N
Projection: Transverse Mercator
Datum: WGS 1984
Units: Meter

Source:
Range Features: IGI&S 2010 - 2011, YRMD 2010 - 2011
Base Map: CASIL 2010, BLM 2011,
ESRI 2010, USGS NHD 2010
Imagery: Bing Aerials © 2010 Microsoft Corporation

This Map is for Reference Use Only.

Although every effort has been made to ensure the accuracy of the information, errors and conditions originating from physical sources to develop the database may be reflected in the data supplied. The user must be aware of data conditions and ultimately bear responsibility for the appropriate use of the information with respect to the possible errors, original map scale, collection methodology, currency of the data, and other conditions specific to certain data. This information does not depict all possible resources. Field verification of all data is required for site-specific projects. This information is deemed reliable, but not guaranteed.

Map Scale 1:650,000

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Miles
0 5 10 15 20
Kilometers

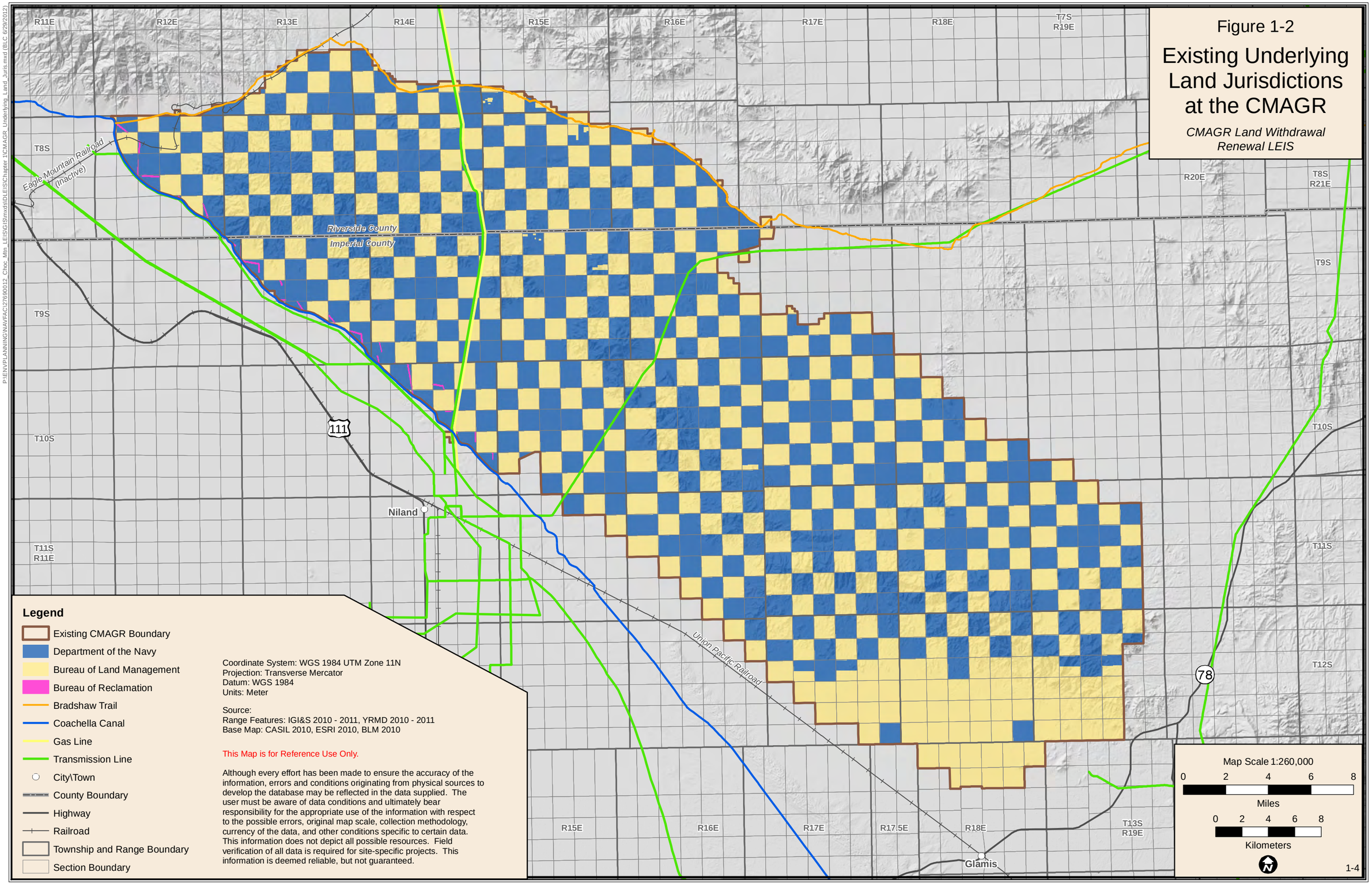
Figure 1-2
Existing Underlying Land Jurisdictions at the CMAGR
CMAGR Land Withdrawal Renewal LEIS
R11E
R12E
R13E
R14E
R15E
R16E
R17E
R18E
T7S R19E
T8S
T8S R21E
R20E
T9S
T10S
T11S R11E
T11S
T12S
T13S R19E
Eagle Mountain Railroad (Inactive)
Riverside County
Imperial County
111
Niland
Union Pacific Railroad
78
Glamis
Legend
Existing CMAGR Boundary
Department of the Navy
Bureau of Land Management
Bureau of Reclamation
Bradshaw Trail
Coachella Canal
Gas Line
Transmission Line
City\Town
County Boundary
Highway
Railroad
Township and Range Boundary
Section Boundary
Coordinate System: WGS 1984 UTM Zone 11N
Projection: Transverse Mercator
Datum: WGS 1984
Units: Meter
Source:
Range Features: IGI&S 2010 - 2011, YRMD 2010 - 2011
Base Map: CASIL 2010, ESRI 2010, BLM 2010
This Map is for Reference Use Only.
Although every effort has been made to ensure the accuracy of the information, errors and conditions originating from physical sources to develop the database may be reflected in the data supplied. The user must be aware of data conditions and ultimately bear responsibility for the appropriate use of the information with respect to the possible errors, original map scale, collection methodology, currency of the data, and other conditions specific to certain data. This information does not depict all possible resources. Field verification of all data is required for site-specific projects. This information is deemed reliable, but not guaranteed.
Map Scale 1:260,000
0 2 4 6 8
Miles
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A Congressional decision to not renew the land withdrawal would end the use of the CMAGR as a military aviation training range on 31 October 2014 when the current withdrawal of public lands expires. The use of the formerly withdrawn range lands for other defense activities as authorized under the CMLWOA would end. Although the Secretary of the Navy would retain full jurisdiction for the DoN lands that currently comprise about 51 percent of the CMAGR, the checkerboard pattern of land jurisdiction that characterizes the range would make these parcels incapable of supporting the aviation weapons training for which it is highly prized. The pattern of fractured land jurisdiction would also curtail the usefulness of the DoN parcels for weapons training by ground units. Live-fire training with air-to-surface, air-to-air, surface-to-air, or surface-to-surface ordnance requires consolidated control of all affected land areas to protect the safety of both the public and military personnel. Most of the individual parcels in the checkerboard pattern for which the DoN holds jurisdiction are one square-mile sections. Department of Defense (DoD) safety criteria for live-fire ranges require that ground areas exposed to hazards from either aircraft delivered weapons or ground combat weapons to the 99.9999 percent level of containment be clear of all persons that are not participating in a training exercise. The danger zones associated with most of the military weapons employed on the CMAGR require surface areas that are far too large to be supported by the sectional grid pattern of DoN land that would remain if the withdrawal of the public lands in the range were allowed to expire.

Deactivation of the CMAGR would likely require a period of several years to identify training missions to be retained, moved, or cancelled; relocate training missions performed on the range that are to be moved to other military installations; remove aerial bombing and gunnery targets and other range infrastructure; clean-up and restore target sites and other use areas as necessary; and decontaminate the range to eliminate live unexploded ordnance (UXO), and toxic and hazardous materials in accordance with the provisions of the CMLWOA and other applicable laws (see Appendix A). The process that would be necessary to develop and implement action-specific plans for closing the range and canceling or relocating training missions would likely require planning and decision-making support from subsequent NEPA analyses. NEPA analyses would also likely be needed to support development and implementation of plans for the reuse of both the BLM and DoN lands within the deactivated CMAGR or custodial management of those portions of the range, such as target impact areas, that may be found to be too contaminated with buried UXO to allow safe reuse. Preparation of a new resource management plan or plans, which typically involves NEPA analysis, for the BLM and DoN lands would also likely be a task precipitated by the deactivation of the CMAGR.

1.1.2 Process for Renewing the CMAGR Withdrawal and Reservation

Procedures that the Secretary of the Navy must follow to request a renewed withdrawal for the CMAGR are set forth by the CMLWOA (P.L. 103-433 §§ 806 and 808). The Secretary of the Navy must:

- Advise the Secretary of the Interior of a continuing need for the range before November 2011
- Publish a draft environmental impact statement (EIS) concerning any proposal for the continued withdrawal of the range by 31 October 2012
- Hold at least one public hearing on the Draft EIS in California
- File an application for the continued withdrawal and reservation of the range in accordance with the regulations and procedures of the DoI applicable to the withdrawal of land for military uses

The Notice of Intent (NOI) to prepare this Draft LEIS, published in the *Federal Register* on 24 September 2010, constituted the formal notice to the public of the Secretary of the Navy's finding of a continuing military need for the CMAGR and of the intent to request continued withdrawal and reservation of the range beyond October 2014 (see Appendix B). In accordance with the Council on Environmental Quality (CEQ) regulations for implementing NEPA, an LEIS, rather than an

administrative EIS, has been prepared to address the proposed land withdrawal (40 Code of Federal Regulations [CFR] § 1506.8). An LEIS is the detailed environmental statement required by law for proposed actions that require legislative proposals to Congress for implementation. Public opportunities to comment on the Draft LEIS will include public meetings to be held in communities in southern California and/or Arizona. The Final LEIS will include the comments on the Draft LEIS and responses to those comments. A Record of Decision (ROD), which is the decision implementing instrument for administrative EISs, will not be prepared because Congress—rather than the Secretaries of the Navy, the Interior, or another administrative department—will be the decision-making authority for the proposed action to renew the CMAGR land withdrawal.

This LEIS provides one of the components required in the application to Congress for renewal of the CMAGR land withdrawal. Other application process requirements are provided by the Defense Withdrawal Act of 1958, CMLWOA, and Federal Land Policy and Management Act (FLPMA) of 1976 (43 U.S.C. §§ 1701-1787). Congress reserved for itself the sole authority to withdraw, reserve, or restrict federal public lands that have an aggregate area of 5,000 acres or more for any one national defense project or facility through the Defense Withdrawal Act of 1958. This Act also assigns the Secretary of the Interior with the responsibility to process DoD applications for national defense withdrawals, reservations, or restrictions aggregating 5,000 acres or more for any one project or facility. DoI procedures for processing military land withdrawals are provided by the FLPMA, as codified at 43 CFR Part 2300. The overall process for considering major national defense land withdrawals draws together procedures from FLPMA (43 CFR § 2310.3-2 (b)(3)) and NEPA (42 U.S.C. §§ 4321-4370h) in a manner that integrates DoN and BLM resources, expertise, and studies; technical information; and analyses generated by each set of procedures (Figure 1-3). This dual track process also affords the public with opportunities to participate in the process and to comment on the proposed land withdrawal before the application is forwarded to Congress.

1.1.3 Withdrawal Application Elements and LEIS Alternatives

In accordance with the Defense Withdrawal Act of 1958, CMLWOA, and FLPMA and among other requirements, the application for continued withdrawal of BLM land in the CMAGR must describe four key elements including:

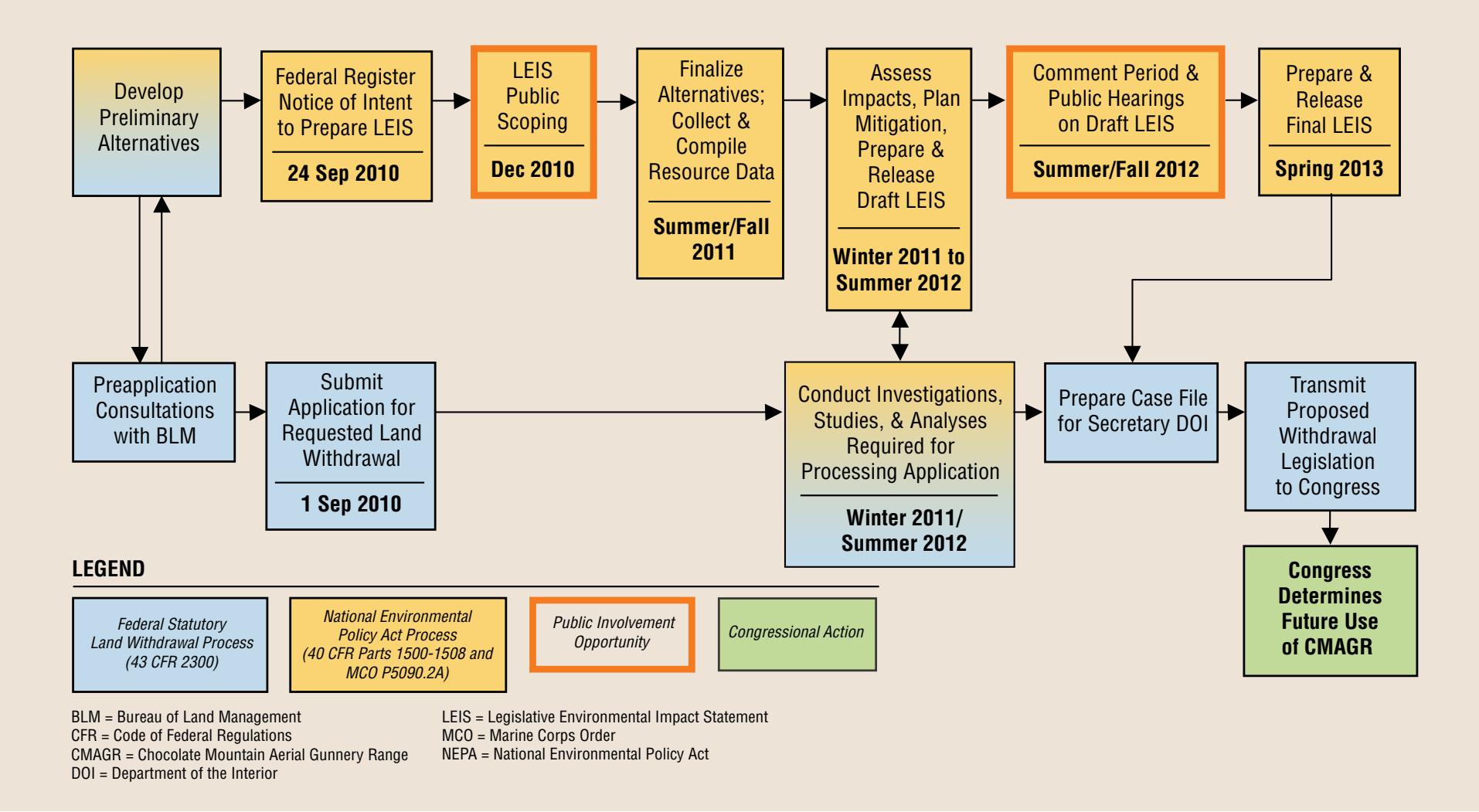
- The continuing military need for the proposed land withdrawal
- The proposed exterior boundary and land area of the withdrawal
- The proposed duration for which the withdrawal would continue in effect
- Proposed agency responsibilities for managing the withdrawn lands

As already indicated, the primary and essential purpose of the proposed renewal of the CMAGR land withdrawal is to retain the use of this vital range for Marine Corps and Navy aviation training. The CMAGR is also critical for training Marine Corps ground units that support or participate in certain aspects of tactical aviation and for training small Marine Corps and NSW ground units for land combat missions. This draft LEIS addresses four alternatives for securing the CMAGR for continuing military use by extending the withdrawal of BLM land within the range for that purpose. The four range renewal alternatives vary from each other by offering three variations on the alignment of the range boundary, three withdrawal duration choices, and three options for assigning management responsibilities between the DoN/Marine Corps and DoI/BLM. All four alternatives, however, share the same basic purpose of and need for extending the land withdrawal for the CMAGR. Section 1.2 provides further detailed explanation of the purpose of and need for renewing the land withdrawal.

Figure 1-3

Federal Land Withdrawal and NEPA Processes for Renewal of the CMAGR

CMAGR Land Withdrawal Renewal LEIS



BLM = Bureau of Land Management
CFR = Code of Federal Regulations
CMAGR = Chocolate Mountain Aerial Gunnery Range
DOI = Department of the Interior
LEIS = Legislative Environmental Impact Statement
MCO = Marine Corps Order
NEPA = National Environmental Policy Act

The variations in the CMAGR boundary, duration, and agency management assignments proposed by the four renewal alternatives are also responses to the continuing military need for the range and to the current checkerboard pattern of DoN and BLM land jurisdictions. Detailed explanations of the purpose of and need for the boundary alignment alternatives are provided in Section 1.3, explanations of the purpose of and need for the withdrawal duration alternatives are provided in Section 1.4, and explanations of the purpose of and need for the agency management assignment alternatives are provided in Section 1.5.

1.2 PURPOSE OF AND NEED FOR RENEWING THE CMAGR

The purpose for renewing the CMAGR land withdrawal is to retain the training range, which is a component of the national defense training infrastructure indispensable to the continued and future readiness of Marine Corps and Navy air and ground forces, including NSW Sea, Air and Land (SEAL) units. The CMAGR also supports air and ground combat training needed by Air Force, Army, National Guard, and Reserve Components and land-based training by Marine Corps and Navy units. The need for quality training that provides a realistic approximation of the conditions that Marines, sailors, airmen, and soldiers will face in combat as individuals and in small or large units cannot be overstated. The U.S. military is fully invested in the principle that high quality training is essential to success and survival in combat. Another long-held maxim is that access to ranges that offer flexible, diverse, and realistic training is essential to preparing tactical forces of the highest possible quality. Thus, the need for the CMAGR can best be understood from two main perspectives: (1) the necessity of providing high quality training and (2) the superlative qualities of the CMAGR for supporting that training.

1.2.1 Necessity of Training

The range is primarily used to train air combat pilots and other aircrew members. Training is essential to all warfare specialties but nowhere is the importance of training more evident than in the demands placed on combat aircrews. Combat in aircraft that can aggressively maneuver to destroy other aircraft, attack an enemy on the ground or at sea, ferry troops or supplies in and out of forward battle areas, provide surveillance and control of the battle space, perform reconnaissance of an enemy's position and strength, or perform other vital warfighting functions is among the most technologically advanced and tactically challenging forms of warfare. Aircrews engaged in combat must constantly observe and assess their situation, select courses of action, and act in a continually unfolding tactical environment all while coping with the physical stresses of high speed flight and flight maneuvers. This essential challenge and the ever increasing sophistication of combat aircraft and weapons systems used by and against them has made thorough, ongoing training indispensable for military aircrews. No participant in any form of tactical aviation[4] is likely to survive, much less prevail in combat, without adequate training. The sophistication of aircraft and weapons system technology cannot compensate for inadequate training. Aircrews must know every aspect of their aircraft and weapons to employ them successfully in combat. It is also paramount that aircrews receive ongoing training throughout their military flying career. Combat flying skills are highly perishable. Consequently, these skills can be effectively developed and maintained only through an ongoing program of frequent training that is realistic to the tactical missions aircrews are expected to perform.

Unlike land and sea warfare, aerial warfare is a very recent innovation. Naval aviation began in 1910 followed in 1912 by the advent of aviation in the Marine Corps. Out of the first century of service for these two military air arms, three events in particular illustrate the critical relevancy of training and training ranges to the readiness of the force to meet national defense missions. First was the urgent need

[4] Tactical aviation refers to the whole spectrum of moves and counter-moves that aircrews and aircraft perform to fight a war against enemy forces within the air-to-air (i.e., aircraft versus aircraft) or air-to-ground (i.e., aircraft versus ground forces) combat arenas or that provide air transport (i.e., airlift) support to friendly ground forces in the battle area.

to develop major training bases and ranges almost overnight to prepare U.S. aviators for combat in World War II. Second was a pressing need to reverse the low rates of combat success and the high rates of U.S. aircrew losses in air-to-air engagements against North Vietnamese pilots in the Vietnam War. U.S. training concepts and air-to-air tactics were critically assessed and air-to-air combat training was completely revamped to correct this situation. Third was the air combat experiences in the Persian Gulf, Afghanistan, and Iraqi wars, which brought into sharp focus the need for U.S. aircrews to be well prepared to fulfill their roles in a highly integrated yet versatile air-ground combat team that may be called upon to defeat the sophisticated air defense system of a hostile nation or support friendly special forces in counter terrorism or counterinsurgency missions.

1.2.1.1 Lessons from the World War II Era

The period from about 1935 through 1944 was marked by a critical need to train tens of thousands of U.S. military aviators to defend the nation in World War II. In 1935, the Navy and Marine Corps together had fewer than 1,500 aircraft of all types and less than 1,000 pilots (Portz 1990a). Fortunately, aviation expansion plans were being laid to prepare for the increasing likelihood of war in Europe and the Pacific. In 1940, the Navy and Marine Corps had about 2,100 aircraft and 1,800 pilots but this increased to about 3,400 aircraft and 4,600 pilots by mid-1941 and to about 7,000 aircraft and 11,000 pilots in June 1942 (Portz 1990a). By the end of 1944 the Navy and Marine Corps had approximately 41,000 aircraft and 60,000 pilots, greater than a 500 percent increase over the numbers available at the time of the attack on Pearl Harbor (Portz 1990b). The Army Air Force experienced the same need to produce dramatically increasing numbers of trained aircrews and aircraft during this period (Boyne 1993).

The enormous task of equipping and training the pilots needed for the war effort required building hundreds of new military airfields to train student aircrews how to fly and creating aerial gunnery and bombing ranges to teach them how to fight. The nation was fortunate that the pace of events during World War II and the limited capabilities of our adversaries to project combat power across oceans granted the time needed to build the infrastructure, materiel, and programs to train and equip desperately needed aircrews. Also fortunate was the fact that the nation still had reserves of suitable open land and airspace in which it could quickly establish training bases, airspace, and ranges. America was able to quickly produce tens of thousands of aircrew members during World War II that were well trained, competitive, and eventually superior to their adversaries.

Today, however, the complexity and sophistication of military aircraft and the air combat environment greatly lengthens the amount of time and other investments needed to produce qualified aircrews. Oceans are no longer as difficult for potential adversaries to bridge as they were in the 1940s and contemporary threats often emerge at a very rapid pace. The nation's land and airspace is much more densely committed and/or developed for public, private, and commercial purposes than it was in that earlier era and the sophistication and complexity of modern aircraft and other warfighting materiel often precludes their rapid manufacture.

In short, readiness today means being fully prepared to fight; being ready to hold the line while we plan, build, develop, and train, as occurred during World War II, will no longer provide the nation with an adequate defense. With few exceptions, the military bases and ranges that are available today to support national defense are a subset of the inventory that was developed by the close of World War II. This is especially true of the nation's largest training ranges, including the CMAGR, which are principally located in the Southwest. Some of these ranges have been reduced or expanded in area since the 1940s but present day prospects for creating major new ranges in any part of the country are now greatly impeded by the increased density of settlements and surface transportation and utility systems, long term commitments of many remaining open space areas to land uses (such as National Parks and wilderness preservation) that are incompatible with military training use, other environmental constraints, high rates

of civil aviation use of the nation's airspace, and other concerns. Consequently, preserving existing training range resources, including overlying and adjacent special use airspace, is critical to ongoing defense training programs and for safeguarding opportunities to support future training requirements that are yet to emerge.

1.2.1.2 Lessons from the Korean and Vietnam Wars

Air-to-air combat over North Vietnam between U.S. and North Vietnamese air forces began in 1965 and the early outcomes came as a shock to the Americans. During World War II, America had won air superiority and eventually supremacy over German and Japanese air forces in 1944 and 1945 despite suffering high initial losses of aircrews in 1941 and 1942. Steady improvements in U.S. aircraft, training, and tactics made these air combat achievements possible and, in turn, made successful Allied land invasions possible and saved countless thousands of ground troops from devastating enemy air attack. Frontline U.S. and communist aircraft were considered to be fairly comparable during the Korean War but superior training and tactics led to a U.S. success ratio of 10 enemy aircraft downed for every one aircraft lost. American dominance in air-to-air combat and in air-to-ground attack made it possible for United Nations ground forces to recover twice from devastating enemy offensives and eventually helped to force the North Koreans accept an armistice ending the fighting (U.S. Air Force [USAF] 1999).

Most senior U.S. air commanders and strategists in Vietnam were veterans of World War II and Korean War air warfare, and U.S. aircraft were considered to be a generation advanced over the improved but essentially still Korean War vintage fighters, Mig-17s, flown by the North Vietnamese. The Americans expected to quickly achieve air dominance but discovered a capable and difficult foe in the North Vietnamese Air Force. Although there were times when American air power was able to inflict lopsided victories over the North Vietnamese with focused counter air efforts, the overall air-to-air exchange rate for the first several years of the air war saw one U.S. aircraft lost for every two enemy fighters. One problem was that aircraft designers and warfare planners incorrectly forecasted that the advent of air-to-air missiles in the 1950s would eliminate the need for guns in air-to-air combat. As a consequence, the early models of the F-4 aircraft—which was destined to become one of the most important and widely used fighter aircraft developed since World War II—were built without guns. Just as damaging was the fact that faith in the perceived superiority of missiles over guns caused training of air-to-air combat maneuvering and tactics to be deemphasized for most U.S. aircrews. These assumptions were proved to be false over North Vietnam where the U.S. missiles of the day proved to be far less reliable and effective against the agile Mig-17s than expected and North Vietnamese pilots proved to be more adept than expected at maneuvering to engage U.S. aircraft with guns (Michel 1997, USAF 1999).

Guns were eventually installed on U.S. fighters and American commanders and aircrews tried a number of tactical nuances to improve the air-to-air situation but many were reluctant to abandon their basic training methods or tactics. Finally, as the war continued into 1968, more rigorous training in air-to-air combat resulted in a victory ratio that climbed to 3.5 to 1 for the U.S. Air Force. The Navy, however, introduced a more focused and aggressive response by creating a new training program, which later became known as Top Gun, that focused on making air-to-air combat training as realistic as possible. Top Gun students were pitted against a special instructor squadron that employed enemy tactics and used aircraft that would simulate the capabilities of the enemy's aircraft. Top Gun students were taught to use tactics that best emphasized the advantages of their aircraft over the capabilities of the North Vietnamese Migs and that took advantage of the vulnerabilities in the enemy's aircraft and tactics. Further, Top Gun graduates were taught to disseminate what they had learned at the program to their squadron mates so that aircrew throughout the Navy could improve their performance in combat. During heavy air engagements in 1972, Navy aircrew achieved a 6 to 1 victory advantage over North Vietnamese fighters. The Top Gun program was attributed with much of this success (Michel 1997).

The need for high-quality, realistic training is further reinforced by another lesson relearned in Vietnam. The Navy and Air Force found that an informal "ten-mission axiom" from previous wars was to hold true in Vietnam as well. That axiom states that if a combat aircrew survives their first 10 missions, then they will likely survive to complete their assigned combat tour. The 10 mission statistic suggests that an aircrew gains a "combat awareness" or "combat frame of mind" over the course of those missions that improved either the speed or quality of their decision making, thus making them both less vulnerable and more effective in engaging the enemy. Post-combat reviews also found that most of the aircrews lost during their initial missions experienced hesitancy or confusion in their first contact with the enemy or had not yet acquired the necessary mental agility to manage the unfolding battle situation all while enduring the physical stresses of high-speed combat maneuvers. The Navy, Marine Corps, and Air Force embarked on training programs following the war designed to make peace-time training as realistic as possible so that when aircrews "fought like they trained" they would find that training would reduce the 10 mission rule from the beginning.

1.2.1.3 Lessons from the Persian Gulf, Afghanistan, and Iraqi Wars

Air combat experiences in the Persian Gulf (1991), Afghanistan (2001-present), and Iraqi (2003-2011) wars showed once again the critical importance of thorough and realistic training. U.S. led coalition air forces prosecuted a sophisticated, five-week-long air campaign in the Persian Gulf War that so shaped the Kuwait-Iraq battlespace that the subsequent ground offensive to eject Iraqi forces from Kuwait succeeded in only four days. The air campaign quickly achieved dominance of the air and suppressed antiaircraft defenses; disrupted Iraqi command, control, communications, and intelligence activities; denied freedom of movement to the Iraqi army and access to its sources of supply and support; and damaged or destroyed warfighting materiel throughout the country and on the battlefield. The air campaign, which was both extensive and fluid in its scope, was unprecedented in its near continuous tempo and complexity and yet had to meet demands to keep collateral damage to property and harm to noncombatants to a previously unobtainable minimum. The scope of the campaign was made possible by technological advances in weapons systems, including precision-guided munitions[5] (PGMs), but the success of the attack ultimately depended on the skills of highly trained aircrews, air commanders, and ground personnel.

The Afghanistan and Iraqi wars have further validated the importance of technologically advanced airpower in modern warfare including the overpowering benefits that skillfully employed PGMs can provide for achieving both strategic and tactical objectives. In contrast to the Persian Gulf War in which air power was used to prepare the battlespace before the beginning of the ground invasion, the air and ground campaigns in the Afghanistan and Iraqi wars have occurred concurrently from the very beginning of the conflicts. Air power has been used in these ongoing conflicts to achieve strategic or tactical objectives independent of direct ground actions, but by far these conflicts have been characterized by the use of air power in close support of and coordination with friendly ground forces. Close air support (CAS) involves the delivery of air-to-ground ordnance on enemy forces in direct support of close by friendly forces. The close proximity of friendly and enemy forces makes CAS one of the most critical and challenging combat tasks to be performed by aircrews. Even with PGMs, detailed training in the command, control, coordination, and delivery of CAS is necessary to minimize the risks to friendly forces (Bohn 2007).

The Afghanistan and Iraqi wars have reinforced the lessons learned during the Vietnam conflict regarding the importance of training small ground units for a variety of land combat missions. Many types of small unit actions, such as rearming and refueling support for helicopters at forward battlefield positions and

[5] A missile, bomb or artillery shell equipped with a terminal guidance system that guides its last phase of flight to precisely hit a selected target. PGMs follow optical, infrared, laser, radar, or Global Positioning System signals to guide them to the target.

special reconnaissance, direct action, unconventional warfare, or counterterrorism strikes by Special Operations Forces, have been vital to the prosecution of these conflicts. Troops must receive training that is realistic to the challenges and conditions that they will face on these special missions to be successful.

1.2.1.4 Summary

Aircraft, weapons systems, and air combat tactics have evolved rapidly throughout the history of aerial warfare. The experiences cited here in every major armed conflict in which the United States has been involved since World War II clearly illustrate why realistic training is critical for keeping pace with this evolution and in finding success in all phases of air warfare. Realistic training is also critical to the planning, design, and engineering of new aircraft, weapons systems, and tactics for air combat. Engineers and test pilots team to develop aircraft that are capable of meeting specified objectives, but ultimately aircrews must bring aircraft, weapons, and tactics together to form a force that is combat ready. This union can only be perfected in the air in a training environment where aircrews are challenged by conditions and tactical situations that are as realistic as safety can allow. Combat aircrews are also the ones that will first develop new tactics to counter emerging changes in an adversary's aircraft, aircraft weapons, or air defense systems[6] or to identify deficiencies in their own aircraft or tactics. So too must small ground units that perform special combat missions receive training that is realistic to their specialties. The extent to which deficiencies in equipment or tactics can be discovered and skills developed in realistic training rather than battle pays great dividends in terms of lives saved and combat effectiveness (USAF 1999).

1.2.2 CMAGR Training Functions and Benefits

The Marine Corps' mission is unique among the military services in that, by law, it operates as a combined arms force in three dimensions—land, sea and air (10 U.S.C. § 5063). Specifically, the Marine Corps is required to "be so organized as to include not less than three combat divisions, three air wings, and such other land combat, aviation, and other services as may be organic therein." In maintaining a high state of training and readiness for its assigned mission, the Marine Corps has become the Nation's premier combined arms, expeditionary force, ready to respond immediately to crises anywhere in the world in defense of the nation and its allies and interests.

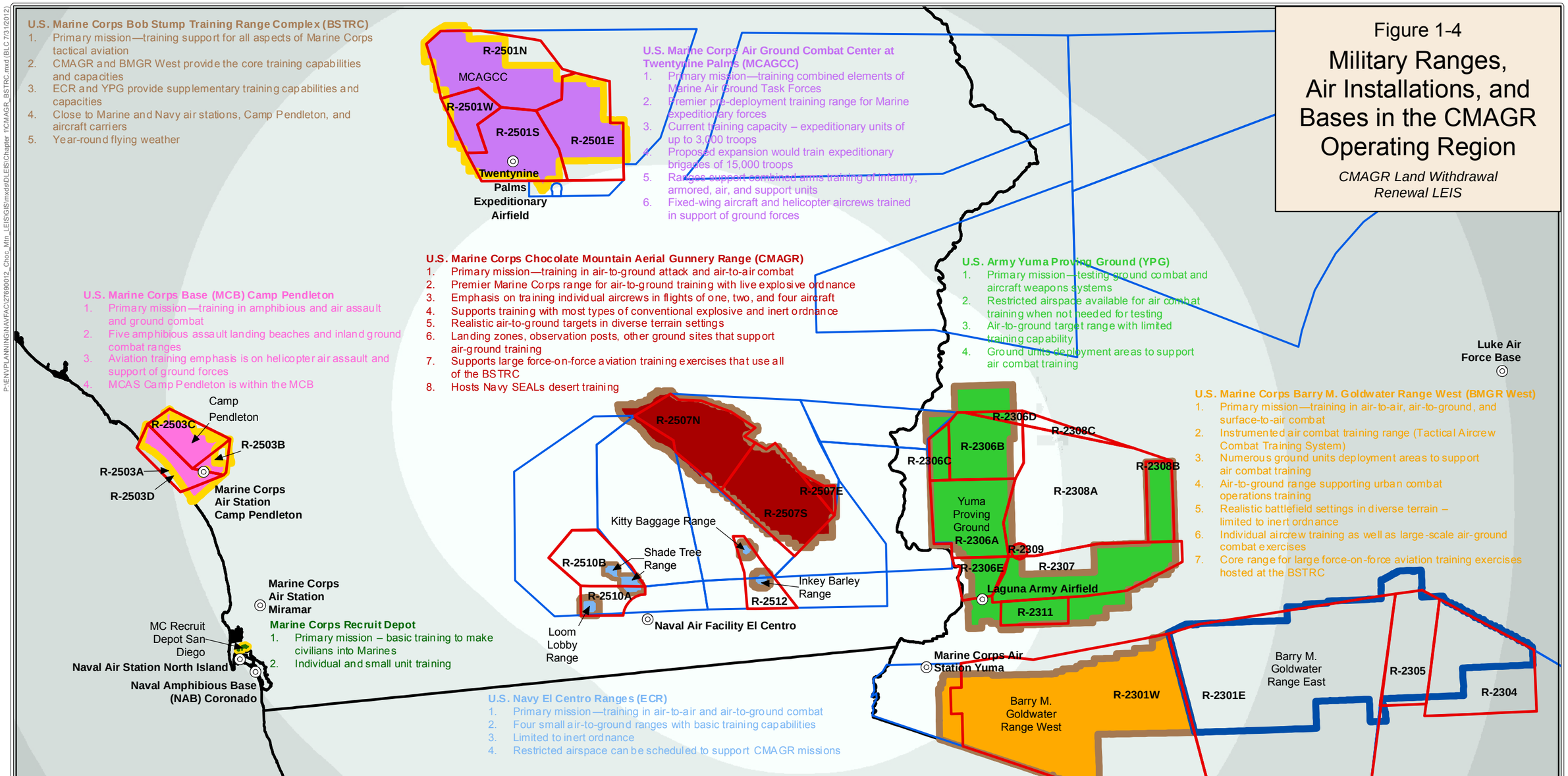
The Marine Corps organizes its ground combat divisions and air wings into Marine Air Ground Task Forces (MAGTFs), which form the fundamental cornerstones of modern Marine Corps combat doctrine. MAGTFs are scalable in size and can be tailored for specific missions (e.g., humanitarian assistance, emergency response, peacekeeping, specific regional threat, and major war abroad). This ability provides the flexibility to address the full spectrum of possible military operations by sizing and tailoring MAGTFs to fit the situation, and optimize forces as needed for forward presence, engagement, crisis response, antiterrorism, and war fighting. Regardless of their size, all MAGTFs are composed of common organizational elements that include command, ground combat, air combat, and logistics.

The CMAGR is integral to training the air combat element of the MAGTF but also provides important support to the preparation of the command, ground combat, and logistics elements that integrate with air to form an effective combined arms force. The contributions provided by the CMAGR to air combat and other MAGTF training needs occur at three successively larger geographic and operational scales, which are referred to for the purposes of this document as the CMAGR operating area, the Bob Stump Training Range Complex (BSTRC), and the regional range complex operating area (Figure 1-4). The CMAGR

[6] Air defense systems typically include surface-to-air missiles or anti-aircraft artillery and radars or infra-red heat detection systems that are used to track aircraft and control missile or artillery fire directed at them.

Figure 1-4
Military Ranges, Air Installations, and Bases in the CMAGR Operating Region

CMAGR Land Withdrawal Renewal LEIS



Legend

- Military Airfield
- Bob Stump Training Range Complex (any color fill)
- Other Marine Corps Range (any color fill)
- Other DoD Range

Special Use Airspace

- Restricted Airspace
- Military Operations Area / Air Traffic Control Assigned Airspace

- 50 Mile Distance from CMAGR
- 100 Mile Distance from CMAGR
- 150 Mile Distance from CMAGR
- 200 Mile Distance from CMAGR
- State Boundary

BMGR West - Barry M. Goldwater Range West
BSTRC - Bob Stump Training Range Complex
ECR - El Centro Ranges
MCAGCC - Marine Corps Air Ground Combat Center
MCAS - Marine Corps Air Station
MCB - Marine Corps Base
YPG - Yuma Proving Ground

Coordinate System: WGS 1984 UTM Zone 11N
Projection: Transverse Mercator
Datum: WGS 1984
Units: Meter

Source:
Range Features: IGI&S 2010 - 2011, YRMD 2010 - 2011
Base Map: CASIL 2010, ESRI 2010

This Map is for Reference Use Only.

Although every effort has been made to ensure the accuracy of the information, errors and conditions originating from physical sources to develop the database may be reflected in the data supplied. The user must be aware of data conditions and ultimately bear responsibility for the appropriate use of the information with respect to the possible errors, original map scale, collection methodology, currency of the data, and other conditions specific to certain data. This information does not depict all possible resources. Field verification of all data is required for site-specific projects. This information is deemed reliable, but not guaranteed.

Map Scale 1:1,400,000
0 10 20 30 40 Miles
0 10 20 30 40 Kilometers

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operating area includes one tactical range, the CMAGR, and overlying and contiguous special use airspace[7] that supports military flight activities at that range. The BSTRC includes two tactical ranges (the CMAGR and Barry M. Goldwater Range (BMGR) West in Arizona), special use airspace that either overlies or is contiguous to these ranges, and other blocks of nearby special use airspace—including that overlying the Yuma Proving Ground (YPG) in Arizona and the El Centro ranges, which include the two basic bulls-eye ranges underlying R-2510 and R-2512 in California. The regional range complex operating area includes the BSTRC, El Centro ranges, Marine Corps Air Ground Combat Center (MCAGCC) at Twentynine Palms in California, Marine Corps Base Camp Pendleton in California, YPG in Arizona, and the special use airspace associated with each of these three complexes.

Expiration of the CMAGR land withdrawal would eliminate training at that range and would diminish the type, diversity, and volume of training that could be accomplished at the remaining ranges in the BSTRC and the larger regional range complex operating area. The CMAGR also provides exceptional opportunities to train Marine Corps and Navy ground forces in a desert environment. These forces typically involve Marine battalion and smaller-sized units and NSW units training in basic and advanced special operations tactics, techniques, and procedures.

1.2.2.1 CMAGR Operating Area

As an individual range, the CMAGR serves multiple training purposes. Its land and airspace, however, have been configured principally for live-fire training with aircraft weapons in an environment that realistically simulates a tactically diverse and complex air-ground battlefield. Though the CMAGR is used primarily by the Marine Corps, it is also used by aircrews from the Navy and other branches of the Armed Services. The premiere function of the range is training Marine Corps aircrews to survive and fight decisively in performing their MAGTF missions. Training in fixed-wing, rotary-wing (helicopters), and tilt-rotor aircraft[8] is supported. Towards these ends, the range features a wide array of realistic target complexes and individual sites that simulate enemy airfields, air defenses, vehicle depots, truck convoys, troop and armor positions, power stations, and command and communications sites among other types of facilities and positions. Many of the targets on the CMAGR are authorized for training with live ordnance, which includes devices that are equipped with high explosives, pyrotechnics, or smoke

[7] Airspace wherein activities must be confined because of their nature, or wherein limitations are imposed upon aircraft operations that are not a part of those activities, or both (Federal Aviation Administration (FAA) Aeronautical Information Manual (AIM) Part 3-4-2). The vertical limits of special use airspace are measured by designated altitude floors and ceilings expressed as flight levels or as feet above mean sea level (MSL). The horizontal limits of special use airspace are measured by boundaries described by geographic coordinates or other appropriate references that clearly define their perimeter. Types of special use airspace include: Alert Area, Controlled Firing Area (CFA), Military Operations Area (MOA), Prohibited Area, Restricted Area, and Warning Area (FAA 2002).

[8] Fixed-wing aircraft have conventional airframes in which wings provide lift and support aircraft directional control surfaces, and engines provide thrust through a propeller or jet turbine. Rotary-wing aircraft, or helicopters, are propelled by an engine driven rotary wing that provides lift, thrust, and directional control. Tilt-rotor aircraft combine capabilities of both fixed-wing and rotary-wing aircraft; the MV-22 is currently the only U.S. military example. The MV-22 can fly like a conventional aircraft or its engines, which are positioned at the end of its wings, can be rotated vertically to allow its propellers to function like rotors and give the aircraft the ability to operate like a helicopter.

charges[9]. Targets throughout the range have been positioned to utilize terrain features and reflect tactics that adversaries might use to their advantage. In every way possible, the range is configured to expose training aircrews to conditions that are realistic relative to those to be encountered in combat.

Training by units that perform land-based warfighting functions also occurs at the CMAGR. Most of these units have missions that are directly associated with tactical aviation including air defense, air surveillance and control, forward air control, communications, operation and control of unmanned aircraft systems (UAS), and forward arming and refueling of rotary-wing and MV-22 aircraft. Marine Corps ground combat activities are conducted in the CMAGR in support of aviation training and include artillery and mortar fires and the insertion and extraction of ground combat forces. NSW forces conduct basic individual and advanced small unit training in two ground-training areas that abut restricted airspace on the northern and western perimeters of the CMAGR. These areas contain a variety of individual and small unit ranges used for Marine Corps and Navy land combat forces. Typically, these forces are battalion sized and smaller for the Marine Corps, and NSW teams. All ground-based training at the CMAGR occurs in designated locations that are consistent with the priority needs of aviation training.

The primary purpose of renewing the CMAGR land withdrawal is to maintain the invaluable assets and capabilities that it provides for training Marine and Navy aircrews and aircrews of other components of the U.S. Armed Forces. As an individual range, key assets and capabilities of the CMAGR include:

- Restricted land and airspace of sufficient size to support realistic training with diverse air-to-surface targets and designated sites where ground-units can operate in support of aviation training activities
- Supporting special use airspace
- Varied terrain
- Authorization for live-fire training with live ordnance
- Ability to train with PGMs
- Close proximity to air stations and bases

[9] Several terms are used in this LEIS to describe ordnance and training with ordnance. The term ordnance refers to a weapons system or individual components of that system. An aircraft gun and its ammunition together or separately may be considered to be ordnance as may an aircraft targeting system and the missile or bomb that it directs. The terms ordnance and munition may be used interchangeably. Aircraft weapons used on the CMAGR include machine guns, cannons, bombs, rockets, and missiles that are used to attack enemy military forces or other assets on the ground or in the air. Aircraft also release self-defense and ground illumination flares. Ground-based weapons used on the CMAGR include machine guns, grenades, artillery, rockets, missiles, pyrotechnics, and devices equipped with smoke charges. Live-fire training refers to training in which ordnance is discharged from weapons, such as an aircraft cannon, or released, such as the dropping of a bomb or the firing of an air-to-air or air-to-surface missile. Ordnance that is fired or released for training purpose may be grouped in two general classes: live and inert. Live ordnance refers to cannon, mortar, or artillery rounds or projectiles; grenades; rockets; missiles; pyrotechnics; smoke; or other devices that are equipped with high explosives, pyrotechnics, or smoke charges. Live ordnance is fused and charged for actual warfighting. Its use in training provides aircrews or ground troops with full appreciation of the power and effects associated with and the unforgiving safety demands of live ordnance. Inert ordnance, which is also called practice ordnance, does not contain high explosives, pyrotechnics, or smoke warheads. Practice missiles or rockets contain functional motors and propellants to provide them with flight capabilities, but are not armed with live warheads. Inert ordnance may or may not contain a small “spotting” or “marking” charge that will produce a flash and smoke to reveal where the round has hit. Practice bombs may be either full-sized replicas of their live warfighting counterparts, but with non-explosive fillers, or they may be sub-sized (e.g., 1/20-scale) devices that accurately simulate the trajectory of the full-scale bomb. Live and inert ordnance reliability is typically greater than 99.9 percent—meaning that less than 0.1 percent of all expended ordnance and submunitions may pose an UXO hazard within the CMAGR.

- Year-round flying weather
- Designated ranges and support areas where NSW units can train

Restricted Land and Airspace. Although the primary action proposed in this LEIS is to renew the CMAGR land withdrawal, from the perspective of military operations, the range is composed of land and overlying airspace to which surface or airborne entry is restricted to persons and aircraft that are authorized participants in training or other official activities (Figure 1-5). The authority to restrict surface entry to the range is provided by the CMLWOA (see Appendix A). Three blocks of airspace—designated as restricted areas[10] R-2507N, R-2507S, and R-2507E—that extend from the surface to 40,000 feet above mean sea level (feet MSL)[11] and provide exclusive-use for military aircraft operations and live-fire training exercises. Restricted range land and airspace is needed to:

- Protect the safety of the public and military personnel alike by excluding nonpermitted, nonparticipating surface and airspace users from areas where hazardous military activities are occurring
- Contain all hazardous training activities including certain types of flight and flight maneuvers and live-fire weapons trajectories, surface impacts, and detonations
- Prevent nonparticipants and incompatible land uses from interrupting or interfering with military training and support activities

The lateral boundaries of R-2507N, R-2507S, and R-2507E form a contiguous block of airspace that is roughly 12 to 15 miles wide and about 45 miles long. The entire CMAGR can be used for training that requires its full dimensions or it can be divided into two smaller, yet still effective, north and south sub-ranges to allow more than one training event to occur at a time. The size of this block of restricted airspace and the underlying restricted land area has contributed significantly to the flexibility of the CMAGR to support a wide diversity of air combat training and would continue to provide the range with the capacity to accommodate emerging training missions. The productivity of a range is directly connected to the land and airspace that it can provide to contain the hazardous effects of aerial gunnery, bombing, rocketry, missile firing, and laser targeting. The dimensions of the CMAGR also provide sufficient space for 29 separate target areas or complexes (see Figure 1-5). Each target complex includes a variety of simulated enemy positions, vehicles, and other tactical facilities such as airfields and industrial sites. The wide variety of target sets available greatly contributes to the diversity and realism of training. Most conventional aircraft munitions and air-to-ground PGMs are approved for use at the CMAGR, including rounds with live high-explosives warheads.

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[10] A block of regulatory special use airspace with a defined altitude floor and ceiling and lateral boundaries identified by an underlying area on the surface of the earth. Restricted areas, designed by the FAA and established in 14 CFR Part 73 through the rulemaking process, contain airspace within which the flight of aircraft, while not wholly prohibited, is subject to restrictions for the purpose of containing or segregating activities that would be hazardous to nonparticipating aircraft. Examples of hazardous activities include firing of aircraft cannons, rockets, or missiles; aircraft delivery of aerial bombs; firing artillery; surface-to-air or surface missile launches; or training aircrews at night in the use of night vision goggles with the external lights of the participating aircraft extinguished. Penetration of restricted areas by nonparticipating aircraft without authorization from the using or controlling agency may be extremely hazardous to the aircraft and its occupants. The FAA delegates control of restricted areas to a responsible military agency.

[11] In aviation terminology, altitudes of 18,000 feet and above are referred to as Flight Levels (FL) and are stated in three digits that represent hundreds of feet. For example, FL180 is 18,000 feet and FL400 is 40,000 feet. FL altitudes are identified using a standard atmospheric pressure reading so that all aircraft at a given FL will be at a defined altitude over the long distances typically flown at high altitude and will, thus, retain their relative vertical separations. For simplicity, altitudes are stated in this LEIS in feet MSL unless otherwise noted.

Criteria for the land area and airspace dimensions of Marine Corps training ranges are established by Marine Corps Reference Publication (MCRP) 3-0C *Operational Training Ranges Required Capabilities* (DoD, USMC 2009a). The dimensions provided are those that would support the full spectrum of Marine Corps training requirements for its ground, air, and logistical combat elements. The land and airspace dimensions of the CMAGR cannot support all training operations but, relative to both the MCRP 3-0C criteria and actual training results, it ranks as the Marine Corps' most capable and productive dedicated, air-to-ground range.

Aviation training at the CMAGR is also enhanced by the presence of ground support areas that are used by Marine aviation units that perform air defense, air control, communications, refueling and rearming of rotary-wing and tilt rotor aircraft, and other aviation related functions. Observation posts are located at 13 positions from which ground-based forward air controllers (FACs) can direct air strikes onto targets. Ground-based or airborne FACs often play an essential role in combat to the benefit of both friendly ground troops and aircrews by ensuring that close air support can be effectively brought to bear on an enemy. An additional 10 sites are positioned where artillery can fire spotting rounds to mark targets for air strikes. The use of artillery on CMAGR provides fire control and coordination training to the artillery troops, aircrews, and FACs, who also serve as artillery spotters in these exercises. Ground aviation units involved in extended training at the CMAGR can establish bivouacs (temporary camps) at forward arming and refueling points (FARPs), the UAS operating site, or a designated bivouac and work area to the west of the UAS site (see Figure 1-5).

An expeditionary training site for units that fly and maintain a small tactical UAS, the RQ-7B Shadow[12], has been established at the CMAGR (see Figure 1-5). The Federal Aviation Administration (FAA) requires UASs to be flown in restricted area airspace for most training because of the inability of the UAS to visually see and avoid nonparticipating aircraft in civil airspace. Simulated battlefield features—including target complexes, ground support areas, FARPS, and observation posts—present realistic surveillance objectives for UAS training at the CMAGR.

Integration of air and ground combat power is at the core of the MAGTF approach to warfare. Although most of the training at the CMAGR is focused on the delivery of air-to-ground ordnance, the range also provides aircrews with training in the fundamentals of working with other MAGTF participants (including FAC, artillery, air defense, and air surveillance and control).

[12] The RQ-7B Shadow 200 is a remotely operated tactical-surveillance aircraft that provides day/night reconnaissance, surveillance, target acquisition and battle damage assessment to a range of about 75 miles.

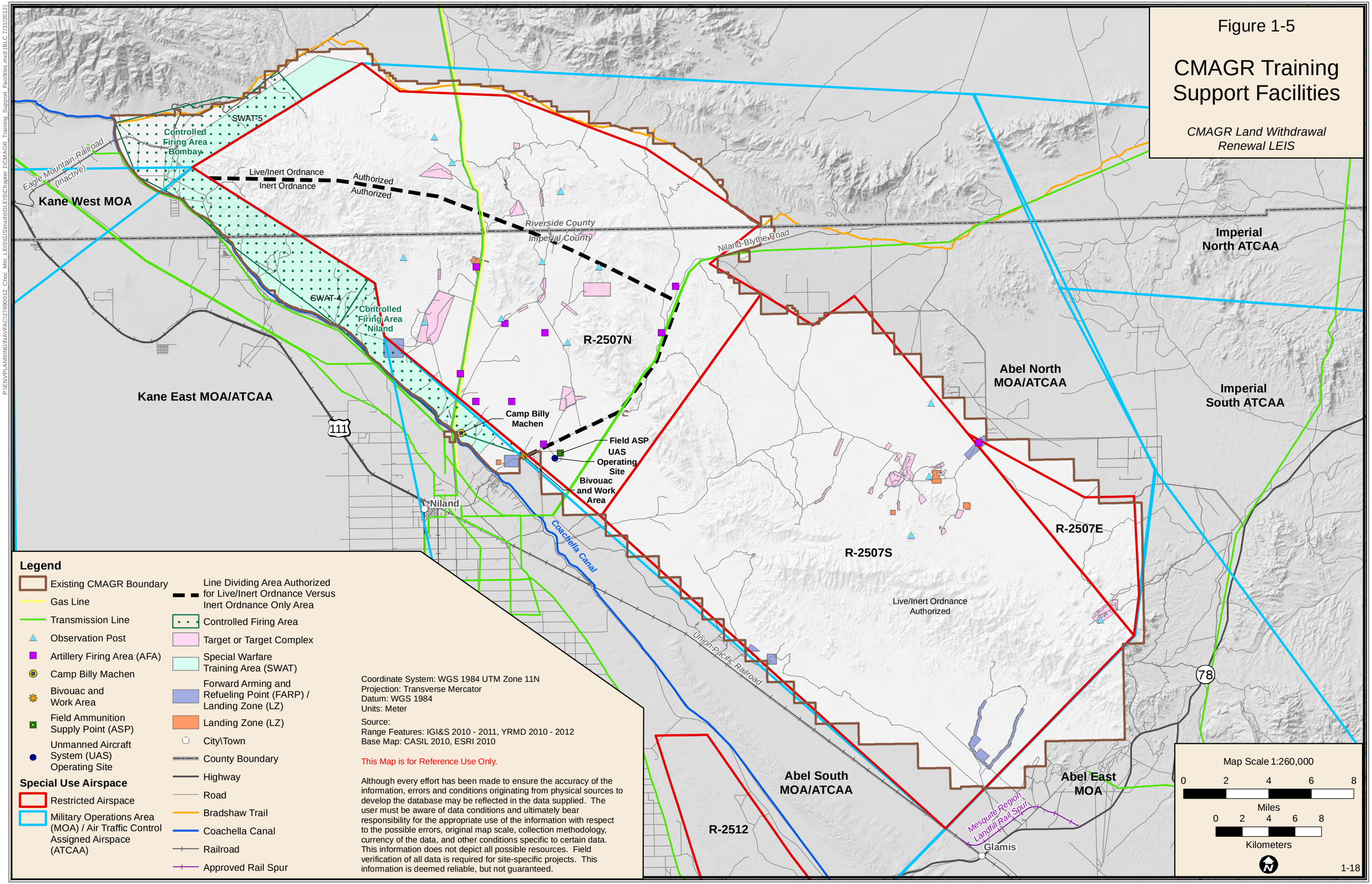
Figure 1-5
CMAGR Training Support Facilities
CMAGR Land Withdrawal Renewal LEIS
SWAT-5
Controlled Firing Area Bombay
Eagle Mountain Railroad (Inactive)
Kane West MOA
Live/Inert Ordnance
Inert Ordnance
Authorized
Authorized
Riverside County
Imperial County
Niland-Blythe Road
Imperial North ATCAA
SWAT-4
Controlled Firing Area Niland
R-2507N
Abel North MOA/ATCAA
Imperial South ATCAA
Kane East MOA/ATCAA
111
Camp Billy Machen
Field ASP
UAS Operating Site
Bivouac and Work Area
Niland
Coachella Canal
R-2507E
R-2507S
Live/Inert Ordnance Authorized
Union Pacific Railroad
78
Abel South MOA/ATCAA
Abel East MOA
R-2512
Mesquite Region Landfill Rail Spur
Glamis
Legend
Existing CMAGR Boundary
Gas Line
Transmission Line
Observation Post
Artillery Firing Area (AFA)
Camp Billy Machen
Bivouac and Work Area
Field Ammunition Supply Point (ASP)
Unmanned Aircraft System (UAS) Operating Site
Special Use Airspace
Restricted Airspace
Military Operations Area (MOA) / Air Traffic Control Assigned Airspace (ATCAA)
Line Dividing Area Authorized for Live/Inert Ordnance Versus Inert Ordnance Only Area
Controlled Firing Area
Target or Target Complex
Special Warfare Training Area (SWAT)
Forward Arming and Refueling Point (FARP) / Landing Zone (LZ)
Landing Zone (LZ)
City\Town
County Boundary
Highway
Road
Bradshaw Trail
Coachella Canal
Railroad
Approved Rail Spur
Coordinate System: WGS 1984 UTM Zone 11N
Projection: Transverse Mercator
Datum: WGS 1984
Units: Meter
Source:
Range Features: IGI&S 2010 - 2011, YRMD 2010 - 2012
Base Map: CASIL 2010, ESRI 2010
This Map is for Reference Use Only.
Although every effort has been made to ensure the accuracy of the information, errors and conditions originating from physical sources to develop the database may be reflected in the data supplied. The user must be aware of data conditions and ultimately bear responsibility for the appropriate use of the information with respect to the possible errors, original map scale, collection methodology, currency of the data, and other conditions specific to certain data. This information does not depict all possible resources. Field verification of all data is required for site-specific projects. This information is deemed reliable, but not guaranteed.
Map Scale 1:260,000
0 2 4 6 8
Miles
0 2 4 6 8
Kilometers
1-18

Supporting Special Use Airspace. Aircrew training at the CMAGR benefits from several Military Operations Areas[13] (MOAs), Air Traffic Control Assigned Airspace[14] (ATCAA) areas, and Military Training Routes[15] (MTRs) (Figure 1-6). The Abel and Kane MOAs and ATCAAs enhance CMAGR training operations in three ways:

- MOAs and ATCAAs provide locations where training in skills, such as air combat maneuvers and fighter intercepts, that do not involve live-fire use of aircraft weapons can occur without disrupting or displacing weapons training missions within the restricted areas at the CMAGR.
- MOAs and ATCAAs can serve as training areas from which flights can directly transition to the CMAGR for weapons training. This relationship also works in reverse where flights can transition to the MOAs and ATCAAs for an additional training segment after completing a weapons training segment at the CMAGR.
- MOAs and ATCAAs can be used directly to provide additional airspace for weapons training missions at the CMAGR. No weapons may be armed, fired, or released while an aircraft is in either a MOA or ATCAA; however, MOAs or ATCAAs can be used to initiate approaches to CMAGR targets or to reposition between multiple attacks on those targets.

MTRs enhance training by providing a low-level, high speed approach through which aircraft can transition directly to attacks on targets on the CMAGR.

Varied Terrain. The CMAGR provides some highly varied terrain that is well suited to its use for tactical aviation training. The Chocolate Mountains form a rugged, northwest-to-southeast spine roughly down the center of the CMAGR that is bisected along its length by several passes. The ragged margins of the mountains blend into broad alluvial slopes and valley plains. The effect is a landscape that provides a diverse setting for air-ground combat training. Simulated targets, such as airfields or vehicle convoys, are typically located on the alluvial slopes or plains. The avenues of aerial attack available to aircrews, however, are often delineated by intervening mountains. There are many iterations of this basic target setting throughout the range, each with a different set of tactical circumstances created by the disposition of simulated enemy facilities, equipment, and forces within the terrain. Aircrews must learn to quickly recognize, understand, and solve the tactical challenges presented by each of these target settings. Because of the targeting diversity made possible by the terrain, aircrews find each training sortie to be instructional and not repetitious. The cumulative experience aircrews gain by facing the tactical diversity

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[13] A MOA is a block of nonregulatory special use airspace designated by the FAA to provide airspace for certain military flight activities, such as air combat maneuvers or intercepts usually involving two or more aircraft. These activities often necessitate acrobatic or abrupt flight maneuvers including high speeds, sudden turns, and vertical ascents and descents that can measure in the tens of thousand of feet per minute, which nonparticipating aircrews may have little or no chance to anticipate, detect, or avoid. Participating aircraft may fly at high subsonic airspeeds in MOAs below 10,000 feet MSL where aircraft are otherwise generally restricted to indicated airspeeds of 250 knots or less. The ceiling of a MOA may extend up to, but cannot include, 18,000 feet MSL. MOAs are depicted on aeronautical charts and pertain to flight below 18,000 feet MSL. Instrument flight rules (IFR) traffic may be cleared through a MOA if Air Traffic Control (ATC) can provide safe separation from participating aircraft. Otherwise, ATC will restrict IFR traffic from the MOA. Pilots flying Visual Flight Rules (VFR) may fly within a MOA but they must exercise extreme caution as ATC's ability to provide separation and reliance on standard see-and-avoid scans is tenuous at best.

[14] An ATCAA is similar to a MOA, but with a floor at or above FL 180 and a ceiling at some higher altitude. ATCAAs are often, but not always, placed directly over a MOA so that the ATCAA can serve as an extension of MOA when scheduled concurrently.

[15] MTRs are one-way flight corridors that provide routes at altitudes below 10,000 feet MSL where military aircraft can fly at high subsonic airspeeds, which is in excess of the otherwise 250 knots limit required below 10,000 feet MSL, during low-level flight training. MTRs may be up to several hundred miles in length.

of the CMAGR is essential for preparing them for combat. The CMAGR also offers a variety of complex terrain and vegetative types that supports effective small Marine Corps and NSW land unit training.

Training with Live Ordnance. The authorization for aircrews to deliver live-ordnance on tactically realistic targets at the CMAGR is a central component of the overall value of this range to the readiness of Marine Corps and Navy aviation. The unique benefit of live-fire training is that it provides aircrews with the chance to apply the general skills learned in simulators and other types of training in a realistic operational environment. Live fire training helps aircrews span the gaps between abstract subject matter learned in the classroom, physical and mental skills learned in the safe and controlled environment of a simulator, and the stressful and dangerous environments into which aircrews will have to deploy their weapons. Basic live-fire training in the delivery of air-to-ground ordnance occurs in the BSTRC at bulls-eye targets at the El Centro ranges or at BMGR West. Aircrews learn and practice the fundamentals of air-to-ground attacks at these ranges by repeatedly flying precise attack patterns, aided by lead-in lines and position and distance markers laid out on the ground, to deliver ordnance on the bulls-eye targets. Bulls-eye target ranges are only approved for training with inert practice ordnance. The capstone step in the evolution of aircrew air-to-ground attack skills at the BSTRC occurs at the CMAGR, which provides the facility needed to hone these skills through diverse and tactically realistic, live-fire training. This training is further distinguished by the fact that most of the target sets at the CMAGR are approved for live-ordnance deliveries, which provides aircrews with the experience of fully employing their aircraft's weapons.

The live-ordnance training capability, both air and ground, at the CMAGR is regionally and nationally irreplaceable given the capabilities, capacities, and availabilities of other DoD training ranges. Three other ranges in the local region have live ordnance delivery capabilities including BMGR East and YPG in Arizona and MCAGCC in California. BMGR East, which is operated by Luke Air Force Base, provides three targets that are authorized for fixed-wing aircraft deliveries of live general purpose bombs of up to 2,000 pounds net explosive weight. Each of these targets, however, is marked only by a small hill and offers no tactical diversity or challenge. The value of BMGR East for training aircrews operating fixed-wing aircraft from MCAS Miramar, NAS North Island, or aircraft carriers in the Pacific Ocean with either live- or inert-practice ordnance is also diminished by the distance of BMGR East from those locations. At a distance of about 85 miles, BMGR East is within the effective training radius[16] of fixed-wing aircraft operating from MCAS Yuma but at over 220 miles is beyond the effective routine training radius of aircraft taking-off from MCAS Miramar, NAS North Island, or aircraft carriers (see Figure 1-4).

YPG, a major U.S. Army test range, is within 30 miles of MCAS Yuma and 150 miles of MCAS Miramar, which is within the effective training radii of the AV-8B and F/A-18 aircraft that currently operate from these air stations and the forthcoming F-35. However, the air-to-ground range approved for live ordnance, which is designed and instrumented for testing, cannot provide the quality tactical training that can be achieved at the CMAGR. In addition, test missions rather than training activities are assigned priority at YPG. The MCAGCC offers live-ordnance training capabilities that are tactically realistic and also is within the effective training radii of current and scheduled fixed-wing aircraft that operate from MCAS Miramar or MCAS Yuma. The drawback of the MCAGCC as an alternative to the CMAGR is that the scheduling priority at the MCAGCC for training MAGTF integration renders these ranges

[16] Effective training radius means the distance an aircraft can travel to a training range, complete an approximately 40−minute training mission, return to base without refueling, and retain a fuel reserve for an emergency or weather caused delay or divert before landing. In a 2008 analysis for the new F-35 aircraft, the Marine Corps found this distance to be about 170 miles (150 nautical miles [NM]) (DoN 2008). The effective training radius of the F-35 exceeds that of either the F/A-18 or AV-8B aircraft that it will replace beginning as early as late 2012.

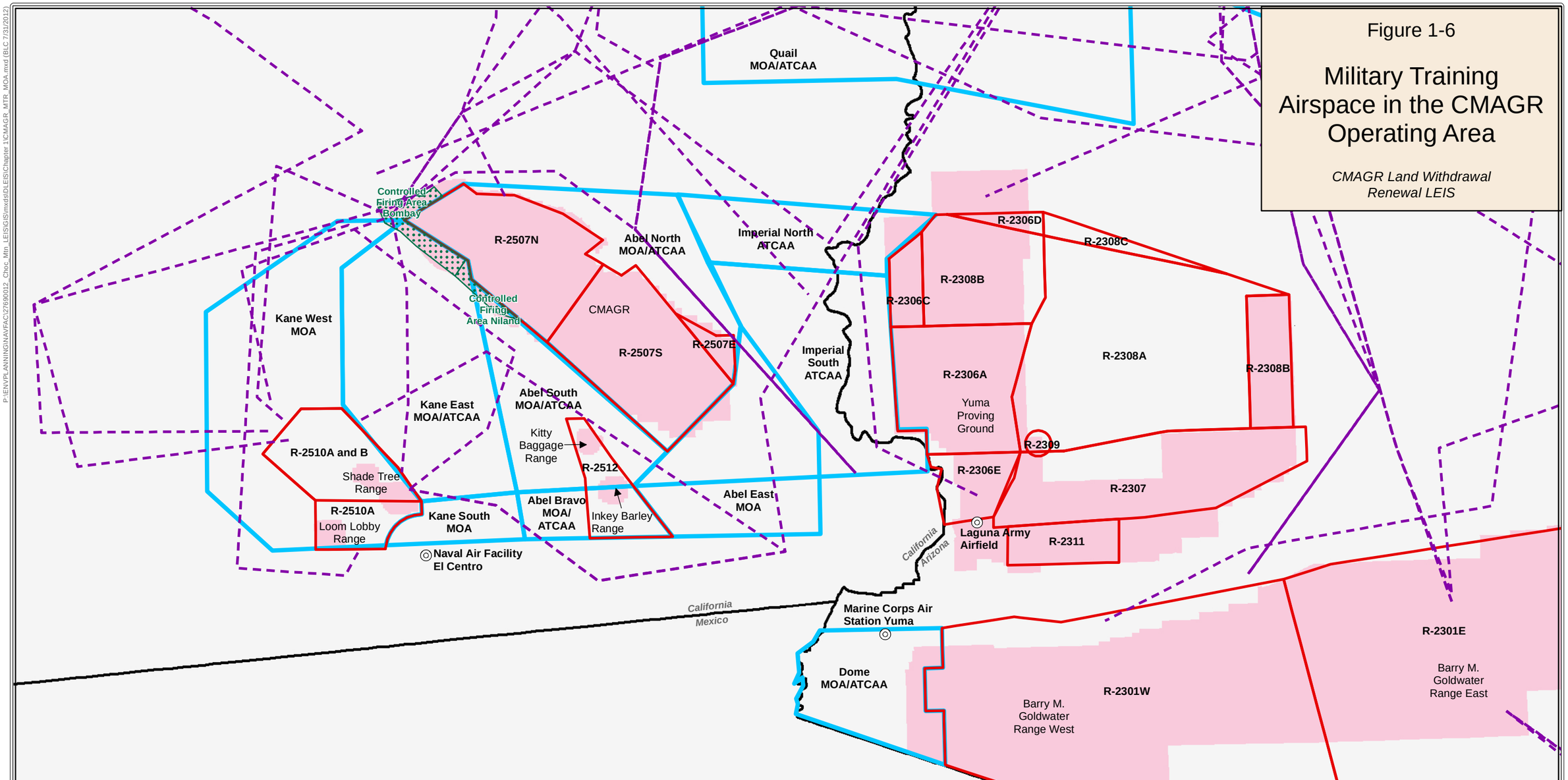

Figure 1-6

Military Training Airspace in the CMAGR Operating Area

CMAGR Land Withdrawal Renewal LEIS

Legend

- Military Airfield
- Military Training Route (MTR)
- Military Range
- Controlled Firing Area
- State Boundary

Special Use Airspace

- Restricted Airspace
- Military Operations Area (MOA) / Air Traffic Control Assigned Airspace (ATCAA)

Coordinate System: WGS 1984 UTM Zone 11N
Projection: Transverse Mercator
Datum: WGS 1984
Units: Meter

Source:
Range Features: IGI&S 2010 - 2011, YRMD 2010 - 2011
Base Map: CASIL 2010, ESRI 2010

This Map is for Reference Use Only.

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Map Scale 1:850,000

0 6 12 18 24 Miles

0 6 12 18 24 Kilometers

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unavailable for live-ordnance training for aircrews. Also located in the Southwest, are live-fire tactical training ranges that support live ordnance deliveries at the Army National Training Center and Naval Air Warfare Center China Lake in California and the Air Force Air Warfare Center Nevada Test and Training Range in Nevada. The National Training Center is similar to the MCAGCC and is heavily scheduled for pre-deployment training for Army brigades. The primary mission and scheduling priority at China Lake are weapons test activities. The Nevada Test and Training Range is also a highly capable training installation but scheduling priorities at this range go to test activities and missions conducted by the Air Force Fighter Weapons School and other large-scale training exercises. All three of these range complexes also are beyond the un-refueled operational radius of aircraft based in the CMAGR operating area. Elsewhere in the West, the Air Force Utah Test and Training Range provides tactical aviation training with live ordnance but this range is also beyond the operational radius of southwestern-based aircraft. Opportunities for tactical training with live ordnance are very limited in the eastern part of the country.

Training with Precision-Guided Munitions. PGMs have become an essential and heavily used asset in the arsenal of the U.S. Armed Forces. PGMs debuted as an influential weapon of war during the Persian Gulf War in 1991, although only about 7 percent of all bombs dropped during that conflict were PGMs. By the time of the Afghanistan and Iraq wars in 2001 and 2003, the distinct advantages afforded by PGMs over conventional weapons in accuracy, combat effectiveness, and reduced collateral damage resulted in these munitions being used in well over half of the air strikes performed by U.S. and allied forces (Meilinger 2007). The use of PGMs requires aircrews, FACs, and other involved personnel to have the exacting skills necessary to effectively employ and direct these weapons. The skill set required includes the use of air and ground laser range finding and designation of targets. The CMAGR supports realistic aircrew and FAC training in air-to-ground deliveries of PGMs. PGMs with either inert or live high-explosives warheads can be delivered at the CMAGR on a variety of realistic target sets.

Year-Round Flying Weather. The desert climate of southwestern Arizona and southeastern California provides some of the most consistent visual flying conditions in the country, as evidenced by an average annual rate of possible sunshine of 90 percent at Yuma, Arizona, the highest of any city in the United States (National Climate Data Center, National Oceanic and Atmospheric Administration 2004). Favorable climate contributes importantly to the efficiency of aviation training in the CMAGR region and benefits tactical aviation in at least three ways. First, the dependably good flying weather supports a high tempo flight training schedule. This schedule in turn provides the capacity needed to accommodate the combined training requirements of the many CMAGR users. Because of the good weather CMAGR users can reliably plan and fly their missions in a cost effective manner. Second, aircrews benefit from flying frequently enough to develop and retain the highly refined skills that their profession demands. Experience clearly shows that these skills are eroded quickly by inactivity (Kern 1997, U.S. Army Combat Readiness/Safety Center 2010). Third, the climate supports important training deployment programs for aviation units from areas of the country with more inclement flying weather. As a result of its reliable weather and proximity to outstanding training ranges, MCAS Yuma is the most active deployment site for Marine aviation units from both the East and West coasts. The air station hosts between 50 and 70 unit deployments per year. Naval Air Facility (NAF) El Centro is also an active host for squadrons deploying to the CMAGR for training exercises. Consequently, the loss of the CMAGR would negatively impact the combat readiness of Marine Corps and Navy squadrons from many locations in the country.

Close Proximity to Air Stations and Bases. A basic requirement of tactical aviation training is for military bases and ranges to be within reasonably close proximity if training is to yield combat ready aircrews for an effective investment in time and money. Close proximity between air bases and ranges allows aircrews and aircraft to spend a larger proportion of the limited and expensive flight time available on productive training activities, such as air combat maneuvering or air-to-ground ordnance delivery,

rather than flying enroute to and from the range. For the F-35 aircraft, an effective base to range distance would be no more than about 170 miles. The F/A-18A/B/C/D and AV-8B aircraft have an operational training radius that is less than that projected for the F-35 but these aircraft can train effectively at the CMAGR from their current home stations at MCAS Miramar and MCAS Yuma. The operational training radius of the MV-22 is about 230 miles (DoN 2009). The unrefueled training radius for current rotary-wing aircraft varies among different types, but helicopters typically need to be home stationed within about 110 miles of the primary training range if cost effective readiness is to be achieved.

For fixed-wing tactical aircraft and the MV-22, the CMAGR is currently within the unrefueled flight radius of MCAS Yuma, MCAS Miramar, NAS North Island, and NAF El Centro (see Figure 1-4). Fixed-wing aircraft and the MV-22 launched from aircraft carriers close to the California coast can also reach the CMAGR. Rotary-wing aircraft from MCAS Yuma or NAF El Centro are able to use the CMAGR without refueling.

Ground Training Capabilities. Realistic, tactical employment of live ordnance, small arms, fire and maneuver, lasers, and UASs in NSW and Marine ground unit training is critical to the preparation of personnel and small units for combat effectiveness. The primary space at the CMAGR allocated to support tactical training of NSW and Marine ground units is located in two special warfare training areas (abbreviated as SWAT and called SWAT-4 and SWAT-5) that abut the northern and western sides of R-2507N (see Figure 1-5). SWAT-4 and SWAT-5 provide a variety of individual and small unit ground ranges that allow the realistic employment of infantry types of weapons. The geographic relationship of R-2507N to SWAT-4 and SWAT-5 is advantageous for this training as it allows the surface danger zones[17] (SDZs) established and managed to support live-fire weapons use in SWAT-4 and SWAT-5 to extend into restricted airspace, thus maximizing the terrain available in the SWATs for tactical maneuver. SWAT-4 and SWAT-5 are each overlain by a Controlled Firing Area[18] (CFA), called Niland CFA and Bombay CFA, to prevent live-fire weapons use from endangering overflying aircraft that are not participating in the training activities (see Figure 1-5). Range scheduling and control procedures are in place to avoid live-fire conflicts between aviation activities in R-2507N and ground activities in SWAT-4 and SWAT-5 to optimize the productivity of the CMAGR and maximize the training benefits achievable to all users.

1.2.2.2 CMAGR's Importance to the Bob Stump Training Range Complex

The BSTRC is one of the Nation's largest and most capable tactical aviation training assets. It is the only major range complex in the United States that has the capability and capacity to provide full spectrum support for Marine Corps tactical aviation training. The multiple training areas in the complex provide a series of training capabilities, diverse tactical settings, the capacity to support either many simultaneous training evolutions or large force-on-force exercises, and flexibility for accommodating new training needs. The BSTRC has the capabilities to support training for all six functions of a Marine Aircraft Wing, which include:

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[17] A surface danger zone is the mathematically predicted area in which a projectile will impact upon return to earth, either by direct fire or ricochet. The SDZ is the area extending from a firing point on the ground to a distance downrange based on the projectiles fired. This area has specific dimensions for the expected caliber of the weapon(s) being fired so that all projectile fragments will be contained in this area. No part of an SDZ may extend off of the installation property. An SDZ must be clear of non-participating personnel whenever firing is being conducted.

[18] A block of nonregulatory special use airspace designated by the FAA in which firing activities, such as mortar or artillery shoots, are conducted under controlled conditions so as to eliminate hazards to nonparticipating aircraft, and to ensure the safety of persons and property on the ground. CFAs are not depicted on aeronautical charts since they do not cause a nonparticipating aircraft to change its flight path. Rather, the firing activity must be suspended until traffic is safely clear of the CFA.

- Offensive air support—involves air operations that deliver firepower against enemy ground forces for the destruction or neutralization of installations, equipment, and personnel.
- Aerial reconnaissance—employs visual observation and/or sensors in aerial vehicles to acquire intelligence information.
- Assault support—uses aircraft to provide tactical mobility and logistic support to the MAGTF for the movement of high priority personnel and cargo within the immediate area of operations (or the evacuation of personnel and cargo).
- Control of aircraft and missiles—integrates the other five functions of Marine aviation by providing the commander with the ability to exercise command and control authority over Marine aviation assets.
- Anti-air warfare—involves operations required to destroy, or reduce to an acceptable level, the enemy air and missile threat.
- Electronic warfare—involves the use of electromagnetic energy to determine, exploit, reduce, or prevent hostile use of the electromagnetic spectrum and actions which retain friendly use of the electromagnetic spectrum.

The CMAGR and BMGR West combined provide over 1,900 square miles of range land, which are collectively overlain by a total of almost 2,200 square miles of restricted area airspace (see Figure 1-6). The remaining airspace areas of the BSTRC provide about 7,850 additional square miles of training airspace.

Both CMAGR and BMGR West support training in offensive air support, assault support, anti-air warfare, aerial reconnaissance, and control of aircraft and missiles, but training in electronic warfare occurs principally at BMGR West. Because of attributes unique to each range, they offer different but complementary training experiences and benefits for the five functional areas of Marine aviation that they both support. Training based on one of these two ranges alone would not produce combat aircrews that are as qualified as those that have the benefit of training at both ranges. For example, the CMAGR provides about 36 percent of the range land area of the BSTRC but its contribution to offensive air support training is greater than its proportional share of the BSTRC land area. As already noted, the CMAGR provides extensive arrays of tactically diverse and realistic targets for live-fire aircrew training in delivering most types of air-to-surface ordnance. Many of these targets are approved for attack with live-ordnance and one set of live-fire targets has been specifically developed for training helicopter aircrews. The BSTRC hosts 80 percent of the Marine Corps' air-to-ground aviation training but most of this training is supported at the CMAGR.

The training assets at BMGR West for offensive air support include two live-fire target sets and a variety of tactically realistic target sets that are part of the Yuma Tactical Aircrew Combat Training System (TACTS). The principal features of the two live-fire target sets include a bull's-eye target for delivering bombs and rockets, panel targets for strafing, an urban training complex that simulates a built-up urban setting, and an autonomously controlled target vehicle that moves in a racetrack circuit. The bull's-eye and panel targets support development of basic ordnance delivery skills while the urban training complex and moving target vehicle both offer more tactically realistic challenges to aircrews. However, limited avenues of attack constrain the diversity of training that can be achieved at the urban training and moving vehicle targets. The live-fire targets at BMGR West are all limited to inert practice ordnance.

The Yuma TACTS is a powerful training tool that allows aircrews to engage in simple or complex tactical problems involving air-to-air, air-to-surface, and/or surface-to-air combat. The system uses electronic technology to track and record entire engagements between friendly and aggressor aircraft and can also

electronically simulate air-to-surface and surface-to-air attacks. No ordnance can actually be expended at any phase in the training, however, and the effectiveness of all attacks is electronically simulated and scored. The advantages of the TACTS for offensive air support training are that aircrews can readily make multiple attacks on a variety of ground targets and those air-to-surface attacks can be smoothly integrated with other aspects of an air strike mission such as having to deal with an enemy's air defenses. In contrast, the CMAGR provides the experience and additional realism of actually expending ordnance while controlling and maneuvering their aircraft throughout an actual air-to-ground attack. The tactic of choice in combat is to release all of the ordnance necessary to destroy a target during a single attack so as to reduce aircrew exposure to defensive ground fire or missiles, or interception by enemy fighters. In some situations, this requires the delivery of up to several thousands of pounds of ordnance at once, which means that the pilot must be able to reflexively control the aircraft through the sudden weight loss without losing focus on unfolding combat events. At the CMAGR, aircrews can hone their accuracy and flying skills by dropping only one or a few bombs per pass and making many practice passes or they may release up to 6,000 pounds of ordnance in a single pass.

Thus, while the TACTS and inert live-fire ranges at BMGR West provide clear and distinct instructional benefits for aircrews they neither replicate nor supplant the training values that aircrews achieve by engaging the tactical scenarios provided by the diverse target arrays at the CMAGR. Aircrews profit immensely by training at both ranges and the close proximity of the CMAGR and BMGR West not only makes that possible but essentially serves as a multiplier that enhances the investment made by stationing aircrews near or deploying them to the BSTRC.

One of the best indicators of the irreplaceable importance of the BSTRC to the readiness of Marine Corps aviation is the fact that it is used to host the semiannual Weapons Tactics Instructor (WTI) Course. The WTI Course provides the Marine Corps' most advanced training for employing aviation weapons and tactics in combat. The course objective is to graduate flight officers who (1) are fully qualified in their warfare specialty, (2) can plan and execute missions that integrate logistics and tactics for both aviation and ground support assets, and (3) have the experience and knowledge necessary to conduct an effective and comprehensive aircrew training program for their respective squadrons. Only the best qualified aircrews from operational squadrons are accepted to the WTI Course. The Marine Corps uses the course to enhance its service-wide capabilities in advanced aviation weapons and tactics by providing each Marine Corps squadron annually with a qualified WTI. To keep the WTI Course at the cutting edge, its contents are updated before each semiannual session to ensure that WTI graduates are prepared to defeat the capabilities and tactics of contemporary or potential adversaries. The WTI Course is characterized by a demanding academic program and complex flight training exercises that realistically simulate real world combat scenarios. The BSTRC is an ideal setting for the course because it can fully support the complexity and realism needed to make the flight portion of the training effective. The CMAGR in particular provides the course instructors and students to propose and develop tactics, techniques, and procedures for air-to-ground attacks that are appropriate and effective for the types of combat challenges that Marine Corps aircrews face in the contemporary world.

The loss of the CMAGR would eliminate the multiplier effect provided by the combined assets of the BSTRC and would greatly curtail the quality and quantity of training that could be produced at this complex. Losing the CMAGR would also diminish the individual values of MCAS Yuma, MCAS Miramar, NAS North Island, NAF El Centro, and BMGR West for supporting the readiness of Marine Corps and Navy aviation.

1.2.2.3 CMAGR's Importance to the Regional Range Complex Operating Area

As already noted, the nation's largest military ranges are concentrated in the Southwest as a legacy of the buildup of military forces during World War II, the remaining availability of relatively open lands and

unencumbered airspace in the early 1940s, and a climate that allowed year-round training with few weather related delays or cancellations. The ranges of the BSTRC and the larger regional operating area, which also encompasses Camp Pendleton, the MCAGCC, the R-2510 and R-2512 ranges, and YPG, are all descendent from this earlier era.

Although not likely intended in the early 1940s, the concentration of training ranges and air stations in relatively close proximity to each other in southern California and southwestern Arizona confers a distinct benefit for current training programs. As evidenced by the BSTRC, training of combat forces can be distributed within a complex to take advantage of the best features of the individual ranges to support comprehensive training of the whole force. A closely located, multiple-range complex also benefits the force by providing greater training diversity, capacity, and flexibility than any of its member ranges can alone. These benefits are expanded at the regional scale in southern California and southwestern Arizona by the availability of additional ranges that contribute to MAGTF training. Foremost at this scale are Camp Pendleton and the MCAGCC. Camp Pendleton is a primary range for training both helicopter aircrews and ground combat forces. At Camp Pendleton, a major training emphasis is currently placed on the use of rotary-wing and MV-22 aircraft for assault support. MCAGCC is the Marine Corps' largest and most capable live-fire range complex for MAGTF training. Training for all six functions of Marine Corps aviation occurs here for fixed-wing, rotary-wing, and tilt-rotor aircraft. The priority at the MCAGCC is on MAGTF integration. Training at the MCAGCC is where the Marine Corps brings the readiness of its combat-ready expeditionary units to its highest pre-deployment level.

The R-2510 and R-2512 ranges support basic training in the delivery of air-to-surface ordnance. These bulls-eye ranges are close to the BSTRC and provide a training capability that is also developed at BMGR West but is not present at the CMAGR. The R-2510 and R-2512 ranges are an addition to the capacity of the BSTRC for basic air-to-surface training and allow the training priority of the entire CMAGR and most of BMGR West to be placed on tactical level skills. YPG is also close to the BSTRC and provides additional capacity and diversity for training in offensive air support, assault support, and anti-air warfare on an as available basis.

Training for air components of MAGTFs is distributed and integrated over the ranges and air stations and facilities that are located in southern California and southwestern Arizona. Finally, assembly of a combat ready MAGTF is accomplished at the MCAGCC but it is largely through the other ranges in the region that the individual aircrews, squadrons, aircraft groups, and aircraft wings are prepared. In this manner, each range supports training that is essential to the ultimate readiness of the MAGTF. The individual ranges may be differentiated in terms of training capabilities, diversity, capacity, and flexibility but the loss of any one range would diminish the quality and quantity of training that could be supported by the overall regional network.

1.2.3 Future Requirements for the CMAGR

The CMAGR is, and will remain, indispensable to Navy and Marine Corps aviation and ground forces training into the foreseeable future. The Marine Corps currently relies and will continue to depend on the CMAGR to support training of operational and student aircrews stationed in the local operating area. In addition to these local squadrons, training deployments by Marine Corps, Navy, Air Force, Air National Guard, and Reserve Component units will continue to use the CMAGR on a frequent basis. The continuing need for the CMAGR is also signified by active plans to replace the AV-8B and F/A-18 aircraft flown by the Marine Corps squadrons at MCAS Yuma and MCAS Miramar with F-35 aircraft, which is expected to begin in 2012 and extend through 2023. Training operations flown by F-35 aircraft home stationed at MCAS Yuma are expected to occur within the BSTRC, including the CMAGR, and BMGR West, 99 percent of the time (DoN 2010). Further, planning has been completed to home station up to eight squadrons of MV-22 aircraft at MCAS Miramar and up to two squadrons of MV-22 aircraft at

MCAS Camp Pendleton. The MV-22s will replace current CH-46E aircraft. Transitioning to MV-22s has already begun for some squadrons at MCAS Miramar. The decisions for basing MV-22s at MCAS Miramar and MCAS Camp Pendleton and the decisions for basing F-35s at MCAS Yuma and MCAS Miramar demonstrate a long-term DoN commitment to these air stations and to CMAGR and other components of the BSTRC. CMAGR is also an important training range asset for Marine Corps and Navy ground forces, including NSW units, due to close proximity to the Marine Corps ground forces and NSW home stationed in the San Diego, California, region.

1.3 CMAGR BOUNDARY REALIGNMENT

Four segments of the CMAGR boundary are proposed for realignment including:

- Two separate but short segments of approximately 1.2 and 2 miles in length south of the Niland-Blythe Road near where it intersects the eastern side of the range boundary
- An approximately 36-mile long segment along the northern side of the range between the easternmost and westernmost points at which the Bradshaw Trail intersects the range boundary
- An approximately 27-mile long segment near the Union Pacific Railroad (UPRR) along the southwestern side of the range (see Figure 1-7)

The need to realign these four boundary segments was identified through the assessment of the continuing military need for the CMAGR. This assessment was performed in accordance with requirements provided by the CMLWOA, Defense Withdrawal Act of 1958, and FLPMA. Each area of the range, including its perimeter, was assessed in terms of the continuing or potential need of the land to support military training. The full assessment of how the surface of the CMAGR is used to support military training, range security, and safety is provided in Section 3.2.4. The proposed boundary realignments would:

- Eliminate land from the CMAGR for which there is no continuing military need
- Facilitate the Marine Corps' responsibilities for safeguarding the public from hazardous training activities and deterring unauthorized access to the range
- Encompass land that would be new to the range but that would facilitate the security of the range boundary and/or lend direct support to training operations

Although realignment of the boundary in all four areas, which include an aggregate of about 66 miles of the current 171 miles-long range perimeter, would provide the greatest degree of safety, security, land use, and operational benefits for the CMAGR and adjacent BLM land, the proposed realignments in the four areas are functionally independent from each other. The enactment of all four realignments is proposed by the DoN but the enactment of only one, two, or three of the realignments would still provide desirable benefits. The proposed boundary realignments are secondary objectives to the primary need to renew the CMAGR land withdrawal, which should not be delayed or encumbered by these secondary proposals. The specific rational for each of the proposed boundary realignments follows.

1.3.1 <u>South of Niland-Blythe Road Realignments</u>

These two short realignments would have the effect of not renewing the national defense land withdrawal for about 250 acres of BLM land in aggregate and would reduce the total length of the range perimeter by about 3.2 miles. The affected parcels project from the main body of the range, have no overlying restricted airspace, are too small to provide effective training capacities, and do not facilitate maintenance of a secure and manageable boundary. In short, there is no continuing military need for these parcels. Management of the affected land would revert to BLM, which could open the land at a later date for appropriate public uses.

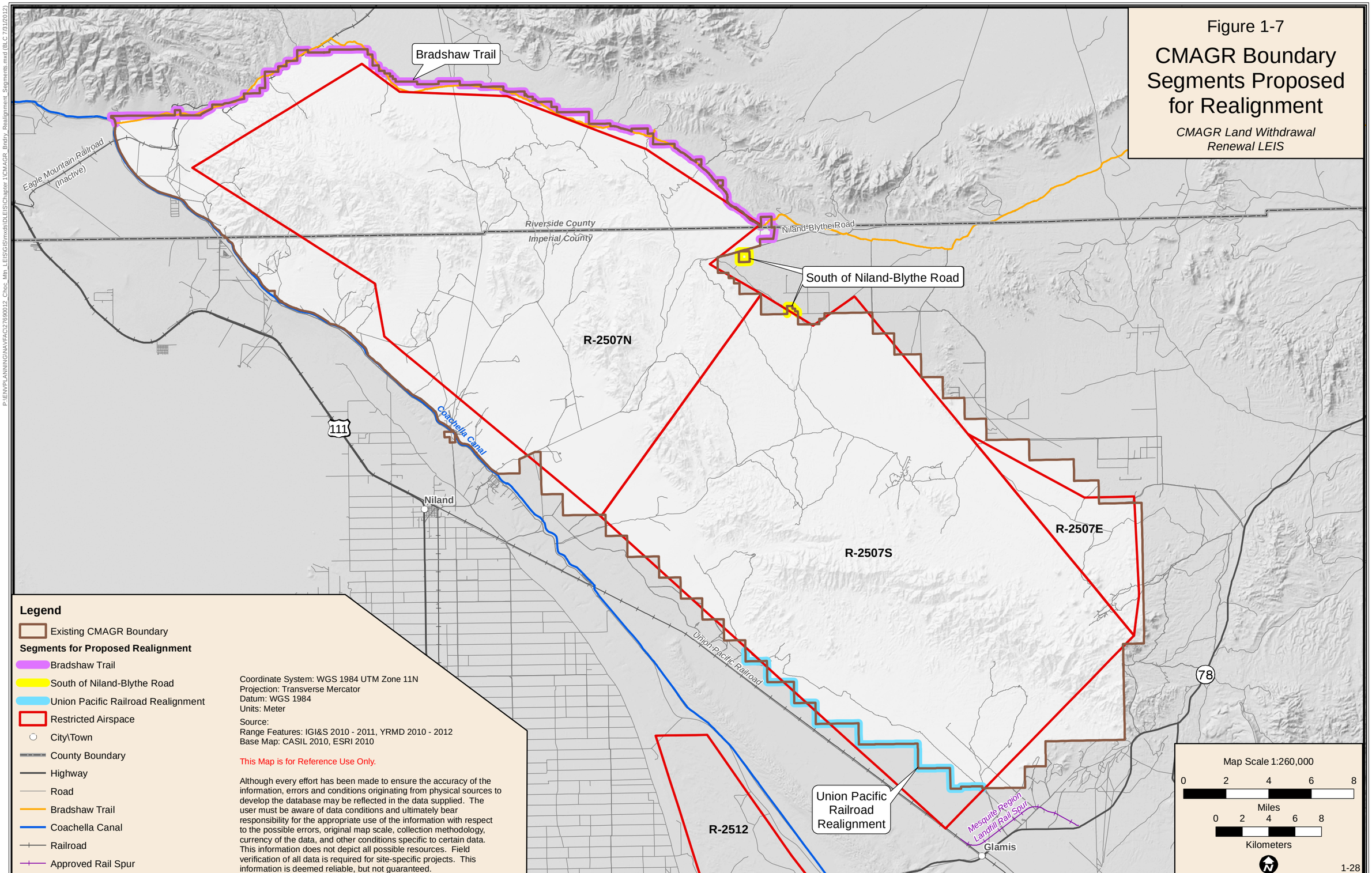


Figure 1-7
CMAGR Boundary Segments Proposed for Realignment
CMAGR Land Withdrawal Renewal LEIS
Bradshaw Trail
Eagle Mountain Railroad (Inactive)
Riverside County
Imperial County
Niland-Blythe Road
South of Niland-Blythe Road
R-2507N
R-2507S
R-2507E
R-2512
Coachella Canal
111
Niland
Union Pacific Railroad
Union Pacific Railroad Realignment
Mesquite Region Landfill Rail Spur
Glamis
78
Legend
Existing CMAGR Boundary
Segments for Proposed Realignment
Bradshaw Trail
South of Niland-Blythe Road
Union Pacific Railroad Realignment
Restricted Airspace
City\Town
County Boundary
Highway
Road
Bradshaw Trail
Coachella Canal
Railroad
Approved Rail Spur
Coordinate System: WGS 1984 UTM Zone 11N
Projection: Transverse Mercator
Datum: WGS 1984
Units: Meter
Source:
Range Features: IGI&S 2010 - 2011, YRMD 2010 - 2012
Base Map: CASIL 2010, ESRI 2010
This Map is for Reference Use Only.
Although every effort has been made to ensure the accuracy of the information, errors and conditions originating from physical sources to develop the database may be reflected in the data supplied. The user must be aware of data conditions and ultimately bear responsibility for the appropriate use of the information with respect to the possible errors, original map scale, collection methodology, currency of the data, and other conditions specific to certain data. This information does not depict all possible resources. Field verification of all data is required for site-specific projects. This information is deemed reliable, but not guaranteed.
Map Scale 1:260,000
0 2 4 6 8
Miles
0 2 4 6 8
Kilometers
N
1-28

1.3.2 Bradshaw Trail Boundary Realignment

The Bradshaw Trail, the first road to cross Riverside County to the Colorado River, was blazed in 1862 as an overland stage route. The BLM designated the trail as a National Backcountry Byway in 1992 (U.S. Department of Transportation, Federal Highway Administration 2010). Riverside County periodically grades the Bradshaw Trail to maintain its condition for public use. The segment of the Bradshaw Trail that stretches from the Coachella Canal to the easternmost point where the trail is last within the CMAGR boundary is about 36 miles in length (see Figure 1-5). Over this distance, about 20 miles of the trail in aggregate traverses land that is inside the CMAGR and about 16 miles of trail traverses land that is outside of the range. About 2,571 acres of DoN and withdrawn BLM land that is currently part of the CMAGR, but north of the Bradshaw Trail, is segregated from the main body of the range. Further, there are some parcels, totaling about 995 acres in aggregate, that are south of the Bradshaw Trail but that are not part of the CMAGR. As described in Chapter 2, two alternative realignments of the Bradshaw Trail portion of the CMAGR boundary are considered in this LEIS. The purposes of the Bradshaw Trail realignment shared by these alternatives include:

- Releasing from the CMAGR about 647 acres of DoN land and about 1,924 acres of BLM land north of the Bradshaw Trail for which there is no continuing military need—following any needed cleanup or decontamination, the released land may be available for other public purposes.
- Facilitating the Marine Corps' responsibility to safeguard public safety and deter inadvertent trespass by establishing a well demarcated and readily recognizable range boundary generally along the southern side of the Bradshaw Trail. The full Bradshaw Trail realignment alternative would align the boundary along the entire 36-mile length of the Trail that currently traverses the CMAGR. This alternative would require the first-time addition of about 530 acres of BLM land to the range and authorize DoN acquisition of about 455 acres of private land and about 10 acres of state land. The other realignment alternative would not add land to the CMAGR but would result in the range boundary coinciding with about 72 percent of the 36-mile length of the Trail that currently traverses the range. The Bradshaw Trail would provide the Marine Corps with direct access to the range perimeter to post, monitor, and maintain range danger and prohibited-entry warning signs.
- Excluding the Bradshaw Trail National Backcountry Byway from the CMAGR, which would eliminate DoN/Marine Corps management responsibilities for the trail and would consolidate responsibility for the Bradshaw Trail entirely with the BLM.

1.3.3 Union Pacific Railroad Realignment

The proposed boundary realignment along the southwestern side of the CMAGR would generally follow the eastern side of the UPRR right-of-way (ROW), the northern side of the Mesquite Regional Landfill Rail Spur ROW, and an existing access road to the range (see Figure 1-7). This realignment would also facilitate the Marine Corps' responsibility to safeguard public safety from hazardous training activities and deter inadvertent trespass by establishing a well demarcated and readily recognizable range boundary.

The perimeter of the range in this area is currently not road accessible through most of its length and cannot be readily maintained or monitored. The new alignment would be accessible via existing roads for posting and maintaining prohibited-entry warning signs, monitoring the condition of the area, and security patrol actions as necessary. The new alignment would add about 11,903 acres of BLM land to the CMAGR and would authorize DoN acquisition of about 658 acres of state land. About 52 percent of the realigned range area would underlie a portion of the R-2507S airspace that currently extends outside of the CMAGR. The new area would be useful for supporting range operations such as FARPs and locations within the lateral boundaries of R-2507S could be used for live-fire activities such as artillery fires into designated target areas in the existing interior of the range. The new area would not be suitable for an artillery or air-to-ground target because its close proximity to the range boundary.

1.4 DURATION OF THE LAND WITHDRAWAL

As provided by the FLPMA, the applicant for either a new or renewed land withdrawal must specify a duration for a proposed land withdrawal (43 CFR § 2310.1-2(c)(11)). In accordance with this requirement, this LEIS provides three duration alternatives—20 years, 25 years, and indefinite—for the proposed CMAGR land withdrawal. The 20- and 25-year durations would each include an option for the Secretary of the Navy to again request a subsequent renewal if a continuing military need for the range is identified as the end of the withdrawal term is approached. A 20-year duration would replicate that provided for the current land withdrawal by the CMLWOA, which, with an option for a subsequent renewal, would support the currently foreseeable future need for the range. The principal argument for this option is that it would continue the status quo, which has supported the ongoing military requirements for the range. The principal contention against the 20-year alternative and for a withdrawal of longer duration is that the planned program lives of the MV-22 and F-35 aircraft programs[19], which will become the dominant aircraft types to be flown by the Marine Corps within the next 10 years, already exceed the 20-year renewal horizon by more than two-fold. Multi-decadal service lives are expected of all new military aircraft fleets. Thus, the foreseeable military need for the CMAGR to support training in tactical aircraft likely already exceeds 20 years by more than 200 percent. Although the proposed 20-year renewal would include an option to further extend the withdrawal of the CMAGR to support continuing military needs, the short initial duration of the withdrawal would increase the frequency of required renewal processes and, as a result, the annual cost of keeping the range in service as compared to withdrawals of 25 years or longer. The least expensive alternative would be a withdrawal of indefinite duration, which would eliminate the cost of processing subsequent renewal applications to support continuing military requirements. This option would keep the CMAGR in service until such time that the military needs for the range end. A withdrawal duration of 25 years would be consistent with the duration provided by Congress for the nearby BMGR and five other major DoD ranges through the Military Lands Withdrawal Act (MLWA) of 1999. The indefinite duration withdrawal would most likely result if Congress elected to resolve the management redundancies, inefficiencies, and conflicts that arise from the checkerboard pattern of BLM and DoN land jurisdictions by permanently transferring the BLM land to DoN jurisdiction rather than in combination with another arrangement of DoN-DoI management responsibilities.

1.5 REASSIGNMENT OF ADMINISTRATIVE RESPONSIBILITY

As provided by the FLPMA, the applicant for either a new or renewed land withdrawal must provide a plan for the management of the land proposed for withdrawal (43 CFR § 2310.3-2(c)). In accordance with this requirement, this LEIS provides three alternatives for assigning federal agency responsibilities for managing natural and cultural resources at the CMAGR including:

- Retaining the current split management scenario in which the DoN is responsible for managing DoN land and the BLM is responsible for managing withdrawn BLM land
- Transferring responsibility for managing all land within the CMAGR to the DoN for the duration of the land withdrawal
- Transferring the withdrawn BLM land to the DoN, which would make the DoN responsible for managing all land within the CMAGR

Responsibility for managing non-military land use and natural and cultural resources within the CMAGR currently is divided between the DoN and BLM by virtue of the checkerboard pattern of DoN and BLM land jurisdictions (see Figure 1-2) and guidance from the CMLWOA. In accordance with the CMLWOA,

[19] The MV-22 is expected to be in service until at least 2044 (DoN, Naval Air Systems Command 2011) and the F-35 is expected to serve until at least 2050 (Tirpak, J.A. 2011).

the BLM is responsible for managing the almost 50 percent of the CMAGR that is comprised of withdrawn public land and for preparing a management plan for that land in accordance with the FLPMA. The CMLWOA, however, is silent on the subject of management responsibility for the other slightly more than 50 percent of the range, which is comprised of DoN lands. This omission has the effect of leaving the DoN fully responsible for managing this portion of the CMAGR in accordance with the Sikes Act, as amended (most recently amended by the Sikes Act Improvement Amendments, hereafter "Sikes Act" (16 U.S.C. §§ 670-670f)).

The BLM had responsibility for non-military use, which was almost nonexistent, and the subsurface mineral estate of the withdrawn land in the CMAGR before the passage of the CMLWOA in 1994, but that Act placed the BLM in the position of having primary management responsibility for that land for the first time since the range was established during World War II. It was also the first time that the provisions of the FLPMA were to become the primary guidance for managing a portion of the land within the CMAGR.

The BLM addressed the withdrawn land portion of the CMAGR in the Northern and Eastern Colorado Desert Coordinated Management (NECO) Plan, which was completed in 2002. The planning area for the NECO Plan encompassed roughly 6,000 square miles (about 3.8 million acres) of federal land under the collective jurisdictions of the BLM, DoI National Park Service, and DoN. The withdrawn land portion of the CMAGR contributes less than 6 percent of the federal land addressed in the NECO Plan. The NECO Plan, which was prepared in accordance with the CMLWOA and FLPMA, addresses management of certain critical biological species in the CMAGR but does not speak to the breadth of natural and cultural resources on the range and provides no guidance as to how resources should be managed relative to the effects of military activities on those resources or to preserving the capability of the range to support its military mission.

The lands and natural resources at most of the Nation's military reservations, including those composed entirely of withdrawn public lands, are managed in accordance with the Sikes Act. The Sikes Act sets forth specific resource management policies and guidance for U.S. military installations and requires the preparation of Integrated Natural Resources Management Plans (INRMPs) for installations—including those, such as the CMAGR, composed in part or entirely of withdrawn lands—with significant natural resources. The Sikes Act provides that:

> Consistent with the use of military installations to ensure the preparedness of the Armed Forces, the Secretaries of the military departments shall carry out the program … to provide for ... the conservation and rehabilitation of natural resources on military installations … (16 U.S.C. § 670a(a)(3)(A))

Among numerous provisions specifying the content and purposes of the INRMP is one that specifies that the plan provide for "*no net loss in the capability of military installation lands to support the military mission of the installation…"* (16 U.S.C. § 670a(b)(1)(I)). This Sikes Act provision speaks directly to the issue of setting resource management priorities relative to the primary purpose of a military range, which at the broadest scale is to ensure the preparedness of the Armed Forces. Resources are to be conserved and rehabilitated and non-military use managed in such a way that the use of the installation for its intended military mission would not be curtailed or limited by resource protection or sustainability constraints imposed by the lack of appropriately focused conservation or rehabilitation activities or adverse effects from non-military use. The FLPMA includes similar provisions for managing resource values in a manner that will protect and conserve those values while providing for sustainable yields of those resources. The FLPMA provides no equivalency, however, to the policy and procedural guidance provided by the Sikes Act for managing military reservations in a manner that directs and balances resource values and non-military uses relative to the purposes of the reservation.

This LEIS proposes to transfer to the DoN all responsibility for managing natural and cultural resources throughout the range in accordance with the Sikes Act and to relieve the BLM of any further role in the ongoing active management of the range. These changes are needed to (1) assign resource management responsibility to the DoN alone, (2) provide resource management guidance that is appropriate to address the special conditions of a military reservation, and (3) streamline the land management process.

Although reassignment of land management responsibilities within the CMAGR from the BLM to the DoN is proposed by the DoN to improve management efficiency and accountability, this proposal is a secondary objective to the primary need to renew the CMAGR land withdrawal. Renewal of the land withdrawal should not be delayed or encumbered by this proposal.

1.6 SCOPE OF THE ENVIRONMENTAL REVIEW

1.6.1 Legislative Environmental Impact Statement

This LEIS was prepared in accordance with NEPA (42 U.S.C. §§ 4321-4370h); the CEQ regulations for implementing the procedural provisions of NEPA (40 CFR Parts 1500-1508); Marine Corps Order (MCO) P5090.2A, change 2, dated 21 May 2009, Environmental Compliance and Protection Manual, which establish procedures for implementing NEPA; and Secretary of the Navy Instruction (SECNAVINST) 5090.8A, Policy for Environmental Protection, Natural Resources, and Cultural Resources Programs. As provided by the Defense Withdrawal Act of 1958 (P.L. 85-337), land withdrawals for military purposes that are more than 5,000 acres in aggregate may be made only through an Act of Congress. In other words, Congress—rather than the Secretaries of the Navy, the Interior, or another administrative department—will be the decision-making authority for the proposed action to update and reauthorize the CMAGR land withdrawal. Consequently, a LEIS, rather than an administrative EIS, is the appropriate level of NEPA documentation to address the proposed land withdrawal.

1.6.2 Study Region

The study region for this LEIS is defined as the CMAGR and areas affected by the CMAGR. The geographic extent of the study region varies depending upon the resource that would be affected by the alternatives being considered. For example, with regard to geological resources, analyses are largely limited to the geology, topography, and soils within the CMAGR. The cultural resource analysis focuses both on the CMAGR as well as on a broader region to take into consideration the historical context in which these resources occur and the interests of Native American tribes. Similarly, the socioeconomic analysis includes both the immediate CMAGR area and the economic, demographic, and social conditions of communities affected by air installations that use the CMAGR to support a significant component of their training activities. Therefore, the geographic extent of socioeconomic analysis includes much of southwestern Arizona and southern California. The study regions for other potentially affected resources are also each sized according to the extent that the renewal of the CMAGR may affect these resources. The study regions defined for each resource are described in Chapter 3 Affected Environment.

1.6.3 Public Scoping Process

An NOI to prepare an LEIS for the CMAGR renewal was published in the *Federal Register* on 24 September 2010 (Volume 75, Number 185, pp. 58370-58372). The NOI contained a brief statement about the current CMAGR land withdrawal; the purpose of the proposed renewal; the preliminary alternatives; and dates, times, and locations of public scoping meetings. A copy of the NOI is included in Appendix B.

In addition to the NOI, several methods were used to notify the public and other government agencies. This included letters to government agency and tribal representatives; advertisements published in seven newspapers; newsletters mailed to 280 individuals; and four public scoping meetings held in selected communities near the CMAGR or the military installations that use the CMAGR. Scoping meetings occurred in Yuma (6 December 2010), El Centro (7 December 2010), Palm Springs (8 December 2010) and San Diego (9 December 2010); a total of 35 persons from the public registered their attendance at the scoping meetings. Ongoing coordination has occurred throughout the preparation of the LEIS with BLM, as a cooperating agency, and other agencies having responsibilities involving CMAGR lands and airspace.

Through the initial agency and public scoping process, 25 comment submissions (including oral comments made at scoping meetings, letters, comment forms, and entries made through the website) were received from 21 individuals. Some individuals offered only a single comment, while others provided several comments on a single or multiple categories; consequently, more than 75 comments were extracted from the submittals received. Comments were organized into 16 general issue categories. These categories and types of comments received are listed alphabetically in Table 1-1.

The category of Alternatives received the most comments. Of the individuals who commented on the alternatives, all but one person supported the renewal of the CMAGR. A comment was received urging that all current and future mission requirements be reviewed before any current range areas are proposed for release from the CMAGR. The continuing military need for all areas of the range is documented in Section 1.3 of this LEIS. The findings of this assessment are referenced in Section 1.3 and are reported in Section 3.2.4. Two corrections to the proposed realignments of the CMAGR boundary presented at scoping have been made as a result of the continuing military need assessment and as an outcome of continuing research into the range property records. A potential future requirement to support NSW training was identified for the northwesternmost portion of the CMAGR. This almost 6,000 acre area is now included in all proposed renewals of the CMAGR land withdrawal. The second correction involves range property that was thought to be located to the west of the Coachella Canal during scoping. Subsequent records research has shown that these properties are no longer part of the range; thus, the boundary realignments that are proposed in this LEIS do not involve land to the west of the canal.

Recreation was the category that received the next highest percentage of comments. A major concern for recreation is public access to off-road activities and mining opportunities, specifically where preliminary alternatives proposed to realign the CMAGR boundary near the UPRR.

Table 1-1 Categories of Comments Received During Public Scoping

Comment Category	Subcategory	Types of Comments
Agency Coordination		Invite U.S. Fish and Wildlife Service to serve as a cooperating agency
Airspace		Address need for any changes to airspace
Alternatives	Support Land Withdrawal	
	Oppose Land Withdrawal	
	Support Alternative 3	Fully examine a fee-simple transfer of BLM-administered public land to the DoN, which has considerable merit
	Oppose Acquisition of BLM Land North of the Railroad	Address negative impact to recreation on these public lands if the boundary realignment includes acquisition of BLM lands
	Other Alternatives to Consider	Modify boundaries, consider a shorter renewal duration, consider adding other lands to range, review all mission requirements before surrendering any current range area
	Support Adjusted Boundary	Support a clearly defined and delineated boundary
Biological Resources	Threatened and Endangered Species	Address effects on Mojave desert tortoise
Cumulative Effects		Describe methodology used for analysis
Hazardous Materials		Address range/contamination clean-up for lands no longer part of the CMAGR
Land Use		Address impacts to utilities, energy development, mining, other land uses
Military Use		Address training requirements and military encroachment on non-range lands
Miscellaneous		We support the military and all it does
Process	NEPA	Address LEIS in the same manner as an administrative EIS
	Segregation[20]	Clarify if NEPA meetings also addressed procedural requirements for segregation meetings
Purpose and Need		Provide rationale for proposed acquisition of land
Public Use	Recreation	Provide recreational access to lands proposed for acquisition
	Access	Address access to Mary Load Mine, dikes and canals, and sacred sites
Resource Management		Maintain compliance programs
Safety		Address threats from unexploded ordnance
Socioeconomics		Address socioeconomic impacts on local communities
Water		Address groundwater impacts

[20] BLM segregation of the affected lands removes them from all forms of appropriation under the public land laws (including the mining, mineral leasing, and geothermal leasing laws) to allow time for the land withdrawal issue to be decided.

1.6.4 Issues Eliminated from Detailed Analysis

Some issues developed during scoping are beyond the scope of the LEIS because they are not directly related to decisions being made regarding the proposed renewal and issues that are not relevant to the purpose and need for action. These issues are more properly considered in existing processes outside of NEPA so should be eliminated from detailed analysis.

The following issues have been eliminated from detailed analysis because they are beyond the scope of the LEIS:

- Improving Coachella Valley Water District access to Reclamation stormwater facilities on the CMAGR for the purposes of maintenance and repair. CMAGR parcels adjacent to these facilities are mostly on DoN lands so that modifying withdrawn lands boundaries are not helpful. Access for repair of these facilities is in the nature of an agency request to use property for specific purposes under the control of the DoN. There are specific, existing DoN policies for addressing these requests.
- Limit military vehicles access or speeds on Reclamation canal roads outside of the CMAGR.

1.7 APPLICABLE REGULATORY REQUIREMENTS

As addressed in Section 1.1.2, the procedures for requesting renewal of the CMAGR land withdrawal are identified in the CMLWOA, and the BLM regulations and procedures applicable to land withdrawals for military uses are provided by the FLPMA. The Defense Withdrawal Act of 1958 (also referred to as the Engle Act) provides Congress with the sole authority to withdraw, reserve, or restrict federal public lands that have an aggregate area of 5,000 acres or more for any one national defense project or facility.

This LEIS has been prepared in accordance with NEPA (42 U.S.C. §§ 4321-4370h) and the CEQ procedures for implementing NEPA (40 CFR Parts 1500-1508). The LEIS has also been prepared in accordance with other applicable statutes, regulations, ordinances, rules, and/or policies and instructions, including, but are not limited to:

- American Indian Religious Freedom Act (P.L. 95-341; 42 U.S.C. §§ 1996 and 1996a)
- Archeological Resource Protection Act (ARPA) (16 U.S.C. §§ 470aa-470mm; P.L. 96-95 and Amendments)
- Clean Air Act (CAA), 42 U.S.C. §§ 7401-7671q
- Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 1980 (42 U.S.C. §§ 9601-9675)
- DoN Regulations for Implementing NEPA (32 CFR Part 775)
- Endangered Species Act (ESA), 16 U.S.C. §§ 1531-1544
- Energy Independence & Security Act of 2007, § 438
- Executive Order (EO) 12898 Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations, 1994 (59 Federal Register 7629)
- EO 13045 Environmental Justice for Children, 1997 (62 Federal Register 1985)
- EO 13123 Greening the Government Through Efficient Energy Management, 1999 (64 Federal Register 30851)

- EO 13186 Responsibilities of Federal Agencies to Protect Migratory Birds and the Migratory Bird Treaty Act, Amended 30 October 1998 (66 Federal Register 3853 and 16 U.S.C. §§ 701-712)
- EO 13423 Strengthening Federal Environmental, Energy, and Transportation Management, 2007 (72 Federal Register 2763) including Federal Leadership in High Performance and Sustainable Buildings, Memorandum of Understanding (2006), Naval Facilities Engineering Command (NAVFAC) Instruction 9830.1 Sustainable Development Policy (06-09-2003), and U.S. Green Building Council Leadership in Energy and Environmental Design (LEED)-Silver Level Mandatory Requirements for New Construction
- EO 13514, Federal Leadership in Environmental, Energy, and Economic Performance
- EO 11990, Protection of Wetlands, 1977 (42 Federal Register 26961)
- Federal Aviation Administration Order 7400.2 (49 U.S.C § 40103(b)
- Federal Water Pollution Control Act (Clean Water Act [CWA]), 33 U.S.C. §§ 1251-1387
- Federal Wetland Regulations 33 CFR Part 328
- MCO 3500.27A, Operational Risk Management
- MCO 5090.2A, Environmental Compliance and Protection Manual, Chapter 12
- MCAS Yuma Station Order 3710.6I (range regulations for activities scheduled by MCAS Yuma)
- MCAS Yuma Station Order 3750.2 (Aviation Safety Program)
- MCAS Yuma Station Order 3750.2D (Pre-mishap Plan)
- National Historic Preservation Act (NHPA) of 1966 as amended, 1994 (16 U.S.C. §§ 470-470x-6)
- National Register of Historic Places (NRHP), 1977 (36 CFR Part 60)
- Native American Graves Protection and Repatriation Act (NAGPRA) (P.L. 101-601; 25 U.S.C. §§ 3001-3013)
- Office of the Chief of Naval Operations (OPNAV) 3500.39A, Operational Risk Management
- Pollution Prevention Act of 1990 (42 U.S.C. §§ 13101-13109)
- Porter-Cologne Water Quality Control Act of 2010 (California Water Code Division 7)
- Resource Conservation and Recovery Act (RCRA), 1976 (42 U.S.C. §§ 6901-6992k)
- Sikes Act (16 U.S.C. §§ 670-670f, 74 Stat. 1052), as amended, P.L. 86-797, approved 15 September 1960
- State of California Water Resources Control Board Order No. 2009-0009-DWQ National Pollutant Discharge Elimination System General Permit No. CAS000002 Waste Discharge Requirements for Discharge of Storm Water Runoff Associated with Construction and Land Disturbance Activities
- Wild Free-Roaming Horses and Burros Act of 1971 (16 U.S.C. §§ 1331-1340), P.L. 92-195, approved 15 December 1971

1.8 ORGANIZATION OF THIS LEIS

Chapter 1.0 has provided a description of the purpose of and need for the action as well as other introductory background information. Chapter 2.0 describes the proposed action and alternatives, including the no-action alternative. The affected environment is addressed in Chapter 3.0. Chapter 4.0 reports the projected environmental effects of the CMAGR renewal alternatives, and management actions to mitigate the effects of these alternatives. The cumulative effects of the alternatives when added to other past, present, or reasonably foreseeable future actions are addressed in Chapter 5.0. Chapter 6.0 summarizes the consultation and coordination processes, including agency and public outreach for public scoping and for seeking input on the Draft LEIS so that public comments are included in the Final LEIS. Chapter 7.0 includes a list of preparers, contributor, and reviewers, and Chapter 8.0 provides a list of references used in the preparation of the LEIS. The appendices include the CMLWOA, the NOI to prepare this LEIS, the methodology for characterizing the military surface use footprint at the CMAGR, a description of ordnance, the record of non-applicability for Clean Air Act conformity, a cultural resources Programmatic Agreement, summary of tribal consultation, photos of Key Observation Points, and an index.

2. DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

The DoN has determined that there is a continuing need for the CMAGR to support Marine Corps and DoN aviation combat training, Marine Corps and NSW land combat training, and other national defense activities beyond the expiration of the current range land withdrawal in October 2014. Four alternative actions for keeping the CMAGR available to support training were developed in consideration of comments received from the public, Native American tribes, and government agencies during scoping on the proposed renewal of the CMAGR land withdrawal. These four action alternatives and the no-action alternative of allowing the current land withdrawal to expire in October 2014 are described in this chapter. Detailed descriptions of the four action alternatives and the no-action alternative follow in Sections 2.2 through 2.6. Alternatives considered but not carried forward for detailed study are identified in Section 2.7. Section 2.8 provides a comparison of the projected environmental effects of each of the action alternatives and the no-action alternative.

Each of the four action alternatives addresses four elements:

- A proposed range boundary and land withdrawal area
- Either a set duration for the proposed land withdrawal with an option for requesting a subsequent renewal, or a land withdrawal without a termination date
- Proposals for redefining DoN and BLM management responsibilities for the CMAGR
- Provisions for the disposal and management of land released from the CMAGR

As explained in Section 1.3, the assessments of the continuing military need for the CMAGR and the suitability of the range boundary for safeguarding the public from hazardous training operations and deterring inadvertent trespass led to proposals to realign the CMAGR boundary in four locations—two short realignments on the eastern side of the range, a long realignment on the northern side of the range, and a long realignment on the southwestern side of the range (see Figure 1-7). The two long realignments, one along the Bradshaw Trail at the northern end of the range and one along the UPRR at its southwestern end, would affect a combined total of about 66 miles of the existing 171-miles-long CMAGR perimeter. Two proposals for realigning the boundary along the Bradshaw Trail—either a full or partial realignment—have been developed, and one proposal is offered for realigning the boundary along the UPRR. More details on all four realignment alternatives are provided below in the descriptions of range renewal Alternatives 2 through 4.

Realignment of the CMAGR boundary at all four proposed locations, including either the full or partial Bradshaw Trail alternatives, is proposed by the DoN to best fit the management and operational requirements of the range. However, the benefits to be gained from the proposed realignments would be functionally independent from each other. Each realignment would be of value if enacted either alone or in combination with other realignment proposals. Although other combinations of the four realignment proposals would be possible, the alternatives address four possibilities for the range boundary and land withdrawal area. These options, which vary from implementing no boundary realignments to implementing all four realignment proposals, include:

- Renew the CMAGR boundary and land withdrawal area without change from the existing condition (Alternative 1—no realignment option)

- Renew the CMAGR boundary and land withdrawal area per the existing conditions except incorporate the full Bradshaw Trail, UPRR, and south of Niland-Blythe Road realignments (Alternative 2—maximum realignment option)
- Renew the CMAGR boundary and land withdrawal area per the existing conditions except incorporate the full Bradshaw Trail and south of Niland-Blythe Road realignments (Alternative 3—intermediate realignment option)
- Renew the CMAGR boundary and land withdrawal area per the existing conditions except incorporate the partial Bradshaw Trail realignment (Alternative 4—minimum realignment option)

Three options are proposed for administering federal land management responsibilities for the DoN and BLM lands within the current CMAGR boundary and for BLM land that may be included in the range for the first time as a part of a proposed boundary realignment. The options include:

- Retain the existing DoN and BLM management assignments within the renewed CMAGR, which provide that the DoN is responsible for managing DoN land in accordance with the Sikes Act and the BLM is responsible for managing BLM land in accordance with the FLPMA (Alternative 1—existing condition)
- Transfer management responsibility for BLM land within the renewed CMAGR to the DoN for the duration of the land withdrawal, which would make the DoN responsible for managing both the DoN and withdrawn BLM lands within the range in accordance with the Sikes Act (Alternatives 2 and 4)
- Transfer jurisdiction for the BLM land within the renewed CMAGR to the DoN, which would make the DoN responsible for managing all land within the range in accordance with the Sikes Act until such time that the need for the range may end and it is deactivated and closed (Alternative 3)

Three alternatives—20 years (Alternative 1), 25 years (Alternatives 2 and 4), and indefinite (Alternative 3)—are also proposed for the duration of a renewed CMAGR land withdrawal. A withdrawal duration of 20 years would be equivalent to the existing condition provided by the CMLWOA. The 25-year duration would be consistent with that provided by Congress for the nearby BMGR and five other DoD ranges in the MLWA of 1999. A 25-year or indefinite duration would best fit the expected long-term military need for the CMAGR.

The boundary realignment and land withdrawal area proposals of Alternatives 2, 3, and 4 would each release some BLM a nd DoN land from the CMAGR. Alternatives considered for the disposal and management of land released from range include:

- Released DoN land would be transferred to BLM; BLM would manage transferred DoN and formerly withdrawn BLM land per FLPMA (Alternative 2)
- Released DoN land would be disposed of through existing General Services Administration (GSA) authorities and procedures; DoN would manage released land per the Sikes Act until disposal is complete and BLM would manage formerly withdrawn BLM land per FLPMA (Alternatives 3 and 4)

Table 2-1 shows how the four elements—boundary alignment and withdrawal area, withdrawal duration, agency management responsibilities, and disposal and management of released land—for the proposed renewal of the CMAGR would be allocated among the four renewal alternatives. A summary of the no-action alternative is also included in Table 2-1.

Each of the action alternatives provides a set of range renewal elements that in aggregate is unique to that alternative. Although the four action alternatives do not include all possible combinations of the range renewal elements, the action and no-action alternatives combined represent the reasonable range of alternatives as indicated by the continuing military need for the range, government and public input received during scoping, and guidance provided by the CMLWOA. If Congress decides to renew the CMAGR land withdrawal based on the alternatives presented in this LEIS, it will have the option of four range boundary alignment alternatives, three land withdrawal duration alternatives, three management responsibility alternatives, and two land disposal and management responsibility alternatives. Analysis of the action and no-action alternatives will disclose the full spectrum of environmental consequences that may result from any potential combination of the range renewal or non-renewal options.

In accordance with the guidance provided by 43 CFR Part 2300 for processing applications for national defense land withdrawals of more than 5,000 acres in aggregate, the Director of the BLM has the responsibility of reviewing the application case file, which will include the land withdrawal application, LEIS, and all other relevant studies and information, and forwarding his recommendations regarding the appropriate action to the Secretary of the Interior. The Secretary of the Interior, in turn, has the responsibility of reviewing the Director's recommendations and the case file, and transmitting proposed legislation for the land withdrawal to Congress along with his recommendations on the appropriate course of action. The LEIS will provide the Director and the Secretary of the Interior with four defined land withdrawal alternatives for renewing the CMAGR. The analysis provided in the LEIS of this range of action alternatives will also provide the Director or the Secretary of the Interior with the documentation of potential environmental effects necessary to recommend a combination of range renewal elements in the proposed legislation that differs from those combinations represented in the LEIS alternatives. Neither the Director or the Secretary of the Interior have the authority to deny the proposed CMAGR land withdrawal or to defer forwarding proposed legislation for the land withdrawal to Congress, but they may express any objections that they may have with the proposed range renewal in their recommendations. The Secretary of the Navy also has the option of providing Congress with his recommendations for the proposed range renewal should they differ from those of the Secretary of the Interior.

As the decision-making authority for the proposed range renewal, Congress may choose to either renew or not renew the range. If Congress decides to renew the range, it may select some or all of the terms identified for one of the four action alternatives, select terms from among two or more of the alternatives, or choose terms from one or more of the alternatives plus include new terms that are in addition to those provided by this Draft LEIS.

Some of the alternatives would influence the range boundary and thus the amount of land to be included in the CMAGR or released from the range. Congress will decide the extent to which the boundary would be realigned, if at all. The approximate acres of land that would be either included in or released from the CMAGR if the boundary realignments are implemented as proposed in Alternatives 2, 3, and 4 are summarized in Table 2-2. The acres of land that would be included in and/or released from the CMAGR would vary from the figures provided in Table 2-2 depending on the boundary that Congress decides to implement, but the table lists the range of boundary options being proposed for consideration in range renewal Alternatives 1 through 4.

Table 2-1 Summary of Alternatives for Renewing the CMAGR

Action Element	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Boundary Alignment and Withdrawal Area	Boundary and withdrawal area would remain unchanged from current condition	Boundary and withdrawal area would be changed to incorporate the full Bradshaw Trail, UPRR, and Niland-Blythe Road realignments	Boundary and withdrawal area would be changed to incorporate the full Bradshaw Trail and Niland-Blythe Road realignments	Boundary and withdrawal area would be changed to incorporate the partial Bradshaw Trail realignment	No action taken, withdrawal expires in October 2014, and range would be closed; boundary would no longer define an active range, but would demarcate a post-range planning and cleanup area
Duration of Range Renewal	BLM land within CMAGR boundary would be withdrawn and reserved for 20 years	BLM land within CMAGR boundary would be withdrawn and reserved for 25 years	Authorization for CMAGR would not expire	Same as Alternative 2	CMAGR would not be renewed
Assignments for CMAGR Management Responsibilities	Would be unchanged from current condition; DoN would manage DoN land per Sikes Act and BLM would manage withdrawn BLM land managed per FLPMA	Responsibility for managing withdrawn BLM land would be transferred to DoN; DoN would manage DoN and BLM lands per Sikes Act	BLM land would be transferred to DoN; DoN would manage all CMAGR land per Sikes Act	Same as Alternative 2	All DoN and withdrawn BLM land would be released from CMAGR; DoN would continue to manage DoN land per Sikes Act until disposition of DoN land determined; BLM would manage BLM land managed per FLPMA; DoN would be responsible for any needed post-range cleanup
Disposal of and Management Responsibilities for Land Released from CMAGR	No land would be released	Released DoN land would be transferred to BLM; BLM would manage transferred DoN and formerly withdrawn BLM land per FLPMA; DoN would be responsible for any needed post-range cleanup	Released DoN land would be disposed of through existing GSA authorities and procedures; DoN would manage released land per Sikes Act until disposal complete; BLM would manage formerly withdrawn BLM land per FLPMA; DoN would be responsible for any needed post-range cleanup	Same as Alternative 3	DoN would continue to manage closed DoN range land per Sikes Act until disposition of DoN land determined; BLM would manage formerly withdrawn BLM land managed per FLPMA; DoN would be responsible for any needed post-range cleanup

Table 2-2 Land Areas Affected by CMAGR Alternatives

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5 No-Action Alternative
Land Area to be Included in CMAGR (in Acres)					
BLM-administered Land	228,465	238,724	226,822	226,825	0
Reclamation-administered Land	162	162	162	162	0
DoN Land	229,903	229,256	229,256	229,256	0
State Land	0	668	10	0	0
Private Land[1]	0	455	455	0	0
Total CMAGR Area	458,530	469,265	456,705	456,243	0
Land Area to be Released from CMAGR (in Acres)					
BLM-administered Land	0	2,174	2,174	1,640	228,465
Reclamation-administered Land	0	0	0	0	162
DoN Land[2]	0	647	647	647	229,903
Total	0	2,821	2,821	2,287	458,530

[1] Affected private properties could potentially be acquired by the DoN at a later date through existing administrative authorities for real estate acquisition.

[2] About 5 percent of the DoN land currently in the CMAGR is former California state land that was acquired in fee by the DoN. California holds reversionary rights to the former state land that would have to be addressed should affected DoN parcels be slated for transfer or disposal under Alternatives 2, 3, 4, or 5.

2.2 ALTERNATIVE 1

Alternative 1 would generally maintain the status quo of the CMAGR land withdrawal and reservation by proposing to continue almost all the provisions of the CMLWOA. The range would be reserved for the same military purposes as provided by the CMLWOA, which again would include testing and training for aerial bombing, missile firing, tactical maneuvering and air support, and other defense-related purposes consistent with these military purposes. The other features that would define the withdrawal, management, and use of the CMAGR under Alternative 1 would include (1) the proposed boundary of the range and the lands withdrawn, (2) the duration of the land withdrawal, (3) agency responsibilities for managing the withdrawn range, and (4) continuing military land use at the range.

2.2.1 Proposed Range Boundary and Lands Withdrawn

The CMAGR would be renewed by withdrawing the same public lands as are included in the current land withdrawal for the range (see Figure 1-2). The boundary and land area of the range would both be unchanged from the current condition (Table 2-1 and Table 2-2).

2.2.2 Proposed Duration of the Land Withdrawal and Option for Subsequent Renewal

The duration of the withdrawal is proposed to be 20 years with the option to request a subsequent renewal if a continuing military need for the range is identified as the end of the withdrawal term is approached. The proposed duration would be the same as provided by the CMLWOA (P.L. 103-433 § 806). A proposed provision to allow a request for a subsequent renewal of the range is consistent with both the CMLWOA and the MLWA of 1999 and reflects the long-term outlook for military aircrew training needs. The anticipated service lives of the new F-35 and MV-22 aircraft, which will become the mainstays of Marine Corps aviation over the next decade, will likely exceed the approximately four decades of service that their predecessor aircraft have provided. Multi-decadal service lives are expected of all new military aircraft fleets. Commensurate with these long service-life expectations must be the continuing availability of training range support.

Should use of the CMAGR be terminated at the expiration of the proposed land withdrawal and reservation, a process for assessing the environmental conditions of closing range lands would trigger planning requirements for the future disposition of the BLM and DoN lands in the range. Because existing statutory and regulatory processes for addressing potential contaminants within the existing range require consideration of numerous factors, the nature and extent of future remediation activities or response actions is highly speculative. The current DoD program for the evaluation and cleanup of closed former range lands is the Munitions Response Program (MRP) under the Defense Environmental Restoration Program (DERP). For the purposes of this LEIS, the U.S. Marine Corps (USMC) assumes that the MRP and DERP or similar programs would continue into the foreseeable future.

Under the MRP, closed former range lands are evaluated and scored using the Munitions Response Site Prioritization Protocol (MRSPP). The MRSPP score reflects the relative potential for the site to be a danger to human health and the environment. The MRP process is driven by a number of policy and guidance documents that are consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). In accordance with CERCLA, the DoN and BLM closed former range lands would undergo a preliminary assessment (PA) and site investigation (SI)[1]. For locations where it is appropriate, a Remedial Investigation/Feasibility Study (RI/FS) would analyze various appropriate remedial alternatives for any munitions and explosives of concern (i.e., no action, destruction in place, removal, etc.). The analyses would take into account the various unique aspects of the property and contaminants as well as potential response costs. Funding for decontamination of CMAGR lands would be subject to Congressional authorization and project prioritization across USMC and DoN facilities.

2.2.3 Proposed Management Provisions

Alternative 1 proposes to continue the provisions of the CMLWOA for managing the withdrawn public lands in the CMAGR (P.L. 103-433 § 805). Under these provisions, the Secretary of the Interior, acting through the BLM, would manage the roughly 50 percent of the range that is composed of withdrawn public lands in accordance with FLPMA and consistent with guidance provided by the CMLWOA (P.L. 103-433 § 805). Key features of the CMLWOA provisions include the stipulations that nonmilitary use and public visitation of the withdrawn lands be permitted only to the extent that these actions would be compatible with the military purposes of the CMAGR. The nature of those purposes are and would continue to be of sufficient hazard to public safety that public visitation and other nonmilitary uses of the range have not and would not in the foreseeable future be allowed.

The principal challenges related to managing the CMAGR in accordance with CMLWOA guidance have been twofold. First, the same military use hazards that curtail public visitation and other nonmilitary uses of the range also greatly limit access for BLM resource managers. Second, resource management prescriptions can be constrained by the alternating mosaic of BLM and DoN land jurisdictions (see Figure 1-2) and the differing management responsibilities that accompany these jurisdictions (see

[1] A PA is designed to determine, based on limited data, whether a site poses little or no threat to human health and the environment or if it does pose a threat, whether the threat requires further investigation. PA investigations collect readily available information about a site, its surrounding area, and sites requiring assessment for possible response actions. If the PA results in a recommendation for further investigation, a SI is performed. A SI provides the data needed for Hazard Ranking System (HRS) scoring and documentation to determine if the site should be added to the National Priorities List, which guides the EPA in determining which sites warrant further investigation. SI investigators typically collect environmental and waste samples to determine what hazardous substances are present at a site. They determine if these substances are being released to the environment and provide an initial assessment of the extent of the release. The Remedial Investigation serves as the mechanism for collecting data to characterize site conditions; determine the nature of the waste; assess risk to human health and the environment; and conduct treatability testing to evaluate the potential performance and cost of the treatment technologies that are being considered. The Feasibility Study is the mechanism for the development, screening, and detailed evaluation of alternative remedial actions.

Table 1-1 and Section 1.5). As prescribed by law, the roughly 50 percent of the CMAGR that is composed of DoN lands is managed in accordance with the Sikes Act. As a result, roughly every other section of land in the CMAGR checkerboard of land jurisdictions is managed alternatively by either the BLM or the Marine Corps, acting for the DoN, in accordance with either FLPMA or the Sikes Act, respectively. Further complicating the management issue is a Sikes Act provision that requires DoD agencies to develop resource management plans for all lands within a military reservation whether the lands are under the full jurisdiction of the agency or are withdrawn public lands, while the BLM manages in accordance with its own resource management plan.

2.2.4 Continuing Military Land Use

Renewal of the CMAGR would authorize military use to continue for at least the duration of the renewal. The prognosis for future military land use at the range would be the same regardless of whether Alternative 1, 2, 3, or 4 were selected as the instrument for its renewal and management. The forecast for most military land use at the CMAGR is that the current facilities and configuration of the range would be able to support most new training mission requirements for the foreseeable future and that the overall pattern of use would be unlikely to substantially change from the current pattern. This is not to say that evolving training requirements would not result in new range land uses being introduced or existing uses being modified or discontinued. Potential future changes in military land use may include development of new targets; areas for training or support activities that do not involve live-fire, electronic instrumentation, roads, or other facilities in appropriate locations; or discontinued use of existing facilities. Overall, however, a description of the existing military land use at the CMAGR, which is presented below, would provide a reliable accounting of the great preponderance of land use patterns that would likely occur if the range were renewed in accordance with Alternative 1, 2, 3, or 4.

As at any large and long-serving live-fire range, the pattern of military land use at the CMAGR has developed over many decades through planning processes that sought to address the various demands and constraints of training missions, geography, airspace, and safety requirements. Training aircrews to deliver air-to-ground ordnance is the mission that has most influenced how the CMAGR has been shaped. Ground-based training activities have had a historically lesser but nevertheless important role in shaping range land use.

The aircrew training mission requires opportunities to employ the aircraft weapons in a manner that reflects their use in actual combat. Supporting this training at the CMAGR has long meant providing an assortment of realistic appearing targets in diverse settings that allow aircrews to practice attacks using warfighting tactics. When coupled with other factors that affect target placement and allowable ordnance delivery practices, the result is an array of individual targets and target complexes that is widely distributed (see Figure 1-5). Airspace and safety considerations have strongly influenced target placement. Targets must be positioned and ordnance must be delivered in such a manner that projectiles, fragments, debris, and other components resulting from the firing, launching, or detonation of the weapon are at all times contained within the restricted airspace and land area of the CMAGR. As a result, most targets are located away from the perimeter of the range. Restrictions are placed on both the type of ordnance and the method and direction of its delivery that can be employed on targets near the range perimeter to ensure that the delivery is safely contained.

Terrain has also affected the locations selected for targets and other training support features. Although interrupted by broad, low passes and canyons in a few places, the Chocolate Mountains generally form a rugged and sharply-sloped backbone running roughly down the southeast-to-northwest centerline of the CMAGR. Targets and other features are grouped in tactically realistic positions along the base of these mountains, in mountain passes, and on the surrounding plains. Training features have not been located on upper mountain slopes, which are too steep for vehicular access needed to establish the targets.

The R-2507N, R-2507S, and R-2507E airspaces can be scheduled concurrently by one unit so that the entire CMAGR can be used for a training evolution. Alternatively, the R-2507N, R-2507S, and R-2507E airspaces are large enough so that the range can be subdivided into northern and southern segments to support simultaneous but independent training flights. While R-2507N may be scheduled by itself, R-2507S and R-2507E are always scheduled together as a unified block of airspace and range land. When the northern and southern segments are scheduled separately, a 5 nautical mile (NM)[2] wide buffer zone is activated that straddles their common boundary to ensure safe separation of flights that are operating independently. The buffer zone may not be penetrated by aircraft or aircraft munitions when it is in effect.

R-2507N, R-2507S, and R-2507E can also be stratified vertically to form blocks of high and low airspace that can be scheduled separately from each other to support independent training activities. The low airspace extends from the surface to 6,000 feet MSL and the high airspace has a floor of 7,000 feet MSL and a ceiling of 40,000 feet MSL. Both the high and low airspace must be scheduled for live-fire training that requires ordnance releases above 6,000 feet MSL. The airspace from 6,000 to 7,000 feet MSL is included when the high and low blocks are scheduled together. If the northern and southern segments of the CMAGR and the high and low airspace block are all activated, the range can be separated into four sub-areas that can each support independent training activities.

2.2.4.1 Ground-Based Training Support Features

Chapter 1 identifies the types of training support features that have been established at the CMAGR. A description of these features follows.

- Air-To-Ground Targets. A total of 29 separate target areas are available at the CMAGR for training aircrews to deliver air-to-ground ordnance. Fourteen target areas are located within the area of the range underlying R-2507N and 15 are located under R-2507S (see Figure 1-5). No targets underlie R-2507E but this airspace is used to support aircraft involved in ground attack training at R-2507S. Each target area includes a variety of simulated enemy positions, vehicles, and other tactical features such as airfields and industrial sites. One of the target areas in R-2507N is an improved conventional munitions[3] (ICM) range. The Mount Barrow target area in the southeasternmost corner of R-2507S is reserved for helicopter aircrew training because its location is the closest part of the CMAGR to MCAS Yuma, which maximizes the training time available to the aircrew by minimizing enroute flight time to and from the range. Helicopter aircrews also engage their targets at much closer distances than do aircrews of fixed-wing aircraft. The necessity of working in close proximity to the target favors the use of helicopters at Mount Barrow because of the proximity of this target area to the R-2507S airspace perimeter. Helicopter aircrews are able to safely and realistically direct fires on this target complex without risking ordnance impacts that spill-out of either R-2507S or the CMAGR.

  Range standard operating procedures describe which type of ordnance may be utilized on each target array. The use of live high-explosives ordnance is limited in R-2507N to targets that are generally located north of the Chocolate Mountains (see Figure 1-5). Inert practice ordnance can be used on all targets in R-2507N. High explosive ordnance deliveries (aircraft delivery or artillery) throughout the CMAGR are currently limited to the hours of 6:00 a.m. to 10:00 p.m. Pacific Time (California local time) for off-range noise abatement purposes. Combat tactics may lead an aircrew to attack a target with either a single bomb or with multiple bombs in a single

[2] A unit of distance commonly used in aeronautical and marine navigation that is equivalent to one minute of latitude. One nautical mile equals 6,076.1 feet or 1.852 kilometers or approximately 1.15 statute miles.

[3] Munitions characterized by the delivery of two or more anti-personnel or anti-materiel and/or anti-armor submunitions by an artillery warhead or projectile.

pass. Training for multiple-bomb attacks is supported at the CMAGR but limits have been established for drops of live high-explosives ordnance. The limits are defined as the maximum net explosive weight of all the ordnance combined that can be dropped per aircraft pass. The limits are:

- Twelve MK-82 (500-pound) general purpose bombs
- Six MK-83 (1,000-pound) general purpose bombs
- Four MK-84 (2,000-pound) general purpose bombs

When a combination of the MK-82, MK-83, or MK-84 bombs are dropped, the maximum net explosive weight limit an aircraft can drop in a single pass is 6,000 pounds (MCAS Yuma 2010).

- Forward Arming and Refueling Points. A FARP is a pre-designated site at the CMAGR that is used to rearm and refuel helicopters or MV-22 aircraft. The ground units that perform the FARP mission can access each of the six designated FARPs by road. Each FARP is located and sized to provide space for landing and takeoff operations, positioning for rearming and refueling vehicles and stores, other associated activities such as perimeter defense or air communications, and bivouacs for ground personnel.
- Landing Zones. A landing zone is a pre-designated site at the CMAGR that is approved for use by helicopters or tilt-rotor aircraft. There are 15 approved landing zones at the CMAGR of which six are at the designated FARPs (see Figure 1-5). MV-22s are restricted to the 15 landing zones that have been environmentally assessed and cleared to support training with this aircraft. Helicopters may operate at these landing zones or may land and takeoff from any other suitable CMAGR location.
- Artillery Firing Areas. Artillery firing areas are pre-designated CMAGR locations from which artillery may be fired. There are nine artillery firing areas in R-2507N and one in R-2507S (see Figure 1-5).
- Observation Posts. Observation posts are pre-designated CMAGR locations from which ground-based FACs can control aircraft and direct ordnance deliveries in support of ground troops. R-2507N and R-2507S provide nine and four observation posts, respectively (see Figure 1-5). All of these observation posts are approved for the operation of ground-based lasers for designating targets for aircraft (MCAS Yuma 2010, Station Order 3710.6I, paragraphs 4005.1 2.e and 4005.3 2.f).
- Unmanned Aircraft Systems Operating Site. A previously disturbed site in R-2507N has been developed for UAS operations (see Figure 1-5). The site has an approximately 1,000-foot by 75-foot dirt runway, a 100-foot by 50-foot maintenance pad, and a 100-foot by 50-foot launch pad. Marine Corps units may bivouac at the UAS site provided logistical support for portable toilets, trash, waste water, and other requirements is arranged.
- Field Ammunition Supply Point. A field ASP is located in R-2507N near the UAS operating site (see Figure 1-5). The ASP is used for safely storing ammunition used by ground units, such as artillery units that fire within the CMAGR, and distributing it to them as it is needed for training. Ordnance is only stored in the ASP when units requiring the munitions are in the field. Armed guards are posted at the supply point whenever ammunition is present.
- Special Warfare Training Areas SWAT-4 and SWAT-5. Marine Corps range support for NSW land combat training is provided at SWAT-4 and SWAT-5, which are each overlain by the Niland and Bombay CFAs (see Figure 1-5). The CFAs provide the special use airspace necessary to allow live-fire of small arms and other infantry weapons. Live-fire exercises are integral to the realism and quality of NSW training. NSW forces train at 30 designated ranges in SWAT-4 and

SWAT-5 to develop a variety of land combat skills. Training activities include special reconnaissance, small arms marksmanship and dynamic shooting with pistols, automatic and sniper rifles, machine guns, rifle and hand grenades, live fire and movement/maneuver training, and training with various static and projectile explosives.

- Camp Billy Machen. Camp Billy Machen is a Naval Special Warfare Group 1 (NSWG-1) training camp located in SWAT-4 (see Figure 1-5). This developed installation provides spaces for administrative, communications, instructional, billeting, maintenance, supply, and other functions that support NSWG-1 and Naval Special Warfare Center land warfare training.

- Range Roads. There are about 482 miles of roads in the CMAGR that are used to support training and range maintenance activities (see Figure 1-5). The conditions of the roads vary from graded dirt surfaces to four-wheel drive tracks; none are paved. Public access to the CMAGR and its road network is prohibited at all times because of the hazards presented by the use of live ordnance and to prevent interruption of military training. However, two roads, the Niland-Blythe Road and Gas Line Road, receive periodic commercial use to service a transmission line and gas pipeline that cross the range through R-2507N. The transmission line roughly parallels the Niland-Blythe Road along its passage through the center of the range but deviates from the road's alignment near the range boundaries. A service road provides access to the transmission line at locations that deviate from the Niland-Blythe Road. Commercial entry to the CMAGR to service these utilities is only on an as authorized basis.

2.2.4.2 Operational Range Clearance Program

Air-to-ground ordnance delivery training and live-fire use of artillery, mortars, and other ground-based weapons at the CMAGR results in the accumulation of ordnance scrap, UXO, and target debris. If left unattended, the accumulation of these materials within designated target impact areas would amass concentrations that could produce safety and environmental issues that could threaten the sustainable use of both individual target areas and, ultimately, the CMAGR itself. In accordance with the CMLWOA (P.L. 103-433 § 807) and until the last several years, the Marine Corps addressed the issue of ordnance and target debris accumulation by continuing a long-running program of periodically clearing expended ordnance and debris from CMAGR targets and roads to the extent necessary to provide personnel conducting target construction and maintenance or performing other authorized duties on the range with safe access and work areas. In 2004, the DoD issued new guidance to further promote the long-term, sustainable use of test and training ranges (DoD Directive 4715.11 Environmental and Explosives Safety Management on Department of Defense Active and Inactive Ranges within the United States). The Marine Corps in turn issued Marine Corps Order (MCO) 3550.12, which establishes operational range clearance programs at its ranges, to implement DoD Directive 4715.11. MCO 3550.12 defines range clearance as

> the destruction or removal and proper disposition of military munitions (i.e., unexploded ordnance (UXO) and munitions debris) and other range-related debris (e.g., target debris and military munitions packaging and crating material) to maintain or enhance operational range safety or prevent the accumulation of such material from impairing or preventing continued operational range use.

Military munitions are identified as including: (1) confined gaseous, liquid, and solid propellants; (2) explosives (including bulk explosives); (3) pyrotechnics; (4) chemical and riot control agents; (5) smokes and incendiaries; (6) rockets; (7) guided and ballistic missiles; (8) bombs; (9) warheads, cluster munitions and dispensers; (10) mortar rounds, small arms ammunition, and grenades; (11) artillery ammunition; (12) mines, torpedoes, and depth charges; (13) demolition charges; and (14) any devices and components of any afore listed item.

In accordance with MCO 3550.12, MCAS Yuma has completed a baseline clearance of each active target area within the CMAGR. The aggregate target area cleared of munitions and other range-related debris during the baseline clearance represents a several-fold expansion of the areas that were formerly cleared under the previous program evolution to provide safe access and work areas for target construction and maintenance. Range clearances were performed by qualified explosive ordnance disposal personnel. The baseline clearance involved:

- The use of demolition charges to destroy munitions, such as live bombs, that are too dangerous for handling and require disposal in place
- On-range collection and processing of munitions that have hazardous components, such as practice bomb with a live smoke-producing spotting charge, but that can be safely handled and rendered safe for removal from the range
- The collection and removal from the range of non-hazardous ordnance scrap, munitions that have been rendered safe and processed for removal, and other range-related debris
- Off-range recycling or sanitary disposal of scrap and debris items that are qualified for these respective processes in accordance with governing regulations and policies

Most baseline clearance actions were limited to the destruction or removal of munitions and other range-related debris from the ground surface in target areas or range access roads. Subsurface clearances were restricted to those locations where it was necessary to mitigate personnel operating risks in a specific area, such as in roadways, target construction sites, or ground personnel training areas.

Operational range clearance at the CMAGR has now evolved into a continuing program to limit the buildup of UXO, ordnance scrap, and target and other range-related debris from range access roads and active target areas. Each of the target areas at the CMAGR have been scheduled for subsequent and reoccurring clearances on 1, 3, or 5 year intervals based on the findings of the baseline clearance, the quantity of ordnance delivered on the target, and the classification of the target as being approved for use with inert training ordnance only or approved for use with live ordnance. Targets that are more heavily used and that receive live ordnance are scheduled to receive more frequent clearances than targets that receive smaller quantities of ordnance or that are limited to use with inert ordnance. The clearance cycle at each target is adjusted as needed to keep it in a safe and sustainable operating condition and to keep expended ordnance and other range-related debris from becoming an environmental concern.

The operational range clearance program would be continued at the CMAGR under Alternative 1.

2.3 ALTERNATIVE 2

Renewal of the CMAGR under Alternative 2 would be the same as described for Alternative 1 in terms of the military purposes of the range, and assigned agency responsibilities for range cleanup should the withdrawal be terminated at the expiration of the renewal term. Alternative 2 would also continue the same military land use, training support features, and operational range clearance program as described for Alternative 1.

The CMAGR renewal actions proposed by Alternative 2 that would differ from those provided by Alternative 1 include:

- The proposed duration would be for 25 years rather than for 20 years.
- The CMAGR boundary would be realigned in accordance with the full Bradshaw Trail, UPRR, and south of Niland-Blythe Road realignments.

- Realignment of the CMAGR boundary would result in up to about 12,433 acres of BLM land that is not currently in the range being incorporated in the range and about 2,174 acres of BLM land and about 647 acres of DoN land that are currently a part of the CMAGR being released from the range (Figure 2-1 and Figure 2-2 and see Table 2-2).
- The first-time inclusion of about 455 acres of private and 668 acres of state land within the authorized boundary of the CMAGR, which would authorize the DoN to pursue existing real estate acquisition authorities to potentially acquire the affected private and state land.
- Authority to manage the withdrawn public lands in the CMAGR would be transferred to DoN. DoN would manage the withdrawn public lands, together with DoN lands, in accordance with the Sikes Act.
- DoN lands that would be released from the CMAGR, as a result of the boundary realignment, would be transferred to the DoI and managed by the BLM in accordance with FLPMA.

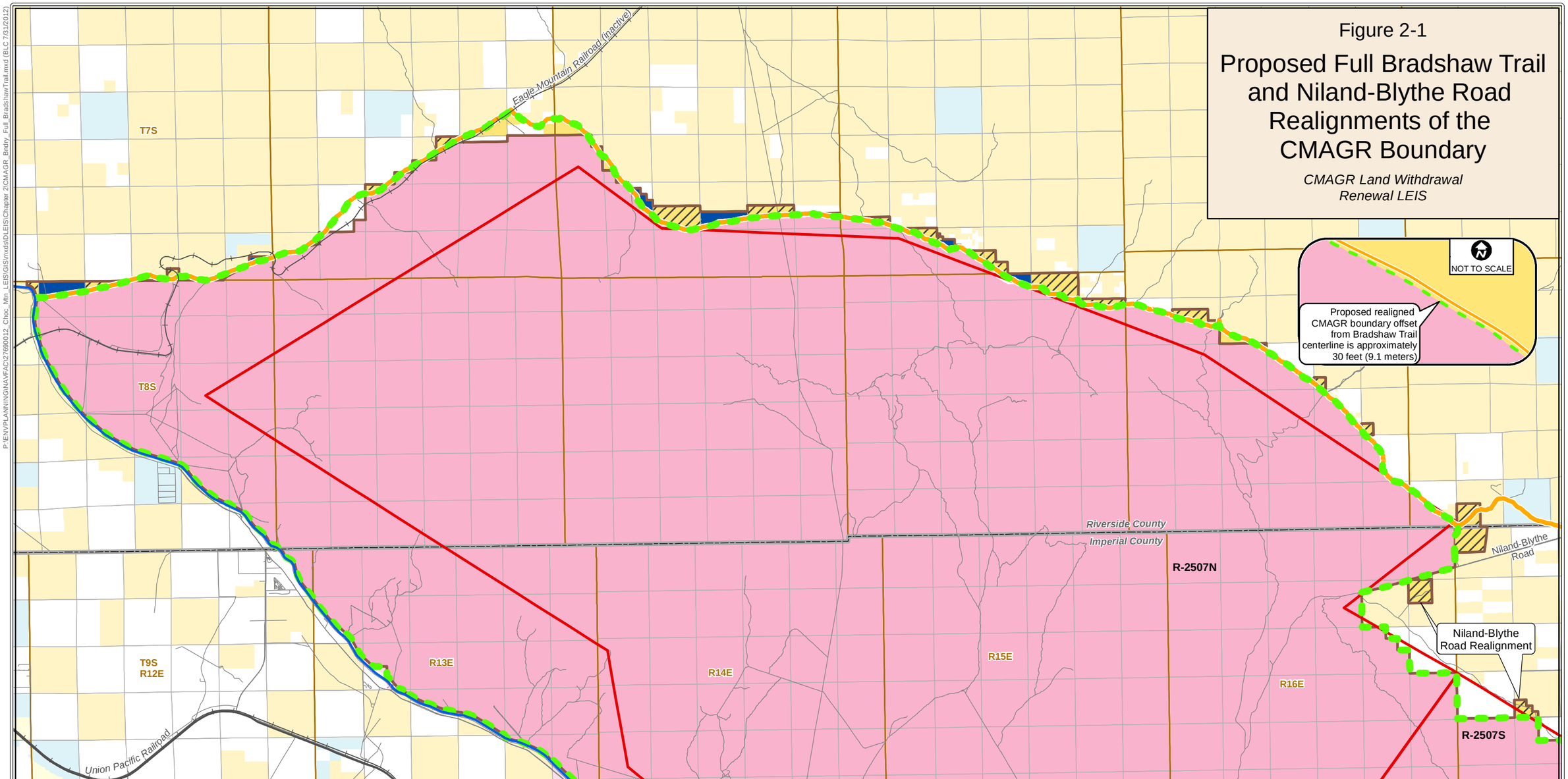
2.3.1 Proposed CMAGR Boundary Realignments and Range Perimeter Lands to Be Withdrawn or Released

If fully enacted, Alternative 2 would implement the full Bradshaw Trail, UPRR, and south of Niland-Blythe Road realignments of the CMAGR boundary (see Figure 2-1 and Figure 2-2). Implementation of all four boundary realignments is proposed by Alternative 2 to release the full amount of land for which there is no continuing military need from the range, and provide the greatest extent of range boundaries with the enhanced capabilities to safeguard public safety and deter inadvertent trespass. Implementing just one or any combination of two or three of these realignments also would be of some benefit, however, as the four realignments are not functionally interdependent and each one would provide independent value. Additional details about each of the boundary realignments proposals follow and acreages associated with each of the boundary realignments are provided in Table 2-3.

Table 2-3 Land Areas to be Added to or Released from the CMAGR by Boundary Realignment Proposals

	Full Bradshaw Trail	UPRR	Niland-Blythe Road	Partial Bradshaw Trail
Land Area to be Added to CMAGR (in Acres)				
BLM-administered Land	530	11,903	0	0
State Land	10	658	0	0
Private Land	455	0	0	0
Total CMAGR Area	995	12,561	0	0
Land Area to be Released from CMAGR (in Acres)				
BLM-administered Land	1,924	0	250	1,640
DoN Land	647	0	0	647
Total Release Area	2,571	0	250	2,287

The south of Niland-Blythe Road realignments would include the release of two parcels totaling about 250 acres of currently withdrawn BLM land in aggregate from the CMAGR and would shorten the range perimeter by about 3.2 miles (see Figure 2-1). Neither of the two parcels are known to have been used as designated target impact areas and likely would eventually become available for non-military reuse subject to BLM management in accordance with the FLPMA following any steps necessary by the DoN to decommission the affected areas as former parts of the CMAGR and acceptance of the land by the Secretary of the Interior.



Legend

- Existing CMAGR Boundary
- Alternative 2 and 3 Proposed CMAGR Boundary
- Bradshaw Trail
- Coachella Canal
- Existing Railroad
- Road
- Restricted Airspace

Surface Management

- Bureau of Land Management
- Bureau of Reclamation
- Military Reservation
- State
- Private
- Department of Navy Land that would not be retained in the CMAGR but would be made available for transfer or disposal
- Bureau of Land Management that would not be Renewed for the CMAGR

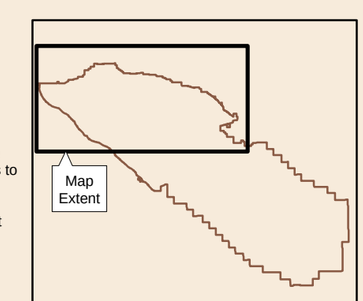
- County Boundary
- Township and Range Boundary
- Section Boundary

Coordinate System: WGS 1984 UTM Zone 11N
Projection: Transverse Mercator
Datum: WGS 1984
Units: Meter

Source:
Range Features: IGI&S 2010 - 2011, YRMD 2010 - 2012
Surface Management: BLM 2011
Base Map: CASIL 2010, ESRI 2010, USGS NHD 2010, BLM 2010

This Map is for Reference Use Only.

Although every effort has been made to ensure the accuracy of the information, errors and conditions originating from physical sources to develop the database may be reflected in the data supplied. The user must be aware of data conditions and ultimately bear responsibility for the appropriate use of the information with respect to the possible errors, original map scale, collection methodology, currency of the data, and other conditions specific to certain data. This information does not depict all possible resources. Field verification of all data is required for site-specific projects. This information is deemed reliable, but not guaranteed.



Map Scale 1:135,000

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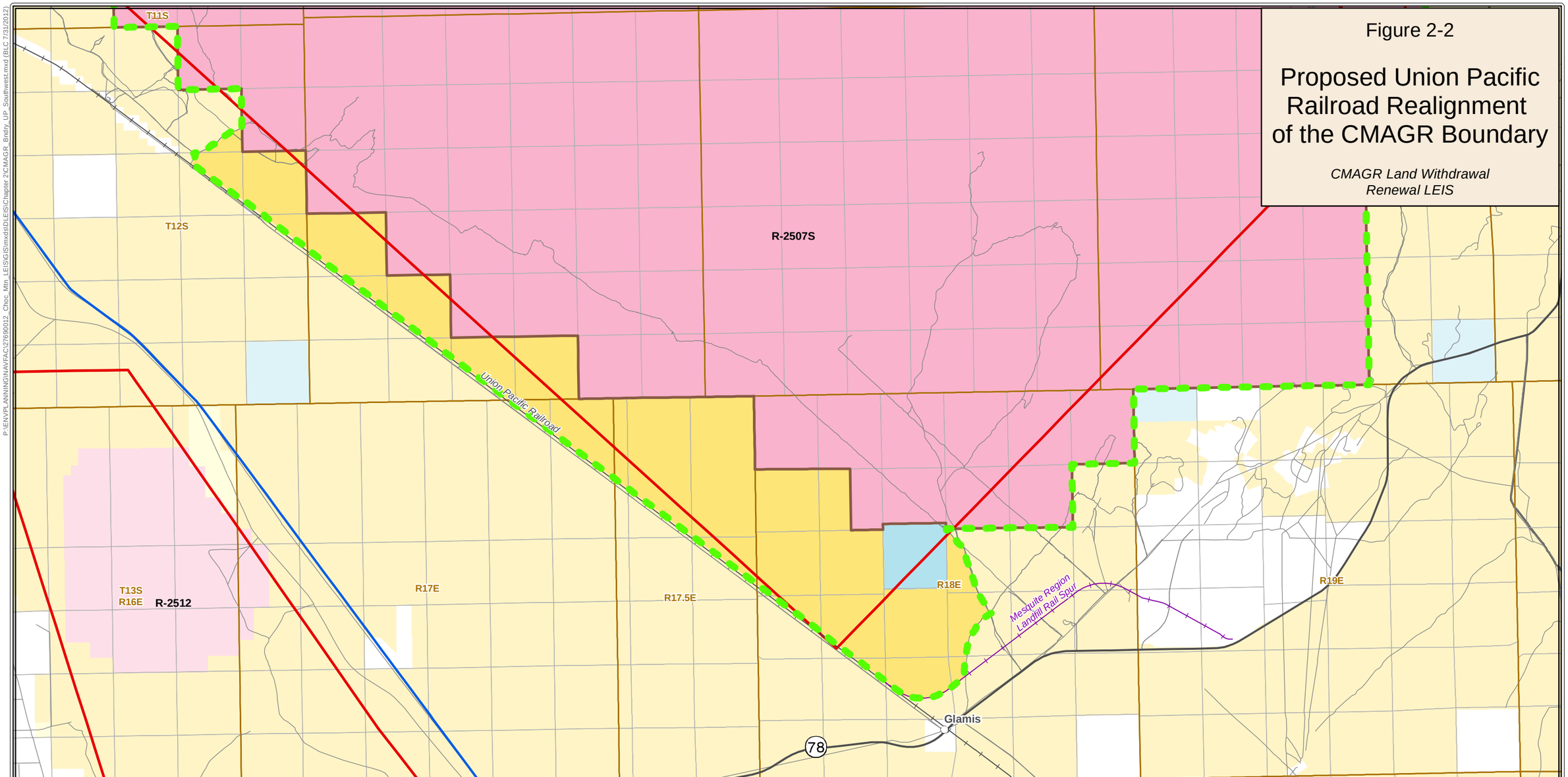

Figure 2-2

Proposed Union Pacific Railroad Realignment of the CMAGR Boundary

CMAGR Land Withdrawal Renewal LEIS

Legend

- Existing CMAGR Boundary
- Alternative 2 Proposed CMAGR Boundary
- Coachella Canal
- Approved Rail Spur
- Existing Railroad
- Restricted Airspace
- City\Town
- Highway
- Road

Surface Management

- Bureau of Land Management
- Bureau of Reclamation
- Military Reservation
- State
- Private

- County Boundary
- Township and Range Boundary
- Section Boundary

Coordinate System: WGS 1984 UTM Zone 11N
Projection: Transverse Mercator
Datum: WGS 1984
Units: Meter

Source:
Range Features: IGI&S 2010 - 2011, YRMD 2010 - 2012
Surface Management: BLM 2011
Base Map: CASIL 2010, ESRI 2010,
USGS NHD 2010, BLM 2010

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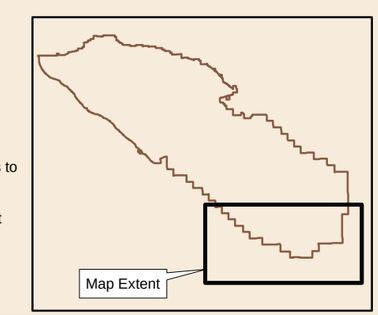


Map Scale 1:100,000

0 1 2 3 4 Miles

0 1 2 3 4 Kilometers

The full Bradshaw Trail realignment would align the CMAGR boundary along the southern side of the trail for the entire 36 miles over which it intersects the range. The intent of the proposed boundary realignment action would be twofold: (1) align the new boundary such that the Bradshaw Trail would be located entirely outside of the CMAGR and (2) align the new boundary close enough to the southern shoulder of the Bradshaw Trail so that the southern margin of the trail is viewed by the public as the northern perimeter of the CMAGR. The range boundary would have to be aligned so that the National Backcountry Byway could continue to be maintained for public off-highway vehicle (OHV) use. This means that the boundary alignment would have to provide sufficient space for the periodic grading and clearing operations that are conducted by Riverside County to keep the road passable for public use. Typical grading and clearing actions that affect road shoulders and adjacent areas include removing flood debris, clearing water drainages, and depositing grading overburden. However, the setback of the range boundary from the Bradshaw Trail should not be sufficient to create public use space on the southern side of the road. In essence, the Bradshaw Trail road corridor would serve as the well-defined and physically visible southern limit of land open to public use along the northern perimeter of the CMAGR.

The final alignment of the CMAGR boundary along the Bradshaw Trail under Alternative 2 would be determined by survey following renewal of the range land withdrawal and in view of the road maintenance and use factors. For the purposes of this LEIS, the alignment of the proposed boundary has been approximated as following an offset 30 feet to the south of the centerline of the Bradshaw Trail as determined from geo-rectified satellite imagery. This boundary approximation, which appears in Figure 2-1, provides an adequate basis for estimating the relative environmental effects of Alternative 2 compared to the other alternatives.

The full Bradshaw Trail realignment would release about 647 acres of DoN land and about 1,924 acres of currently withdrawn BLM land from the range (see Table 2-3). The released DoN and BLM land, which would include all segments of the Bradshaw Trail that are currently on the range, is not needed to support either current or future military activities that require the restricted land and airspace environments of the CMAGR. The full realignment proposal would also result in (1) the first-time withdrawal of about 530 acres of BLM land adjacent to the south side of the Bradshaw Trail that has not previously been included in the CMAGR and (2) the first-time inclusion of about 455 acres of private and 10 acres of state land within the authorized boundary of the CMAGR (see Table 2-3). Alternative 2 would consolidate all federal land adjacent to the south side of the Bradshaw Trail within the range. The realigned boundary would have no direct effect on the ownership or use of included private or state land. Rather, inclusion of private or state land within the external boundary of the CMAGR would authorize the DoN and Marine Corps to potentially acquire the included private and state property through existing real estate acquisition authorities. No military use of the affected private or state land could occur without prior permission from the owner(s) or state or until such time that the property is acquired.

The proposed change at the UPRR would align the range boundary to be contiguous to the eastern side of that railroad's ROW and to be contiguous to the north side of the ROW for the Mesquite Regional Landfill Rail Spur (see Figure 2-2). The boundary realignment would follow existing roads to connect to the existing CMAGR boundary at its northern and southern ends.

The proposed UPRR realignment would add up to about 12,561 acres to the CMAGR as a result of (1) the first-time withdrawal of about 11,903 acres of BLM land that are not currently in the range and (2) the first-time inclusion of about 658 acres of state land within the authorized external boundary of the range (see Figure 2-3). About 52 percent of the additional area that would be encompassed by the realigned range boundary area would be located within the existing lateral boundaries of the R-2507S restricted airspace. The area encompassed by the realigned boundary that would be under the R-2507S restricted airspace would include about 6,138 acres of BLM land and about 438 acres of state land. The area added to the CMAGR as a result of the proposed UPRR realignment could be useful for supporting training

activities such as FARPs, landing zones, or artillery firing positions. No air-to-ground or artillery impact areas would be located in the proposed acquisition area. Private property that would be affected by the boundary realignment would potentially be acquired by the DoN at a later date through the process described for the Bradshaw Trail realignment. State land could not be used for military training or range support purposes unless either title or other use rights to the affected land are first acquired.

2.3.2 Proposed Management Provisions

The natural resource management responsibility for withdrawn public lands in the CMAGR would be transferred from the Secretary of the Interior to the Secretary of the Navy and would span the duration of the range withdrawal. The responsibilities for managing both DoN owned land and withdrawn BLM land in the CMAGR would be delegated to the Marine Corps, which would act locally through the Commanding Officer, MCAS Yuma. The primary statutory authorities and requirements for both DoN and withdrawn BLM lands would be provided by the Sikes Act (16 U.S.C. §§ 670a-670f.). The Sikes Act requires the Secretary of Defense to carry out a program to provide for the conservation and rehabilitation of natural resources on military installations including all public lands withdrawn from all forms of appropriation under public land laws and reserved for use by the Secretary of Defense or the Secretary of a military department.

The purpose of such a program would be to promote the conservation and rehabilitation of natural resources on military installations and the sustainable multipurpose use of those resources. The Sikes Act also requires that lands and natural resources at a military installation must be managed consistent with the military purposes of the installation and ensure no net loss in the capability of military installation lands to support those purposes. In the case of the CMAGR, the primary military purpose is aircrew training, particularly in air-to-ground delivery of ordnance.

The Sikes Act requires the development and implementation of an INRMP, which would be developed in cooperation with the U.S. Fish and Wildlife Service, and California Department of Fish and Game. INRMPs incorporate practices, processes, and procedures to comply with other natural resource laws and regulations including, but not limited to the Endangered Species Act, Clean Water Act, and Migratory Bird Treaty Act. The Sikes Act also requires INRMPs be reviewed as to operation and effect by all cooperating parties frequently and no less often than five years. To support an adaptive management strategy for natural resource management, as well as support of the military mission, the DoN policy is that the INRMP is reviewed annually with the cooperating parties and updated or revised as deemed necessary by these reviews.

2.3.3 BLM and DoN Lands Released from CMAGR

Approximately 2,174 acres of BLM and 647 acres of DoN lands would be released from the CMAGR by Alternative 2 (see Figure 2-1 and Table 2-2). Released BLM land would have no further military function and would subsequently be managed solely by the BLM. The released lands would not be available for appropriation under the public land laws or other public uses as provided by the FLPMA until the Secretaries of the Interior and Navy complete a collaborative assessment of (1) the extent to which these lands may be contaminated with expended ordnance and (2) other environmental conditions of the released lands. Plans for any required cleanup of ordnance or other contaminates would be developed based on the assessment findings, as described for Alternative 1 (see Section 2.2.2). The DoN would be responsible for any post-range cleanup needed as a result of military use. The CMLWOA provided procedures for the Secretary of the Interior to follow in deciding whether or not to accept withdrawn BLM land that may have been relinquished from the CMAGR by the Secretary of the Navy before the expiration of the withdrawal (P.L. 103-433 § 808(d)). Neither the CMLWOA nor the FLPMA, however, provide procedural guidance for the Secretary of the Interior to follow in deciding whether or not to accept former CMAGR land that is no longer needed for continuing military purposes after the

withdrawal provided by the CMLWOA expires. Procedures for the DoI to follow to either accept or not accept BLM land freed from the CMAGR by the expiration of the current land withdrawal would have to be provided by existing federal property law or the subsequent legislation to renew the withdrawal for BLM land for which there is a continuing military need.

The DoN proposes that DoN land that would be released from the CMAGR, as a result of the boundary realignment, would be transferred to the DoI and managed by the BLM in accordance with FLPMA. The extent to which released DoN land may require disposal of expended ordnance or other types of cleanup would be addressed in accordance with an MRP as described in Section 2.2.2.

2.4 ALTERNATIVE 3

Renewal of the CMAGR as proposed by Alternative 3 would continue its current military purposes, land use, training support features, and operational range clearance program. Explanations of these purposes, uses, features, and programs are provided in the description of Alternative 1.

Alternative 3 would implement the full Bradshaw Trail and south of Niland-Blythe Road realignments of the CMAGR boundary (Figure 2-1) and would be the same as described for Alternative 2 in Section 2.3.1, except for the UPRR realignment.

Alternative 3 would provide a third option for assigning agency responsibilities for managing the CMAGR, which differs from those provided by either Alternatives 1 or 2. Alternative 3 would transfer jurisdiction for and interests in the public land in the range from the DoI to the DoN. The transfer would have the effect of consolidating all lands in the range under DoN jurisdiction and eliminating the existing checkerboard of dual jurisdictions. The DoN would manage the range in accordance with the Sikes Act and other applicable laws as described for Alternative 2 (see Section 2.3.3).

The transfer of DoI land to the jurisdiction of the DoN would also have the effect of granting a charter for the CMAGR that would not expire until such time that the DoN determines that there would be no further need for the range and that it should be closed. The unlimited duration of the land withdrawal and reservation that would be provided by Alternative 3 differs from the durations offered by Alternatives 1, 2, and 4, which would all terminate the range after 20 or 25 years unless it is subsequently renewed by Congress for another term. Should the CMAGR be renewed as proposed by Alternative 3, but later terminated after some indefinite period when the military need for the range ends, agency responsibilities for range cleanup would be the same as those described for Alternative 1.

BLM land and DoN land that are currently part of the CMAGR, but would be released from the range under Alternative 3, are the same as those lands that would be released under Alternative 2. Released BLM land would have no further military function and would subsequently be managed solely by the BLM. The DoN would be responsible for any post-range cleanup needed as a result of military use of BLM land. The need for cleanup would be determined as described for Alternative 2.

In contrast to Alternative 2, Alternative 3 would not propose direct Congressional transfer of DoN land to the DoI/BLM but would direct the DoN to dispose of its land that would be released from the CMAGR through existing GSA authorities and procedures. The transfer of the released DoN land to the BLM would be a possible, if not probable outcome, but some or all of the land could potentially be transferred to other federal or non-federal agencies or offered for purchase by private entities. The extent to which DoN land slated for disposal may require disposal of expended ordnance or other types of cleanup would be addressed in accordance with an MRP as described in Section 2.2.2.

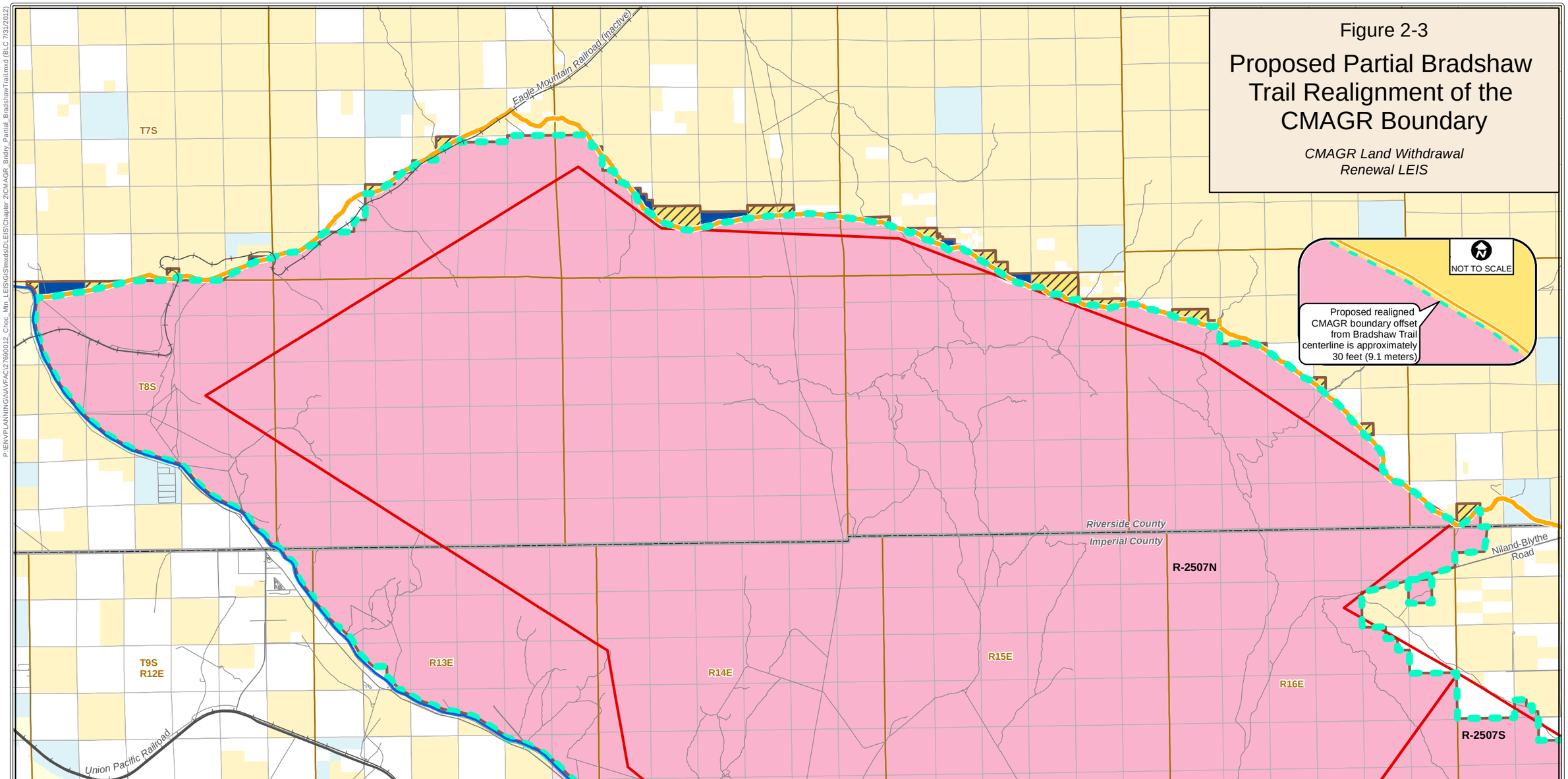
2.5 ALTERNATIVE 4

Renewal of the CMAGR under Alternative 4 would be the same as described for Alternative 1 in terms of the military purposes of the range and assigned agency responsibilities for range cleanup. Alternative 4 would also continue the same military land use, training support features, and operational range clearance program as described for Alternative 1. Like Alternative 2, Alternative 4 would provide a land withdrawal duration of 25 years and would transfer responsibility for managing the withdrawn BLM land to the DoN, which would manage the land in accordance with the Sikes Act.

Alternative 4 would implement the partial Bradshaw Trail boundary realignment, which would affect the alignment of the CMAGR boundary between the eastern entry of the trail to the range and its western exit. The partial realignment would align the range boundary along the southern side of those Bradshaw Trail segments that traverse either DoN land or withdrawn BLM land that is currently part of the CMAGR (Figure 2-3). The CMAGR boundary would not be changed from its existing alignment where the Bradshaw Trail traverses either BLM land that is not currently withdrawn as a part of the range or land that is privately or state owned.

The partial Bradshaw Trail realignment would release about 647 acres of DoN land and about 1,640 acres of currently withdrawn BLM land from the range. The released DoN and BLM land, which would include all segments of the Bradshaw Trail that are currently on the range, is not needed to support either current or future military activities that require the restricted land and airspace environments of the CMAGR. BLM, private, and state lands adjacent to the south side of the Bradshaw Trail that have not previously been included in the CMAGR would remain outside of the range with Alternative 4.

The disposal and future management of DoN and BLM lands released from the CMAGR by the proposed boundary realignments would also occur as described for Alternative 3.



Legend

- Existing CMAGR Boundary
- Alternative 4 Proposed CMAGR Boundary
- Bradshaw Trail
- Coachella Canal
- Existing Railroad
- Road
- Restricted Airspace

Surface Management

- Bureau of Land Management
- Bureau of Reclamation
- Military Reservation
- State
- Private
- Department of Navy Land that would not be retained in the CMAGR but would be made available for transfer or disposal
- Bureau of Land Management that would not be Renewed for the CMAGR

- County Boundary
- Township and Range Boundary
- Section Boundary

Coordinate System: WGS 1984 UTM Zone 11N
Projection: Transverse Mercator
Datum: WGS 1984
Units: Meter

Source:
Range Features: IGI&S 2010 - 2011, YRMD 2010 - 2012
Surface Management: BLM 2011
Base Map: CASIL 2010, ESRI 2010, USGS NHD 2010, BLM 2010

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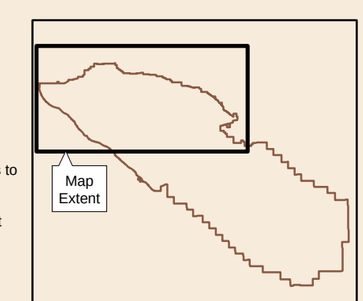

Map Scale 1:135,000

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2.6 ALTERNATIVE 5 (NO ACTION)

Under Alternative 5, Congress would take no action to renew the CMAGR land withdrawal. As a consequence and as provided by the CMLWOA, the current withdrawal of BLM land in the CMAGR would expire at the end of October 2014, the BLM land would no longer be available for military purposes, and the remaining DoN land would not provide an adequate restricted land-base to continue tactical aviation training. From that point forward, the BLM would manage the BLM land in accordance with the FLPMA and the Sikes Act would no longer be applicable to those properties.

If Congress decides not to renew the CMAGR land withdrawal, the Secretary of Defense would have to address the displacement of training and the level of clean-up that is appropriate for the type of future land use. The Secretary of Defense, acting through the DoN, would determine if lands that were once used for training and testing may contain UXO, discarded military munitions (DMM), or munitions constituents (MC).

When an operational DoD range is closed, the eligible closed former range lands are entered into the MRP, and subjected to an evaluation and scoring process using the MRSPP. The MRSPP score reflects the relative potential for the site to be a danger to human health and the environment. The MRP process is driven by a number of policy and guidance documents that are consistent with the CERCLA. In accordance with CERCLA, the DoN and BLM closed former range lands would undergo a PA and SI. The primary goal of the SI is to collect the appropriate amount of information to make the following decisions:

- If an RI/FS is required
- If a response to any hazards is required
- If the site is qualified for no further action

As information becomes available from the site investigation, the MRSPP scores are updated to reflect the most current situation and cost estimates for site completion are refined. For locations where it is appropriate, an RI/FS would analyze various appropriate remedial alternatives for any munitions and explosives of concern (i.e., no action, destruction in place, removal, etc.). The analyses would take into account the various unique aspects of the property and contaminant as well as cost. A final decision document, such as a Record of Decision under CERCLA, would be issued on the remedial action chosen.

At this time, the nature and extent of remediation or response actions is highly speculative. Should Congress decide not to renew the CMAGR land withdrawal, the DoN and BLM closed former range lands would begin MRP evaluation and additional studies would be conducted. Funding for decontamination of CMAGR lands would be subject to Congressional authorization and project prioritization across USMC and DoN facilities.

As previously indicated, a Congressional decision to not renew the withdrawal of BLM land in the CMAGR would have the effect of rendering the range unsuitable for supporting tactical aviation training as it currently occurs. As a result, the Marine Corps and DoN would have to begin planning to determine how and where to train the aviation and other forces that currently use the CMAGR. No preliminary plans or concepts have been developed related to redistributing the training. Consequently, it would not be appropriate to speculate in this Draft LEIS as to how specific Marine Corps and DoN training requirements may be redefined or how units may be directed to other ranges, and, possibly, realigned to other home installations to compensate for the loss of the CMAGR.

Planning would also have to begin to determine the final disposition of the approximately 229,903 acres of DoN land currently in the CMAGR. If the DoN land in the CMAGR were found to have no military purposes, all or some of this land may be found to be surplus by the DoN. The potential subsequent transfer of DoN land to another DoD agency, the BLM, or other government agency, or their potential opening for entry through the operation of the public land laws would be determined by future planning. The uncertainties of the extent of clean-up required and the type of reuse activities make identification of the nature of the planning process highly speculative at this time. The State of California holds reversionary rights for about 11,311 acres of land in the CMAGR that were acquired in fee by the DoN from the state (Figure 2-4). California also holds some or all mineral rights on an additional 10,981 acres of the DoD land. The state's reversionary and mineral rights would become factors in determining the disposition of the affected land.

The Marine Corps would manage the released land in accordance with the Sikes Act and other applicable laws as long as they remain under DoN jurisdiction. The potential for the public to use released land that remains under DoN jurisdiction would have to be determined through planning conducted in accordance with the Sikes Act and to the extent that such use would not be inconsistent with hazards that may be present from UXO.

2.7 ALTERNATIVES CONSIDERED BUT NOT EVALUATED IN DETAIL IN THE LEIS

The Marine Corps evaluated additional potential alternatives for the Proposed Action. During the scoping period (September 24, 2010 through December 23, 2010), the public suggested alternatives for the Marine Corps to consider. The Final Scoping Report (published in March 2011and available on-line at http://www.chocolatemountainrenewal.com/html/documentsmaps.html) provides further details on the scoping process. This section describes alternatives that were considered but not carried forward for detailed analysis in the LEIS, and the rationale for elimination.

2.7.1 Land Withdrawal Durations Shorter than 20 Years

During scoping, Environmental Protection Agency (EPA) Region 9 suggested consideration of a land withdrawal with a duration of 15 years as an alternative to the 25-year duration proposed by the DoN at that time. The EPA recommended that the shorter withdrawal be considered "because ecosystems are now experiencing the effects of climate change, and the cumulative impacts from climate change may combine with training impacts to affect resources in a shorter time frame than has been the case in the past" (EPA 2010). Section 1.4 provides the rationale for a proposed withdrawal duration of 25 years or longer.

In response to the EPA comment, the withdrawal duration proposed by Alternative 1 was shortened from 25 years to 20 years, which is consistent with the current withdrawal duration provided by the CMLWOA. The EPA-recommended duration alternative of 15 years was not selected for detailed consideration because it would not provide a basis for sharply defining the environmental differences among the alternatives. The legacy of military training at the CMAGR since WWII indicates that environmental impacts from range operations have not expanded or compounded through time at appreciable rates. Although climate change might result in the Southwest enduring hotter average temperatures and decreasing average rainfall over the next several decades, these trends cannot be forecasted at this time with the precision necessary to assess how resources might be affected within a 15 year withdrawal. Under Alternatives 2, 3, and 4, the Marine Corps would prepare an INRMP in cooperation with the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG), and update the INRMPs no less than every five years. The INRMP's adaptive management strategy would respond to potential impacts from climate change over a shorter time frame and is consistent with the EPA comment.

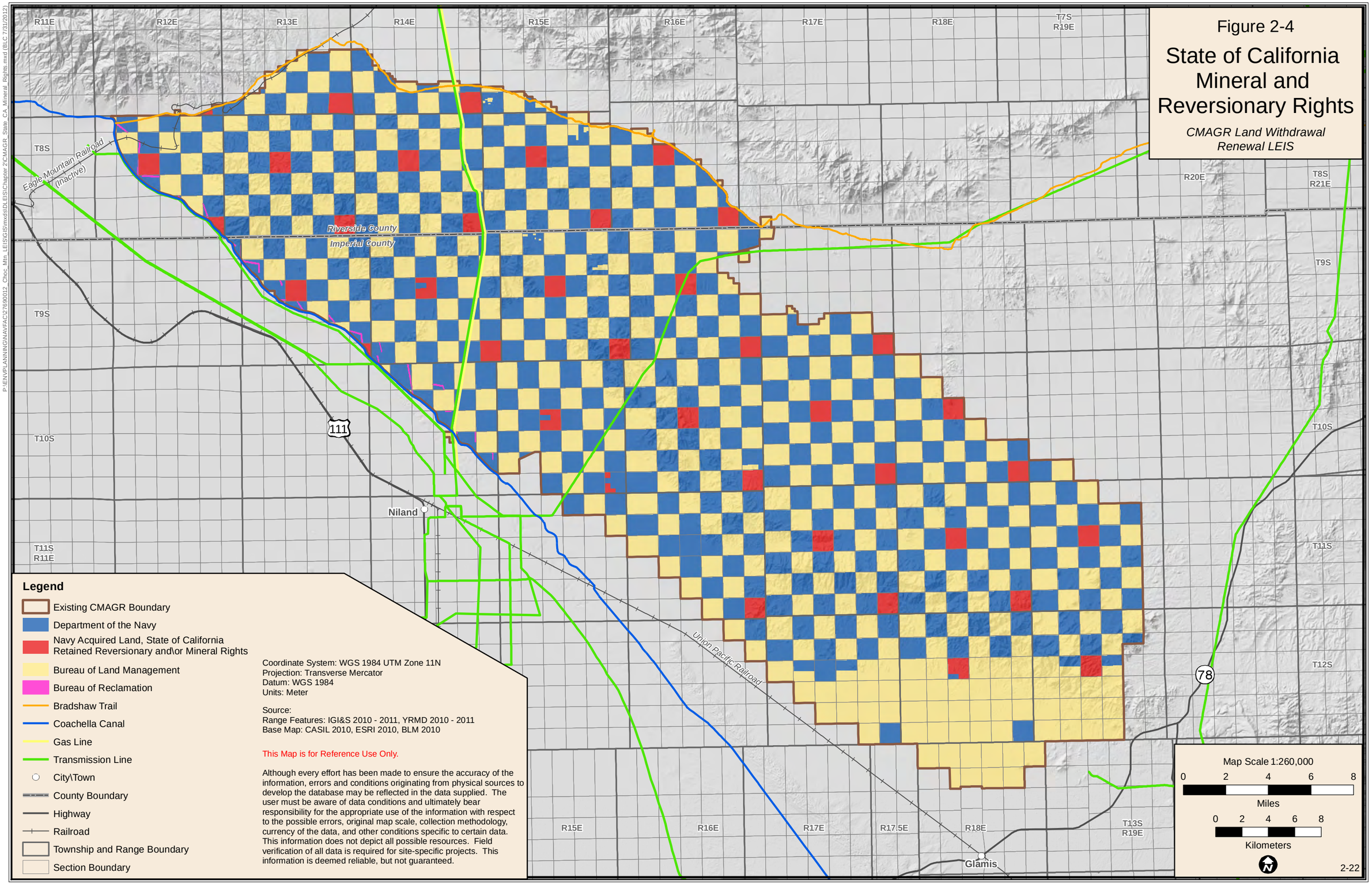
Figure 2-4
State of California Mineral and Reversionary Rights
CMAGR Land Withdrawal Renewal LEIS
R11E
R12E
R13E
R14E
R15E
R16E
R17E
R18E
T7S R19E
T8S
T9S
T10S
T11S R11E
T8S R21E
R20E
T11S
T12S
T13S R19E
R15E
R16E
R17E
R17.5E
R18E
Eagle Mountain Railroad (Inactive)
Riverside County
Imperial County
111
Niland
Union Pacific Railroad
78
Glamis
Legend
Existing CMAGR Boundary
Department of the Navy
Navy Acquired Land, State of California Retained Reversionary and\or Mineral Rights
Bureau of Land Management
Bureau of Reclamation
Bradshaw Trail
Coachella Canal
Gas Line
Transmission Line
City\Town
County Boundary
Highway
Railroad
Township and Range Boundary
Section Boundary
Coordinate System: WGS 1984 UTM Zone 11N
Projection: Transverse Mercator
Datum: WGS 1984
Units: Meter
Source:
Range Features: IGI&S 2010 - 2011, YRMD 2010 - 2011
Base Map: CASIL 2010, ESRI 2010, BLM 2010
This Map is for Reference Use Only.
Although every effort has been made to ensure the accuracy of the information, errors and conditions originating from physical sources to develop the database may be reflected in the data supplied. The user must be aware of data conditions and ultimately bear responsibility for the appropriate use of the information with respect to the possible errors, original map scale, collection methodology, currency of the data, and other conditions specific to certain data. This information does not depict all possible resources. Field verification of all data is required for site-specific projects. This information is deemed reliable, but not guaranteed.
Map Scale 1:260,000
0 2 4 6 8
Miles
0 2 4 6 8
Kilometers
2-22
P:\EN\PLANNING\NAVFAC\27690012_Choc_Mtn_LEIS\GIS\mxd\DLEIS\Chapter 2\CMAGR_State_CA_Mineral_Rights.mxd (BLC 7/31/2012)

2.7.2 Consolidate DoN and BLM Lands

As noted in Chapter 1, Section 1.5, responsibility for managing non-military land use and natural and cultural resources within the CMAGR is split between the DoN and BLM by virtue of the checkerboard pattern of DoN and BLM land jurisdictions and guidance from the CMLWOA. The result is a management scheme that leaves the DoN and the BLM with a set of responsibilities that are divided, overlapping, and/or redundant. An approach considered initially to eliminate the checkerboard jurisdiction pattern was to propose an exchange of DoN and BLM parcels to create a consolidated block of land under each agency's jurisdiction. One block would be roughly situated in the R-2507N portion of the CMAGR and the other would be in the R-2507S portion. This approach would create two roughly equally-sized blocks of land under either DoN or BLM management jurisdiction, but there would still be a continuing military need to withdraw and reserve the BLM block to provide the land space necessary to support Marine Corps and Navy training at the CMAGR. Consequently, this approach would not eliminate (1) the separate responsibilities of the DoN and BLM for managing natural and cultural resources and non-military land uses in their respective portions of the CMAGR, (2) the differences and inconsistencies between management guidance provided by the Sikes Act and FLPMA for the DoN and BLM lands, or (3) the responsibility of the DoN to manage both DoN and withdrawn BLM lands in accordance with the Sikes Act. The land consolidation alternative would do nothing to eliminate these management inconsistencies and overlaps and, consequently, was not evaluated in detail.

3. AFFECTED ENVIRONMENT

3.1 CMAGR REGIONAL, HISTORICAL, AND ENVIRONMENTAL SETTINGS

Chapter 3 provides descriptions of the existing environmental setting, resources, and conditions that may be affected by decisions to either renew or to not renew the CMAGR in accordance with the alternatives proposed in this LEIS. The affected environment descriptions are broken down into 13 resource areas so that the geographic scope and detail of the information can be scaled to best fit the particulars of each resource and to support the impact assessments provided in Chapters 4 and 5. The 13 resource areas include:

- Range and airspace operations
- Non-military land use
- Geological resources
- Water resources
- Air quality
- Biological resources
- Cultural resources
- Noise
- Visual resources
- Public health and safety
- Hazardous materials and waste
- Socioeconomics
- Environmental justice

The geographic scales of the affected environments described in Chapter 3 are directly related to the scope of actions proposed in the five alternatives addressed in this LEIS. Military use of the CMAGR would be continued by the land withdrawal actions proposed in Alternatives 1 through 4. Alternative 5, the no-action alternative, would allow the current CMAGR land withdrawal to expire, which would result in the closure of the entire range. Alternatives 1 through 4 address four elements, which include:

- Proposed alignment of the range boundary and withdrawal of BLM lands enclosed in that boundary
- Proposed assignments of DoN and BLM responsibilities for land management at the CMAGR
- Proposed duration of the land withdrawal
- Proposed assignments of DoN and BLM responsibilities for managing land that would be released from the range

The principal physical, biological, and cultural resource environments that likely would be affected by the various boundary alignment and withdrawal area actions proposed by Alternatives 1 through 4, which would renew the range and its use, generally occur within the CMAGR boundaries proposed by these alternatives or within areas proposed for release from the range. The effects of the proposed actions may also be extended to adjoining off-range areas by natural processes such as rainwater runoff, airborne propagation, or biological species movements. The extent to which adjoining off-range areas may be affected varies depending on the individual resources and processes involved. Physical, biological, or cultural resource environments in off-range locations that may be affected by the proposed actions are disclosed in the affected environment description for each resource area.

As previously disclosed, aviation training at the CMAGR involves the use of airspace both directly over the range and in an extended local region contiguous with the range airspace. The aviation training mission at the CMAGR expands consideration of the likely effects of the land withdrawal alternatives proposed in this LEIS to airspace areas outside the range boundaries.

Closure, decommissioning, and eventual reuse of the CMAGR, which would occur under Alternative 5—the no-action alternative—would likely affect the same physical, biological, and cultural resource environments as would Alternatives 1 through 4. The socioeconomic and environmental justice environments that would be affected by either renewal of the CMAGR under any of the action alternatives or closure of the range as result of the no-action alternative would initially include communities both near to and distant from the CMAGR that are socially or economically impacted by activities at the range. Small cities, towns, and other small rural communities are located in the general region of the CMAGR, particularly to the south and west. The key affected distant communities would be those in the vicinities of MCAS Yuma, MCAS Miramar, MCAS Camp Pendleton, and Naval Amphibious Base (NAB) Coronado from which most military training missions at the range are mustered and provided with base support. MCAS Yuma also provides administrative and management support for the CMAGR.

The levels of detail provided for each of the resource area descriptions vary but generally address the need to perform comparative impact assessments at two geographic scales. The larger assessment scale considers the CMAGR as a single landscape unit that will either be renewed for military training purposes, as proposed by action Alternatives 1 through 4, or will be closed, decommissioned, and, eventually, converted to non-military use as proposed by no-action Alternative 5. The focus at this larger assessment scale is in comparing the effects of range renewal to the consequences of not renewing the range. From a regional perspective (see Figure 1-1), the CMAGR is certainly an important piece of the landscape. The range encompasses almost twice the surface area of the Salton Sea and four times the area of the largest nearby designated wilderness area, the Chuckwalla Mountains Wilderness, which is located less than 3 miles to the north. The range is about 86 percent as large as the area that was in agricultural production in Imperial County in 2010. Additional information on past actions that shaped the area's physical, ecological, military, airspace, and socioeconomic landscapes can be found in Section 5.2.1.1.

The differences in the proposed range renewal actions offered by Alternatives 1 through 4 would not be discernable in terms of likely environmental effects from comparisons among alternatives at the landscape unit scale. Alternative 1 would renew the same boundary and surface area as the existing CMAGR. Alternative 2 would realign the CMAGR boundary in four locations and add a total of about 10,735 acres[1] to the range but this would amount to only about a 2.3 percent increase in surface area (see Figures 2-1 and 2-2). Alternative 3 would realign the CMAGR boundary in three places, which would decrease the area of the range by about 1,826 acres, or about 0.4 percent (see Figure 2-3). Alternative 4 also would realign the CMAGR boundary and decrease the area of the range by about 2,287 acres. These small proposed changes in range surface area would not register as distinguishing environmental effects in landscape-scale comparisons to Alternative 5, which would alter the land use future across the entire 458,530 acre expanse of the range.

The smaller assessment scale is concerned with differentiating the environmental impacts that would likely arise as a result of each of the different boundary alignments and land withdrawal areas proposed by action Alternatives 1 through 4. At this localized scale, important resource values or uses may be differentially affected by the boundary alignment alternatives and the level of detail provided to describe these resources must be commensurate with an assessment of these differences. The smaller assessment scale has no relevance to no-action Alternative 5.

[1] The boundary realignments prescribed by Alternative 2 would support an increase in the CMAGR surface area of up to 10,735 acres; however, realizing this full expansion would require the acquisition of 455 acres of private land and 668 acres of State land that would be encompassed within the realigned administrative boundary of the range.

3.2 RANGE AND AIRSPACE OPERATIONS

3.2.1 Evolution of the Regional Airspace and Range Setting

All airspace in the CMAGR operating region is part of the National Airspace System[2], which is managed by the FAA to support the requirements of three major airspace user groups—general aviation, commercial air carriers, and DoD. A principal purpose of the National Airspace System is to provide each of the major user groups with an independent, yet equal, right of access to the system. The right of access does not mean, however, that equal access can be provided to all airspace locations or altitudes to all users at all times. In fact, all of the airspace in the National Airspace System is classified by location, altitude, and time so that it can be made available as needed to support the requirements of one or more users on a selective or segregated basis. Allocating user access to the National Airspace System is the responsibility of the FAA and is necessary to provide the airspace required for particular flight operations while at the same time deconflicting activities to promote the greatest margins of safety practicable for all users. As indicated in Section 1.3.2, designation of special use airspace is one of the principal tools available to the FAA to provide airspace needed for national defense training and testing purposes while simultaneously protecting the safety of nonparticipating users.

Although the concept of managing the Nation's airspace as part of a National Airspace System was not defined as such until after the passage of the Federal Aviation Act of 1958 (49 U.S.C. App. 1301 et seq.), development of the airspace environment and military ranges that characterize the contemporary CMAGR operating region began before World War II (WWII) and had assumed much of its present form by the close of the 1960s. The legacy of civil and military aviation in the CMAGR operating region dates from before 1920 but the first steps to configure airspace in the region and elsewhere in the Nation to support user needs began on the civil side. Both civilian and military users would benefit, however, from the resulting provisions. By the mid-1920s, rapid progress in and expansion of aviation, including the advent of airmail service, had created a need to establish a national system of airways to improve aeronautical navigation and, as a result, the reliability and safety of flight[3]. The first airways were established simply by providing pilots with ground-based navigation markers for visual reference in the day and rotating light beacons for navigation at night. Ground-reference markers and beacons were located at intervals of 15 to 25 miles. About 18,000 miles of visual ground-reference airways were in place across the nation by 1933, including an east-west airway north of the area that would become the CMAGR in 1942 (Mola 2011).

Although flight safety and reliability were enhanced by the ground-reference airway system, the need for pilots to keep ground-based markers or lighted beacons in sight limited its use to fair and clear weather. Development of an airway system based on low-frequency radio navigation that could provide pilots with course guidance in all visibility conditions had also been underway and transmission stations to establish these airways were beginning to be operationally deployed by 1930. By WWII, low-frequency radio-range airways supported a substantial air navigation network throughout America (Mola 2011). A visual ground-reference airway, known as Green 5, connecting Los Angeles, Blythe, Phoenix, and Tucson had been in place by 1928 (Richards 2011). Green 5 was operationally upgraded by 1940 to a radio-range airway that approximated the same route (U.S. Department of Commerce, U.S. Coast and Geodetic

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[2] The National Airspace System consists of the common network of U.S. airspace; air navigation facilities, equipment and services, airports or landing areas; aeronautical charts, information and services; rules, regulations and procedures; technical information; and manpower and material. Included are system components shared jointly with the military (U.S. Department of Transportation, FAA 2010).

[3] From the first airways to the present, airways have been defined as an established and pre-surveyed flight corridor over the earth surface that is delineated by a centerline that extends from one ground-based navigation aid or intersection with another airway centerline to another ground-based navigation aid (or through several navigation aids or intersections). (adapted from: U.S. Department of Transportation, FAA, Flight Standards Service 2008)

Survey 1940). Also operational by 1943 were a radio-range airway to the south, Red 9, that linked San Diego, El Centro, Yuma, and Gila Bend to cities further to the east and a radio-range airway to the north, Green 4, which extended from Los Angeles through Palmdale and Needles to Albuquerque and other eastward locations (U.S. Department of Commerce, U.S. Coast and Geodetic Survey 1943).

At the advent of WWII, Green 4, Green 5, and Red 9 were the principal east-west airways that connected the southern California coast by air transport to the rest of the country. Additional north-south airways linked the Los Angeles and San Diego areas to San Francisco, Portland, Seattle, and other points along the West Coast and other airways provided southwest-northeast routes to Salt Lake City, Denver, and other locations across the central and northern tiers of the nation. However, Green 4, Green 5, and Red 9 represented the most important air transport corridors within the region that would soon host the CMAGR, El Centro Ranges, BMGR, and YPG and later the MCAGCC (Table 3-1). The alignments of these and all early airways were chosen to connect the selected cities via flight paths that were as short as possible considering the need to also avoid air traffic conflicts, allow long-range reception of radio navigation signals or observation of lighted beacons, minimize flight over high-altitude terrain, and permit ground access for constructing and operating transmitters or beacons.

Table 3-1 Originating Dates for Military Air Installations, Military Ranges, and Restricted Airspace in Southwestern Arizona and Southern California

Currently Active Military Air Installation[a]	Year Established or that Military Use Began
Southwestern Arizona	
Marine Corps Air Station Yuma[b]	1942 [c]
Laguna Army Airfield, Yuma Proving Ground (YPG)[b]	1943[d]
Luke Air Force Base, Glendale[b]	1941[c]
Gila Bend Air Force Auxiliary Field[b]	1942[e]
Southern California	
Marine Corps Air Station Miramar	1941[f]
Marine Corps Air Station Camp Pendleton	1942[f]
Twentynine Palms Expeditionary Landing Field, Twentynine Palms	1941[f]
Naval Air Station North Island, San Diego	1917[f]
Naval Air Facility El Centro	1942[f]
Currently Active Military Range[a]	**Year Established or that Military Use Began**
Southwestern Arizona	
Barry M. Goldwater Range (BMGR)[b]	1941[e]
YPG[b]	1943[d]
Southern California	
Chocolate Mountain Aerial Gunnery Range (CMAGR)	1942[d, f]
El Centro Ranges (ECR)	1943[d, f]
Marine Corps Air Ground Combat Center (MCAGCC)[b]	1943[d, f]
Marine Corps Base Camp Pendleton	1942[f]
Current Restricted Airspace[a]	**Year Established**
Southwestern Arizona	
R-2301W (overlies BMGR West)[b]	1942[d]
R-2301E (overlies BMGR East)[b]	1942[d]
R-2304 (overlies BMGR East)[b]	1942[d]
R-2305 (overlies BMGR East)[b]	1942[d]
R-2306A/B/C/D/E (overlies YPG)	after 1950 before 1954[d]
R-2307 (overlies YPG)	after 1950 before 1954[d]
R-2308A/B/C (overlies YPG)	after 1950 before 1954[d]
R-2309 (overlies YPG)	1988[d]
R-23011 (overlies YPG)	1997[g]

Current Restricted Airspace[a]	Year Established
Southern California	
R-2507N/S (overlies CMAGR)	1942[d]
R-2507E (overlies CMAGR)	2006[h]
R-2510A/B (overlies ECR)	1942[d]
R-2512 (overlies ECR)	1943[d]
R-2501E/N/S/W (overlies MCAGCC)	1943[d]
R-2503A/B (overlies Camp Pendleton Ranges)	1943[d]

[a] Current installation, range and restricted airspace names are listed, all have been renamed one or more times since they were first established. The current user/host command often differs from its original primary user/host command.
[b] Installation, range, or restricted airspace that was inactive for at least some period between the end of World War II and the beginning of the Korean War (1946-1951)
[c] Source: installation web site history
[d] Source: Los Angeles Sectional Aeronautical Charts dated Feb 1943, Mar 1945, Feb 1950, Sep 1954;
Phoenix Sectional Aeronautical Charts dated Apr 1940, Feb 1943, Mar 1945, Feb 1950, Aug 1954, Nov 1988;
San Diego Sectional Aeronautical Charts dated Aug 1940, Feb 1942, Feb 1943, Mar 1945
[e] Source: USAF 1999
[f] Source: The California State Military Museum at http://www.militarymuseum.org/HistoryPosts.html
[g] Source: Federal Register Volume 62, Number 83, 30 April 1997
[h] Source: Federal Register Volume 71, Number 9, 13 January 2006

Over the two decades following WWII, the Nation replaced low-frequency radio-range and remaining visual ground-reference airways with airways based on the advanced very high frequency, omnidirectional range (VOR) transmitters. VOR airways (also referred to as Victor [V] airways) continue to form an important foundation of the Nation's air navigation system. The same factors that influenced the placement of the visual ground-reference and low-frequency radio-range airways also guided development of the Victor airway network and, with slight adjustments in alignment, Green 4, Green 5, and Red 9 became V-12, V-16, and V-66, respectively. The complexity and volume of aviation activity in the region has, however, increased many-fold since conversion to the Victor airway system was initiated. V-12, V-16, and V-66 continue to be key components in the regional airway network but the number and density of airways in that network has been correspondingly increased to add access to many additional locations and carry the air traffic loads (Figure 3-1). Stratification of the airway network into low- and high-altitude structures also occurred as the size, altitude capabilities, range, and speed of civil aircraft increased dramatically after WWII. The low- and high-altitude structures are divided at 18,000 feet MSL with the Victor airway system supporting air navigation below that altitude and the jet route system supporting flight at or above that altitude. Jet routes were established using the same radio navigation aids used for Victor airways but generally provide longer and straighter segments for long-distance high-speed flight.

The CMAGR, ECR, BMGR, and YPG (shown on Figure 1-4) were all created during the short period from fall 1941 through 1943 just as the low-frequency radio-range airway system neared its full implementation. Some naval aviation training, including aerial bombing, was also occurring at Twentynine Palms by 1945 but this range was not activated by the Marine Corps until 1952.[4] Although the ranges established during the early 1940s experienced some inactivity during the period between WWII and the Korean War, all of these ranges and the MCAGCC have been in continuous use since that later conflict. Year-round flying weather, undeveloped expansive land spaces, realistic training and test conditions, and relatively few conflicts with existing land uses were among the original prime motivations for establishing military ranges in southern California and southwestern Arizona. The availability of relatively unencumbered airspace was also a critical factor favoring the prospective range locations in California and Arizona. Green 4, Green 5, and Red 9 represented the extent of the federal airway network in the vicinities of these locations and the CMAGR, ECR, BMGR, YPG, and MCAGCC were each

[4] The Twentynine Palms facility was activated by the Marine Corps in 1952. The facility was named the "Marine Corps Training Center Twentynine Palms" in February 1953. In February 1957, it was renamed Marine Corps Base, Twentynine Palms. In February 1979, it was designated "Marine Corps Air Ground Combat Center." Currently, it is known as the "Marine Air Ground Task Force Training Command, Marine Corps Air Ground Combat Center, Twentynine Palms."

established in unallocated airspace that did not conflict with this network. The local aviation footprint in the areas of the future CMAGR and BSTRC was also minimal in 1940 before WWII as indicated by the fact that only eight communities, and no military, airports were charted in these areas and all but one of these were located beneath or closely adjacent to Green 5 or the soon to be activated Red 4 (U.S. Department of Commerce, U.S. Geodetic Survey 1940).

The importance of the BSTRC area to both military and civil aviation has increased markedly since the 1940s as indicated by the presence of the CMAGR, ECR, BMGR, and YPG; special use airspace and MTRs supporting activities on these ranges and other defense operations; three military airfields; 28 civil airports; one joint military and civilian use airfield; and low- and high-altitude airway networks of increased complexity (see Figure 3-1). The National Airspace System would have developed differently in the BSTRC area had the CMAGR, ECR, BMGR, YPG, and special use airspace not been established beginning in the 1940s. The reality, however, is that creation of these ranges and their overlying special use airspace occurred after the federal airway network had been established and did not conflict with the selection of the priority corridors for that initial network. Creation of the military ranges and special use airspace also does not appear to have displaced any of the charted airfields in operation at the time. Compromises were to come on both sides over the next six plus decades in the process of supporting civil and military aviation in the region as the federal airway system grew, additional special use airspace and MTRs were designated, new airfields were established, some existing airfields expanded or contracted, and some airfields were closed. The near continuous presence of military and civil aviation in the region, however, has shaped airspace and airspace use such that each has a legitimate and defining role.

3.2.2 Military Use Airspace

Training at the BSTRC is supported by restricted airspace, CFAs, MOAs, ATCAA, and MTRs (Table 3-2 and see Figure 1-6). At the CMAGR, restricted areas R-2507N, R-2507S, and R-2507E directly overlie more than 85 percent of the range land area and serve to contain and segregate live-fire training and other military activities that would be hazardous to non-participating aircraft (see Figure 1-5). The principal hazardous activities occurring in these restricted areas involve aircraft delivery of air-to-ground or air-to-air ordnance but also occurring are ground-to-ground fires from artillery and mortars, expenditures of ground-to-air ordnance, ricochets from surface-fired heavy machine guns and the use of other infantry weapons, high explosive (HE) detonations of demolition charges, and maneuvers by tactical aircraft at night without illuminated recognition lights.

The two CFAs overlie an additional 7 percent of the CMAGR, an area that includes SWATs 4 and 5 (see Table 3-2 and Figure 1-5). The CFAs provide the controlled environment necessary to allow Navy SEALs, or other ground troops, to conduct live-fire training with some infantry weapons, such as mortars and HE demolition charges, which would be hazardous to non-participating aircraft if the fires of selected weapons or HE detonations were not suspended during the flight of these aircraft through the CFAs. The combination of the CFAs and R-2507N provide special use airspace to support live-fire use of certain weapons in the SWATs. In this effective combination, firing positions are located in the SWATs and either the targets are located in R-2507N or the SDZs for the weapon projects into R-2507N.

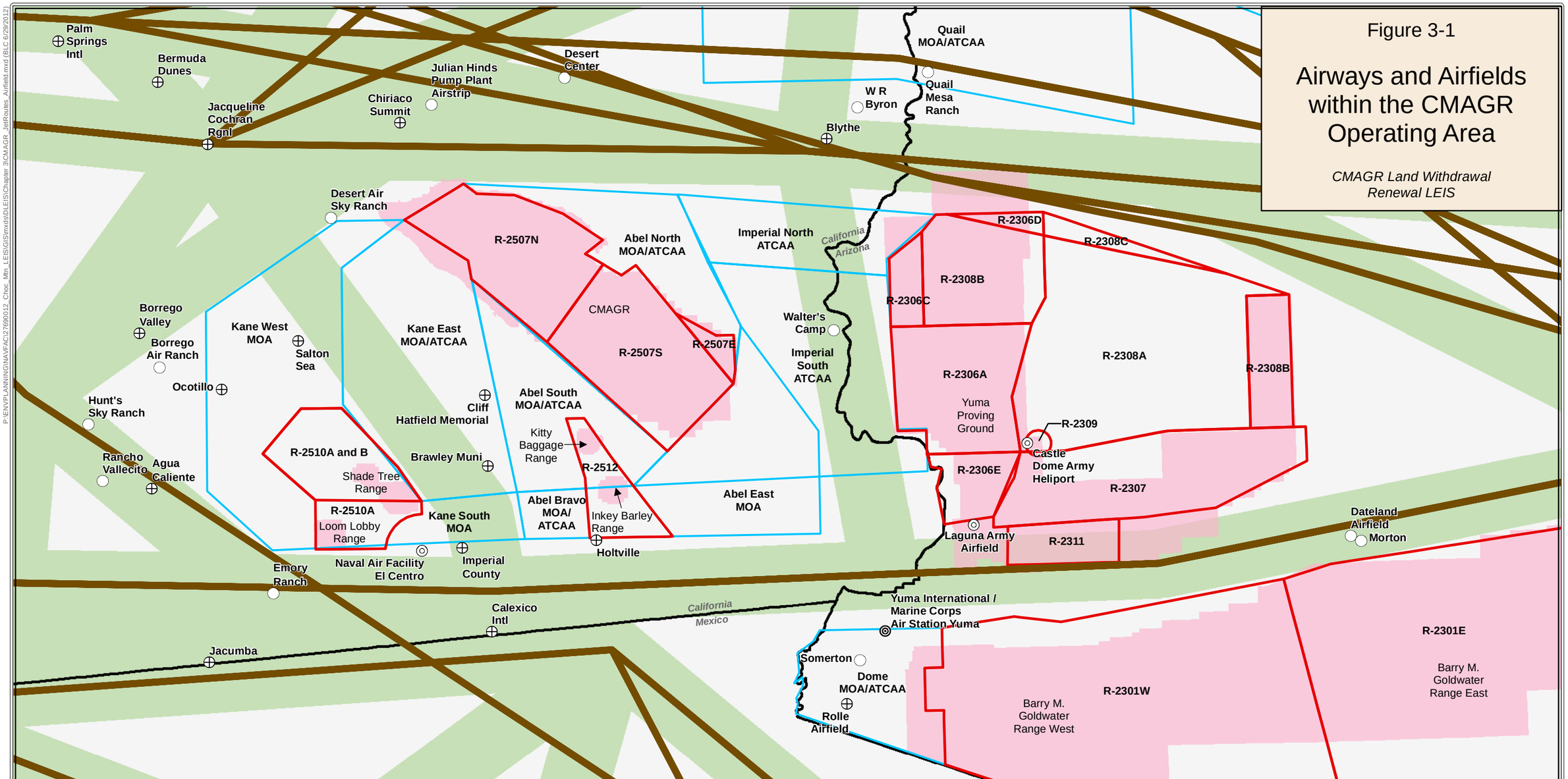

Figure 3-1

Airways and Airfields within the CMAGR Operating Area

CMAGR Land Withdrawal Renewal LEIS

Legend

- Military Airfield
- Military-civilian Joint-use Airfield
- Civilian Public Use Airfield
- Civilian Private Airfield

Airways

- High Altitude Jet Route (18,000 - 45,000 Feet MSL)
- Low Altitude (Victor) Airways (Below 18,000 Feet MSL)

- Military Land Range
- State Boundary

Special Use Airspace

- Restricted Airspace
- Military Operations Area (MOA) / Air Traffic Control Assigned Airspace (ATCAA)

Coordinate System: WGS 1984 UTM Zone 11N
Projection: Transverse Mercator
Datum: WGS 1984
Units: Meter

Source:
Jet Routes: YRMD 2010 - 2011
Airfield: BTS 2011
Range Features: IGI&S 2010 - 2011, YRMD 2010 - 2011
Base Map: CASIL 2010, ESRI 2010

This Map is for Reference Use Only.

Although every effort has been made to ensure the accuracy of the information, errors and conditions originating from physical sources to develop the database may be reflected in the data supplied. The user must be aware of data conditions and ultimately bear responsibility for the appropriate use of the information with respect to the possible errors, original map scale, collection methodology, currency of the data, and other conditions specific to certain data. This information does not depict all possible resources. Field verification of all data is required for site-specific projects. This information is deemed reliable, but not guaranteed.

Map Scale 1:850,000

0 6 12 18 24 Miles

0 6 12 18 24 Kilometers

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Table 3-2 Special Use Airspace, ATCAA, and Training Ranges in the BSTRC Area[a]

Special Use Airspace/ATCAA	Associated Training Ranges	Published Altitudes[b]	Times of Use[c]
Airspace Over or Contiguous to the CMAGR			
R-2507N	CMAGR: air-to-air/air-to-ground, SWAT 4 and SWAT 5	Surface to 40,000	Continuous[d]
R-2507S	CMAGR: air-to-air/air-to-ground	Surface to 40,000	Continuous
R-2507E	CMAGR: air-to-air/air-to-ground	Surface to 40,000	0700 to 2300
CFA Niland	CMAGR: SWAT 4	Surface to 5,000	As needed
CFA Bombay	CMAGR: SWAT 5	Surface to 5,000	As needed
Abel North MOA/ATCAA	Aviation only, no underlying land range	7,000 to 40,000	Mon to Fri, 0500 to 2200
Abel South MOA/ATCAA	Aviation only, no underlying land range	7,000 to 40,000	Mon to Fri, 0500 to 2200
Abel East MOA	Aviation only, no underlying land range	5,000 to but not including 13,000	Announced by NOTAM[e]
Abel Bravo MOA/ATCAA	Aviation only, no underlying land range	7,000 to 40,000	Mon to Fri, 0500 to 2200
Kane East MOA/ATCAA	Aviation only, no underlying land range	10,000 to 40,000	0500 to 2100
Kane South MOA	Aviation only, no underlying land range	10,000 to but not including 18,000	0500 to 2100
Kane West MOA	Aviation only, no underlying land range	10,000 to but not including 18,000	0500 to 2100
Airspace Over the ECR			
R-2510A	ECR: air-to-ground	Surface to 15,000	0700 to 2300
R-2510B	ECR: air-to-ground	15,000 to 40,000	0700 to 2300
R-2512	ECR: air-to-ground	Surface to 23,000	0600 to 2300
Other BSTRC Airspace			
R-2301W	BMGR-W: Air-to-Air, TACTS, Cactus West, Urban Training Complex, Auxiliary Airfield (AUX) II	Surface to 80,000	Continuous
R-2306A/B/E	YPG: testing and training	Surface to 80,000	Continuous
R-2306C	YPG: testing and training	Surface to 40,000	0730 to 2300
R-2306D	YPG: testing and training	Surface to 23,000	Continuous
R-2307	YPG: testing and training	Surface to Unlimited	Continuous
R-2308A	YPG: testing and training	1,500 AGL to 80,000	Continuous
R-2308B	YPG: testing and training	Surface to 80,000	Continuous
R-2308C	YPG: testing and training	1,500 AGL to 23,000	Continuous
R-2309	YPG: Tethered Aerostat Radar System border surveillance	Surface to 15,000	Continuous
R-23011	YPG: testing and training	Surface to 3,500	Sun Rise to Sun Set
Dome MOA/ATCAA	Aviation only, no underlying range	6,000 to 80,000	By NOTAM
Imperial North/South ATCAAs	Aviation only, no underlying range	19,000 to 40,000	Intermittent
Quail MOA/ATCAA	Aviation only, no underlying land range	10,000 to 22,000	Mon to Fri, 0700 to 1700
Turtle MOA/ATCAA	Aviation only, no underlying land range	11,000 to 22,000	Mon to Fri, 0600 to 1600

[a] See Figure 3-1 for airspace locations except that Turtle MOA/ATCAA, which is to the north of Quail MOA/ATCAA is not depicted.
[b] Feet above MSL unless noted as above ground level (AGL)
[c] 7 days per week unless otherwise stated, may be active at other times as announced by Notice to Airmen (NOTAM)
[d] Area is typically active 24 hours per day/7 days per week
[e] Notice to Airman—time-critical aeronautical information for immediate dissemination

The CMAGR and restricted areas R-2507N, R-2507S, and R-2507E are located within a larger airspace complex that also includes seven MOAs, four ATCAAs, and three other restricted areas—R-2510A and B and R-2512 (see Table 3-2 and Figure 1-6). Although live-fire training with aircraft weapons can only occur within restricted airspace, the adjacent MOAs and ATCAAs enhance the versatility and realism of this training by expanding the airspace available for tactical maneuvers before or following ordnance delivery actions in R-2507N, R-2507S, and R-2507E at the CMAGR. Abel North, Abel South, and Kane East MOA/ATCAAs and the Abel East MOA are particularly useful for supporting this type of training because these airspace areas are contiguous with the CMAGR. The MOAs and ATCAAs adjacent to the CMAGR also provide airspace for flight training that does not involve ordnance deliveries or other hazardous activities. Activation of the Imperial North and/or South ATCAAs, which encompass the gap between the CMAGR and YPG restricted airspace complexes, can provide high-altitude military-use airspace with an east-west axis of up to 110 NM.

R-2510A and B and R-2512 are activated to support training at the ECR in ordnance delivery, laser target designation, helicopter landing zone operations, and parachute air drops.

Thirteen MTRs, which share nine centerlines, are currently located within 5 NM of the R-2507N/S/E restricted airspace at the CMAGR (Table 3-3 and see Figure 1-6). Three of these MTRs—IR-216, IR-217, and VR-1266—can be used in direct conjunction with training missions at the CMAGR. These three MTRs provide entry to the CMAGR and allow aircrews to practice long-distance, low-level, terrain following, high-speed flight as a tactic for attacking a target while using terrain to mask their approach and evade detection. Seven of the MTRs support similar low-level, high-speed approaches for training at the Loom Lobby and Shade Tree ranges within R-2510A (see Table 3-3 and Figure 1-6). Four other MTRs transit airspace in the near vicinity of R-2507N/S/E but do not directly support operations either at the CMAGR or within R-2510A.

Table 3-3 Military Training Routes within Five Nautical Miles of the CMAGR

Instrument (IR) or Visual (VR) MTR[a]	Scheduling Agency[b]	Hours of Use	Route Segment Widths	Authorized Floor and Ceiling	Entry to CMAGR	Entry to R-2510A
IR-214	3d MAW[c], MCAS Miramar	Even numbered days, daylight	2 to 8 NM	200 AGL 6,000 to 8,000 MSL	No	No
IR-216	3d MAW, MCAS Miramar	Even numbered days, daylight	6 NM	200 AGL 7,000MSL	Yes	No
IR-217	3d MAW, MCAS Miramar	Continuous	10 NM	200 to 1,500 AGL 6,000 to 7,000 MSL	Yes	No
IR-218	3d MAW, MCAS Miramar	Continuous	4 to 10 NM	500 AGL to 4,500 MSL 4,000 to 6,000 MSL	No	No
VR-288	452 OSS/DOT[d], March ARB[e]	Continuous	10 NM	300 AGL 1,000 to 3,000 MSL	No	Yes
VR-289	452 OSS/DOT, March ARB	Continuous	10 NM	300 AGL 1,000 to 4,500 MSL	No	Yes
VR-296	452 OSS/DOT, March ARB	Continuous	10 NM	300 AGL 1,000 to 4,000 MSL	No	Yes
VR-299	452 OSS/DOT, March ARB	Continuous	10 NM	300 AGL 1,000 to 4,000 MSL	No	Yes
VR-1211	452 OSS/DOT, March ARB	Continuous	10 NM	300 AGL 1,500 MSL	No	Yes
VR-1257	CO, Strike Fighter Wing, NAS Lemoore	Daylight hours or by NOTAM	3 to 4 NM	200 to 2,500 AGL 1,500 AGL	No	Yes
VR-1266	CO, MCAS Yuma	0700 to 1800 local	3 to 6 NM	200 AGL 1,500 AGL	Yes	Yes
VR-1267	CO, MCAS Yuma	0700 to 1800 local	4 to 8 NM	200 AGL 1,500 AGL	No	No
VR-1268	CO, MCAS Yuma	0700 to 1800 local	2 to 8 NM	200 AGL 1,500 AGL	No	No

[a] IR = Instrument Flight Rules (IFRs) MTR. IRs must be flown under IFRs regardless of weather conditions. VR = Visual Flight Rules (VFRs) MTR. VRs flown under VFRs, which means that aircrews are responsible for seeing and avoiding other aircraft. VFR minimums for MTR operations are at least 5 miles of flight visibility and a cloud ceiling of no less than 3,000 feet AGL.
[b] Agency responsible for scheduling use of a MTR.
[c] MAW = Marine Aircraft Wing
[d] OSS = Operations Support Squadron
[e] ARB = Air Reserve Base

3.2.3 Air and Ground Training Operations

Training for tactical air and ground combat occurs at the CMAGR both as separate and combined arms elements. Air combat training also occurs in the MOAs and ATCAAs that are adjacent to the CMAGR and at the nearby ECR. Tactical aviation training is a particularly fast-paced and complex activity demanding that pilots and other aircrew members master many individual skills that they can integrate as necessary to perform an assigned mission. Twenty-five types of tactical aviation training activities currently occur on a regular basis at the CMAGR, adjacent MOAs and ATCAAs, and/or ECR to provide aircrews with the repertoire of combat skills they need (Table 3-4). Types of tactical aviation training other than those listed in Table 3-4 may also occur at the CMAGR on an irregular or as needed basis. Future requirements for new types of training also will likely emerge to prepare aircrews to meet developing threats or to employ new aircraft, such as the MV-22 and F-35, and weapons systems as they come on line and mature operationally. Of the 25 tactical aviation training activities listed in Table 3-4, 21 are supported at the CMAGR. Most training sorties involve more than one type of tactical aviation activity and many involve the delivery of one or more types of ordnance.

Table 3-4 Common Aviation Training Activities at the CMAGR, ECR, and Adjacent MOAs/ATCAAs

Air Combat Training Activity	Abel/Kane MOAs/ATCAAs			
	R-2512 at ECR			
	R-2510A/B at ECR			
	R-2507N/S/E at CMAGR			
Aerial Delivery: aircraft release parachuting personnel, sensors, equipment, or supplies.	X		X	
Aerial Photography: develop proficiency with handheld cameras.	X			
Aerial Refueling: develop proficiency in day and night aerial refueling.	X			X
Air Combat Maneuvering: offensive and defensive air-to-air combat tactics.	X	X	X	X
Air-to-Air Gunnery: air-to-air gunnery at an airborne target.	X			
Air-to-Air Missile Firing: engaging an airborne target with an air-to-air missile.	X			
Air-to-Ground Inert Ordnance Delivery: ground attack with conventional inert ordnance at day or night or in instrument weather conditions.	X	X	X	
Air-to-Ground Live Ordnance Delivery: ground attack with conventional live ordnance at day or night or in instrument weather conditions.	X			
All-Weather Operations: missions under all weather conditions, including air-to-air intercepts started beyond visual range where weapons engagement does not depend on visual identification. No weapons are launched or fired.				X
Close Air Support: flights designed to support friendly ground forces by delivering conventional air-to-ground ordnance, as directed by a forward air controller, on enemy positions in close proximity to the supported friendly forces.	X			
Combined Strike Tactics: combined air-to-ground strike with coordination of several types of aircraft and aircraft weapons.	X			
Direct Air Support Holding: develop proficiency in the tactics of timing a supporting air-to-ground strike from a nearby holding position.				X
Fighter Intercepts: air-to-air weapons intercepts started beyond visual range where weapons engagement depends on visual identification.				X
Formation Flight: develop day or night proficiency in tactical formations and maneuvers.				X
Forward Air Control Airborne: control attack/fighter aircraft in close air support or direct air support missions.	X			
Helicopter Attack: teach the fundamentals of or develop tactical proficiency in any aspect of helicopter attack.	X			
Helicopter/MV-22 External Cargo Lifts: flights in which weights, personnel, cargo, vehicles, or aircraft are suspended from a helicopter or MV-22 and transported.	X			
Helicopter/MV-22 Forward Arming and Refueling: develop tactical proficiency in FARP operations.	X			
Helicopter/MV-22 Insertions and Extractions: develop tactical proficiency in inserting and extracting ground forces in battlefield areas.	X			
Helicopter/MV-22 Night Vision Goggle Operations: day or night flying with helmet mounted, thermal imaging devices.	X	X	X	
Helicopter/MV-22 Landing Zone Operations: flights designed to develop tactical proficiency in forward landing zone operations.	X			
Laser Targeting: use of weapons systems with laser target designators to attack ground targets.	X	X		
Post Maintenance Check Flight: review and validate the conditions of an aircraft following maintenance.	X			X
Unmanned Aircraft Systems Operations: flight operations conducted using remotely controlled UASs.	X			
Visual Reconnaissance: visually locating targets, assessing topography, or assessing enemy order of battle.	X			

Utilization of the restricted airspace at the CMAGR and in the adjacent special use airspace is reported annually to the FAA in accordance with FAA Order JO 7400.2H[5]. Data from recent reports show that annual military flight activity in R-2507N/S/E fluctuated from high to low over the period of FY 2006 through FY 2010 by over 20 percent (Table 3-5). Such variations in year-to-year utilization rates are common. The majority of fixed-wing training missions at the CMAGR require scheduling of both R-2507N and R-2507S airspace, which means that a single training mission for a fixed-wing aircraft at the range is typically recorded as one sortie for both restricted areas. Thus, the annual R-2507N and R-2507S sortie counts at the range are similar but not additive. R-2507E was established to be activated jointly with R-2507S to support the same training missions; consequently, the utilization rates for R-2507S and R-2507E are identical for FY 2007 through FY 2010. Since R-2507E was not established until part way through FY 2006, the sortie count in this year for this restricted area is only about one-third of the count for R-2507S. Overall, the data for R-2507N/S/E combined indicate that in recent years the CMAGR has been used for more than 6,000 training sorties annually but use has not eclipsed 7,000 sorties.

Abel North, Abel South, and Kane East are the MOA/ATCAAs that are the most frequently used in conjunction with training at the CMAGR. Utilization data for the Abel North, Abel South, and Kane East MOA/ATCAAs shows flight training activity in these airspace areas to also vary from year-to-year although total use occurs in the MOA/ATCAAs at a lesser rate than in R-2507N/S/E.

A second metric, the operation, is also used to measure special use airspace utilization particularly as a tool for assessing noise generated by aircraft. The term operation is used to quantify aircraft movements. For example, if the objective is to quantify aircraft noise at an airfield, then an operation is defined as a single aircraft movement, such as a landing, take-off, or flight in a closed pattern about the runway. For airspace and ranges, an operation comprises the use of one airspace unit—which could be a restricted area, MOA, or ATCAA or a subunit of one of these airspace areas—by one aircraft. Each time a single aircraft flies in a different airspace unit, one operation is counted for that unit. Often, one flight by one aircraft in a restricted area, MOA, or ATCAA is counted as one operation for each airspace area equivalent to the manner in which sorties would be counted. For some training missions, however, a single sortie could also be recorded as more than one operation. If, for example, a mission at the CMAGR included two aircraft using R-2507N/S/E for high altitude fighter intercepts for 20 minutes and then only R-2507N for low altitude strafing attacks for 20 minutes, then the mission would be scored as two sorties in each of R-2507N/S/E but as four operations in R-2507N, to reflect the use of high and low altitude airspace units, and two operations in each of R-2507S/E, to reflect the use of only the high altitude airspace unit. In this example, the operations metric provides a more detailed representation of aircraft movements that generate noise than would the sortie metric. As a result, the number of operations flown in special use airspace may be registered as greater than the number of sorties. The 2010 Final U.S. Marine Corps EIS for the West Coast Basing of the F-35B (DoN 2010b) provides such an example. As noted previously, the F-35 aircraft, which will begin to replace AV-8B aircraft at MCAS Yuma and selected models of the F/A-18 aircraft at MCAS Miramar as early as 2012, will be flown at the CMAGR. Analyses in the West Coast Basing of the F-35 FEIS included an assessment of existing baseline noise conditions at the CMAGR with AV-8B and F/A-18 aircraft but no F-35s and projections of the noise conditions that would occur with the F-35s, no AV-8Bs, and the retirement of some F/A-18s. These noise assessments, which are referenced in detail later in this LEIS, were based on a baseline of 7,376 flight operations at the CMAGR in FY 2006, which exceeds the roughly 5,385 and 5,608 sorties reported for the R-2507N/S/E airspace (see Table 3-5).

[5] Special Use Airspace Annual Utilization Reports are prepared for each restricted area and MOA. Use is reported as the number of sorties flown in the subject airspace for the applicable federal year. One sortie equals one flight by one aircraft from takeoff to landing. A mission that requires an aircraft to be operated in more than one special use airspace area on a single flight may be counted as a single sortie in each special use airspace area used.

Table 3-5 Annual Utilization of the Special Use Airspace at and Adjacent to the Chocolate Mountain Aerial Gunnery Range [a]

Airspace Area		Federal Year 2006	2007	2008	2009	2010
R-2507N	Sorties	5,385	5,617	6,349	6,662	6,287
	Days Utilized	305	297	297	304	305
	Average Sorties/Day	18	19	21	22	21
R-2507S	Sorties	5,608	5,677	6,411	6,868	6,319
	Days Utilized	307	301	307	313	304
	Average Sorties/Day	18	19	21	22	21
R-2507E [b]	Sorties	1,999	5,677	6,411	6,868	6,319
	Days Utilized	133	301	307	313	304
	Average Sorties/Day	15	19	21	22	21
Abel North MOA/ATCAA	Sorties	3,885	4,566	4,417	4,688	4,543
	Days Utilized	264	286	294	287	285
	Average Sorties/Day	15	16	15	16	16
Abel South MOA/ATCAA	Sorties	3,870	4,674	4,578	4,786	4,517
	Days Utilized	266	288	298	302	290
	Average Sorties/Day	15	16	15	16	16
Abel East MOA	Sorties	311	440	463	473	316
	Days Utilized	42	39	55	63	53
	Average Sorties/Day	7	11	8	8	6
Abel Bravo MOA/ATCAA	Sorties	267	505	521	467	383
	Days Utilized	31	45	62	53	67
	Average Sorties/Day	9	11	8	9	6
Kane East MOA/ATCAA	Sorties	1,994	1,953	2,063	2,189	2,342
	Days Utilized	241	236	242	251	205
	Average Sorties/Day	8	8	9	9	11
Kane South MOA	Sorties	505	301	341	337	392
	Days Utilized	64	47	79	63	76
	Average Sorties/Day	8	6	4	5	5
Kane West MOA	Sorties	NA	NA	NA	NA	NA
	Days Utilized	NA	NA	NA	NA	NA
	Average Sorties/Day	NA	NA	NA	NA	NA
R-2510A	Sorties	NA	NA	NA	NA	NA
	Days Utilized	NA	NA	NA	NA	NA
	Average Sorties/Day	NA	NA	NA	NA	NA
R-2510B	Sorties	NA	NA	NA	NA	NA
	Days Utilized	NA	NA	NA	NA	NA
	Average Sorties/Day	NA	NA	NA	NA	NA
R-2512	Sorties	1,833	1,684	1,520	1,636	1,976
	Days Utilized	235	200	209	221	224
	Average Sorties/Day	8	8	7	7	9

[a] Data compiled from Special Use Airspace Annual Utilization Reports FY 2006 through 2010. Special Use Airspace Annual Utilization Reports are prepared in accordance with FAA Order JO 7400.2H.
[b] R-2507E was first established during FY 2006 and was available for use for only the last few months of the year.

As already indicated, both the Marine Corps and NSWG-1 conduct ground combat training at the CMAGR. Marine ground combat training usually involves activities that integrate the functions of ground and air forces. These activities typically occur at designated support areas located in and around the lateral limits of the R-2507N/S/E airspace (see Figure 1-5). NSW training generally occurs within SWATs 4 and 5.

The semiannual WTI Course, which is conducted by Marine Aviation Weapons and Tactics Squadron One (MAWTS-1) stationed at MCAS Yuma, is the premiere, complex training event that incorporates Marine ground units at the CMAGR although ground units also take part in other periodic multifaceted

exercises at the range or conduct periodic individual unit training. Ground personnel participating in the WTI Course perform land-based air control, air defense, electronic warfare, communications, forward air control, forward arming and refueling of helicopters, UAS operations, insertions or extractions of non-mechanized infantry units by helicopter or MV-22, or other combat or combat support functions. Most units deploying to the CMAGR occupy designated ground support areas that have been pre-selected to provide both tactical realism and safe working areas for troops participating in a live-fire exercise that combines air and ground forces. CMAGR locations designated to support ground forces include observation posts, artillery firing areas, FARPs, landing zones, and the UAS operating area, Field ASP, and bivouac and work area (see Figure 1-5). Ground troop use of these ground support areas also has environmental management benefits. Those areas selected to support activities that involve military vehicles generally exhibit ground surfaces that are resistant to damage and cumulative deterioration from vehicle use. Other types of potential impacts from ground troop activities are largely controlled by standard environmental protection measures. Human sewage at base camps and other locations of troop concentrations is contained in portable toilets and removed by commercial contractor to approved sewage treatment facilities. All litter is policed and contained daily to be carried off the range to approved landfill sites. Vehicles are restricted to approved roads except when operating in a designated ground support area. Fuel tankers, vehicles being fueled, and other stationary equipment such as generators that may leak fuels or lubricants are placed over temporary containment aprons formed by plastic sheeting and sandbags to catch inadvertent spills. A hazardous materials response plan and team is in place at MCAS Yuma to respond immediately to any spills.

Insertions or extractions of troops occur from helicopters or MV-22s operating at designated landing zones or from helicopters that either enter a low hover or land at any range location that is tactically realistic to the training mission and meets operational safety requirements. Units of up to a battalion in size, 300 to 400 troops, may be inserted in some exercises but insertions of company strength units, about 110 to 140 troops, or smaller are more common. Teams as small as four troops are inserted to perform forward air control, reconnaissance, or other low-profile functions during some exercises. An inserted unit may remain at the insertion site until extracted or may move on foot to another location from which they may be extracted. Some extractions occur via vehicles on designated range roads rather than by helicopter or MV-22. Troops moving cross-country carryout all litter generated by their activities. Human waste is buried in individual cat holes.

Ground unit participation in the WTI Course and similar training with combined air and ground elements helps to create a training environment that realistically simulates the complexities and sophistication of modern air-ground combat, enhances the quality of the instruction received by WTI students, provides valuable instruction to ground units in their own specialties, and develops the experience air and ground elements need to effectively integrate their actions in combined arms combat.

In contrast to Marine Corps ground combat training at the CMAGR, which occurs at intermittent intervals usually in association with aviation training and/or WTI, NSW training occurs within SWATs 4 and 5 on a continuous, year-round basis. The NSW program accommodates up to about 350 Navy SEALS per training evolution.

3.2.4 Military Surface Use and Roads

An inventory of military surface use at the CMAGR was prepared for this LEIS to identify how the various areas of the range are used to support training operations and to quantify the area of the range committed to each use. Surface use was categorized in the inventory by activity and by the levels of physical disturbance that the various categories of activities have on the ground surface, vegetative communities, and surface drainages. The methodology used for surface use inventory is provided in Appendix C.

The surface use inventory found that currently nearly the entire surface of the CMAGR is used in some capacity to support military training. Each area of the range used for training support can be classified as belonging to either one or both of two broad use categories and to either one or two of nine use subcategories. The two broad use categories include (1) tactical training weapons ranges and (2) other training areas (Figure 3-2). The weapons ranges category, which includes all of the tactical weapons ranges used for aviation and ground combat training, is subdivided into five subcategories[6]:

- Target simulations and other earthwork features
- Core weapons impact areas
- Secondary weapons impact areas
- Weapons delivery containment area
- SWATs 4 and 5

The other training areas category, which includes all other areas of the CMAGR that support training operations, is subdivided into four subcategories:

- Ground support areas
- No live-fire training, support, and range access control areas
- Camp Billy Machen
- Range access roads

3.2.4.1 Target Simulations and Weapons Impact and Containment Areas

The subcategory for target simulations and other earthwork features include activities that involve grading, excavating, or depositing soil or otherwise reshaping the ground surface to replicate tactical battlefield features (see Figure 3-2). The subcategory includes all runways, aircraft parking revetments, surface-to-air missile sites, and other earthwork features that were prepared to appear as battlefield features from the air. Core weapons impact areas include the locations closest to target features in which the greatest concentrations of ordnance impact the ground. Core weapons impact areas are locations where the vegetative community, ground surfaces, and surface drainage patterns have been substantially or completely disrupted from the natural norm by the aggregate volume of ordnance that impacts in the area over time. The core weapons impact area for each target was defined in accordance with the extent of impact disruptions that have resulted from training use rather than by the application of standard radius criteria.

Secondary weapons impact areas form a second concentric band centered around a target that is typically larger than the inner core weapons impact area (see Figure 3-2). The secondary weapons impact area extends outward from the outer limit of the core weapons impact area to the farthest extent of ordnance impacts that can be readily attributed to deliveries on that target. Ordnance impacts at the inner perimeter of a secondary weapons impact area are relatively concentrated but the surface disturbance effects of impacts in this area are less pronounced than those observed in the core weapons impact area. On the average, ordnance impact effects diminish sharply in secondary weapons impact area with distance from the target to the point at the outer limit of this area beyond which ordnance impacts attributable to that target cease to be detectable.

[6] The terms "core weapons impact areas, secondary weapons impact areas, and weapons delivery containment areas" were developed for this LEIS to describe quantifiable areas of surface disturbance caused by ordnance delivery training at the CMAGR. They have no relation to range safety as prescribed in MCO 3570.1B or with weapon danger zones or surface danger zones.

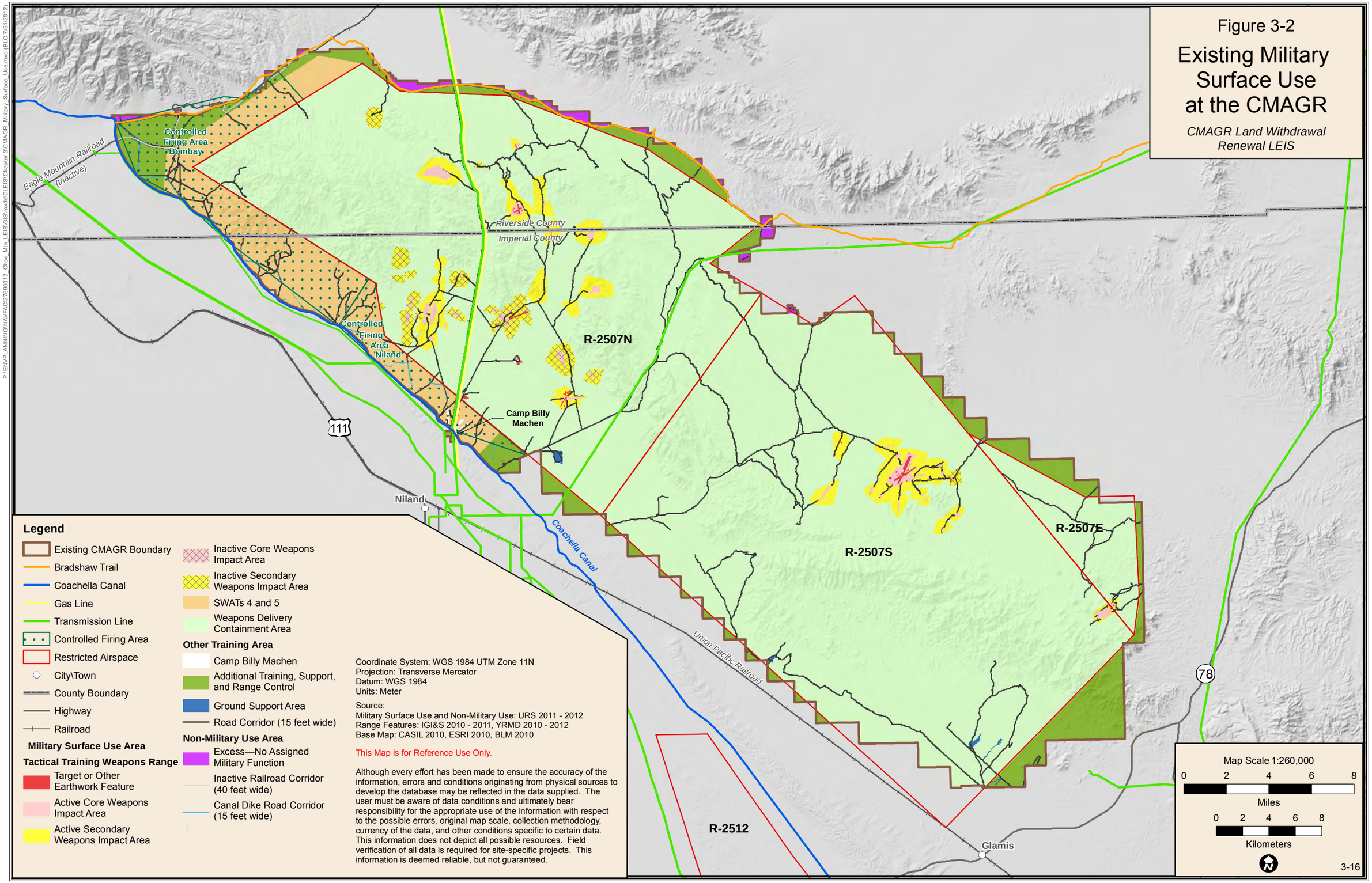

Figure 3-2

Existing Military Surface Use at the CMAGR

CMAGR Land Withdrawal Renewal LEIS

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The weapons delivery containment area includes the range space that extends from the outer perimeters of the secondary weapons impact areas to the lateral limits of the R-2507N/S/E restricted airspace or the land boundary of the CMAGR, whichever is nearest to the range interior (see Figure 3-2). Ordnance impacts in this area are generally widely disbursed and cannot be readily attributed to attempts to deliver ordnance on any specific target. The aggregate effects of ordnance impacts in the weapons delivery containment area have not disrupted natural vegetative communities, ground surfaces, or surface drainage patterns in any cumulatively apparent manner that departs from the norms for these landscape features.

3.2.4.2 Weapons and Surface Danger Zones

Although ordnance impacts within the weapons delivery containment area occur relatively infrequently in widely scattered locations, the essential importance of the containment area to the capability of the CMAGR to support live-fire training is confirmed by weapon danger zones (WDZs) and SDZs developed for the range (MCAS Yuma 2010). A WDZ defines the ground and airspace needed to laterally and vertically contain projectiles, fragments, debris, and components resulting from the firing, launching, and/or detonation of aircraft delivered ordnance. The DoD standard for risk acceptance on all ranges is a 99.9999 percent level of containment, which means that the probability of munitions (for inert ordnance) or a hazardous fragment (for live ordnance) escaping the containment area is one in a million. SDZs are prepared to determine the restricted land and airspace requirements to laterally and vertically contain projectiles, fragments, debris, and components resulting from the firing, launching, or detonation of ground-to-ground or ground-to-air weapons such as artillery, mortars, or surface-to-air missiles. SDZs provide a 99.9999 percent level of containment for each type of ground-to-ground or ground-to-air weapon employed at a range. Both WDZs and SDZs must be wholly within the limits of the installation and overlying special use airspace (MCO 3570.1B).

A three-dimensional WDZ must be prepared for each type of aircraft, weapon, method of weapon delivery, and target terrain. A composite WDZ, which is the summation of all acceptable individual WDZs for a particular range, is prepared to determine the minimum area needed to contain approved ordnance delivered from aircraft at that range. Land uses that are not a participating part of the training mission of the range and consistent with personnel safety are allowed within the range composite WDZ (MCO 3550.11). Similarly, a composite SDZ provides a summation of all acceptable individual SDZs for a particular range and defines the minimum land and airspace areas needed for safe live-fire training with all applicable weapons.

Figure 3-3 shows current composite WDZs and SDZs for the CMAGR. The composites are compilations of the WDZs and SDZs for the individual aircraft ordnance delivery and ground-based firing missions that occur at the range. Although the current composites are generally representative of how land and airspace at the CMAGR supports live-fire training, the composites for any given past or future year would likely vary somewhat from those shown in Figure 3-3 as a result of differences in the aircraft, air and ground weapons. The current WDZ and SDZ composites encompass 100 percent of the core and secondary weapons impact areas, 80 percent of the weapons delivery containment area, and 67 percent of SWATs 4 and 5. The composites for any year could be expected to fully encompass the core and secondary weapons impact areas, but the proportions of the containment area and SWATs that are encompassed in WDZs or SDZs may fluctuate to some extent in reflection of changes in the training missions performed. In any respect, the current composites demonstrate the essential function of the weapons delivery containment area of the range.

3.2.4.3 SWATs 4 and 5

SWATs 4 and 5 host 30 designated firing ranges for NSW or Marine ground unit training with small arms and various other types of man-portable infantry weapons. As a result of the nature of the special warfare training that predominates in the SWATs and the weapons used, the firing ranges are not heavily

developed or affected by ordnance impacts and detonations. Thus, the SWATs are addressed in the surface use inventory as a single unit that generally supports similar training missions and activities throughout its area (see Figure 3-2). Camp Billy Machen is included as a separate category in the surface use inventory because of the unique features of this developed cantonment and training area.

3.2.4.4 Ground Support Areas

As already noted, specific locations, which are collectively referred to as ground support areas, have been designated at the CMAGR to support training activities by ground forces. Individual ground support areas are designated for use as observation posts, artillery firing areas, FARPs, landing zones, a UAS operating area, a Field ASP, and a bivouac and work area (see Figure 1-5). With certain exceptions, ground support areas appear in the military surface use inventory as a collective category (see Figure 3-2). The ground support areas that appear as such in the inventory exhibit levels of surface disturbance from the activities that they support that distinguish them from surrounding unused areas. The ground support areas that do not appear in this inventory category include the observation posts, 9 of the 10 artillery firing areas, 2 of the 6 FARPs, and the 11 landing zones that are located outside of the 4 FARPs that are included. None of these areas were physically distinguishable from the surrounding use areas. The 13 observation posts, 9 of the 10 artillery firing areas, and most of the landing zones are located in either the secondary weapons impact or weapons delivery containment areas. The artillery firing area that is included in the ground support areas category is co-located with a FARP that also appears. The location of many of the ground support areas in either the secondary weapons impact or weapons delivery containment areas demonstrates how the range is used to afford flexible support for various training missions. When these ground support areas are activated for training missions that involve ground unit participation, then no ordnance deliveries with WDZs or SDZs that would encumber the occupied support areas are allowed unless means are in place to protect exposed ground personnel.

3.2.4.5 Additional Training, Support, and Range Access Control Areas and Road Network

The additional training, support, and range access control areas identified in the military surface use inventory include areas of the CMAGR that are external to either its restricted airspace or CFAs and therefore cannot support live-fire training. These areas can be used, however, for any of a number of ground-based training or range management activities such as offsite helicopter or MV-22 landings for troop insertions or extractions, cross-country navigation or path finding exercises for small infantry teams, or staging sites for target maintenance or clearance activities. These peripheral areas are also managed to limit land uses to those that would be compatible with the CMAGR training mission.

A road network has been established at the CMAGR to provide access for constructing and maintaining its infrastructure, conducting range operational clearances, training, and managing natural and cultural resources. The Gas Line and Niland-Blythe roads are used by commercial utility companies to access the gas line and overhead electric transmission lines that cross the range for inspection, maintenance, or repairs.

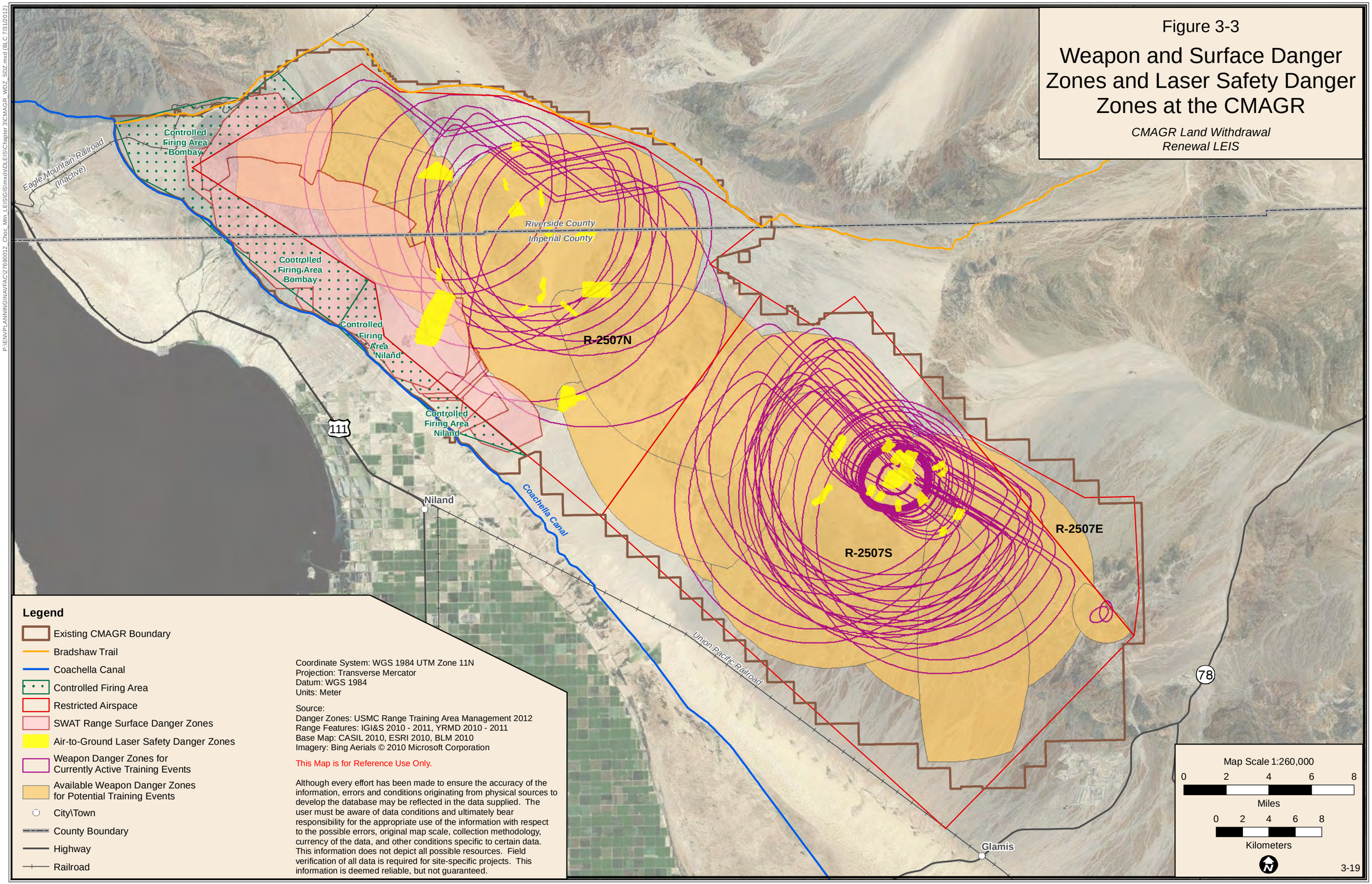

Figure 3-3

Weapon and Surface Danger Zones and Laser Safety Danger Zones at the CMAGR

CMAGR Land Withdrawal Renewal LEIS

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3.2.4.6 Surface Use Inventory Findings

The observational and quantified findings of the military surface use inventory of the CMAGR are provided in Table 3-6. The inventory found that about 99.48 percent of the range surface is used to support the military mission of the range and only about 0.56 percent of the range, or about 2,571 acres, has no assigned military mission. The land with no assigned military mission is the area of the range that is north of the Bradshaw Trail and south of the Nyland-Blythe Road (see Figure 3-2). Only a small proportion of the range, about 5 percent, supports surface uses that cause or may cause moderate to complete levels of physical disturbance to the ground surface, vegetative communities, and surface drainages. The military surface uses listed in Table 3-6 that cause or may cause moderate-to-high to complete levels of physical disturbance include:

- Target simulations and other earthwork features
- Core weapons impact areas
- Secondary weapons impact areas
- Some ground support sites
- Camp Billy Machen and its adjacent operating areas
- Range road corridors

Secondary weapons impact areas are included in this list because the interiors of these areas closest to the target are moderately to highly impacted by ordnance deliveries. However, the effects of ordnance impacts typically decrease sharply in these areas with increasing distance from the target such that the levels of disturbance at their outer perimeters is negligible. As a result, more than half of the area of the secondary weapons impact areas can be estimated to exhibit less than moderate levels of disturbance. Thus, the proportion of the CMAGR surface that is moderately to completely disturbed by military activities is likely no more than 2 percent, although it is reported as about 5 percent in this LEIS to be conservative.

The CMAGR road network includes an aggregate total of 427 miles excluding road segments that traverse target simulations or core weapons impact areas. Some are improved roads, but most are not.

3.2.5 Non-Military Surface Use and Roadless Areas

Dikes developed to protect the Coachella Canal from uncontrolled surface runoff and the inactive Eagle Mountain Railroad are located within the CMAGR along its western and northern boundaries (see Figure 3-2). In aggregate, these two non-military surface uses encompasses less than 100 acres (see Table 3-6). Three other non-military surface uses cross the CMAGR including a natural gas pipeline and two electric power transmission lines (see Figure 3-2). Although these utilities are designated as avoidance areas for ordnance delivery training, the roads that were developed for constructing and servicing these utilities are also used for military transportation. Thus, these dual-purpose road corridors are included in the inventory of military, rather than non-military, surface uses.

Table 3-6 Military and Non-Military Surface Use Areas at the CMAGR

	Surface Use Area	Associated Surface Disturbance	Total Area in Acres	Percentage of CMAGR Affected*
Military Surface Use				
1	Target simulations and other earthwork features	Physical disturbance of entire ground surface, extensive alteration of surface drainage, and complete removal of native vegetation community. Periodic re-grading of target simulations/earthworks keep vegetation communities from re-establishing and re-disrupt surface drainage.	200	0.04
2	Core weapons impact area	Disturbance of ground surface at or near some targets is extensive to complete where high-yield HE ordnance detonations over time result in concentrated and coalescing craters that may reach depths in excess of 10 feet. Vegetative communities are eliminated near targets. Natural surface drainage patterns can be substantially altered. In areas farther from targets where impact craters densities are lower and do not overlap, ground surfaces between craters and vegetative communities are still subject to ordnance blast and shrapnel effects and ejecta from craters. Use over time is likely to subject nearly any ground location in the core weapons impact area to ordnance delivery effects.	2,309	0.5
3	Secondary weapons impact area	Clusters of high-yield HE impact craters cause concentrated ground disturbance in some localized areas, especially at and near individual targets, but impact craters numbers and densities generally decrease sharply with increasing distance from targets. Physical disturbance of the ground surface also generally decreases sharply with distance from individual targets and natural processes shaping ground/soil surfaces, surface drainages, and vegetative communities become increasingly predominant. Physical disturbance in the regions of this area closest to the target is moderate to complete; disturbance in the outer region decreases from moderate to negligible with increasing distance from the target.	19,391	4.23
4	Weapons delivery containment area	Some scattered ordnance impact craters but, in the context of the broader landscape disturbances to ground surfaces and vegetative and wildlife communities, these impacts are negligible; natural processes shaping ground/soil surfaces, surface drainages, and vegetative and wildlife communities function without discernable constraint from ordnance delivery.	369,788	80.7
5	Ground support sites (21 individual sites including FARPs, Firebase Burt/Staging Area, Siphon 8 Bivouac and Work Area, Field ASP, UAS airstrip, and additional training sites)	Moderate to complete levels of disturbance to ground surfaces, surface drainages, and vegetative communities. Disturbances in FARPs, Firebase Burt/Staging Area, and additional training sites result in moderate to high levels of disturbances in areas of concentrated and repeated use by vehicles, troop bivouacs, aircraft landings and takeoffs, aircraft refueling and rearming, and other ground unit work areas such as communications or air control sites. Construction/grading of Siphon 8 Bivouac and Work Area, Field ASP, and UAS airstrip required complete reshaping of the existing ground surface; however, the airstrip and associated ground troop bivouac and work areas are located within a larger inactive and historic rock quarry site in which the ground surfaces, surface drainages, and vegetative communities had been previously and completely altered from the undisturbed natural condition.	429	0.09
6	Camp Billy Machen and associated static ranges	High to complete levels of disturbance to ground surfaces, surface drainages, and vegetative communities as a result of the construction and use of the Camp Billy Machen and associated static ranges.	134	0.03

	Surface Use Area	Associated Surface Disturbance	Total Area in Acres	Percentage of CMAGR Affected*
7	SWATs 4 and 5	Negligible to low levels of disturbance to ground surfaces, surface drainages, and vegetative communities over most of the SWAT live-fire training area. Moderate to high levels of disturbance to ground surfaces, surface drainages, and vegetative communities in some small and dispersed areas (individually less than an acre) where concentrated or repeated use by Navy SEALs has occurred.	31,593	6.9
8	Additional training, support, and range access control areas	Negligible levels of disturbance to ground surfaces, surface drainages, and vegetative communities over most of areas as a result of military training and range support activities. Low to moderate levels of disturbance in some dispersed perimeter areas near public use roads outside of the range likely due to trespass off-highway vehicle (OHV) use by non-military users.	30,817	6.7
9	Range road corridors (427 miles of road segments in aggregate with a standardized corridor width of 15 feet, excludes road segments that traverse target simulations or core weapons impact areas (Lines 1 and 2))	High to complete levels of disturbance to ground surfaces, surface drainages, and vegetative communities within road corridors. Corridors vary in width as they result from lightly-used, single-lane tracks to frequently-used graded roads. Area calculations are based on a standard corridor width of 15 feet to represent an average disturbance and influence zone associated with road maintenance and use.	740	0.16
10		**Total Military Surface Use (Sum of Lines 1 - 9)**	**455,399**	**99.35**
Non-Military Surface Use				
11	Excess area-—land north of the Bradshaw Trail, which has no assigned military function	Negligible levels of disturbance to ground surfaces, surface drainages, and vegetative communities over most of areas; low to moderate levels of disturbance in some small and dispersed areas likely due to non-military activities including OHV use.	2,778	0.61
12	Inactive railroad corridor (9.28 miles of corridor with a width of 40 feet)	Complete levels of disturbance to ground surfaces, surface drainages, and vegetative communities within the railroad road corridor.	44	<0.01
13	Canal dike corridors (27 miles of aggregate corridor with a width of 15 feet)	Complete levels of disturbance to ground surfaces, surface drainages, and vegetative communities within these graded canal dike corridors.	45	<0.01
14		**Total Non-Military Surface Use (Sum of Lines 11 and 15)**	**2,868**	**0.63**
15		**Total Military and Non-Military Surface Use (Sum of Lines 10 and 16)**	**458,267**	**100.0**

* The percentage for each line is calculated as line area divided by 458,267 acres, the total area of the CMAGR as determined by summing all of the individual surface use areas of the range. The sizes of the individual surface use areas were determined by geographic information system (GIS) analysis. This summation value for the area of the range is 263 acres, or about 0.06 percent, smaller than the total area of the range (458,530 acres) reported elsewhere in this LEIS, including in Section 1.1, which was also determined by GIS analysis. The second and larger figure is the area encompassed by the external boundary of the CMAGR. The summation value is smaller because of overlaps between the polygons representing the many separate use area designations, which are small in any one location but collectively account for a 263-acre underestimate of the area of the range.

DoI guidance for preparing land withdrawal applications provide that roadless areas or roadless islands having wilderness characteristics be identified within the requested withdrawal area (43 CFR § 2310.3-2(b)(3)(ii)). The proposed renewal of the CMAGR is for the continued use of a military range that has been in use for nearly 70 years. Although there are undeveloped and relatively undisturbed areas in the range that are 5,000 acres or more, the minimum area required by the Wilderness Act of 1964 (16 U.S.C. 1131, et seq.), ongoing use of these areas to receive dispersed impacts from live and inert ordnance, off-site helicopter or MV-22 landings, and cross-country infantry movements renders an assessment of wilderness characteristics as inappropriate. Thus, the roadless area assessment has been limited in this LEIS to identifying the areas within the CMAGR that are not bisected by roads, target simulations, other earthwork features, core and secondary weapons impact areas, ground support areas, railroads, or canal dikes, which collectively occupy about 5 percent of the range surface (Figure 3-4). Although affected by and needed to support military use, the 95 percent of the range that is roadless remains in a relatively undeveloped, unstructured, and undisturbed condition. Military purposes served by these areas include serving as weapons delivery containment areas; no live-fire training, support, and range access control areas; or SWAT 4 or 5 (see Figure 3-2). There are 14 roadless areas in the CMAGR that are 5,000 acres or more in size (Table 3-7). Most of these areas, including the largest area encompassing about 139,430 acres, are classified as weapons delivery containment areas.

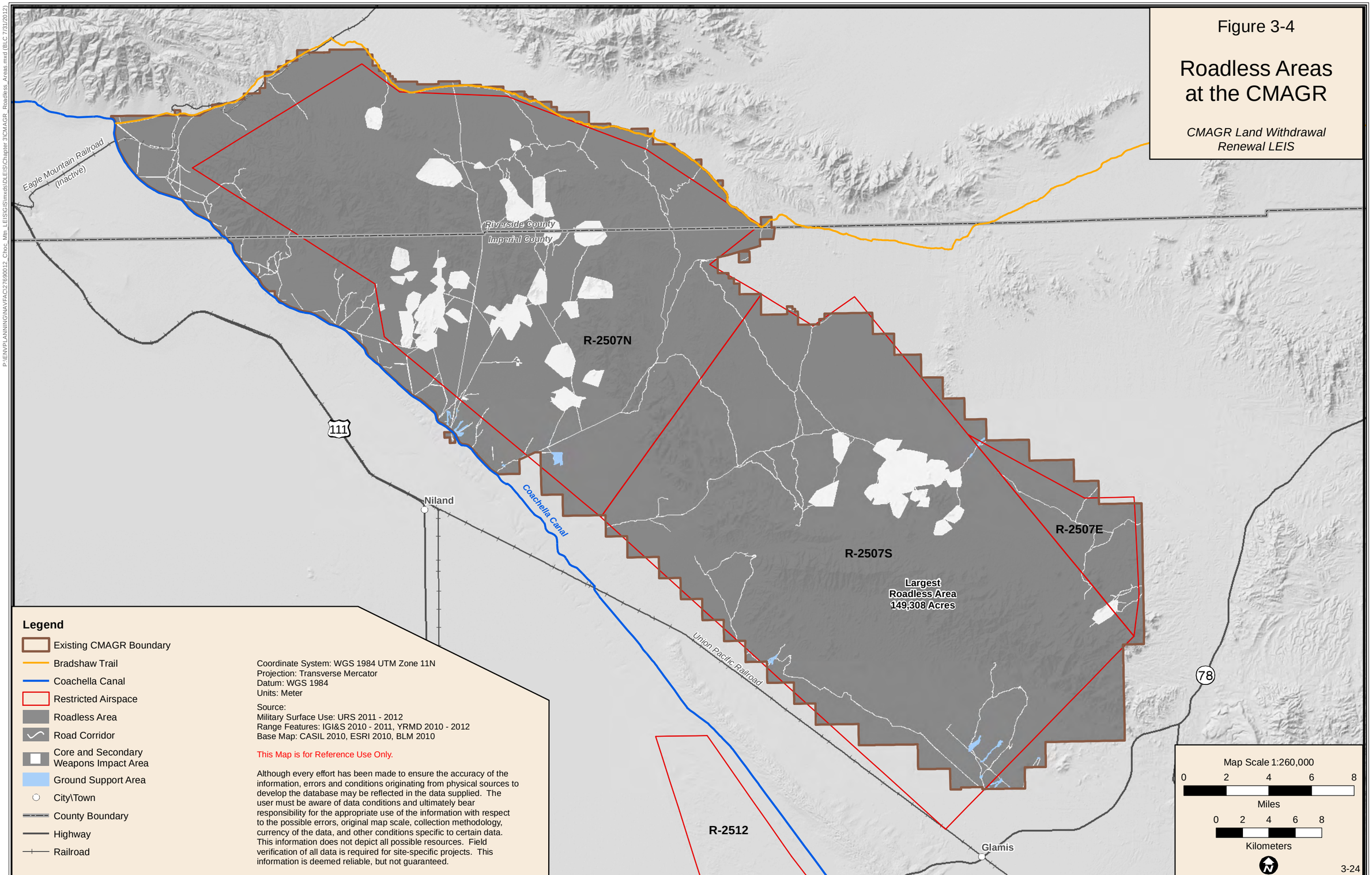
Table 3-7 Numbers of Roadless Areas at the Chocolate Mountain Aerial Gunnery Range in Selected Size Categories

Roadless Area Category	Number of Roadless Areas	Comments
Less than 1,000 acres	241	
1,000 acres to 5,000 acres	15	
5,001 acres to 10,000 acres	7	
10,001 acres to 20,000 acres	2	Roadless areas of 15,954 and 17,690 acres
20,001 acres to 40,000 acres	3	Roadless areas of 22,752, 24,538, and 36,160 acres
40,001 acres to 100,000 acres	1	Roadless area of 73,814 acres
greater than 100,001 acres	1	Largest roadless area is 139,430 acres

3.2.6 Ordnance Expenditures

Ordnance expenditures occur at the CMAGR as essential parts of both air and ground combat training. As already indicated, the range is approved for training with most types of conventional (i.e., non-nuclear) ordnance, including some fire (i.e., NAPALM) and cluster bombs, although limits are placed on the employment of all weapons to ensure that hazards associated with their use are contained within the land and airspace boundaries of the range. The CMAGR, like all Marine Corps ranges, is not approved for expenditures of depleted uranium rounds.

The types, variants, and volumes of ordnance expended each year at the CMAGR varies in accordance with the specific training missions performed, the availability of ordnance for training, and the prevailing tempo of training, which in turn can reflect international affairs and deployments by Marine Corps and Navy units that are otherwise home stationed in the CMAGR operating region. Although year-to-year ordnance expenditures at the CMAGR vary, expenditures for a single year are nevertheless typical of the



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general pattern of ordnance use. Table 3-8 shows ordnance expenditures for Fiscal Year (FY) 2004[7] and descriptions of the ordnance are provided in Appendix D. These data were collected for the West Coast Basing of the F-35 FEIS that addressed the need to find appropriate military air installations in the western United States at which to base Marine Corps F-35 aircraft, which will begin replacing legacy F/A-18 and AV-8B aircraft as early as in 2012. The FY 2004 ordnance data continue to provide a fair perspective of current and foreseeable expenditures at the CMAGR with some updates to account for trends in warfighting tactics, improvements in military ordnance, and new aircraft weapons systems capabilities. Annual training use of 2.75-inch rockets had nearly tripled from about 2,850 in FY 2004 to about 8,500 in FY 2009 and expenditures of 20mm cannon rounds nearly doubled from about 134,000 rounds to about 260,000 rounds. At the same time, the use of the MK-76 inert training bombs, which are 25-pound subcaliber devices with smoke producing spotting charges that simulate the delivery trajectories of full-sized and unguided bombs, decreased by about one-half from the FY 2004 figure of almost 11,500. Most dramatic over the same time period has been an about 18-fold increase in training expenditures of the Joint Direct Attack Munition (JDAM) from only 17 rounds in FY 2004 to over 300 annually by FY 2009. The Global Positioning System (GPS) guided JDAM, which is listed as the GBU-31 in Table 3-8, was relatively new in 2004 and, although used extensively in warfighting in Afghanistan and Iraq, had not yet been widely incorporated in training. Precision-guided weapons like the JDAM have become mainstays of U.S. air combat tactics because of the significant advantages that they offer in combat effectiveness and reduced collateral damage over conventional unguided munitions. The training variant of the JDAM used at the CMAGR is a full-sized weapon with a GPS guidance system but has an inert warhead.

Table 3-8 Ordnance Expenditures at the CMAGR in FY 2004[a]

Ordnance	Air-To-Ground Training Expenditures	WTI Course Expenditures	SEAL Training Expenditures	Total Rounds Expended
2.75-inch Rocket HE	2,832			2,832
2.75-inch Rocket Inert	26			26
5-inch Rocket HE	584			584
20mm Cannon	134,298			134,298
25mm Cannon	4,800			4,800
30mm Cannon	800			800
MK-20 Inert	591			591
MK-20 HE	8			8
MK-76	11,453			11,453
MK-77 NAPALM Incendiary	13			13
MK-82 HE	2,186			2,186
MK-82 Inert	20			20
MK-83 HE	1,302			1,302
MK-83 Inert	8			8
MK-84 HE	80			80
MK-84 Inert	2			2
MK-86	49			49
MK-87	1			1
CBU-20	6			6
CBU-58	4			4
CBU-87	158			158
CBU-99	160			160
CBU-100	8			8
BDU-13	4			4
BDU-16	26			26
BDU-20	20			20

[7] 1 October 2003 through 30 September 2004

Ordnance	Air-To-Ground Training Expenditures	WTI Course Expenditures	SEAL Training Expenditures	Total Rounds Expended
BDU-24	2			2
BDU-33	82			82
BDU-45	735			735
BDU-48	596			596
BDU-87	32			32
BDU-99	42			42
GBU-10	8			8
GBU-12	56			56
GBU-16	33			33
GBU-23	10			10
GBU-24	72			72
GBU-31	17			17
GBU-40	8			8
GBU-42	11			11
GDU	2			2
TOW Missile	17			17
AGM-114 Hellfire Missile	11			11
AGM-122 Sidearm Missile (AIM-9)	4			4
AGM-88 HARM	1			1
LGTR	419			419
LUU-2	87			87
LUU-19	8			8
CHAFF	533			533
Flares	734			734
60mm WP/RP/SMK/ILL		120		120
60mm HE		200	908	1,108
81mm WP/RP/SMK/ILL		360		360
81mm HE		540		540
155mm WP/RP/SMK/ILL		312		312
155mm HE		1,060		1,060
M72A2 66mm HE LAW Missile			152	152
40mm HE			9,073	9,073
40mm Inert			18,260	18,260
84mm HE			1,636	1,636
84mm Inert			244	244
Demolition Charge			8,234	8,234
			Total Rounds Expended	204,159

[a] Data Source: Department of the Navy (DoN). 2010b. Appendix C-1.7 Modeled Ordnance at Chocolate Mountain Aerial Gunnery Range. Final EIS for the West Coast Basing of the F-35B, Volume 2. October.

3.2.7 Operational Range Clearance Program

As described in Section 2.2.4.2, the Marine Corps currently conducts an operational range clearance program at the CMAGR on an ongoing annual basis in accordance with MCO 3550.12. The purpose of the program is to destroy and remove military munitions—including UXO and munitions debris—and other range-related debris from range targets or other contaminated areas. This is done to maintain or enhance operational range safety and prevent the accumulation of such material from impairing or preventing continued operational range use.

The CMLWOA provided that the Secretary of the Navy was to maintain a range decontamination program at the CMAGR, to the extent that funds were made available, that would, at a minimum, match the level of the program that was performed in FY 1986 (P.L. 103-433 § 807(a)). Based on available funding and the practice at the time, the program in FY 1986 was limited to clearing UXO or other

hazards from range roads and target surface areas to provide safe access and work areas for personnel constructing and maintaining targets or performing other authorized duties on the range. These clearances were scheduled only as needed in advance of range maintenance and construction activities. By standard operating procedure, range clearance records were kept for three years and then discarded. Range clearances at the CMAGR occurred in the same mode as the FY 1986 program through FY 2008. In FY 2009, funding was made available to implement an operational range clearance program at the CMAGR in accordance with MCO 3550.12, which was issued by the Commandant of the Marine Corps in August 2008.

In keeping with the program's concept of operations, which is described in Section 2.2.4.2, a baseline clearance of each active target area at the CMAGR has been completed. The results of the baseline clearance include:

- FY 2009—1,554 tons of munitions and other range debris were cleared from seven target areas encompassing 841 acres in aggregate at a cost of $8,319,500.
- FY 2010—about 1,274 tons of munitions and other range debris were cleared from seven target areas encompassing 597 acres in aggregate at a cost of $3,127,177.
- FY 2011—about 531 tons of munitions and other range debris were cleared from 17 target areas encompassing about 1,455 acres in aggregate at a cost of $7,209,472.

In total from FY 2009 through FY 2011, the baseline clearance removed 3,359 tons of munitions and other range debris from the 29 active target areas at the CMAGR, which encompassed about 2,893 acres in aggregate. Three of the 29 active target areas were cleared twice in the three years of record. The total of about 2,893 acres cleared compares favorably to the approximately 2,500 acres in aggregate that were classified as target simulations and core weapons impact areas in the military surface use inventory (see Table 3-6). The first three years of the operational range clearance program cost a total of $18,656,149.

3.3 NON-MILITARY LAND USE

This section discusses land use conditions in the area potentially affected by the CMAGR land withdrawal. The following discussion focuses primarily on existing and future land use conditions within the 5-mile region of influence (ROI); however, a larger planning area within the vicinity of the CMAGR is included to provide a regional land use context (Figure 3-5).

3.3.1 Regional Land Use Setting

The CMAGR is located in a remote region of the eastern California desert. With very few exceptions, the land use that has developed in the ROI over the last century has remained stable. Along the northernmost section of the CMAGR is a series of geologic features with basin and range formations. These stark natural features create a natural buffer along the boundary of the CMAGR. Toward the western region of the CMAGR, the lands remain primarily undeveloped with small nodes of scattered residential dwellings, recreational activities, and renewable natural resource exploration. Toward the southernmost region of the CMAGR is the largest node of development activity, which is primarily industrial in nature with active recreation areas and utility and transportation corridors. This area includes the UPRR ROW and the Reclamation Coachella and Highline Canal system, ultimately expanding toward the Imperial Valley agricultural belt and the Salton Sea State Recreational Area (SRA). See Figure 3-5, Non-Military Land Use at the CMAGR for land uses within the ROI and the vicinity of the CMAGR.

With the exception of the town of Niland, the community of Bombay Beach, and pockets of other outlying communities, very few permanent residential developments are located within the ROI of the Range. This region of the desert is not urbanized, which allows for expanses of natural undisturbed open space, natural resources exploration, utility corridors, agriculture, and multiple recreational activities.

3.3.2 Land Status and Management Responsibilities

Lands within and along the perimeter of the CMAGR are described in this section in terms of land status or jurisdiction. Land status depicts the limits of administration or jurisdiction maintained by the major landholders or administrators. Land status designations are important as they directly determine agency jurisdiction, expenditure of management funds, and basic land use and resource management.

3.3.2.1 Land Status and Management Authorities within the CMAGR

In general, land jurisdiction within the CMAGR follows a checkerboard pattern (see Figure 1-2). As discussed in Section 1.5, approximately 51 percent of the CMAGR is DoN land and is managed in accordance with the Sikes Act. Most of the balance of the land is managed by the BLM in accordance with FLPMA.

The FLPMA provides the BLM with an overarching mandate to manage the public lands and resources under its stewardship under the principles of multiple use and sustained yield. “Multiple use” is a concept that directs management of public lands and their resource values in a way that best meets the present and future needs of Americans, defined as a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources (BLM 1976). The BLM manages its land within the CMAGR in accordance with the Northern and Eastern Colorado Desert Coordinated Management Plan (BLM 2002a), an amendment to the California Desert Conservation Area (CDCA) Plan.

The Sikes Act requires DoD agencies to develop resource management plans for the natural resources and land associated with Nation’s military reservations, including those composed entirely of withdrawn public land. The Sikes Act also sets forth specific resource management policies and guidance for U.S. military installations and requires the preparation of INRMPs for installations, such as the CMAGR.

3.3.2.2 Regional Land Jurisdictions, Greater CMAGR Region – Federal

California Desert Conservation Area Plan: Designated by the FLPMA in 1976, the CDCA is a 25-million acre expanse of land in Southern California. About 10 million acres are administered by the BLM. The Range and surrounding region is included in the CDCA. Congress directed the BLM to prepare and implement a comprehensive, long-range plan for the management, use, development, and protection of the public lands within the CDCA based on the concepts of multiple use, sustained yield, and maintenance of environmental quality. The CDCA establishes goals for protection and use of the desert, designates distinct multiple use classes for the lands involved, and establishes a framework for managing the various resources within these classes. These lands are managed in a controlled balance between higher intensity use and protection. A wide variety of uses, such as mining, livestock grazing, recreation, energy, and utility development, are allowed. Damage that permitted uses cause must be mitigated (BLM 1980).

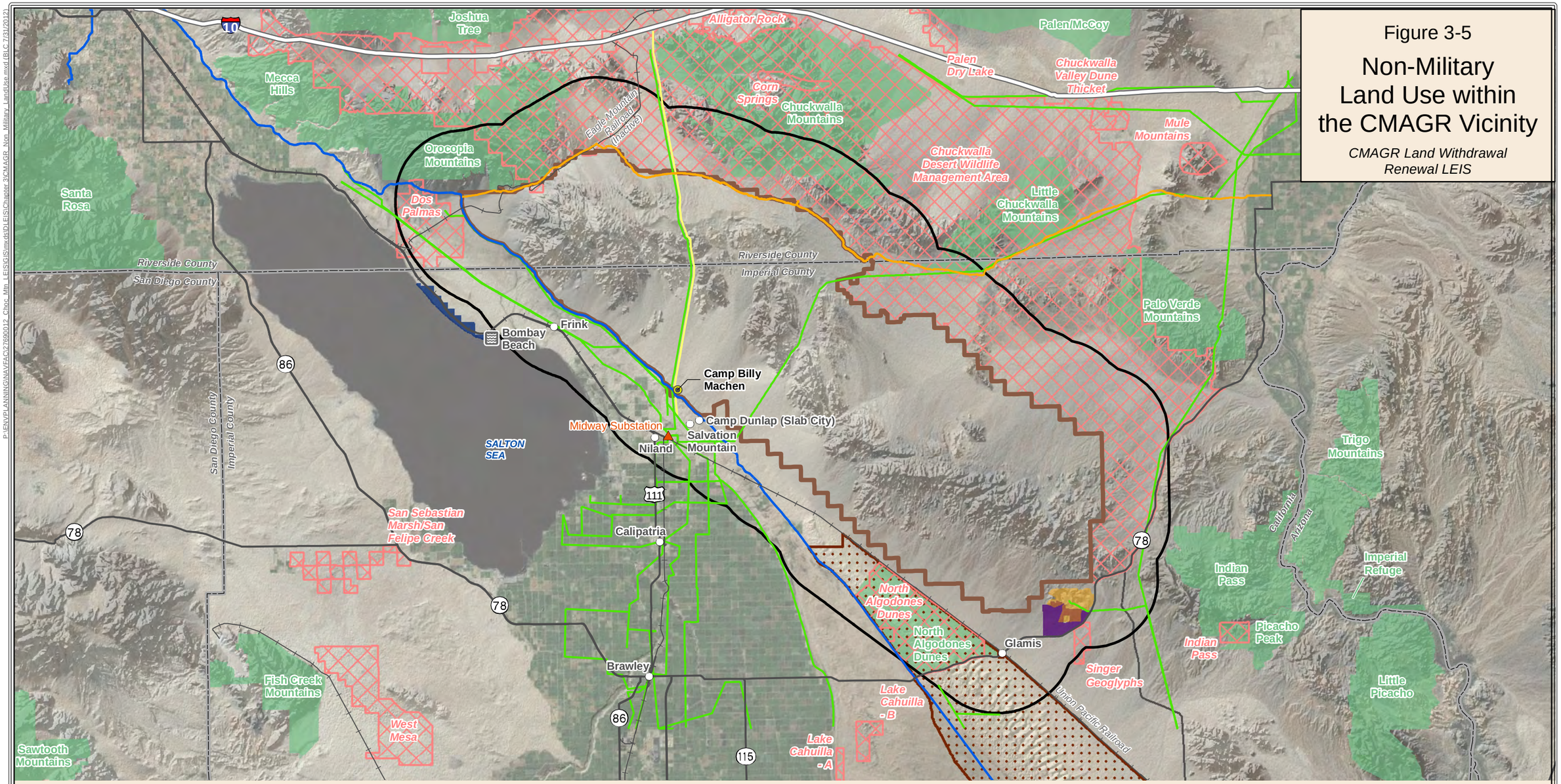

Figure 3-5

Non-Military Land Use within the CMAGR Vicinity

CMAGR Land Withdrawal Renewal LEIS

Legend

- Existing CMAGR Boundary
- Bradshaw Trail
- Coachella Canal
- Region of Influence - Five Miles
- Camp Billy Machen
- Bombay Beach
- Gas Line
- Transmission Line
- Substation
- Mesquite Mine
- Mesquite Regional Landfill
- Salton Sea Recreation Area
- BLM Imperial Sand Dunes Recreation Area
- BLM Area of Critical Environmental Concern
- BLM Wilderness Area
- City\Town\Locale
- County Boundary
- Railroad
- Interstate
- Highway

Coordinate System: WGS 1984 UTM Zone 11N
Projection: Transverse Mercator
Datum: WGS 1984
Units: Meter

Source:
ACEC, Recreation Area, Wilderness: BLM 2008 - 2010
Mequite Mine and Regional Landfill: YRMD 2011
Range Features: IGI&S 2010 - 2011, YRMD 2010 - 2011
Base Map: CASIL 2010, ESRI 2010, BLM 2010
Imagery: Bing Aerials © 2010 Microsoft Corporation

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Although every effort has been made to ensure the accuracy of the information, errors and conditions originating from physical sources to develop the database may be reflected in the data supplied. The user must be aware of data conditions and ultimately bear responsibility for the appropriate use of the information with respect to the possible errors, original map scale, collection methodology, currency of the data, and other conditions specific to certain data. This information does not depict all possible resources. Field verification of all data is required for site-specific projects. This information is deemed reliable, but not guaranteed.

Map Scale 1:475,000

0 2.5 5 7.5 10
Miles
0 2.5 5 7.5 10
Kilometers

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The Northern and Eastern Colorado Desert Coordinated Management Plan (NECO): The NECO (BLM 2002a) is an amendment to the 1980 CDCA. The NECO is a landscape-scale, multi-agency planning effort that protects and conserves natural resources while simultaneously balancing human uses within a planning area that encompasses over five million acres. Lands within the NECO area are popular for hiking, hunting, rockhounding, and driving for pleasure. Several commercial mining operations, livestock grazing, OHV recreational areas, and utility transmission corridors exist in the area as well. The NECO's planning boundary extends from the southwestern alignment of the CMAGR northeast toward Interstate 40 and southwest to Interstate 10.

Western Colorado Desert Routes of Travel Designations (WECO) Amendment: The WECO is an amendment to the CDCA that designates preferred routes of travel across public lands managed by the BLM in the WECO Planning Area. The planning area covers approximately 475,000 acres and approximately 2,320 miles of OHV routes in parts of Imperial and San Diego counties. The WECO's planning boundary extends south and west of the CMAGR toward the Salton Sea. Following the CDCA, as amended, the BLM manages the type and level of OHV use to create an environment that promotes the health and safety of visitors and employees and alleviates conflict between nearby residents and recreational users (BLM 2002b).

Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP): The plan establishes a reserve system to protect biodiversity while facilitating development in other parts of the Coachella Valley. The CVMSHCP provides for the protection and enhancement of biological values, with emphasis on the Big Morongo, the Fringe Toed Lizard Preserve, and the Dos Palmas Areas of Critical Environmental Concern. The BLM provides a portion of the federal funding toward development and implementation of the CVMSHCP (BLM 2002c).

3.3.2.3 Regional Land Jurisdiction – State

Regional Comprehensive Plan and Regional Transportation Plan: The Southern California Association of Governments' (SCAG) Intergovernmental Review (IGR) section, part of the Environmental Planning Division of Planning and Policy, is responsible for performing consistency reviews of regionally significant local plans, projects, and programs. The CMAGR is located within the regional planning boundary of the SCAG. Regionally significant projects are required to be consistent with SCAG's adopted regional plans and policies such as the Regional Comprehensive Plan and the Regional Transportation Plan. The criteria for projects of regional significance are outlined in California Environmental Quality Act (CEQA) Guidelines, Sections 15125 and 15206 (SCAG 2008).

3.3.2.4 Regional Land Jurisdiction – County

The State of California Government Code Section 65300, states that each "county or city shall adopt a comprehensive, long-term general plan for the physical development of the county...." Furthermore, Government Code Section 65302 states that, "The general plan shall consist of a statement of development policies and shall include a diagram or diagrams and text setting forth objectives, principles, standards, and plan proposals." The CMAGR is located within the management authority of both Riverside and Imperial counties. Both counties have adopted General Plans (Governor's Office of Planning and Research [GOPR] 2005).

Riverside County General Plan: The Riverside County General Plan covers the entire unincorporated portion of Riverside County and is augmented by 19 more detailed Area Plans covering the County's territory with the exception of the undeveloped desert areas. The goal of the General Plan is to manage the overall pattern of development more effectively. The Area Plans provide a clear and more focused opportunity to enhance community identity within Riverside County and stimulate quality of life at the community level. The Eastern Riverside County Desert Area (Non-Area Plan) governs the land densities

north of the Riverside/Imperial County boundary line west toward Coachella Valley and east toward Blythe (Riverside County 2008).

The Imperial County General Plan: The Imperial County General Plan consists of nine elements titled Land Use, Housing, Circulation and Scenic Highways, Noise, Seismic and Public Safety, Agricultural, Conservation and Open Space, Geothermal and Transmission, and Water. Also included in the General Plan is a Land Use Map designating a series of land use categories which identifies locations, and discusses the type and anticipated maximum allowable density of ultimate development within the County (Imperial County 1993).

3.3.3 Land Use

Lands along the perimeter of the CMAGR within the ROI are described in this section in terms of jurisdiction, existing land use, and future land use. The BLM is the single largest jurisdictional entity in the immediate vicinity of the range. No active commercial grazing leases have been identified within the ROI. Land uses within the ROI and the vicinity of the CMAGR are indicated on Figure 3-5, Non-Military Land Use at the CMAGR.

3.3.3.1 Northern Section

The lands described in this section are located toward the northern boundary of the CMAGR, adjacent to the Dos Palmas Preserve Area of Critical Environmental Concern (ACEC), and the western tip of the Range, north and east toward the Little Chuckwalla Mountains. This northern section of the CMAGR is located within BLM's Palm Springs-South Coast Field Office and Riverside County Planning Boundaries.

The vast majority of the lands in this area are administered by the BLM, and much of the land is designated as ACECs (see Figure 3-5). These lands are generally undeveloped and used primarily as open space and conservation with some recreational uses such as hiking, camping, bird watching, hunting, and rockhounding.

In addition to the BLM lands, there are scattered parcels of private and State Trust lands. Privately owned parcels are scattered along the Bradshaw Trail within Riverside County's jurisdiction. Some parcels have isolated residential dwellings, although the majority appear to be abandoned or are rarely inhabited. Some private parcels have recently been purchased by private developers and donated to the BLM to mitigate for the development or renewable energy on other land in the region. In addition, there are small parcels of State Trust lands in this area that are administered by the California State Lands Commission (Figure 3-5, Land Ownership in the vicinity of the CMAGR).

The Riverside County planning department is currently updating their 5-Year General Plan for future land use. General Plan Amendment No. 960 includes the area along the north section of the CMAGR. The "Eastern Riverside County Desert Plan" is the overlying county planning document that encompasses this area of the CMAGR. The draft update states, "Development in areas surrounding the Chocolate Mountain Aerial Gunnery Range shall remain limited and compatible with the Open Space Foundation Component." Once the updates to the plan are approved, new planning policies will be enacted that will "Prohibit new residential land uses, except construction of a single-family dwelling on a legal residential lot of record, within the current 60 dB Community Noise Equivalent Level contours of the Chocolate Mountain Aerial Gunnery Range" (Riverside County 2011).

3.3.3.2 Eastern Mid-section

The lands described in the following sections are located toward the east and south of the mid-section of the CMAGR, and adjacent to the Riverside and Imperial county divide. The BLM El Centro Field Office

manages the area south of the county divide. The majority of land within the CMAGR is within the planning jurisdiction of Imperial County. The existing land use within this area is heavily associated with renewable natural resources and utility infrastructure, with the land ownership checkerboard divided between public and private ownership (Figures 2-1, 2-2, and 2-3, Land Ownership in the vicinity of the CMAGR). Residential dwellings are scattered throughout this area. Based on a review of aerial photography and limited field reconnaissance, it is difficult to discern if the dwellings on certain privately held parcels are abandoned or seldom used as a weekend retreat.

The Imperial County Comprehensive Plan has delineated future land use of these lands as "Open Space and Recreation Land Uses," with the majority of the land uses within this category consisting of environmentally sensitive areas, parks, fault zones, floodways and floodplains, agricultural lands, and areas designated for the managed production of mineral resources (Imperial County 2007).

3.3.3.3 Southeastern Section

The BLM El Centro Field Office and Imperial County have jurisdiction over the southern section. The land use pattern associated with the southeast ROI is generally industrial in nature, with some recreational activities. The existing Mesquite Gold Mine abuts the CMAGR in this area. The Mesquite Gold Mine is operated as an open pit mine with leaching pads for processing. It is considered to be one of the largest active gold mines in the country (New Gold 2011). Adjacent to the mine site is the newly permitted Mesquite Regional Landfill administered by the Sanitation Districts of Los Angeles County (SDLA). The landfill covers approximately 4,245 acres and is permitted to receive waste by rail. A 5-mile rail spur connects the landfill to the UPRR mainline, near the destinations of Glamis, Algodones Dunes, and the Imperial Sand Dunes Recreational Area (ISDRA) (SDLA 2011).

3.3.3.4 Southwestern Section

The BLM El Centro Field Office and Imperial County have jurisdiction within the Southwestern CMAGR ROI. The existing land use patterns are diverse and include several regionally significant destinations and culturally relevant attractions. In this area of the CMAGR, the UPRR and the Coachella Canal currently act as physical barriers for land use transition.

The town of Glamis is located south of the southernmost reach of the CMAGR. This area is associated with the ISDRA and is considered to be a winter haven for recreational and OHV visitors. The area has very few permanent structures or infrastructure and the land is managed largely by BLM. Imperial County has created a Specific Plan in this area to assist in the management of the temporary population boom that can occur overnight during the winter months and holiday weekends (Imperial County 2007). The ISDRA is further discussed in Section 3.3.8, Recreation.

The existing land use within the ROI of the CMAGR in the southwestern section is primarily uninhabited and transitions from generally recreation in nature to agricultural near the UPRR-Coachella Canal junction. The Imperial County Land Use Plan supports the transition in this area (Imperial County 2007).

The Imperial Valley agricultural belt continues east of the Salton Sea on a northwestern trajectory past the urban area of Niland and south along the Coachella and Highline canal system. Industrial uses within the area include a county waste facility, a major filtration plant south of Camp Dunlap, and small mining and gravel pit operations. Minor residential nodes occur southwest of the CMAGR and adjacent to the Coachella Canal. These residences are primarily mobile home parks/trailer parks with seasonal populations that peak during the winter months. Other residential specific plan developments that focus on recreational mineral spas occur near the town of Frink and northwest of Niland, adjacent to the CMAGR.

Slab City is located south of the Coachella Canal and west of Beal Road, north of the town of Niland. Slab City's foundation is located on the dismantled Fort Dunlap Marine training base. The area is widely known to attract site seeing, winter visitors and local squatters. Slab City has become a fairly organized off the grid community, with a centralized trading center; library; and Leonard Knight's Salvation Mountain, a religious monument visited by thousands each year.

With the exception of renewable natural resource production, discussed in Section 3.3.5, no other future land uses were identified in this section of the CMAGR ROI.

3.3.4 Utilities

This section identifies major existing electrical transmission lines, petroleum and gas pipelines greater than 16 inches in diameter, and irrigation canals that occur within or adjacent to the CMAGR.

3.3.4.1 Utilities within the CMAGR

Three transmission line corridors and one gas line corridor are located within the CMAGR. The "Gasline" 161-kilovolt (kV) transmission line is maintained by Imperial Irrigation District (IID) and crosses the CMAGR along the Gasline Road alignment. The transmission line shares right-of-way with the Southern California Gas Company (SoCal Gas), which delivers natural gas via a 24-inch-wide natural gas pipeline. The pipeline runs south through Imperial County; transects the CMAGR; and serves Niland, Calipatria, Brawley, Imperial, El Centro, Heber, and Calexico. The "N" 161-kV transmission line, maintained by IID, extends along the western perimeter of the Range, from Camp Billy Machen, northerly along the Coachella Canal and then toward the city of Coachella, California. The "F" 161-kV transmission line, maintained by IID, transects the CMAGR, from the Niland Substation northeasterly toward the city of Blythe, California. The DoN granted easements for the utilities within the CMAGR.

3.3.4.2 Utilities within the CMAGR ROI

Two utility corridors designated by the BLM California Desert District (CDD) are located to the northeast and southwest of the CMAGR and are associated with the expansion of transmission infrastructure in relation to renewable energy development in the region.

The newly expanded Midway Gas Turbine Plant and Substation (Midway) is located south of the CMAGR, and adjacent to the town of Niland. Midway also contains an additional solar generation component. Midway serves as a peaking power plant and links to the greater southwestern power grid and to several lower voltage IID transmission lines located to the south and east of the CMAGR ROI (IID 2011).

The Santa Fe Pacific Pipeline delivers petroleum in pipelines located within the UPRR ROW, along the southwest boundary of the CMAGR, to a petroleum storage facility near the Midway Substation in Niland.

The Coachella Canal is located southwest of the CMAGR and was first placed into service in 1949; as a feature of the Coachella Division of the All-American Canal System, Boulder Canyon Project. The Coachella Canal is 123 miles in length and delivers Colorado River water from the All-American Canal to irrigate 78,530 acres of agricultural land in the Coachella Valley of California (Reclamation 2009).

3.3.5 Renewable Energy

The combination of the following federal, state, and local policies, acts, and plans; remoteness of the region; availability of water; existing infrastructures; and geographical expanse of open space, make the

lands around the CMAGR eligible for renewable and natural resource development. The following energy policies, plans, and initiatives may influence energy development within the CMAGR ROI.

3.3.5.1 Renewable Energy – Federal

Federal Land Transaction Facilitation Act (FLTFA): The FLTFA, also referred to as the Baca Act, was signed into law on 25 July 2000 (BLM 2000). The FLTFA directs revenues generated from the sale or disposal of certain public lands to an acquisition account. Four agencies, including the BLM, U.S. Forest Service, National Park Service, and U.S. Fish and Wildlife Service, can use the acquisition account to purchase lands located within federally designated areas from willing sellers, and the account also can be used by the BLM to place public lands for sale. The agencies entered into a National Memorandum of Understanding (MOU) in May of 2003 for land purchases governed under the FLTFA. In California, the four regional offices of the agencies entered into an MOU, under a Statewide Interagency Implementation Agreement (BLM 2005).

West Chocolate Mountains Renewable Energy Evaluation Area (REEA): In July 2011, the BLM released the draft REEA EIS, which is proposed to amend the CDCA. The REEA evaluates the potential environmental impacts of allocating federal mineral estate (not including acquired lands) for geothermal energy leasing, testing, and development of geothermal power generation facilities on public lands near the CMAGR. The REEA also was prepared to evaluate the potential environmental impacts of allocating BLM-administered federal surface estate in the same planning area for testing and development of solar and wind power generation facilities (BLM 2011a).

3.3.5.2 Renewable Energy – State

The Renewable Energy Transmission Initiative (RETI): California has adopted energy policies that require substantial increases in the generation of electricity from renewable resources. RETI is a statewide initiative that has assisted in identifying the transmission projects needed to accommodate renewable energy goals, support future energy policy, and facilitate transmission corridor designation and transmission and generation siting and permitting (California Energy Commission [CEC] 2010).

3.3.5.3 Renewable Energy – County

Riverside and Imperial counties have recently adopted or are in the process of updating land use ordinances that provide for the physical land use planning criteria, development standards, and regulations for potential development pertaining to alternative energy, within the region of influence of the CMAGR.

3.3.5.4 Renewable Energy Projects

Multiple renewable energy projects led by the BLM and applicable California state and county environmental review are currently in different phases of consultation, public participation, and environmental analysis. The majority of these projects are wind energy, followed by solar energy and geothermal.

Two major renewable energy nodes have been identified adjacent to the CMAGR. The first node is adjacent to the northwestern CMAGR boundary, within Riverside County and west of the Little Chuckwalla Mountains, where three applications for wind projects are in various stages of review. The proposed projects in this area appear to be sited primarily on BLM- and Reclamation-managed lands. The second node is located east of the southeastern section of the CMAGR, near New Gold's Mesquite Mine and east of State Route (SR) 78. This node is located within the previously discussed CDD-designated utility corridor. Five wind energy applications and one solar energy application are currently being

reviewed within this area. These projects appear to be sited primarily on BLM- and Reclamation-managed lands, with some sited on privately held lands (BLM 2011b).

3.3.5.5 Mitigation/Compensation

Lands acquired by the BLM under donation agreements, for mitigation/compensation purposes, and with Land and Water Conservation Funds, are to be managed as avoidance/exclusion areas for land use authorizations that could result in surface-disturbing activities. Four such parcels are located along the CMAGR boundary. Should BLM-California managers have use authorization applications pending, or receive new applications on lands that meet the above criteria, they are required to notify the State Director and set up a briefing to address how to respond to those applications. Should managers have inquiries related to pre-application activities for any land use authorizations on lands that meet the above criteria, they will notify applicants regarding the location of these lands as soon as possible and advise them to avoid these lands or provide details on how they would plan to operate or mitigate their project in a manner consistent with the values of the lands donated or acquired for conservation purposes (California Department of Parks and Recreation 2010).

3.3.6 Surface Transportation

3.3.6.1 Surface Transportation within the CMAGR

As the CMAGR is not open to public use, interior roads are limited to use by authorized military personnel and utility maintenance repair personnel only when the areas to be accessed are not being used for ordnance training. Military road uses include access for EOD target clearances, target cleanup and maintenance, other ground support activities, and NSWG-1 training. Access along utility lines may be authorized for utility personnel when safety requirements are met.

3.3.6.2 Surface Transportation within the CMAGR ROI

The geologic features and the presence of the CMAGR form a natural buffer that influences the regional vehicular traffic network. Over time, a transportation “loop” has been developed throughout the region. Interstate 10 is the principal arterial route in the traffic network and is located north of the CMAGR and north of the Chuckwalla DWMA. Interstate 10 is the southernmost east-west, coast-to-coast Interstate Highway in the United States and supports large amounts of regional traffic.

The CMAGR is bordered by four principal arterials. SR 78 is near the southeast boundary of the CMAGR and passes through the agricultural districts of Brawley before turning north and passing through Algodones Sand Dunes and Glamis, to its terminus in Blythe. Southwest of the CMAGR is SR 111, which is the main north/south corridor through the agricultural districts of Calipatria and Niland. Within the urban area of Niland, the direction of SR 111 transitions to a northwestern trajectory, toward the Coachella Valley, between the CMAGR and the Salton Sea. SR 86 splits off on a north/south trajectory in the southeastern desert region and transects SR 111 near the United States and Mexican border. SR 86 traverses through the Imperial Valley near El Centro and Brawley, and near the western side of the Salton Sea into the Coachella Valley. It joins SR 111 in Coachella and heads into Indio. Major and minor collector roads support the rural and agricultural land uses southwest of the CMAGR (see Figure 1-1, CMAGR Vicinity).

Due to the relatively remote location of the Range in the desert region, there are very few direct access points to the range. The one exception is the Bradshaw Trail, located along the northern-most boundary of the CMAGR and the rural road network associated with Camp Billy Machen and Slab City.

3.3.7 Non-Military Land Use Potential in the CMAGR

The following sections discuss the suitability of the CMAGR for non-military land uses typically located on multiple use public lands.

3.3.7.1 Current Non-Military Land Use within the CMAGR

With the exception of the utility corridors discussed in Section 3.3.4.2 and Reclamation maintained appurtenant dikes, no non-military land uses are allowed within the boundaries of the CMAGR. The CDCA multiple use categories have not been assigned within the boundaries of the CMAGR.

3.3.7.2 Potential Federal Land Use

Non-military land use within the current boundaries of the CMAGR would be dependent on the closure of the CMAGR. A re-designation of land use would be required by the BLM including additional plan amendments to the NECO and CDCA. Under guidance from the FLTFA, the BLM would be the managing federal jurisdiction for the public lands located within the current boundary. The DoN lands within the range would become excess property if the CMAGR were to close and would be either transferred to another federal agency, such as the BLM, or disposed of as surplus through existing GSA authorities.

The BLM would be responsible for developing a management plan and designating Multiple-Use Classes (MUCs) as driven by the CDCA (BLM 1980, Chapter 2). However, much of the CMAGR is highly contaminated by military munitions, rendering the land unsafe for most public uses until the land could be decontaminated (see additional discussion in Section 2.5). For lands that could be demilitarized and decontaminated for future land uses, the following MUCs are consistent with the current CDCA land uses adjacent to the CMAGR.

Class C (controlled use). These lands include Wilderness and areas “preliminarily recommended” for Wilderness by Congress, such as Wilderness Study Areas. Class C lands contain highly significant resource values, which include wilderness values, but may also include wildlife, cultural, scenic, botanical, geologic, and other values. Congressionally designated Wilderness is by law closed to motorized-vehicles. Access would generally be limited to non-motorized activities, such as hiking or horseback riding (BLM 1980).

Class L (limited use). These lands are managed to protect sensitive, natural, scenic, ecological, and cultural resource values that may exist. Class L allows generally lower-intensity, carefully controlled uses that do not significantly diminish resource values (BLM 1980).

Class M (moderate use). These lands are consistent with the previously identified alternative energy nodes. The lands designated for this category are managed in a controlled balance between higher intensity uses and areas of protection. Class M allows for the widest variety of uses, such as mining, livestock grazing, recreation, energy, and utility development. Any damage caused by permitted uses must be mitigated (BLM 1980).

Class I (intensive use). These lands are managed for concentrated use to meet human needs. Reasonable protection is provided for sensitive natural values, and mitigation of impacts and rehabilitation of impacted areas would occur when possible (BLM 1980).

For additional land uses allowed in MUCs C, L, M, and I, see Chapter Two of the CDCA Plan and Table 1, Multiple-Use Class Guidelines (BLM 1980).

3.3.7.3 Potential County Land Use within the CMAGR ROI

As previously discussed in the Land Use Section 3.3.3, Riverside and Imperial counties have addressed the lands associated outside of the Range boundary in similar fashion in their separate Comprehensive Plan documents. Each comprehensive plan generally outlines the land uses within the ROI to be primarily open space, with an emphasis on recreational activities and very low density residential. Should the CMAGR be decommissioned, both Riverside and Imperial counties would need to review and update their Comprehensive Plans to include the lands within the decommissioned Range Boundary. Areas within the Range would need to be decontaminated. This process would need to be completed before potential future land use planning. Utility corridors and natural resource development would be allowed under certain designations.

3.3.8 Recreation

This section discusses applicable federal, state, and local regulations regarding recreational resources and identifies the type of recreational activities available within the ROI of the CMAGR.

3.3.8.1 Recreation within the CMAGR

Public access is not permitted within the CMAGR. Therefore, there are no recreation opportunities or other recreational uses of the natural resources within the boundaries.

3.3.8.2 Recreation Resources within the ROI

Lands adjacent to the current CMAGR boundary are designated as MUC C, L, and M per the CDCA Plan. Recreational uses such as hiking, camping, bird watching, hunting, rockhounding, and other recreational activities are permitted within these categories. These uses are primarily dispersed activities and are low to moderate level uses. Adjacent areas of public lands also are used to a moderate level by hikers. Within the BLM's Desert District, along the northern section of the CMAGR, Special Recreation Permits are required which allow specified recreational uses of the public lands and related waters. They are issued as a means to manage visitor use, protect natural and cultural resources, and provide a mechanism to accommodate commercial recreational uses. These permits are authorized by the Land and Water Conservation Fund Act. There are five types of permits that are required: commercial, competitive, vending, individual or group use in special areas, and organized group activity and event use (BLM 2011). Fourteen-day camping limits apply on public lands.

The Bradshaw Trail is also located within this area. The BLM grants permits for land use or special recreation along the trail and allows primitive vehicular camping within 300 feet of the trail except in designated wilderness areas. Seven CDCA wilderness areas are located along the Bradshaw Trail including: Big Maria Mountains, Chuckwalla Mountains, Little Chuckwalla Mountains, Orocopia Mountains, Palen-McCoy, Rice Valley, and Riverside Mountains Wildernesses. These wilderness areas are closed to all motorized and mechanical vehicles, including bicycles (BLM 2011).

The southern region of the CMAGR is within the BLM's El Centro District. Recreational OHV use is of moderate to high level of usage and is generally associated with the ISDRA. The OHV usage within the ISDRA is the most active and highly impactive uses. The Algodones and Imperial Sand Dunes system is located along this area. Mechanized or motorized vehicles are not permitted in the Algodones wilderness area; however, the BLM does grant permits within the ISDRA for all street legal vehicles used for transportation to recreational sites. This permit is required at all times while in the fee area. Other permits within the ISDRA include commercial, competitive, vending, individual or group use in special areas, and organized group activity and event use. These permits follow the same guidance as the permits within the Desert District.

The following table outlines recreational opportunities within the ROI of the CMAGR.

Table 3-9 Recreation Resources within the ROI

Recreation Area	Primary Access	Facilities	Primary Season
Anza-Borrego Desert State Park	State Route 78 and State Route 86	500 miles of OHV roads, 12 wilderness areas with hiking and biking trails, and 7 areas of historic and cultural interest	October-May
Imperial Sand Dunes	Interstate 8 and State Route 78	160,000 acres interspersed with OHV and campground facilities which include, but is not limited to, Buttercup, Gecko Rd, Glamis, Gordons Well/Dunebuggy Flats, Mammoth Wash, Ogilby, Osborne, along both sides of the Coachella Canal and Ted Kipf Rd.	October-May
Heber Dunes State Vehicular Recreation Area	Interstate 8	343 acres offering OHV facilities, camping, hiking and picnicking.	October-May
Ocotillo Wells State Vehicular Recreation Area	State Route 78	80,000 acres offering OHV facilities, hiking and biking trails, and bird watching.	October-May
Salton Sea State Recreational Area	State Route 111	Fishing, birding, camping, windsurfing, boating, hiking, picnicking, and hunting.	October-May
Imperial Wildlife Area	State Route 111	Wister Unit, Finney-Ramer Unit, and Hazard Unit; bird blinds, hunting, camping, hiking, and picnicking.	12 months

SOURCE: BLM 2011c, California Department of Parks and Recreation 2009

3.4 GEOLOGICAL RESOURCES

Geological resources include soils, surficial and subsurface geology, geologic structure, seismicity, paleontology, and energy and non-energy mineral resources.

3.4.1 Regional Geologic Setting

The CMAGR is located in the Colorado Desert and Salton Sea geomorphic provinces of California, which are situated in the southwesternmost portion of the Basin and Range physiographic province. The Basin and Range province (Fenneman 1931) is characterized by generally steep, subparallel, discontinuous mountain ranges that trend northwest to southeast separated by broad, gently sloping to nearly flat, deep alluvial basins. The CMAGR is characterized by the rugged Chocolate Mountains, a range that rises abruptly from broad alluvium-filled desert basins. The Chocolate Mountains stretch more than 60 miles in a northwest to southeast direction and are east of the Salton Sea, south and west of the Chuckwalla Mountains, and southeast of the Orocopia Mountains. The Chocolate Mountains are largely tilted fault blocks comprised of the Southern California batholith and Orocopia Schist of Mesozoic age (about 65 to 250 million years ago), overlain by thrust fragments of an older Precambrian metamorphic complex, with minor Tertiary (about 3 to 65 million years ago) volcanic and intrusive rocks. Pliocene (about 3 to 5 million years ago) and Pleistocene (about 2 to 3 million years ago) marine and nonmarine sedimentary deposits and Holocene (present-day to 10,000 years ago) alluvium occur within the adjacent basins to the east and west.

The Chocolate Mountains occur along the eastern margin of the Imperial Valley and Salton Sea. The Imperial Valley and Salton Sea occur in the Salton Trough, a complex pull-apart rift valley, which was formed by the right-lateral motion of the San Andreas transform fault system, which runs along the

western boundary of the CMAGR, and the northwestward progressing spreading ridge complex of the Gulf of California segment of the Eastern Pacific Rise (Alles 2007). The Salton Trough, an extension of the Gulf of California, is separated from the Gulf of California by the Colorado River Delta. The Salton Trough is a Neogene age (23 million years ago to present) basin. This basin has been filled with post-Oligocene interbedded marine and freshwater sediments, which is estimated at over 4 miles thick in some places (Eiders 1979a; 1979b). The great thickness of these sediments demonstrates that considerable sinking of the basin floor has occurred as the sediments accumulated during the past 23 million years.

Late Pleistocene and possibly early Holocene sediments were deposited in ancient Lake Cahuilla. Lake Cahuilla, which occupied the area of the present-day Salton Sea, was a fresh water lake that received inflow from the Colorado River and runoff from the local mountains. A change in course of the Colorado River eliminated most of the inflow to Lake Cahuilla, allowing it to evaporate. Present-day (Holocene) surficial sediments range from clayey and silty alluvium near the Salton Sea, to alluvial and colluvial fans along the base of the Chocolate Mountains. Wind-blown (eolian) fine sands in some adjacent valleys form spectacular dunes like the Sand Hills, which occur along the southwestern corner of the CMAGR. Eolian sand dunes are formed by strong desert winds that transport sand downwind until they form into sheets and dunes.

3.4.2 CMAGR Geology

The Chocolate Mountains within the CMAGR are comprised of Proterozoic gneisses and associated rocks that were thrust over the Orocopia Schist and subsequently intruded by at least five different granitic plutons (Norris and Webb 1990). The oldest granitic plutons are early Triassic (about 235 million years old) but most are of Mesozoic age. The Proterozoic (about 0.5 to 2.5 billion years ago) gneisses, the Orocopia Schist, and the thrust fault have all been intruded by some of the youngest (23 million years) granitic intrusives in California (Norris and Webb 1990). Volcanic rocks of similar Oligocene age (about 23 to 34 million years ago) are widely distributed in the Chocolate Mountains. Miocene age (about 5 to 23 million years ago) fanglomerates, with interbedded basaltic flows, unconformably overlie these older rocks and are overlain unconformably by Miocene-Pliocene age marine, lagoonal, and nonmarine deposits of the Bouse Formation (Norris and Webb 1990). Figure 3-6 provides a geologic map of the CMAGR.

Late Pliocene, Pleistocene, and Holocene alluvial deposits overlie most of the older formations in the Chocolate Mountains and form dissected piedmont slopes around the Range (Norris and Webb 1990). These alluvial fan and terrace deposits have been informally designated as the older, intermediate, and younger alluvium based on their stratigraphic relationships (Dillon 1975). The older alluvium consists of poorly consolidated deposits of sand, silt, and breccia that unconformably overlie the Chocolate Mountains. Conglomerate and other rocks and forms dissected aprons and high-standing terraces. The surfaces of these fans and terraces usually have a well-developed coat of desert pavement and desert varnish. The intermediate alluvium unconformably overlies the older alluvium and consists of locally derived unconsolidated conglomerate, breccia, and sand that form dissected fans, low terraces, and abandoned channel features. The surfaces of the intermediate alluvium have poorly developed desert pavement and varnish. The younger alluvium consists of sands and gravels occurring as channel fill in the present-day washes, as sheet wash deposits on the alluvial plains, and as wind-blown sands of the Sand Hills that unconformably overlie the intermediate alluvium (Dillon 1975). The unconformable relationships between the various alluvial deposits suggest that the base level of erosion has been intermittently lowered by continued subsidence and rifting beneath the Imperial Valley.

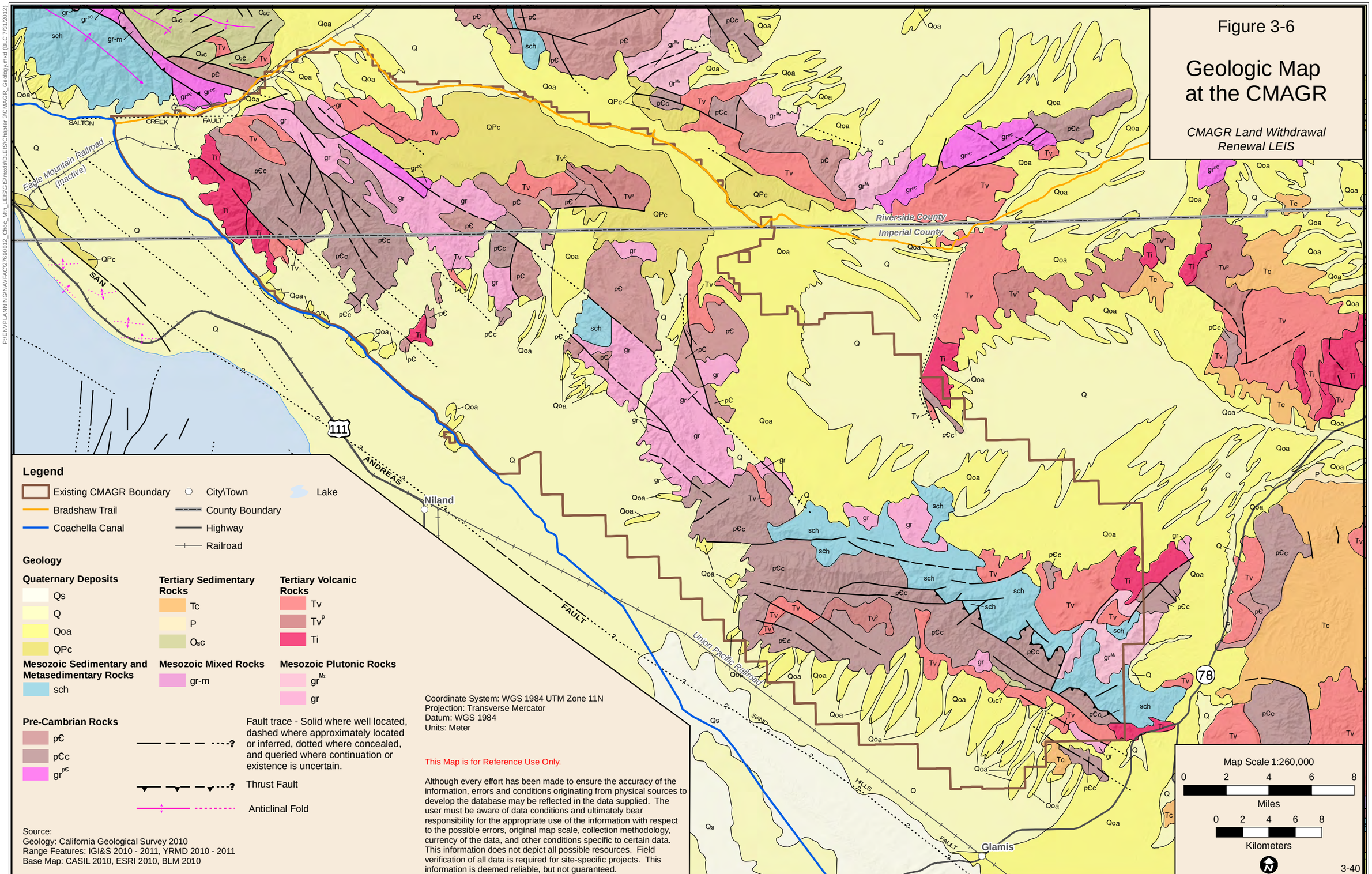
Figure 3-6
Geologic Map at the CMAGR
CMAGR Land Withdrawal Renewal LEIS
Legend
Existing CMAGR Boundary
Bradshaw Trail
Coachella Canal
City\Town
County Boundary
Highway
Railroad
Lake
Geology
Quaternary Deposits
Qs
Q
Qoa
QPc
Tertiary Sedimentary Rocks
Tc
P
Qsc
Tertiary Volcanic Rocks
Tv
Tv^p
Ti
Mesozoic Sedimentary and Metasedimentary Rocks
sch
Mesozoic Mixed Rocks
gr-m
Mesozoic Plutonic Rocks
gr^Mz
gr
Pre-Cambrian Rocks
p€
p€c
gr^p€
Fault trace - Solid where well located, dashed where approximately located or inferred, dotted where concealed, and queried where continuation or existence is uncertain.
Thrust Fault
Anticlinal Fold
Source:
Geology: California Geological Survey 2010
Range Features: IGI&S 2010 - 2011, YRMD 2010 - 2011
Base Map: CASIL 2010, ESRI 2010, BLM 2010
Coordinate System: WGS 1984 UTM Zone 11N
Projection: Transverse Mercator
Datum: WGS 1984
Units: Meter
This Map is for Reference Use Only.
Although every effort has been made to ensure the accuracy of the information, errors and conditions originating from physical sources to develop the database may be reflected in the data supplied. The user must be aware of data conditions and ultimately bear responsibility for the appropriate use of the information with respect to the possible errors, original map scale, collection methodology, currency of the data, and other conditions specific to certain data. This information does not depict all possible resources. Field verification of all data is required for site-specific projects. This information is deemed reliable, but not guaranteed.
Map Scale 1:260,000
0 2 4 6 8
Miles
0 2 4 6 8
Kilometers
Riverside County
Imperial County
Eagle Mountain Railroad (Inactive)
Union Pacific Railroad
SALTON
GREEK
FAULT
SAN
ANDREAS
FAULT
SAND
HILLS
FAULT
Niland
Glamis
111
78
3-40

3.4.2.1 Seismicity

The Gulf of California and its onshore extension, the Salton Trough (which includes Mexicali, Imperial, and Coachella valleys), are located over a series of complex pull-apart rifts in the Earth's crust that are filling with sediment from above, derived chiefly from the Colorado River, and magmatic material from below. The Salton Trough is one of the most seismically active areas in California and has been shaken by 32 or more moderate-to-large earthquakes in the last 100 years. The seismicity is evidence of continued tectonic spreading of the ocean floor beneath the Salton Trough where high heat flow produces commercially viable geothermal energy resources.

As shown in Figure 3-6, northwest-trending faults are common in and adjacent to the CMAGR (Jennings and Bryant 2010). The most prominent of these faults is the San Andreas Fault, which is located along the eastern shore of the Salton Sea west of the CMAGR. The Hot Springs Fault is located northeast of the San Andreas Fault and runs along a portion of the northwestern boundary of the CMAGR. The Sand Hills Fault is concealed, but appears to extend southeast from the intersection of the San Andreas Fault and the Brawley Seismic Zone beneath the Sand Hills west of the CMAGR boundary. Numerous west-northwest-trending faults also are common in and adjacent to the CMAGR. The most prominent of these faults is the Salton Creek Fault, which runs along the northern boundary of the CMAGR in the Salt Creek Wash (Jennings and Bryant 2010). The Chocolate Mountains thrust fault occurs within the CMAGR in the southern portion of the range. Many of these faults have been recently active within the last 10,000 years (Jennings and Bryant 2010).

3.4.3 Soils

The Natural Resources Conservation Service (NRCS) has identified 20 soil series and 7 soil associations (i.e., groups of soil series) within the CMAGR. These soils are described in the State Soil Geographic (STATSGO2) Database developed by the NRCS (2011). The soil associations are shown on Figure 3-7 and summarized in Table 3-10. The Tecopa-Rock Outcrop-Lithic Torriorthents and the Upspring-Sparkhule-Rock Outcrop soil associations include rock outcrops and very shallow mountain soils formed in residuum and colluvium. The Vaiva-Rock Outcrop-Quilotosa-Laposa soil association includes hill pediment and fan complex soils on foothills, pediments, and alluvial fans. The Rillito-Gunsight soil association consists of very deep soils on dissected older fans, soils on ancient fans with preserved surfaces, and young to ancient fan soil complexes. The Myoma-Carsitas-Carrizo, Vaiva-Quilotosa-Hyder-Cipriano-Cherioni, and Cajon-Bitterwater-Bitter-Badland soil associations include active fan and wash soils; young fan soil complexes; and fan, lakebed, and badland soil complexes. All soils at the CMAGR are well-drained to excessively well-drained and primarily consist of sandy and rocky loams derived from igneous and metamorphic rocks.

Table 3-10 CMAGR Soil Associations (NRCS 2011)

Soil Association	Soil Occurrence	Erosion Hazard	
		Water	Wind
Tecopa-Rock Outcrop-Lithic Torriorthents	Mountain soils found on mountain slopes and areas with rock outcrop	Slight	Moderate
Upspring-Sparkhule-Rock Outcrop			
Vaiva-Rock Outcrop-Quilotosa-Laposa	Hill pediment and fan complex soils found on foothills, alluvial fans, and pediments	Slight to Moderate	Moderate to High
Rillito-Gunsight	Old alluvial fan soils found on dissected older alluvial fans, in valleys, and on pediments	High to Extremely High	High to Very High
Myoma-Carsitas-Carrizo	Young alluvial fan and wash soils found in mountain washes, on pediments, and on alluvial fans	Slight to Moderate	Moderate to High
Vaiva-Quilotosa-Hyder-Cipriano-Cherioni			
Cajon-Bitterwater-Bitter-Badland			

Source: STATSGO2 Database (NRCS 2011).

3.4.4 Mineral Resources

Minerals resources in the federal estate are categorized as leasable, salable, or locatable. Leasable minerals include energy-related mineral resources such as oil, natural gas, coal, and geothermal, and some non-energy minerals, such as potash, salt, phosphate, and sulfur. Salable minerals, or mineral materials, are common varieties of minerals and building materials such as sand, gravel, stone (building stone, including travertine), aggregate (including caliche), silica, clay, volcanic rock products (pumice, pumicite, cinders, perlite, roofing granules), and humate. Locatable minerals are any minerals not leasable or salable, and include, but are not limited to, gold, silver, copper, lead, zinc, barite, gypsum, molybdenum, gemstones, and certain varieties of high calcium limestone.

No known leasable, salable, or locatable minerals are currently being mined on the CMAGR. However, leasable, salable, or locatable minerals have been mined on the CMAGR in the past and are currently being and have been mined on lands outside of and adjacent to the CMAGR. The occurrence of some of these mined areas adjacent to the CMAGR boundary and the presence of historical mines and prospects on the CMAGR suggests that the CMAGR likely includes areas with potential mineral resources.

3.4.4.1 Leasable Minerals

No known oil, natural gas (for example, methane), or coal resources are present at the CMAGR or in the adjacent areas. Approximately 46 wells have been drilled in the Imperial Valley west of the CMAGR to explore for petroleum in the Cenozoic sedimentary strata without favorable results (Tarbet 1971; Morton 1977). The deepest well was drilled to a depth of 13,443 feet. No natural gas or petroleum exploration wells appear to have been drilled on the CMAGR. The potential for finding oil, natural gas, or coal within the CMAGR is considered unlikely because the prospective stratigraphic section is thin adjacent to the Chocolate Mountains; the volume of marine rocks in the sedimentary sequence is small; the marine and non-marine sediments were deposited in shallow, oxidizing environments unsuitable for the preservation of organic petroleum hydrocarbon source rocks; and the hydrothermal and metamorphic activity associated with the Salton Sea geothermal system has severely altered the sediments likely destroying potential petroleum hydrocarbon sources. Tarbet (1951; 1971), Cook (1987), and Barker et al. (1995) have evaluated the petroleum potential of the Imperial Valley and concluded that the possibility of producing commercial quantities of petroleum in the area is very slight.

Numerous geothermal prospects have been identified in the Imperial Valley outside of the CMAGR. Several “known geothermal resource areas” (KGRAs) located in the Salton Sea area are shown on Figure 3-8. The Salton Sea (the closest KGRA to the CMAGR), East Mesa, Heber, and North Brawley KGRAs have currently operating geothermal power plants. The Salton Sea plant is 1 of 10 generating plants in the Salton Sea KGRA operated by CalEnergy Generation LLC, and produces about 340 mega-watts (MW) of energy. The Salton Sea Geothermal Power Plant captures superheated, highly pressurized water from reservoirs located thousands of feet beneath the earth’s surface. When the hot water is quickly de-pressurized at the same hot temperature, it “flashes” into steam. The steam is used to drive a turbine to create electricity. After being cooled, the steam is condensed into liquid form (water), where it is reinjected into the subsurface to be reheated. Geothermal power development and use grew by 6 percent in the United States during 2009.

Geothermal energy production also has other potential mineral resources with economic benefits. Brines produced from the geothermal wells have significant quantities of valuable minerals (for example, silica, manganese, lithium, boron, zinc, copper, gold, and silver). CalEnergy is successfully recovering high-grade zinc from the geothermal brines. Research is underway to recover manganese and to purify waste silica into a salable product (Clutter 2000). Simbol Materials recently launched commercial operations to recover lithium, manganese, and zinc from geothermal brine before returning it to the subsurface (Wald 2011, Korosec 2011).

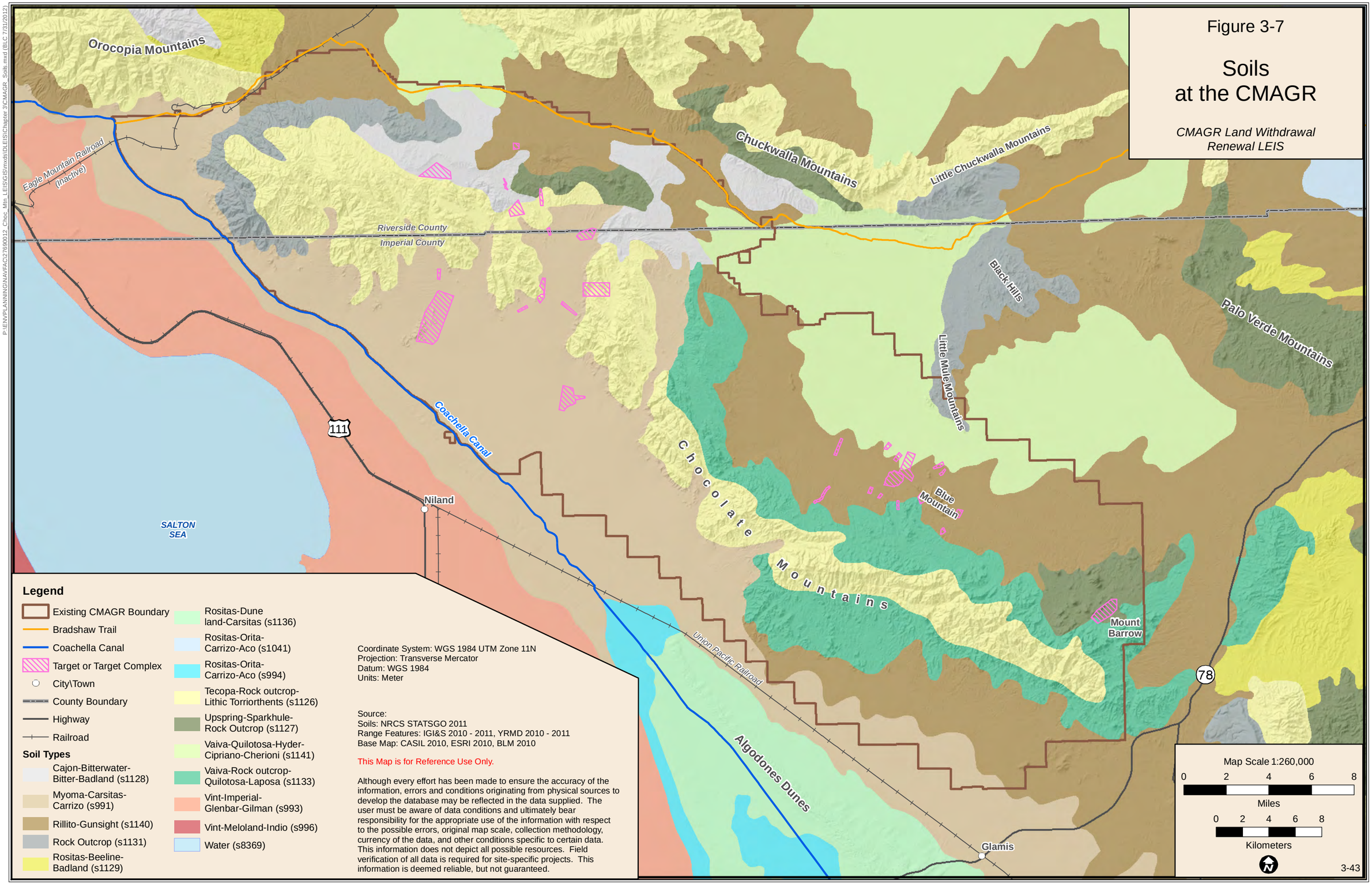
Figure 3-7
Soils
at the CMAGR
CMAGR Land Withdrawal
Renewal LEIS
Orocopia Mountains
Chuckwalla Mountains
Little Chuckwalla Mountains
Eagle Mountain Railroad
(Inactive)
Riverside County
Imperial County
Black Hills
Little Mule Mountains
Palo Verde Mountains
Coachella Canal
111
Niland
SALTON
SEA
Chocolate
Mountains
Blue
Mountain
Mount
Barrow
Union Pacific Railroad
Algodones Dunes
78
Glamis
Legend
Existing CMAGR Boundary
Bradshaw Trail
Coachella Canal
Target or Target Complex
City\Town
County Boundary
Highway
Railroad
Soil Types
Cajon-Bitterwater-Bitter-Badland (s1128)
Myoma-Carsitas-Carrizo (s991)
Rillito-Gunsight (s1140)
Rock Outcrop (s1131)
Rositas-Beeline-Badland (s1129)
Rositas-Dune land-Carsitas (s1136)
Rositas-Orita-Carrizo-Aco (s1041)
Rositas-Orita-Carrizo-Aco (s994)
Tecopa-Rock outcrop-Lithic Torriorthents (s1126)
Upspring-Sparkhule-Rock Outcrop (s1127)
Vaiva-Quilotosa-Hyder-Cipriano-Cherioni (s1141)
Vaiva-Rock outcrop-Quilotosa-Laposa (s1133)
Vint-Imperial-Glenbar-Gilman (s993)
Vint-Meloland-Indio (s996)
Water (s8369)
Coordinate System: WGS 1984 UTM Zone 11N
Projection: Transverse Mercator
Datum: WGS 1984
Units: Meter
Source:
Soils: NRCS STATSGO 2011
Range Features: IGI&S 2010 - 2011, YRMD 2010 - 2011
Base Map: CASIL 2010, ESRI 2010, BLM 2010
This Map is for Reference Use Only.
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Map Scale 1:260,000
0 2 4 6 8
Miles
0 2 4 6 8
Kilometers
N
3-43

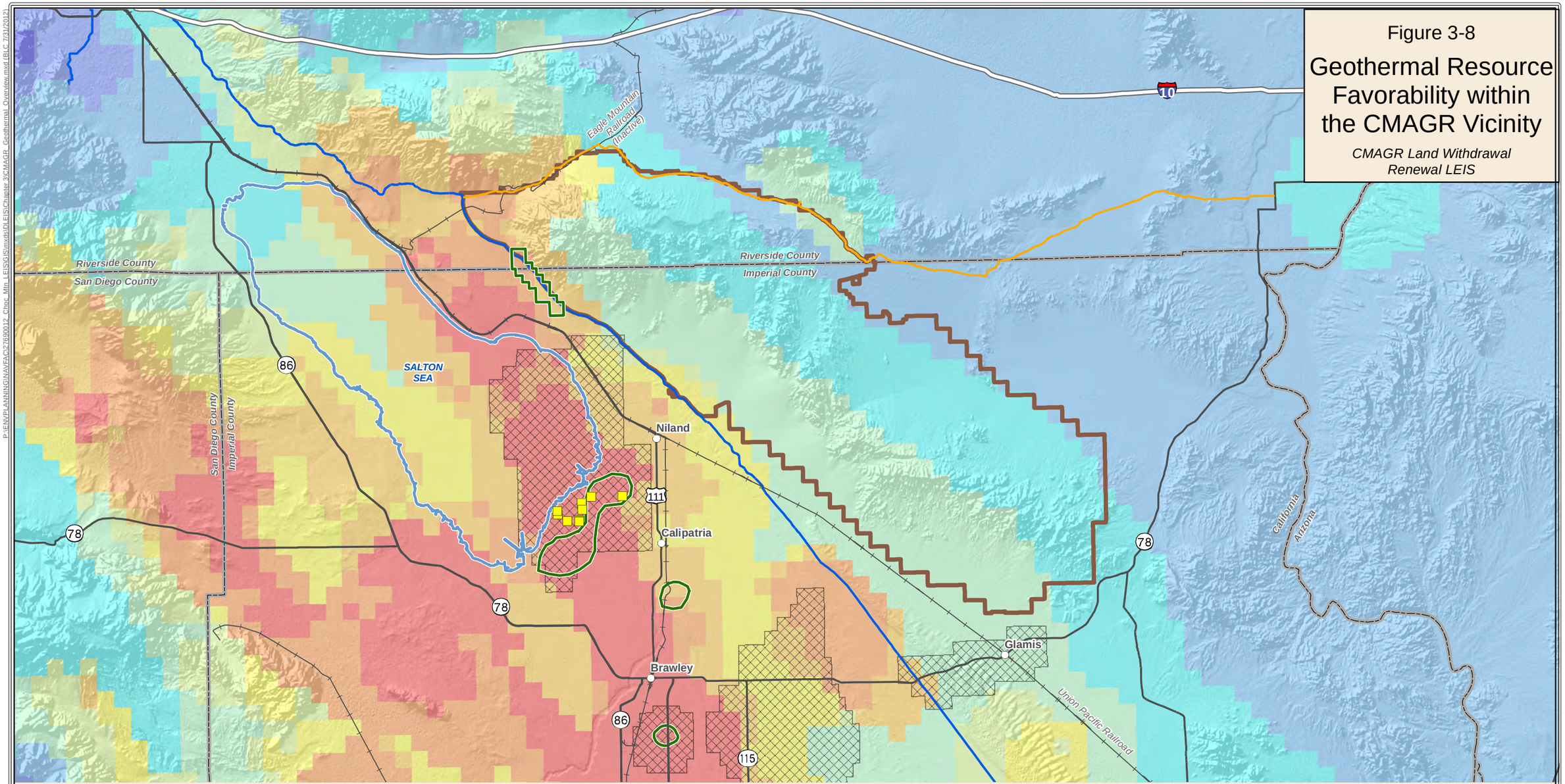

Figure 3-8

Geothermal Resource Favorability within the CMAGR Vicinity

CMAGR Land Withdrawal Renewal LEIS

Legend

- Existing CMAGR Boundary
- Bradshaw Trail
- Coachella Canal
- Lake
- Geothermal Power Plant
- State Geothermal Resource Field
- Known Geothermal Resource Area

Geothermal Favorability Probability Index

- > 15
- 10 - 15
- 5 - 10
- 4 - 5
- 3 - 4
- 2 - 3
- 1 - 2
- 0.5 - 1
- 0.1 - 0.5
- < 0.1

- City\Town
- County Boundary
- Railroad
- Interstate
- Highway

Coordinate System: WGS 1984 UTM Zone 11N
Projection: Transverse Mercator
Datum: WGS 1984
Units: Meter

Source:
Geothermal Favorability: USGS 2010
Geothermal Resource Areas and Power Plants: CA Department of Conservation 2010
Base Map: CASIL 2010, ESRI 2010, BLM 2010

This Map is for Reference Use Only.

Although every effort has been made to ensure the accuracy of the information, errors and conditions originating from physical sources to develop the database may be reflected in the data supplied. The user must be aware of data conditions and ultimately bear responsibility for the appropriate use of the information with respect to the possible errors, original map scale, collection methodology, currency of the data, and other conditions specific to certain data. This information does not depict all possible resources. Field verification of all data is required for site-specific projects. This information is deemed reliable, but not guaranteed.

Map Scale 1:475,000

0 2.5 5 7.5 10
Miles
0 2.5 5 7.5 10
Kilometers

P:\EN\PLANNING\NAVFAC\27690012_Chocolate_Mtn_LEIS\GIS\mxds\DLEIS\Chapter 3\CMAGR_Geothermal_Overview.mxd (BLC 7/31/2012)

The U.S. Navy's Geothermal Program Office has conducted geothermal exploration on the CMAGR since the mid-1970s. The Geothermal Program Office has recently established three exploration areas on the CMAGR designated the Hot Mineral Spa, East Niland, and Glamis areas (Alm et al. 2010). Thirteen 500-foot-deep temperature gradient holes were drilled and tested in the Hot Mineral Spa/Camp Billy Machen area. Eleven of the 13 wells tested will not be tested further, however, two wells are proposed for additional testing requiring deeper wells. Temperature gradients calculated from the 13 test holes ranged from 9.6 to 42.7 degrees Centigrade (^{o}C) per 100 meters of depth and are similar to gradients from wells at Hot Mineral Spa (Alm et al. 2010). Bottom hole (at approximately 500 feet) temperatures ranged from 37 to 62.8^{o}C (Alm et al. 2010). A geothermal gradient greater than 9°C per 100 meters is considered indicative of a potential geothermal resource. These positive results, along with the CMAGR's association with the Salton Trough, Hot Mineral Spa, and Glamis KGRA, suggest that the CMAGR has the potential for geothermal resources (Alm et al. 2010). The geothermal potential of the CMAGR is further confirmed by the recently completed assessment of the geothermal resources of the United States (U.S. Geological Survey [USGS] 2008, 2010a). The USGS assessment estimated the geothermal favorability of the United States, including the CMAGR area (Figure 3-8), and suggests that the CMAGR has moderate to high geothermal potential. The most favorable geothermal area with the highest potential is found in the northwest corner of the CMAGR. Moderate to moderately high favorable areas are found along the western CMAGR boundary. Geothermal favorability decreases from west to east across the CMAGR. Previous studies suggest there may be geothermal energy resources underlying certain areas within the CMAGR. The extent of such resource, and feasibility of developing the resource, has not been determined. Renewable energy development, including geothermal energy development, is not planned for the CMAGR, and would not occur if such development would have any adverse effects on military training within the CMAGR. If in the future there is a renewable energy resource identified that could be developed without any unacceptable impacts to military training, development of such resource would be jointly coordinated, as appropriate, between the Department of the Navy and Department of the Interior.

No potash, phosphate, or sulfur resources have been reported mined on the CMAGR or in areas adjacent to the CMAGR. Salt has been recovered in the past outside the CMAGR by evaporation of the Salton Sea brines (Morton 1977). Potash and salt may occur in the subsurface beneath the present-day Salton Sea and the former Lake Cahuilla but are not known at the CMAGR. Pilot-scale by-product sodium, potassium, and calcium salt recovery has been attempted from produced waters in geothermal fields and may be commercially developed in the future. However, at present, salts are not recovered from geothermal brines in the Salton Sea area or at the CMAGR. Phosphate deposits do not appear to be present at the CMAGR and are not likely considering its geological setting. The potential for potash, phosphate, salt, and sulfur deposits at the CMAGR is considered none to low.

3.4.4.2 Salable Minerals

No salable mineral resources are currently being mined on the CMAGR but have been mined on the CMAGR in the past. Areas adjacent to the CMAGR are currently being or have been mined for sand and gravel from the unconsolidated alluvial deposits. No other salable minerals (for example, stone, pumice, pumicite, cinders, or clay) are currently being mined on or adjacent to the CMAGR. The potential for salable minerals, particularly sand and gravel, on the CMAGR is moderate to high. Geologically, other salable minerals (for example, stone, pumice, pumicite, cinders, or clay) likely exist at the CMAGR, but their potential is generally thought to be none to moderate.

3.4.4.3 Locatable Minerals

No active mines or locatable mineral claims are currently reported on the CMAGR (U.S. Navy 2011). Locatable mineral claims and an active gold mine are found adjacent to the CMAGR boundary. The Mesquite gold mine, California's second largest active gold mine, borders the CMAGR boundary to the

south and produces about 100,000 ounces of gold per year. The Mesquite gold mine is an epithermal gold deposit related to the geothermal activity in the adjacent Salton Trough.

Locatable minerals are likely present on the CMAGR because historical mines and prospects from the late 1800s and early 1900s are present on the range. The CMAGR area was first prospected for gold in the late 1800s. The Paymaster (lead and silver) and the Mary Lode and Mesquite gold mine districts were established in the late 1800s to early 1900s. During the 1930s there were several unsuccessful attempts to work the dry placer gold deposits in the Chocolate Mountains. Occurrences of gold, copper, lead, silver, manganese, uranium, and thorium mineralization also have been reported within the CMAGR boundary (Sampson and Tucker 1942; Morton 1977). Considering its geologic setting, locatable minerals likely exist at the CMAGR. Their potential is generally thought to be none to low, except for gold which appears to have the moderate potential.

3.4.4.4 Strategic and Critical Minerals

Strategic and critical minerals are defined as minerals for which the quantity required for essential military, industrial, and civilian uses of the United States with no available economic substitutes exceeds the reasonably secure domestic and foreign sources of supply. Strategic and critical minerals that potentially occur on the CMAGR include manganese and tungsten. Manganese has been mined in the past. The occurrence of platinum group metals or rare earth elements, currently two of the most strategic and critical minerals, have not been reported on the CMAGR and are not likely considering its geological setting. The potential for strategic and critical mineral deposits on the CMAGR is considered none to low.

3.4.5 <u>Paleontological Resources</u>

3.4.5.1 Overview

Paleontological resources, including fossils and the geologic contexts in which they are found, can occur in a variety of rock types throughout the proposed project area. They are important scientific and educational resources because of their utility in achieving multiple goals. These include (1) documenting the presence and evolutionary history of particular groups of organisms, many now extinct; (2) reconstructing the environments in which these organisms lived; (3) determining the relative ages of the strata in which they occur; and (4) determining the geologic events that resulted in the deposition of the sediments in which they are preserved.

Federal, state, and local statutes and policies afford protection of fossils on public lands. Paleontological resources are recognized as nonrenewable scientific resources.

3.4.5.2 Paleontological Resources Potential

In 2008, the BLM established the Potential Fossil Yield Classification (PFYC) system to quantify the occurrence of and risk of impact to paleontological resources on public lands. The five classes the system recognizes are listed below.

Class 1 **– Very Low**. Geologic units not likely to contain recognizable fossil remains

- Units that are igneous or metamorphic, excluding reworked volcanic ash units
- Units that are Precambrian in age or older
  - Management concern for paleontological resources in Class 1 units is usually negligible or not applicable.
  - Assessment or mitigation is usually unnecessary except in very rare or isolated circumstances.

The probability of impacting any fossils is negligible. Assessment or mitigation of paleontological resources is usually unnecessary. The occurrence of significant fossils is non-existent or extremely rare.

Class 2 – **Low**. Sedimentary geologic units not likely to contain vertebrate fossils or scientifically significant nonvertebrate fossils

- Vertebrate or significant invertebrate or plant fossils not present or very rare
- Units that are generally younger than 10,000 years before present
- Recent eolian deposits
- Sediments that exhibit significant physical and chemical changes (i.e., diagenetic alteration)
    - Management concern for paleontological resources is generally low.
    - Assessment or mitigation is usually unnecessary except in rare or isolated circumstances.

The probability for impacting vertebrate fossils or scientifically significant invertebrate or plant fossils is low. Assessment or mitigation of paleontological resources is not likely to be necessary. Localities containing important resources may exist, but would be rare and would not influence the classification. These important localities would be managed on a case-by-case basis.

Class 3 – **Moderate** or **Unknown**. Fossiliferous sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence; or sedimentary units of unknown fossil potential

- Often marine in origin with sporadic known occurrences of vertebrate fossils
- Vertebrate fossils and scientifically significant invertebrate or plant fossils known to occur intermittently; predictability known to be low

(or)

- Poorly studied and/or poorly documented; potential yield cannot be assigned without ground reconnaissance

Class 3a – **Moderate Potential**. Units are known to contain vertebrate fossils or scientifically significant nonvertebrate fossils, but these occurrences are widely scattered. Common invertebrate or plant fossils may be found in the area, and opportunities may exist for hobby collecting. The potential for a project to be sited on or impact a significant fossil locality is low, but is somewhat higher for common fossils.

Class 3b – **Unknown Potential**. Units exhibit geologic features and preservational conditions that suggest significant fossils could be present, but little information about the paleontological resources of the unit or the area is known. This may indicate the unit or area is poorly studied, and field surveys may uncover significant finds. The units in this class may eventually be placed in another class when sufficient survey and research is performed. The unknown potential of the units in this class should be carefully considered when developing any mitigation or management actions.

- Management concern for paleontological resources is moderate or cannot be determined from existing data.
- Surface-disturbing activities may require field assessment to determine an appropriate course of action.

This classification includes a broad range of paleontological potential. It includes geologic units of unknown potential, as well as units having a moderate or infrequent occurrence of significant fossils. Management considerations cover a broad range of options as well and could include pre-disturbance surveys, monitoring, or avoidance. Surface-disturbing activities will require sufficient assessment to determine whether significant paleontological resources occur in the area of a proposed action and whether the action could affect the paleontological resources. These units may contain areas that would be appropriate to designate as hobby collection areas due to the higher occurrence of common fossils and a lower concern about affecting significant paleontological resources.

Class 4 – **High**. Geologic units containing a high occurrence of scientifically important fossils. Vertebrate fossils or scientifically significant invertebrate or plant fossils are known to occur and have been documented, but may vary in occurrence and predictability. Surface-disturbing activities may adversely affect paleontological resources in many cases.

Class 4a – Unit is exposed with little or no soil or vegetative cover. Outcrop areas are extensive with exposed bedrock areas often larger than two acres. Paleontological resources may be susceptible to adverse impacts from surface-disturbing actions. Illegal collecting activities may impact some areas.

Class 4b – These are areas underlain by geologic units with high potential but that have a reduced risk of human-caused adverse impacts and/or lowered risk of natural degradation due to moderating circumstances. The bedrock unit has high potential, but a protective layer of soil, thin alluvial material, or other conditions may lessen or prevent potential impacts to the bedrock resulting from the activity.

- Extensive soil or vegetative cover; bedrock exposures are limited or not expected to be impacted.
- Areas of exposed outcrop are smaller than two contiguous acres.
- Outcrops form cliffs of sufficient height and slope so that impacts are minimized by topographic conditions.
- Other characteristics are present that lower the vulnerability of both known and unidentified paleontological resources:
    - Management concern for paleontological resources in Class 4 is moderate to high, depending on the proposed action.
    - A field survey by a qualified paleontologist is often needed to assess local conditions.
    - Management prescriptions for resource preservation and conservation through controlled access or special management designation should be considered.
    - Class 4 and Class 5 units may be combined as Class 5 for broad applications, such as planning efforts or preliminary assessments, or when geologic mapping at an appropriate scale is not available. Resource assessment, mitigation, and other management considerations are similar at this level of analysis, and impacts and alternatives can be addressed at a level appropriate to the application.

The probability of impacting significant paleontological resources is moderate to high and is dependent on the proposed action. Mitigation considerations must include assessment of the disturbance, such as removal or penetration of protective surface alluvium or soils, potential for future accelerated erosion, or increased ease of access resulting in greater looting potential. If impacts to significant fossils can be anticipated, on-the-ground surveys prior to authorizing the surface disturbing action will usually be necessary. On-site monitoring or spot-checking may be necessary during construction activities.

Class 5 – **Very High**. Highly fossiliferous geologic units that consistently and predictably produce vertebrate fossils or scientifically significant invertebrate or plant fossils, and that are at risk of human-caused adverse impacts or natural degradation.

Class 5a – Unit is exposed with little or no soil or vegetative cover. Outcrop areas are extensive with exposed bedrock areas often larger than two contiguous acres. Paleontological resources are highly susceptible to adverse impacts from surface disturbing actions. Unit is frequently the focus of illegal collecting activities.

Class 5b – These are areas underlain by geologic units with very high potential but that have a reduced risk of human-caused adverse impacts and/or lowered risk of natural degradation due to moderating circumstances. The bedrock unit has very high potential, but a protective layer of soil, thin alluvial material, or other conditions may lessen or prevent potential impacts to the bedrock resulting from the activity.

- Extensive soil or vegetative cover; bedrock exposures are limited or not expected to be impacted.
- Areas of exposed outcrop are smaller than two contiguous acres.
- Outcrops form cliffs of sufficient height and slope so that impacts are minimized by topographic conditions.
- Other characteristics are present that lower the vulnerability of both known and unidentified paleontological resources.

The level of geologic mapping used for this LEIS recognizes numerous geologic units ranging in age from Pre-Cambrian to late Quaternary (see Figure 3-6). These fall into four of the PFYC.

Quaternary Alluvial Deposits (Q)

These deposits consist of alluvial fans and other alluvium. Although the basin of ancient Lake Cahuilla lies just to the west, none of these lacustrine sediments lie within the CMAGR. Quaternary alluvial fans certainly produce vertebrae fossils, but not in large numbers. Under the BLM PFYC system, these Quaternary alluvial deposits are rated 3.

Quaternary Nonmarine Deposits (Qoa)

This category includes eolian sand (dunes). These deposits can produce significant vertebrate fossils, but the vertebrate fossils vary in occurrence and predictability. Thus, they are classified 4a in the BLM PFYC system.

Plio-Pleistocene Nonmarine Deposits (QPc)

These deposits also can produce significant vertebrate fossils, but these vary in occurrence and predictability. They are classified 4a in the BLM PFYC system.

Miocene Nonmarine Deposits (Tc)

Again, these deposits can produce significant vertebrate fossils, but these vary in occurrence and predictability. They are classified 4a in the BLM PFYC system.

Oligocene Nonmarine Deposits (Ogc)

Oligocene nonmarine deposits also can produce significant vertebrate fossils, and they vary in occurrence and predictability. They are assigned a rating of 4a in the BLM PFYC system.

Tertiary Volcanic Rocks (Tv, Tv^p and Ti)

Most volcanic rocks do not produce significant paleontological resources. They are assigned the rating of 1 in the BLM PFYC system.

Mesozoic Sedimentary and Metasedimentary Rocks (sch)

Because of their metamorphosed nature, these rocks are unlikely to produce significant paleontological resources. These rocks are given a rating of 2 in the BLM PFYC system.

Mesozoic mixed Rocks (gr-m)

Granitic rocks do not produce significant paleontological resources. They are given the rating of 1 in the BLM PFYC system.

Mesozoic Plutonic Rocks (gr and gr^{Mz})

Plutonic rocks do not produce significant paleontological resources. They are assigned the rating of 1 in the BLM PFYC system.

Pre-Cambrian Rocks (pC, pCc, gr^{pC})

It is possible that some Pre-Cambrian sedimentary rocks could produce paleontological resources. These could be significant because at a few key places in the world, Neoproterozoic rocks of the Ediacaran period have produced macrofossils; these are very significant as this biota is presumed to contain the ancestors of the earliest Cambrian biota. Non-sedimentary rocks would not produce significant vertebrate fossils. The exact nature of these rocks is not specified, so they are assigned the rating of 2 in the BLM PFYC system.

3.4.5.3 Methods

A search was made for pertinent information on paleontological resources in available geological and paleontological literature. The search yielded general information about the paleontological potential of the sediments within the CMAGR, but no examples of specific localities. Works consulted include BLM (2011); Jefferson (1991a; 1991b; 1995; and 2010); and Morton (1977). No fossils have been reported found at the CMAGR by military personnel or archaeologists.

3.5 WATER RESOURCES

Water resources are defined as sources of water available for use by humans, flora, or fauna, and include surface water, groundwater, near-shore waters, and wetlands. Surface water resources include stormwater, lakes, streams, rivers, and springs. Groundwater is defined as any source of water beneath the ground surface. Surface water and groundwater may be used for potable water, agricultural irrigation, industrial, and recreational purposes.

3.5.1 Water Resources Setting

The CMAGR is located within the Salton Sea Transboundary and Imperial Reservoir regional watersheds. Surface water is extremely scarce at the CMAGR. There are no naturally occurring perennial surface water features on the range. Within the CMAGR, the Salton Sea Transboundary regional watershed is comprised of portions of four local watersheds; arranged from northwest to southeast they are the Salt Creek, Imperial Valley-Frontal Salton Sea, Alamo River, and Algodones Dunes-Chocolate Mountain watersheds. Ephemeral surface water drainages within these CMAGR watersheds flow seasonally and

discharge to the Salton Sea. The Imperial Reservoir regional watershed within the CMAGR is comprised of the Arroyo Seco-Upper Milpitas Wash and Lower Milpitas Wash watersheds. Ephemeral surface water drainages within these CMAGR watersheds flow seasonally and discharge to the Colorado River. Perennial surface waters are present outside the CMAGR and include the Salton Sea, New River, Alamo River, and Colorado River. The Salton Sea, New River, and Alamo River are largely sustained by irrigation return flows. Figure 3-9 shows the locations of watershed boundaries, washes, and current target areas at the CMAGR.

The CMAGR is underlain by portions of four groundwater basins defined by the California Department of Water Resources ([CDWR] 2003). These basins are designated part of the Colorado River Hydrologic Region. Figure 3-10 shows the groundwater basins underlying the CMAGR which includes, from north to south, the Chocolate Valley, East Salton Sea, Amos Valley, and Arroyo Seco Valley basins. Groundwater resources within the CMAGR are extremely limited. Bedrock areas of the Chocolate Mountains have limited groundwater potential and are classified by the CDWR as non-water-bearing. More extensive groundwater resources are present in the down-faulted sedimentary basins located east and west of the Chocolate Mountains. Recharge to the groundwater basins is derived chiefly from infiltration of runoff along the base of the Chocolate Mountains. However, high evaporation, low rainfall, and rapid runoff result in minimal groundwater recharge. The amount and quality of groundwater stored in the groundwater basins underlying the CMAGR are not known because very few wells have been drilled on the range.

3.5.2 Surface Water

Surface water at the CMAGR is derived from infrequent rainfall events that produce localized flash-flooding and temporary surface water runoff, especially during thunderstorms in the monsoon seasons. Rainfall averages less than 5 inches per year and the pan evaporation rate is 100 inches per year, resulting in a net water loss of up to 95 inches. The combination of low precipitation and high evaporation prevents surface water from infiltrating deeply into CMAGR soils. Thus, most of the year, the desert washes on the CMAGR are dry. During heavy rainstorms, these washes drain surface water runoff from the surrounding landscape. This runoff can be captured in natural catchments such as tinajas (natural bedrock depressions), sand tanks, charcos (mud holes), and playa lakes. Natural springs or seeps are found in some locations on the CMAGR; however, for most of the year they are dry. Groundwater discharges from bedrock joints and fractures within the Chocolate Mountains also are ephemeral and short lived, occurring only after a rainfall event.

Surface water drainages are divided by the Chocolate Mountains. On the western and some of the eastern slopes, runoff drains toward the Salton Sea. Runoff from the east slope of the northern Chocolate Mountains drains to Salt Creek Wash which, in turn, drains to the Salton Sea. Runoff from the east slope of the central portion of the Chocolate Mountains drains to the Salton Sea by way of several mountain passes, the largest of which is Iris Wash. Runoff from the eastern slope of the southern portion of the Chocolate Mountains drains northeastward into Arroyo Seco and Milpitas Washes and then southeastward to the Colorado River.

Artificial tanks, wildlife water sources (guzzlers), and tinajas are the only open water sources within the CMAGR available to wildlife. The artificial water sources largely have been constructed by Desert Wildlife Unlimited in cooperation with the CDFG, the Navy, and the Marine Corps and are designed to collect rainwater using concrete basins and/or natural topography to support on-range wildlife populations. The CDFG manages 26 existing guzzlers within the CMAGR that provide supplemental source of water for desert bighorn sheep (*Ovis canadensis nelsoni*) and mule deer (*Odocoileus hemionus*) in the Chocolate Mountains (BLM 2009). In 2009, the BLM and CDFG approved the installation of eight additional guzzlers; three have been built, and are counted among the 26 existing guzzlers, and five are

pending (BLM 2009). At Beal Well and Salvation Well, water is pumped to the surface by a windmill. The storage capacity of the tanks and guzzlers ranges from 1,000 to 24,000 gallons. Water can be retained in these systems for a time period of several months to more than one year, depending on weather and wildlife use. The tinajas are ephemeral pools that develop after seasonal storm events in narrow canyons where depressions in exposed bedrock collect and hold rainfall. Within the CMAGR, Tortuga Springs is the only aquifer-fed, natural spring; however, this spring has been reported as dry since 1976 (Lesicka 1990).

Perennial surface water is present in the Coachella Canal, along the western range boundary. Along the length of the CMAGR boundary, portions of the Coachella Canal are lined with concrete to minimize water losses. The water in the canal is kept separate from local storm water runoff by a series of siphons that allow the canal to flow beneath storm water channels. Storm water is directed toward the siphons by a series of low, earthen dikes on the uphill side of the canal. Water in the Coachella Canal is derived from the Colorado River and is diverted at the Imperial Dam, approximately 20 miles upstream from Yuma, Arizona.

Beneficial uses of surface water within the region are largely associated with irrigated agriculture, mining, geothermal energy production, and recreational use (primarily the Salton Sea). Agricultural use is the predominant beneficial use of water in the region. Surface waters in the region also provide habitat for fish and wildlife. Most of the surface water used is imported via canals from the Colorado River. According to the Water Quality Control Plan for the Colorado River Basin (California Regional Water Quality Control Board 2006), the potential existing and intermittent beneficial uses of perennial, intermittent, and ephemeral streams and washes is agriculture, municipal use, industry, groundwater recharge, contact and non-contact recreational use, warm freshwater habitat, and wildlife habitat. Beneficial uses of surface waters within the CMAGR are largely limited to groundwater recharge and wildlife habitat.

3.5.3 Groundwater

There are currently no active water supply wells on the CMAGR. Groundwater use beneath the CMAGR is precluded by Public Water Reserve 65. Water for CMAGR activities is transported to the range. Groundwater resources within the CMAGR are extremely limited. Little rainfall, high evaporation, and rapid runoff result in minimal groundwater recharge. Recharge has been estimated at 6.3 to 9.5 millimeters per year, or 10 to 14 percent of precipitation (CDM Federal Programs 2003). These values are similar to those found at the Yucca Mountain facility in the northern Mojave Desert of Nevada, an area with approximately twice the average annual rainfall that the CMAGR receives. At Yucca Mountain, recharge rates of zero are estimated for relatively flat areas with deep sandy soil, 10 to 20 millimeters per year for flat-lying bedrock ridges, and 100 millimeters per year or more for drainage channels with thin soils overlying fractured bedrock (Bechtel/SAIC 2004).

Bedrock areas of the Chocolate Mountains have limited groundwater potential and are classified by the CDWR (2003) as non-water-bearing. Shallow wells located in the bedrock areas are assumed to tap waters in thin alluvium or fractured bedrock. The water-bearing potential of the bedrock formations is highly limited. Infiltration into bedrock formations at the CMAGR is expected to be significantly less because of the steep slopes of the Chocolate Mountains, which increase runoff and decrease percolation.

More extensive groundwater resources are present in the down-faulted sedimentary basins located east and west of the Chocolate Mountains. The most important hydrologic features of the groundwater basins are the alluvial fans. The aquifers in the intermontane sedimentary basins receive most of their recharge through the coarse sediments deposited in the fans (Planert and Williams 1995). Sinks, which are areas where runoff from the ephemeral desert washes is temporarily impounded against sand dunes, form locally important recharge features along the northeast margin of the Sand Hills, along the southwestern corner of the CMAGR (Loeltz et al. 1975).

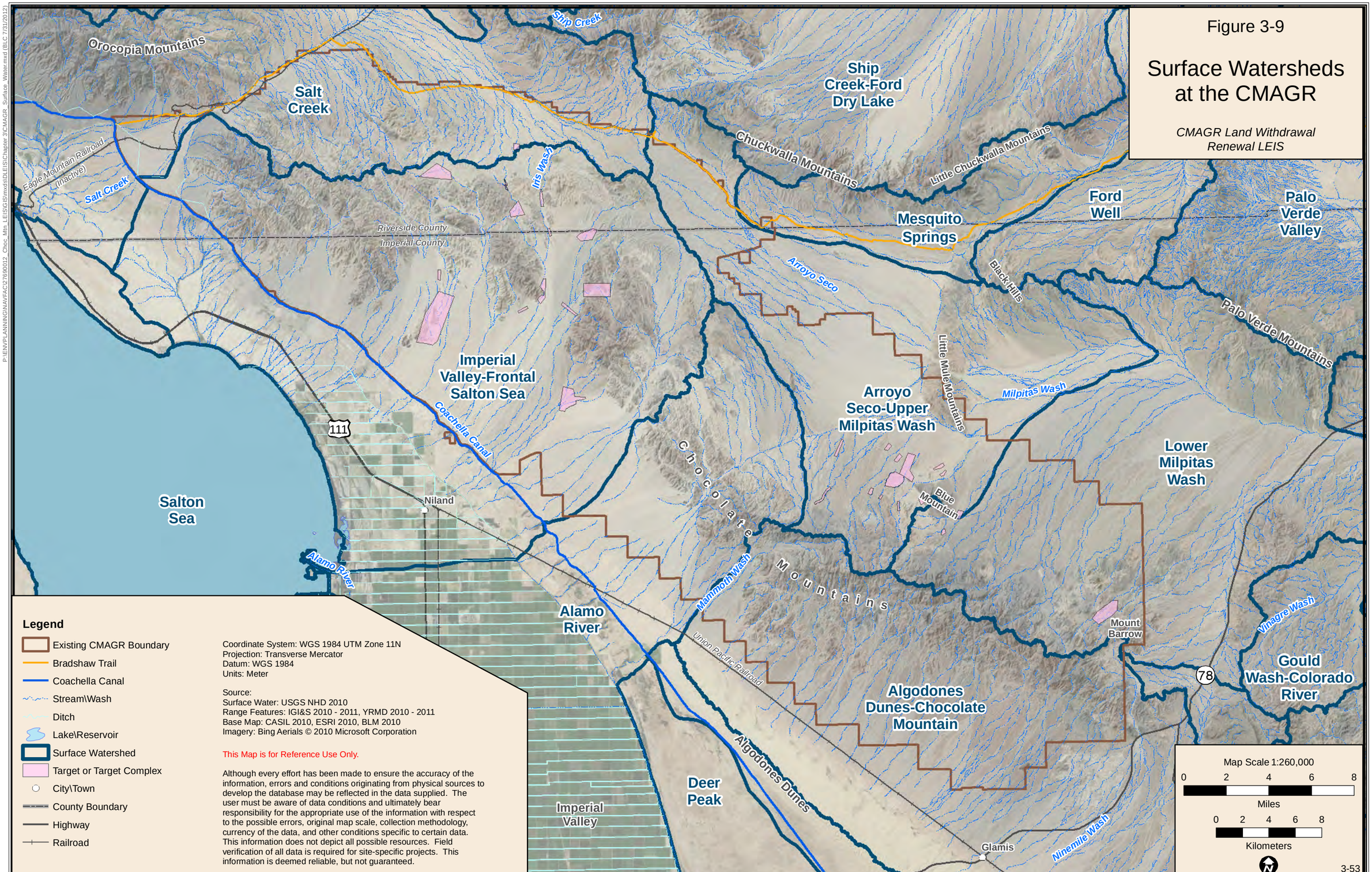

Figure 3-9

Surface Watersheds at the CMAGR

CMAGR Land Withdrawal Renewal LEIS

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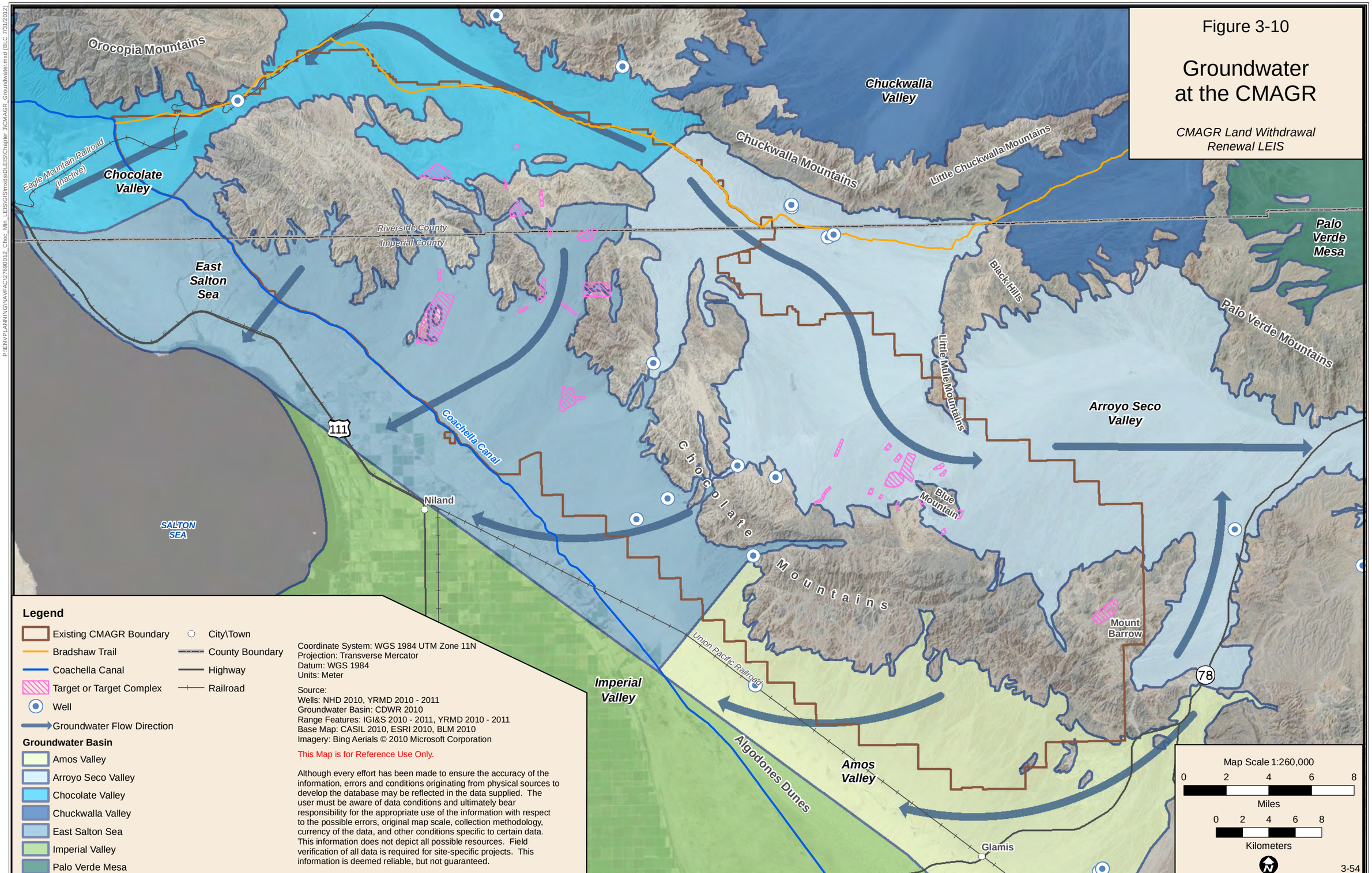

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Several shallow dug wells in the northern portion of the CMAGR were surveyed by the U.S. Geological Survey (USGS) in 1975 and found to have groundwater at depths of 10 to 38 feet below ground surface (Loeltz et al. 1975). Along the southwestern border of the CMAGR, groundwater is recharged by leakage from the All American Canal and, historically, from the Coachella Canal before it was lined. The USGS surveyed two wells along the canals within the CMAGR, completed at total depths of 550 and 1,000 feet, with water levels of 25 and 154 feet below ground surface. The USGS studies indicate that groundwater in the vicinity of the canals is chemically similar to Colorado River water and that groundwater elevations are higher along the canals, indicating that groundwater is locally derived from canal leakage (Loeltz et al. 1975). There is not enough groundwater data east of the Coachella Canal to develop potentiometric contours for the water table or characterize the groundwater quality beneath the CMAGR.

The CMAGR is underlain by portions of four groundwater basins defined by the CDWR (CDWR 2003). These basins are part of the Colorado River Hydrologic Region. Figure 3-10 shows the groundwater basins underlying the CMAGR, which include, from north to south, the Chocolate Valley, East Salton Sea, Amos Valley, and Arroyo Seco Valley basins. The general groundwater characteristics of each of these basins are discussed below.

3.5.3.1 Chocolate Valley Groundwater Basin

The Chocolate Valley groundwater basin encompasses an area of 130,000 acres, including much of the northeastern part of the CMAGR. The basin is bounded by non-water-bearing rocks of the Orocopia and Chuckwalla mountains on the north and the Chocolate Mountains on the south and southeast. A low-lying drainage divide forms the eastern boundary, and the Salton Sea forms the western boundary. The basin is underlain by as much as 400 feet of Quaternary alluvium and Quaternary and Tertiary sedimentary deposits (CDWR 2004a). The basin is traversed by the San Andreas fault zone (including the Banning, Mission Creek, Salton Creek, Clemens Well, and San Andreas faults), which may impede groundwater movement and discharge to the Salton Sea. Depths to groundwater are sparse, except in the far western portion of the basin where groundwater levels are reported to range between 10 and 99 feet below ground surface. Groundwater flow is to the northwest and southwest where it presumably discharges as underflow to the Salton Sea (CDWR 2004a).

Recharge to the basin is derived chiefly from infiltration of runoff along the base of the Orocopia, Chuckwalla, and Chocolate mountains. Surface water runoff is drained to the Salton Sea by way of Salt Creek Wash. CDWR estimates the total storage capacity in the Chocolate Valley groundwater basin at 1,000,000 acre-feet, with approximately 200 acre-feet of recharge per year (CDWR 2004a). The actual amount of groundwater stored in the Chocolate Valley groundwater basin is not known.

Groundwater quality in the basin is considered poor for domestic use because of elevated fluoride and total dissolved solids (TDS) concentrations and possibly for irrigation use because of elevated boron contents. Fluoride contents in Chocolate Valley groundwater range from 0.6 to 60.0 milligrams per liter (mg/L) and average about 5.5 mg/L. The maximum contaminant limit (MCL) for fluoride in drinking water is 4.0 mg/L. TDS contents range from about 460 to 24,500 mg/L, with an average concentration of about 3,000 mg/L (CDWR 2004a). The secondary drinking water standard for TDS is 500 mg/L. Boron concentrations range from 0.08 to 15.8 mg/L and average about 2.2 mg/L.

3.5.3.2 East Salton Sea Groundwater Basin

The East Salton Sea groundwater basin lies in Chocolate Valley west of the CMAGR and occupies 196,000 acres between the non-water bearing rocks of the Chocolate Mountains to the east and the San Andreas Fault to the west. Groundwater is stored in Quaternary alluvium and Quaternary and Tertiary sedimentary deposits that range up to 400 feet thick in the basin. Depths to groundwater range from 20 to 48 feet below ground surface. CDWR records indicate a steady decline in water levels in the basin

between 1963 and 2000. Groundwater generally flows to the west and discharges to the Salton Sea (CDWR 2004b).

Recharge to the basin is derived chiefly from infiltration of runoff at the base of the Chocolate Mountains. Surface water runoff is drained to the Salton Sea by way of Iris Wash. Recharge, estimated at 200 acre-feet per year, occurs as infiltration of runoff along the base of the adjacent mountains. CDWR estimates a total basin storage capacity of 360,000 acre-feet (CDWR 2004b). The actual amount of groundwater stored in the Chocolate Valley groundwater basin is not known.

Groundwater within the basin is generally unsuitable for domestic, agricultural, or industrial use because of high salinity (chloride), sulfate, and TDS. TDS concentrations range from 356 mg/L to 51,632 mg/L (CDWR 2004b). The secondary drinking water standard for TDS is 500 mg/L.

3.5.3.3 Amos Valley Groundwater Basin

The Amos Valley groundwater basin lies beneath a southeast-trending valley west of the Chocolate Mountains. The basin is bounded by the non-water bearing rocks of the Chocolate Mountains to the north and east and by the San Andreas Fault on the south and southeast. The Amos Valley groundwater basin is comprised of 130,000 acres underlain by as much as 550 feet of Quaternary alluvium and Quaternary and Tertiary sedimentary deposits (CDWR 2004c). The basin is traversed by the San Andreas fault zone, which may act as a barrier to groundwater flow.

The depth to groundwater ranges from 19 feet below surface in the northwest portion of the basin to as much as 480 feet below surface in the southeast part of the basin. Groundwater in the Amos Valley basin flows to the northwest into the East Salton Sea groundwater basin (Moyle 1974; Tetra Tech 1999; Tompson et al. 2008). Recharge to the basin is derived chiefly from infiltration of runoff along the base of the Chocolate Mountains. Natural recharge to the basin is estimated to be about 250 acre-feet per year (CDWR 2004c), with a total groundwater storage capacity of 2,900,000 acre-feet. The actual amount of groundwater stored in the Amos Valley groundwater basin is not known (CDWR 2004c).

Groundwater quality in the Amos Valley basin is considered marginal to poor for domestic use because of elevated fluoride, chloride, sulfate, and TDS concentrations (CDWR 2004c). Fluoride concentrations range between 1 to 3.9 mg/L and average about 2.5 mg/L. The MCL for fluoride in drinking water is 4.0 mg/L. TDS contents range from about 750 to 3,100 mg/L, with an average of about 1,500 mg/L. The secondary drinking water standard for TDS is 500 mg/L. Groundwater in the basin may also be marginal to poor for irrigation because of boron, which was reported at 4.3 mg/L in one well.

3.5.3.4 Arroyo Seco Valley Groundwater Basin

Groundwater is present in the alluvial deposits of the Arroyo Seco groundwater basin, which lies beneath the Arroyo Seco Valley east of the Chocolate Mountains. The basin is bounded on the west by the non-water bearing rocks of the Chocolate Mountains and on the east by the Chuckwalla, Little Chuckwalla, Little Mule, Black Hills, and Palo Verde mountains. The Arroyo Seco groundwater basin includes an area of 258,000 acres of Holocene alluvium and Pliocene to Pleistocene sedimentary deposits (CDWR 2004d). The consolidated rocks of the Little Mule Mountains, which trend south toward Blue Mountain, constrict eastward movement of groundwater in the central part of the basin (CDWR 2004d). Depths to groundwater range from 30 to 198 feet below ground surface. Regional groundwater flow in the basin is generally toward the southeast.

Surface water runoff is drained to the Colorado River by way of Arroyo Seco in the northwest portion of the basin and Milpitas Wash in the southeast part of the basin. Recharge to the Arroyo Seco Valley basin is derived chiefly from runoff that infiltrates through alluvial deposits along the base of the surrounding

mountains. Additional recharge may be obtained from subsurface inflow from the Chocolate Valley groundwater basin. Natural recharge to the basin is estimated to be about 1,500 acre-feet per year (CDWR 2004d), with a total groundwater storage capacity of 7,000,000 acre-feet. The actual amount of groundwater stored in the Arroyo Seco Valley groundwater basin is not known.

CDWR indicates the water is generally of potable quality, with TDS concentrations typically ranging from about 300 to 900 mg/L and locally up to 2,450 mg/L (CDWR 2004d). Fluoride concentrations range from 0.10 to 5.20 mg/L, and boron concentrations range from 0.10 to 5.00 mg/L. However, groundwater may exceed MCLs at some locations and be unsuitable for domestic use.

3.5.4 Water Rights

Although the Federal government typically reserves water rights on public lands, water use at the CMAGR is governed by Public Water Reserve 65. A review of the California State Water Resources Control Board Electronic Water Rights Information Management System (eWRIMS) confirms that no surface water licenses or permits exist within the CMAGR.

3.5.5 Water Development Potential

Surface water development potential at the CMAGR is low because there are no naturally occurring perennial surface water features on the range. Surface water at the CMAGR is derived from infrequent rainfall events that produce localized flash-flooding and temporary surface water runoff; thus, most of the year the desert washes on the CMAGR are dry. These waters could be temporarily retained in reservoirs; however with rainfall averages less than 5 inches per year and a pan evaporation rate of 100 inches per year, water captured in reservoirs would likely evaporate.

Where possible, beneficial use of groundwater in the region has been designated for municipal, industrial, or agricultural use (California Regional Water Quality Control Board 2006). The groundwater development potential is defined by volume and capacity of the basin (for example, storage), producibility of groundwater, quality of groundwater, and the overall potential for sustained renewability of groundwater via recharge. Groundwater basins beneath the CMAGR have sufficient storage capacity and the groundwater can likely be produced using standard well field technologies. Although large volumes of groundwater likely exist, the actual water volume, water quality, and sustained renewability of the basins is poorly known because very few wells have been drilled on the range. Historically, there has been little need to investigate and develop the groundwater in the CMAGR area due to the availability and low cost of imported surface water. Good quality groundwater is likely present at shallow depths, less than 1,000 feet, and likely decreases in quality with depth as the salinity and TDS concentrations increase. Sustained renewability of groundwater beneath the CMAGR is also likely limited because the range is located in the Colorado Desert, which has low rainfall (less than 5 inches per year) and high evaporation rates, resulting in minimal recharge and replenishment of groundwater that might be removed from storage. Considering the above, large-scale groundwater development potential on the CMAGR is considered low.

3.6 AIR QUALITY

The following sections describe (1) the air quality setting, including regional climate and pollutant descriptions; (2) the regulatory environment, including federal, state, and local involvement and requirements; (3) the project setting; and (3) the existing air quality of the CMAGR and its vicinity, including air quality monitoring results, attainment status, and discussions of the collective emissions sources.

3.6.1 Air Quality Setting

Criteria Pollutants

Air quality is defined by ambient air concentrations of specific pollutants that have been determined by the EPA to be of concern with respect to the health and welfare of the general public. This resource type considers ambient (outdoor) air quality and emissions of air pollutants regulated by the Clean Air Act, as well as the greenhouse gases (GHGs) water vapor, carbon dioxide (CO_2), tropospheric ozone, nitrous oxide (N_2O), and methane (CH_4). Seven major pollutants of concern, called "criteria pollutants," are carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), suspended particulate matter less than or equal to 10 microns in diameter (PM_{10}), fine particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$), and lead (Pb). The EPA has established National Ambient Air Quality Standards (NAAQS) for these pollutants. Areas that violate a federal air quality standard are designated as non-attainment areas.

Ambient air quality refers to the atmospheric concentration of a specific compound (amount of pollutants in a specified volume of air) that occurs at a particular geographic location. The ambient air quality levels measured at a particular location are determined by the interactions of emissions, meteorology, and chemistry. Emission considerations include the types, amounts, and locations of pollutants emitted into the atmosphere. Meteorological considerations include wind and precipitation patterns affecting the distribution, dilution, and removal of pollutant emissions. Chemical reactions can transform pollutant emissions into other chemical substances. Ambient air quality data are generally reported as a mass per unit volume (for example, micrograms per cubic meter of air) or as a volume fraction (for example, parts per million [ppm] by volume).

Pollutant emissions typically refer to the amount of pollutants or pollutant precursors introduced into the atmosphere by a source or group of sources. Pollutant emissions contribute to the ambient air concentrations of criteria pollutants, either by directly affecting the pollutant concentrations measured in the ambient air or by interacting in the atmosphere to form criteria pollutants. Primary pollutants, such as CO, SO_2, Pb, and some particulates, are emitted directly into the atmosphere from emission sources.

Secondary pollutants, such as O_3, NO_2, and some particulates, are formed through atmospheric chemical reactions that are influenced by meteorology, ultraviolet light, and other atmospheric processes. PM_{10} and $PM_{2.5}$ are generated as primary pollutants by various mechanical processes (for example, abrasion, erosion, mixing, or atomization) or combustion processes. However, PM_{10} and $PM_{2.5}$ also can be formed as secondary pollutants through chemical reactions or by gaseous pollutants condensing into fine aerosols. In general, emissions that are considered "precursors" to secondary pollutants in the atmosphere (such as reactive organic gases [ROG] and oxides of nitrogen [NO_X], which are considered precursors for O_3), are the pollutants for which emissions are evaluated to control the level of O_3 in the ambient air.

Existing air quality at a given location can be described by the concentrations of various pollutants in the atmosphere. Pollutants are defined as two general types: (1) "criteria" pollutants and (2) toxic compounds. Criteria pollutants have national and/or state ambient air quality standards. As shown in Table 3-11, the EPA establishes the NAAQS, while the California Air Resources Board (CARB) establishes the state standards, termed the California Ambient Air Quality Standards (CAAQS). The NAAQS represent maximum acceptable concentrations that generally may not be exceeded more than once per year, except the annual standards, which may never be exceeded. The CAAQS represent maximum acceptable pollutant concentrations that are not to be equaled or exceeded. The CARB is responsible for enforcing both the federal and state air pollution standards (DoN 2010).

1 **Table 3-11 State and Federal Ambient Air Quality Standards**

Pollutant	Averaging Time	California Standards (or CAAQS)[1]		Federal Standards (or NAAQS)[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	---	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.075 ppm (147 µg/m^3)		
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation*	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3*		- -		
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard		35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3*	Gravimetric or Beta Attenuation	15.0 µg/m^3		
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m^3)	None	Non-dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		--	--	--
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	Gas Phase Chemilumin-escence	53 ppb[8] (100 µg/m^3)	Same as Primary Standard	Gas Phase Chemilumin-escence
	1 Hour	0.18 ppm (339 µg/m^3)		100 ppb[8] (188 µg/m^3)	None	
Lead[10] (Pb)	30 days average	1.5 µg/m^3	Atomic Absorption	--	--	High Volume Sampler and Atomic Absorption
	Calendar Quarter	--		1.5 µg/m^3	Same as Primary Standard	
	Rolling 3-month Average[11]	--		0.15 µg/m^3		
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	--	Ultraviolet Fluorescence	30 ppb[9] (80 µg/m^3)	--	Ultraviolet Fluorescence; Spectrophoto-metry (Pararosaniline Method)
	24 Hour	0.04 ppm (105 µg/m^3)		140 ppb[9] (365 µg/m^3)	--	
	3 Hour	--		--	0.5 ppm[9] (1300 µg/m^3)	
	1 Hour	0.25 ppm (655 µg/m^3)		75 ppb[9] (196 µg/m^3)	--	
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer – visibility of 10 miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		NO FEDERAL STANDARDS		

Pollutant	Averaging Time	California Standards (or CAAQS)[1]		Federal Standards (or NAAQS)[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Sulfates (O_4S-22)	24 Hour	25 µg/m^3	Ion Chroma-tography*			
Vinyl Chloride[10] (C_2H_3Cl)	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chroma-tography			
Hydrogen Sulfide (H_2S)	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			

1. California standards for O_3, CO (except Lake Tahoe), SO_2 (1 and 24 hour), NO_2, $PM_{10,}$ $PM_{2.5,}$ and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQSs are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than O_3, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150µg/m^3 is equal to or less than one. For $PM_{2.5}$ the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the EPA for further clarification and current federal policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25 degrees Centigrade (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent procedure that can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.
8. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm. Note that the EPA standards are in the units of parts per billion (ppb). California standards are in the units of ppm. To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standards of 53 ppb and 100 ppb are identical to 0.053 ppm and 0.100 ppm respectively.
9. On June 2, 2010, the EPA established a new 1-hour SO_2 standard, effective August 23, 2010, which is based on the 3-year average of the 99th percentile of 1-hour daily maximum concentrations. The EPA also proposed a new automated Federal Reference Method (FRM) using ultraviolet technology, but will retain the older pararosaniline methods until the new FRM have adequately permeated State monitoring networks. The EPA also revoked both the existing 24-hour SO_2 standard of 0.14 ppm and the annual primary SO_2 standard of 0.030 ppm, although they will still remain in effect until 1 year after the new 1-hour designations take effect. The secondary SO_2 standard was not revised at this time; however, the secondary standard is undergoing a separate review by the EPA. Note that the new standard is in units of ppb. California standards are in the units of ppm. To directly compare the new primary national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
10. The CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
11. National lead standard, 3-month rolling average: final rule signed October 15, 2008.

Source: California Air Resources Board (CARB) 2010

Toxic Air Contaminants

Toxic air contaminants (TACs) are airborne compounds that have been determined to present some level of acute or chronic health risk (cancer or non-cancer) to the general public. A list of TACs is established by the CARB at the state-level, while the EPA maintains its own separate list identified as hazardous air pollutants (HAPs). These pollutants may be emitted in trace amounts from various types of sources, including combustion sources.

Greenhouse Gas Emissions

Greenhouse gases (GHGs) are gases that trap heat in the atmosphere. These emissions occur from natural processes as well as human activities. The accumulation of GHGs in the atmosphere regulates, in part, the earth's temperature. Scientific evidence suggests a trend of increasing global temperature over the past century is potentially due to an increase in GHG emissions from human activities. Potential climate change associated with GHGs may produce economic and social consequences across the globe.

The most common GHGs emitted from natural processes and human activities include CO_2, CH_4, and N_2O. Examples of GHGs created and emitted primarily through human activities include fluorinated gases (hydro fluorocarbons and perfluorocarbons) and sulfur hexafluoride. Each GHG is assigned a global warming potential (GWP). The GWP is the ability of a gas or aerosol to trap heat in the atmosphere. The GWP rating system is standardized to CO_2, which has a value of one. For example, CH_4 has a GWP of 21, which means that it has a global warming effect 21 times greater than CO_2 on an equal-mass basis. Total GHG emissions from a source are often reported as a CO_2 equivalent (CO_2e). The CO_2e is calculated by multiplying the emission of each GHG by its GWP and adding the results together to produce a single, combined emission rate representing all GHGs. On a national scale, federal agencies are addressing emissions of GHGs by reductions mandated in federal laws and Executive Orders. Most recently, Executive Order 13423 *Strengthening Federal Environmental, Energy, and Transportation Management*, and Executive Order 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, were enacted to address GHGs, including GHG emissions inventory, reduction, and reporting. Several states have promulgated laws as a means to reduce statewide levels of GHG emissions. In particular, the California Global Warming Solutions Act of 2006 directs the state of California to reduce statewide GHG emissions to 1990 levels by the year 2020.

The DoN and Marine Corps have implemented a number of renewable energy projects in an effort to reduce energy consumption, reduce GHGs, reduce dependence on petroleum, and increase the use of renewable energy resources in accordance with the goals set by Executive Order 13123, *Greening the Government through Efficient Energy Management*, and the Energy Policy Act of 2005 (legislation passed by Congress that includes promoting energy efficiency and renewable energy efforts in DoD facilities, among many other items) (NAVFAC, 2006). The types of projects currently in operation within the NAVFAC Southwest region include thermal and photovoltaic solar systems, geothermal power plants, and wind generators. The DoN continues to promote and install new renewable energy projects within the NAVFAC Southwest region.

The potential effects of proposed GHG emissions are by nature global and may result in cumulative impacts, as individual sources of GHG emissions are not large enough to have an appreciable effect on climate change.

3.6.2 Air Quality Regulatory Environment

The Federal CAA of 1970 and its subsequent amendments established air quality regulations and the NAAQS, and delegated the enforcement of these standards to the states. The CARB is the state agency that has been delegated authority to enforce air pollution regulations and set guidelines to attain and maintain the NAAQS. The CARB has in turn delegated the responsibility of regulating stationary

emission sources to regional air district agencies. The CAA establishes air quality planning processes and requires areas in nonattainment to develop a State Implementation Plan (SIP) that details how the state will attain and maintain the NAAQS. The following section provides a summary of the federal, state, and local air quality rules and regulations that apply to the Proposed Action.

Federal Requirements

Section 176(c) of the 1990 CAA Amendments contains the General Conformity Rule (40 CFR 51.850-860 and 40 CFR 93.150-160). The General Conformity Rule requires any federal agency responsible for an action in a nonattainment or maintenance area to determine that the action conforms to the applicable SIP. This means that federally supported or funded activities will not (1) cause or contribute to any new air quality standard violation; (2) increase the frequency or severity of any existing standard violation; or (3) delay the timely attainment of any standard, interim emission reduction, or other milestone. The rule allows for approximately 30 exemptions that are assumed to conform to an applicable SIP. Emissions of attainment pollutants are exempt from conformity analyses. Actions would conform to a SIP if their annual direct and indirect emissions remain less than the applicable *de minimis* thresholds. Formal conformity determinations are required for any actions that exceed these thresholds.

As discussed in a project setting section that follows, a portion of the CMAGR lies within Imperial County, and a portion lies within Riverside County. The conformity *de minimis* thresholds for the Imperial County portion of the CMAGR are 100 tons per year for O_3 precursors, including NO_X and ROG, and 70 tons per year for PM_{10}. The conformity *de minimis* thresholds for the Riverside County portion of the CMAGR are 25 tons per year for O_3 precursors and 70 tons per year for PM_{10}. These thresholds are summarized in Table 3-12.

Table 3-12 *De Minimis* Threshold

Criteria Pollutant	*De Minimis* Threshold (tons/year)
Riverside County	
PM_{10}	70
NO_X	25
ROG	25
Imperial County	
PM_{10}	70
NO_X	100
ROG	100

State and Local Requirements

The CARB is the state agency responsible for air quality within the state of California. The CARB has delegated authority to the Imperial County Air Pollution Control District (ICAPCD) to administer air quality in the Imperial County portion of the SSAB and has delegated authority to the South Coast Air Quality Management District (SCAQMD) to administer air quality in the Riverside County portion of the SSAB.

ICAPCD contributions to the California SIP include 2009 O_3 and PM_{10} plans, which address both the O_3 and PM_{10} NAAQS, respectively (ICAPCD 2011). The most recent attainment plan for the Mojave Desert is the 2007 Air Quality Management Plan (DoN 2010).

3.6.3 Project Setting

Regional Climate

The CMAGR is located within the Salton Sea Air Basin (SSAB), which includes all of Imperial County and the southwest third of Riverside County. The climate of the CMAGR is desert, with low humidity, high summer temperatures, and moderate winter temperatures.

Data from the Western Regional Climate Center (WRCC) are available for Eagle Mountain, California, which is located to the west of the CMAGR near Joshua Tree National Park. Data from this location indicate that July is the hottest month with an average maximum temperature of 104.9 degrees Fahrenheit (°F) (40.5 °C). January is the month with the lowest average maximum temperature of 64.4°F (18°C). July is the month with the highest average minimum temperature of 82.6°F (28.1°C). The month with the lowest average minimum temperature is January at 44.3°F (6.8°C) (DoN 2010) (WRCC 2011).

Average precipitation measured at the Eagle Mountain meteorological station is 3.67 inches per year. The driest months are from April through June. August is the wettest month due to the influence of the summer monsoon rain pattern (DoN 2010).

3.6.4 Existing Air Quality

The existing air quality in the vicinity of the CMAGR is described in the following subsection, which includes a discussion of local air quality monitoring data and attainment status, and a semi-quantitative discussion of existing emissions.

Local Monitoring Data and Attainment Status

Representative air quality data for the region, as collected at the Niland and Brawley monitoring stations in Imperial County for the period 2006-2010, are shown in Table 3-13. Only O_3, PM_{10}, and $PM_{2.5}$ are measured at these monitoring stations. CO, NO_2, and SO_2 concentrations are not anticipated to be elevated due to the undeveloped nature of the range (DoN 2010).

Table 3-13 Representative Air Quality Data for the CMAGR (2006-2010)

Air Quality Indicator	2006	2007	2008	2009	2010
O_3[1]					
Peak 8-hour value (ppm)	0.080	0.082	0.085	0.083	0.075
Days above federal standard (0.075 ppm)[2, 3]	3	7	3	5	0
PM_{10} [1]					
Peak 24-hour value (μg/m^3)	116	162	122	202	58
Days above federal standard (150 μg/m^3)	0	3.5	0	6.1	0
$PM_{2.5}$ [2]					
Peak 24-hour value (μg/m^3)	30.4	19.5	32.7	26.6	16.2
Days above federal standard (35 μg/m^3)[4]	*	*	0	*	*
Annual Average value (μg/m^3)	*	*	8.2	*	*

Notes:
μg/m^3 = micrograms per cubic meter
ppm = parts per million
[1] Data from the Niland Monitoring Station.
[2] The federal O_3 standard was revised downward in 2008 to 0.075 ppm.
[3] The federal 8-hour O_3 standard was previously defined as 0.08 ppm. Measurements were rounded up or down to determine compliance with the standard; therefore a measurement of 0.084 ppm is rounded to 0.08 ppm. The 8-hour O_3 ambient air quality standards are met at an ambient air quality monitoring site when the average of the annual fourth-highest daily maximum 8-hour average O_3 concentration is less than or equal to the standard.
[4] Data from the Brawley Monitoring Station. The federal $PM_{2.5}$ standard was revised downward in 2007 to 35 μg/m^3.
* Insufficient data available to determine the value.
Source: DoN 2010; CARB 2011

The Imperial County portion of the SSAB is classified as a marginal nonattainment area for the 8-hour O_3 NAAQS, and the western two-thirds of Imperial County is classified as a serious nonattainment area for PM_{10}. The SSAB portion of Riverside County is classified as a severe-15 nonattainment area for the 8-hour O_3 NAAQS, and also is classified as a serious nonattainment area for PM_{10}. The CMAGR attains all other NAAQS. The CMAGR is also considered a nonattainment area for the CAAQS for O_3 and PM_{10}, and attains all other CAAQS (DoN 2010).

Emissions Sources

Current emission sources at the CMAGR range include, but are not limited to military aircraft operations (including fuel combustion); dropping and/or firing of live ordnance by aircraft and/or ground forces in training; vehicle travel on unpaved roads associated with ground force and naval special warfare training; range maintenance activities; and wind-generated dust from both disturbed and undisturbed portions of the desert terrain. Vehicles and aircraft combust fuel, resulting in the emission of criteria pollutants and greenhouse gases, whereas ground vehicle movement, the use of live ordnance, and wind generally result in dust. Emissions from limited aircraft operations associated with the CMAGR are presented in Table 3-14, based on the results of recent technical reports. Emissions resulting from other activities, such as ground force training and range maintenance, are not included in the quantitative results presented; although, as with the aircraft operational emissions, they would not be affected by the specific proposed action that is the subject of this LEIS.

Table 3-14 Current Annual Emissions Due to Limited[1] CMAGR Aircraft Operations (Riverside and Imperial Counties)

Activity	Annual Emissions (tons per year)					
	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$[4]
Riverside County						
Existing AV-8B[2]	0.92	0.37	0.03	0.03	0.55	N/A
F/A-18 A/C/D[2]	0.26	0.71	0.05	0.04	0.67	N/A
CH46 Operations[3]	0.41	0.08	0.07	0.01	0.04	N/A
Total	1.59	1.16	0.15	0.08	1.26	1.25
Imperial County						
Existing AV-8B[2]	1.21	0.49	0.03	0.04	0.73	N/A
F/A-18 A/C/D[2]	0.34	0.93	0.06	0.06	0.88	N/A
CH46 Operations[3]	1.66	0.33	0.29	0.03	0.15	N/A
Total	3.21	1.75	0.38	0.13	1.76	1.74

Notes:
N/A = not available.
[1] Emissions in the above table are noted as limited because they do not include all aircraft used at CMAGR, but rather those key aircraft involved in recent West Coast basing EISs, as well as those slated for replacement/retirement by newer aircraft.
[2] AV-8B and F/A-18 A/C/D emissions are based on low altitude (less than 3,000 feet above ground level [AGL]) sortie data obtained from "Table 58. Annual Flight Operations for Chocolate Mountain Aerial Gunnery Range R-2507," from F-35B West Coast Basing EIS (DoN 2010b). As obtained, these annual emissions data are not specific to a particular year.
[3] CH-46 operational emissions are based on data obtained from Table B1-35, Chocolate Mt. Range CH-46 Aircraft Emissions – Fiscal Year 2014 (DoN, 2009). The data presented above are estimated fiscal year 2014 CH46 operational emissions. As noted in Table B1-121 of the same report, because approximately 80/20% of the CMAGR occurs within the Imperial/Riverside County portions of the SSAB, the estimated emissions within the CMAGR were distributed by these amounts into these areas.
[4] Because $PM_{2.5}$ emissions were not provided in the referenced report and are due to liquid fuel combustion, the total $PM_{2.5}$ emissions values were estimated to be equal to 99% of PM_{10} emissions. This is consistent with South Coast Air Quality Management District's "Final –Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds" dated October 2006.

There are few permanent structures on the CMAGR other than those at Camp Billy Machen. The only operations outside the Camp are training exercises. ICAPCD Rule 800 concerns particulate matter; per this rule, the CMAGR is granted an exemption for military range training, range clearance, and target maintenance activities. The rule restricts speed limits to 25 miles per hour on unpaved roads; additionally, access to the range is restricted—that is, public entry is not allowed. Activities within Camp Billy Machen and any road maintenance must follow Rule 800 (DoN 2011).

The following potential pollutant-emitting equipment are known to exist at Camp Billy Machen (DoN 2011).

- Two permitted emergency generators, including:
  - Kohler Model 150REOZJE, 237 horsepower (hp), diesel-fueled, and limited to 50 operational hours per year for maintenance purposes (by permit condition), ICAPCD Permit # 2762A-1
  - Kohler Model 100REZG, 162 hp, propane-fired, and limited to 50 operational hours per year for maintenance purposes (by permit condition), ICAPCD Permit # 2762A-2

- Non-retail service station with gasoline dispensing; 8,000 gallon capacity tank, equipped with Phase II vapor recovery equipment; ICAPCD Permit #2366
- Several small gasoline and diesel engines, all of which are below the size threshold to trigger the need for permits
- Portable welding operations, one of which is a diesel engine for use on the ranges; the other is electrical for shop use

Due to the limited use and nature of this equipment and the associated range maintenance operations performed in support of Camp Billy Machen operations, direct emissions have not been estimated.

3.7 BIOLOGICAL RESOURCES

This section describes the baseline conditions for biological resources. The term "biological resources" includes plant and animal species, terrestrial and aquatic habitats (including jurisdictional waters, see Section 3.7.3.2), and habitats of concern (including special-status plant communities, critical habitat, and wildlife corridors). The sections that follow describe these for the CMAGR and their context within the greater CMAGR region.

3.7.1 Biological Resource Setting

The CMAGR encompasses most of the Chocolate Mountains, the largest mountain range in the Colorado Desert. The Colorado Desert is a western subdivision of the Sonoran Desert located west of the Colorado River. The Chocolate Mountains are bounded by the Colorado River to the east; the Coachella Valley, Salton Sea, and Imperial Valley to the southwest; the Orocopia Mountains and Chuckwalla Mountains to the north; and Chuckwalla Bench to the northeast. The Algodones Dunes parallel the western flank of the Chocolate Mountains outside the boundary of the CMAGR, extending from south of the Mexican border to about Mammoth Wash, which is about 10 miles east of the town of Calipatria (Figure 3-11).

Background information for this section was obtained from GIS data, the California Native Plant Society, California Department of Fish and Game (CDFG), BLM, U.S. Fish and Wildlife Service, and regional planning documents. The information is provided in the context of the Endangered Species Act, Sections 404 and 401 of the Clean Water Act (CWA), and California Food and Agriculture Code §§7270-7224.

3.7.2 Vegetation

The vegetation within the CMAGR is comprised of two primary natural plant communities, Colorado Sonoran desert scrub and dry desert wash woodland (Gap Analysis Program [GAP] 2008). These native plant communities occur widely in the surrounding region, along with areas of the desert dunes plant community in the Algodones Dunes, as well as developed agricultural lands and urban areas surrounding the CMAGR. Accurate acreages of the native communities in the CMAGR are not available; the best available data are from GAP land cover data (GAP 2008), which may underestimate the amount of Colorado Sonoran desert scrub and overestimate the amount of dry desert wash woodland at the CMAGR.

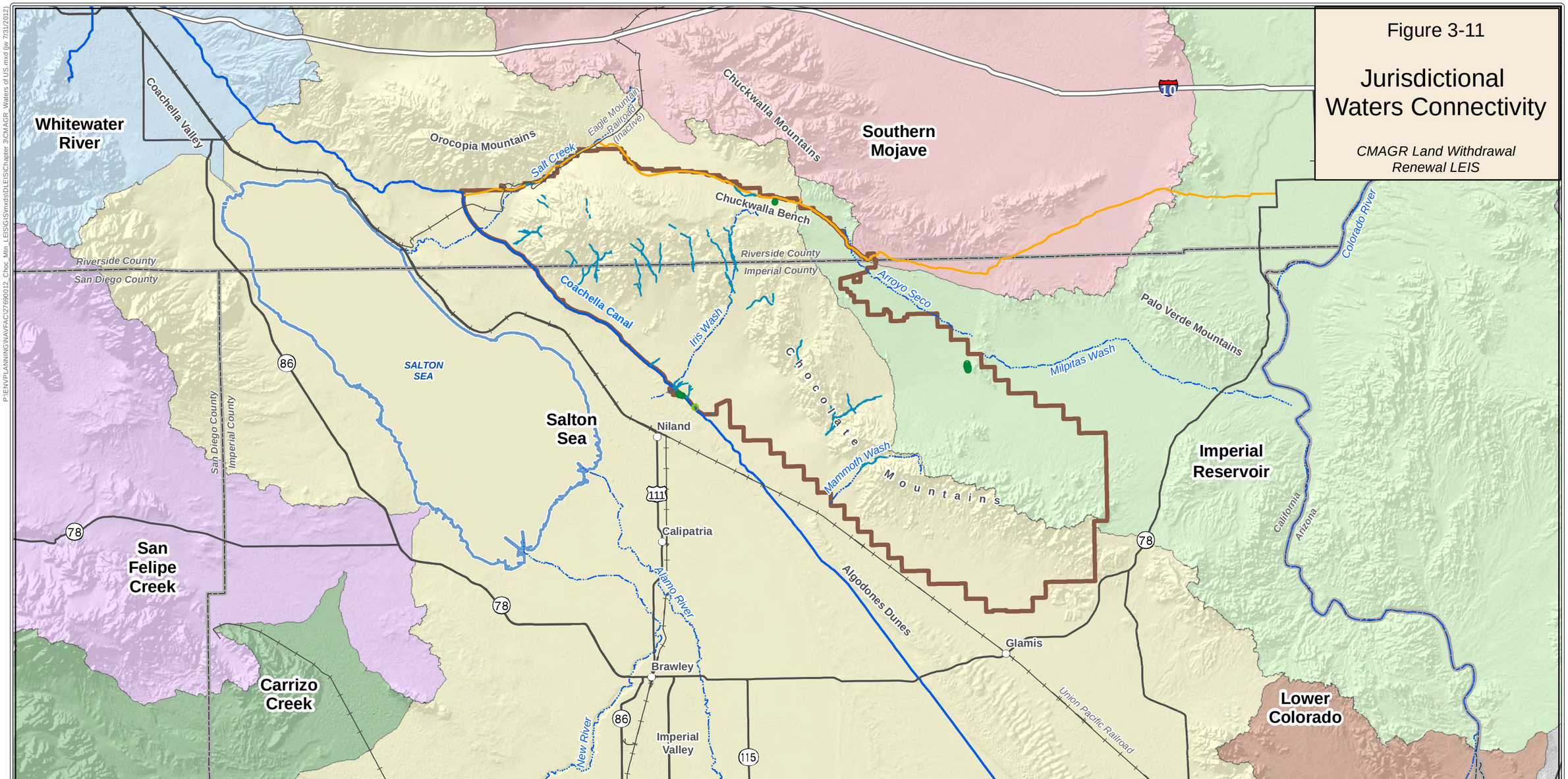

Figure 3-11

Jurisdictional Waters Connectivity

CMAGR Land Withdrawal Renewal LEIS

Legend

- Existing CMAGR Boundary
- Bradshaw Trail
- Coachella Canal
- Lake
- City\Town
- Railroad
- Interstate
- Highway
- County Boundary

Hydrologic Unit (HUC)

- Carrizo Creek
- Imperial Reservoir
- Lower Colorado
- Salton Sea
- San Felipe Creek
- Southern Mojave
- Whitewater River

Wetland Type

- Freshwater-Forested and Shurb Wetland
- Freshwater Emergent Wetland
- Riverine
- Stream/River

Coordinate System: WGS 1984 UTM Zone 11N
Projection: Transverse Mercator
Datum: WGS 1984
Units: Meter

Source:
Hydrology: USGS NHD 2010
NWI: USFWS 2004
Range Features: IGI&S 2010 - 2011, YRMD 2010 - 2011
Base Map: CASIL 2010, ESRI 2010, USGS NHD 2010

This Map is for Reference Use Only.

Although every effort has been made to ensure the accuracy of the information, errors and conditions originating from physical sources to develop the database may be reflected in the data supplied. The user must be aware of data conditions and ultimately bear responsibility for the appropriate use of the information with respect to the possible errors, original map scale, collection methodology, currency of the data, and other conditions specific to certain data. This information does not depict all possible resources. Field verification of all data is required for site-specific projects. This information is deemed reliable, but not guaranteed.

Map Scale 1:475,000

0 2.5 5 7.5 10
Miles
0 2.5 5 7.5 10
Kilometers

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Colorado Sonoran Desert Scrub – This desert scrub community typifies most of the CMAGR and occurs in mountains, valleys, alluvial fans, and bajadas. This desert scrub is characterized by a sparse to moderately dense layer (2-50 percent cover) of xeric adapted shrubs and little or no interspersed vegetation (Nature Serve 2011). Creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*) are typically the dominant species in the region, but other shrubs and cacti can form unique associations depending on local soils, topography, and other environmental conditions (Nature Serve 2011). Desert succulents commonly associate as subdominant species in the southern Chocolate Mountains and southern part of the CMAGR and could be categorized as a separate vegetation type known as desert succulent scrub. Common associates in this sub-region include jumping cholla (*Cylindropuntia bigelovii*) and ocotillo (*Foqueria splendens*) (Davis et al. 2008). Desert pavement often occurs in patches of Colorado Sonoran desert scrub, which limits the density and diversity of plant cover to nearly pure stands of creosote bush in such localities (Brown 1994). The community transitions abruptly to desert dry wash woodland along most desert washes.

The desert scrub community is not designated as a sensitive plant community by BLM. None of the California Natural Diversity Database (CNDDB) rare associations of Colorado Sonoran desert scrub are documented in the CMAGR and surrounding areas (CNDDB 2011).

Desert Wash Woodland – While limited in area, desert wash habitats are vitally important to wildlife and ecological processes throughout the southwestern deserts. Numerous desert washes occur throughout the CMAGR. Salt Creek is the largest wash in the CMAGR area east of the Coachella Canal and forms a lowland divide between the Orocopia Mountains and Chocolate Mountains and flows westward into the Salton Sink. The largest washes within the CMAGR include Arroyo Seco, Mammoth Wash, Milpitas Wash, and Iris Wash (see Figure 3-11). Washes in the region only flow with runoff during seasonal rain events and often form braided channels and sorted sandy substrates in the wash bottoms.

Plants typifying dry desert wash woodlands include tree-like shrubs that grow taller and closer together than in the surrounding desert scrub (Nature Serve 2011). Tree-like species typically growing in this vegetation type in the CMAGR include blue paloverde (*Parkinsonia floridum*), desert ironwood (*Olneya tesota*), smoketree (*Dalea spinosa*), catclaw acacia (*Acacia greggii*), and honey mesquite (*Prosopis glandulosa*) (Nature Serve 2011). Availability of water and depth to groundwater typically affect which combinations of these species occur along a particular stretch of wash. Blue paloverde dominates most of the desert wash woodlands in the CMAGR; with honey mesquite dominated stands being restricted to Salt Creek and its tributaries, ironwood dominated stands occurring in the southern part of the CMAGR, and catclaw acacia-dominated stands growing on bajadas above the Salton Sea and Coachella Canal.

Dry desert wash woodlands are designated as a sensitive plant community by BLM. CNDDB rare associations of dry desert wash woodland occur in the CMAGR and surrounding areas. These include stands co-dominated by Munz's cholla (*Cylindropuntia munzii*), crown of thorns (*Koeberlinia spinosa*), and crucifixion thorn (*Castela emoryi*). These species are described in the special status species section of Table 3-15.

Desert Dunes – This plant community occurs in areas with sand deposits and sand dunes southwest of the Chocolate Mountains outside of the CMAGR. The most prominent formation is the nearby Algodones Dunes (see Figure 3-11). Vegetation in active dunes typically is limited to depressions or bowls without moving sands (Nature Serve 2011). The soils in these areas consist primarily of fine sand. Vegetation is adapted to relatively high sand mobility and deep water percolation (Nature Serve 2011). Most of these plant species are capable of rapid growth, given favorable soil moisture conditions.

Common vegetation within this community includes Mormon tea (*Ephedra* spp.), Colorado desert buckwheat (*Eriogonum deserticola*), desert dicoria (*Dicoria canescens*), common sandpaper plant (*Petalonyx thurberi*), desert panicum (*Panicum urvilleanum*), and plicate coldenia (*Tiquilia plicata*) (Nature Serve 2011). Additionally, birdcage evening primrose (*Oenothera deltoides*) and desert lily (*Hesperocallis undulata*) may occur in the relatively stable dunes that form a transitional zone next to stands of creosote bush (Nature Serve 2011).

3.7.3 Aquatic Habitats and Floodplains

The CMAGR is located within the Salton Sea and Imperial Reservoir hydrologic units. The Salton Sea hydrologic unit within the CMAGR is drained by the Salt Creek, Iris Wash, and Mammoth Wash. Ephemeral surface water drainages within the Salton Sea hydrologic unit flow and discharge to the Salton Sea, which is considered by the U.S. Army Corps of Engineers (USACE) to be a Traditional Navigable Water (TNW). The Imperial Reservoir hydrologic unit within the CMAGR is drained by the Arroyo Seco and Milpitas washes. Ephemeral surface water drainages within the Imperial Reservoir hydrologic unit flow and discharge to the Colorado River, which also is a TNW. Figure 3-11 shows the locations of hydrologic units and connecting drainage washes at the CMAGR.

Surface water is extremely scarce at the CMAGR. There are no naturally occurring perennial surface water features on the range. Perennial surface waters are present outside the CMAGR and include the Salton Sea, Colorado River, New River, Alamo River, and Coachella Canal. Surface water at the CMAGR is derived from infrequent rainfall events that produce localized flash-flooding and temporary surface water runoff, especially during thunderstorms in the monsoon seasons. Most of the year, the desert washes on the CMAGR are dry. During heavy rainstorms, these washes drain surface water runoff from the surrounding landscape.

3.7.3.1 Wetlands

Under Section 404 of the CWA, wetlands are defined as "areas that are inundated or saturated by surface or ground water at a frequency sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Three parameters are used in the field to delineate wetlands: hydrophytic vegetation (more than 50 percent of dominant plants are adapted to anaerobic soil conditions), hydric soils (soils classified as hydric or that exhibit characteristics of a reducing environment), and wetland hydrology (inundation or soil saturation during at least 5 percent of the growing season, which is 18 days in Southern California).

Wetlands provide wildlife habitat—including for special status species; slow, detain, and store stormwater runoff; and improve water quality. The National Wetlands Inventory (NWI) database (USFWS 2004), which identifies potential wetlands in landscapes based on remote sensing methods, indicates that approximately 1,647 acres of potential wetlands occur in the CMAGR, including 1 acre of freshwater emergent wetland, 8 acres of freshwater forested/shrub wetland, and 1,638 acres of riverine wetland (mostly wash woodlands). The NWI findings have not been validated by ground surveys and the NWI database overestimates the occurrence of wetlands within the CMAGR.

3.7.3.2 Waters of the U.S.

Waters of the U.S. refers to areas under the USACE's jurisdiction pursuant to Section 404 of the CWA and are generally defined by the ordinary high water mark (OHWM). The USACE's jurisdiction can extend beyond the OHWM to the limit of adjacent wetlands, when present. Wetlands also can occur within waters of the U.S. Ephemeral surface water drainages supporting OHWMs within the CMAGR, such as Iris Wash, Mammoth Wash, and Arroyo Seco, are considered waters of the U.S (see Figure 3-11, Jurisdictional Waters Connectivity). Outside the CMAGR, the Salton Sea is a TNW, and its tributaries, the New and Alamo rivers, are waters of the U.S.

Surface water drainages in the CMAGR are divided by the Chocolate Mountains. On the western slopes, runoff drains toward the Salton Sea. Runoff from the east slope of the northern Chocolate Mountains drains to Salt Creek Wash which, in turn, drains to the Salton Sea. Runoff from the west slope of the central portion of the Chocolate Mountains drains to the Salton Sea by way of several mountain passes, the largest of which is Iris Wash. Runoff from the eastern slope of the southern portion of the Chocolate Mountains drains northeastward into Arroyo Seco and Milpitas washes and then southeastward to the Colorado River, also a TNW.

Perennial surface water is present in the Coachella Canal, along the western range boundary. The water in the canal is kept separate from local storm water runoff by a series of siphons that allow the canal to flow beneath storm water channels. Storm water is directed toward the siphons by a series of low, earthen dikes on the uphill side of the canal. Water in the Coachella Canal is derived from the Colorado River and is diverted at the Imperial Dam, approximately 20 miles upstream from Yuma, Arizona.

3.7.4 Wildlife Habitat

Most wildlife species are able to survive by evading the hot and dry extremes of the Colorado Desert's climate through behavioral and physiological adaptations. Many species are adapted to survive without free water in their environment. As a consequence of harsh climatic extremes, limited habitat resources, and regional geographic barriers, the diversity of animal species in the CMAGR is typically low relative to other parts of the Sonoran and Mojave deserts.

The CMAGR largely lacks surface waters for wildlife with the exception of ephemeral pools that develop after seasonal storm events. Artificial tanks, wildlife water sources (guzzlers), and tinajas (natural bedrock depressions) are the only open water sources within the CMAGR available to wildlife. The CDFG manages 26 existing guzzlers within the CMAGR principally to provide supplemental water for desert bighorn sheep (*Ovis canadensis nelsoni*) and mule deer (*Odocoileus hemionus*) in the Chocolate Mountains (BLM 2009). Five additional guzzlers are proposed for future installation.

3.7.4.1 General Wildlife

As already indicated, the diversity of wildlife species in the Colorado Sonoran desert scrub plant community within the CMAGR is low. A representative list of the most common species includes the desert iguana (*Dipsosaurus dorsalis*), zebra-tailed lizard (*Callisaurus draconoides*), western whiptail lizard (*Aspidoscelis tigris*), sidewinder (*Crotalus cerastes*), red-tailed hawk (*Buteo jamaicensis*), mourning dove (*Zenaida macroura*), lesser nighthawk (*Chordeiles acutipennis*), black-tailed gnatcatcher (*Polioptila melanura*), white-crowned sparrow (*Zonotrichia leucophrys*), big brown bat (*Eptesicus fuscus*), kit fox (*Vulpes macrotis*), Botta's pocket gopher (*Thomomys bottae*), Merriam's kangaroo rat (*Dipodomys merriami*), round-tailed ground squirrel (*Spermophilus tereticaudus*), desert cottontail (*Sylvilagus audubonii*), and black-tailed jackrabbit (*Lepus californicus*) (BLM 2002, BLM 2011). Local variations in substrate, topography, and cover account for site-specific differences in species composition.

A relatively larger number of wildlife species utilize dry desert wash woodlands. Wildlife commonly associated with this plant community includes species that are specific to this habitat for most or all of their life-cycle functions and those that utilize both dry desert wash woodlands and the surrounding desert scrub habitats. Common species include the side blotched lizard (*Uta stansburiana*), western whiptail lizard, zebra-tailed lizard, sidewinder, red-tailed hawk, Gambel's quail (*Callipepla gambelli*), mourning dove, ladder-backed woodpecker (*Picoides scalaris*), verdin (*Auriparus flaviceps*), western flycatcher (*Empidonax difficilis*), cactus wren (*Campylorhynchus burnneicapillus*), warbling vireo (*Vireo gilvus*), Wilson's warbler (*Wilsonia pusilla*), house finch (*Carpodacus mexicanus*), black-tailed gnatcatcher, white-crowned sparrow (*Zonotrichia leucophrys*), canyon bat (*Parastrellus hesperus*), coyote (*Canis latrans*), kit fox, mule deer, white-tailed antelope squirrel (*Ammospermophilus leucurus*), black-tailed

jack rabbit, and desert cottontail (BLM 2002, BLM 2011). The hoary bat (*Lasiurus cinereus*) has been documented from the CMAGR in the Chocolate Mountains (CNDDB 2011), and dry desert wash woodlands would provide adequate stop-over habitat for this species during migration.

The common wildlife associated with desert dune habitats include black-tailed gnatcatcher, mourning dove, Colorado fringe-toed lizard (*Uma notata*), kit fox, round-tailed ground squirrel, desert kangaroo rat (*Dipodomys deserti*), and black-tailed jackrabbit (BLM 2011).

3.7.4.2 Wildlife Corridors

The Chocolate Mountains form an ecological peninsula bounded by the Colorado River to the east; the Coachella Valley, Salton Sea, and Imperial Valley to the southwest; the Orocopia Mountains and Chuckwalla Mountains to the north; and Chuckwalla Bench to the northeast. The area is somewhat ecologically isolated due to the proximity of the Colorado River.

Little development has occurred to the north and west of the CMAGR. Historical connections for wildlife movement through lowlands are largely intact between the Orocopia, Chocolate, and Chuckwalla mountains. The Coachella Canal, Interstate 10, SR 78, and the UPRR are filter-barriers that inhibit wildlife movement to varying degrees in the region (see Figure 3-11). The Coachella Canal is the greatest of these man-made barriers, which greatly restricts terrestrial wildlife movements between the CMAGR and areas to the west and south. SR 78 may impede wildlife movement to and from the Palo Verde Mountains and the southern part of the Chocolate Mountains.

3.7.5 Special Status Species

Figure 3-12 shows recorded confirmed locations for special status species in the CMAGR vicinity. Certain special status species have been excluded from further analysis because they are not known to occur at the CMAGR or if they are present are unlikely to be affected under the various alternatives; these species are summarized in Table 3-15. Two listed or sensitive species that are fully analyzed are the Mojave desert tortoise and the desert bighorn sheep.

Mojave Desert Tortoise (*Gopherus agassizii*) – Federally Threatened, State Threatened

The Mojave desert tortoise primarily occurs in the bajadas, mountain foothills, and valleys of the Mojave and Colorado deserts west of the Colorado River. This species usually occurs below 4,000 feet in creosote bush, saltbush scrub habitats, tree yucca (Joshua tree and Mojave yucca) communities, and some ocotillo-creosote habitats (Brennan and Holycross 2006, Stebbins 2003). Creosote bush, white bursage, tree yucca, galleta grass (*Pleuraphis rigida*), and blackbrush (*Coleogyne ramosissima*) are indicator species of overall desert tortoise habitat (Brennan and Holycross 2006, Nussear et al. 2009). Mojave desert tortoises occupy a wide variety of soil types and substrates that include sand dunes, rocky hillsides, and caliche caves in washes, sandy soils, and desert pavements. Tortoises must have suitable substrates and terrain for digging burrows (Brennan and Holycross 2006, Stebbins 2003). The availability of adequate forage resources consisting of native grasses, herbaceous perennials and annuals, and cacti are important for determining habitat suitability for the Mojave desert tortoise (Brennan and Holycross 2006, Stebbins 2003, Nussear et al. 2009).

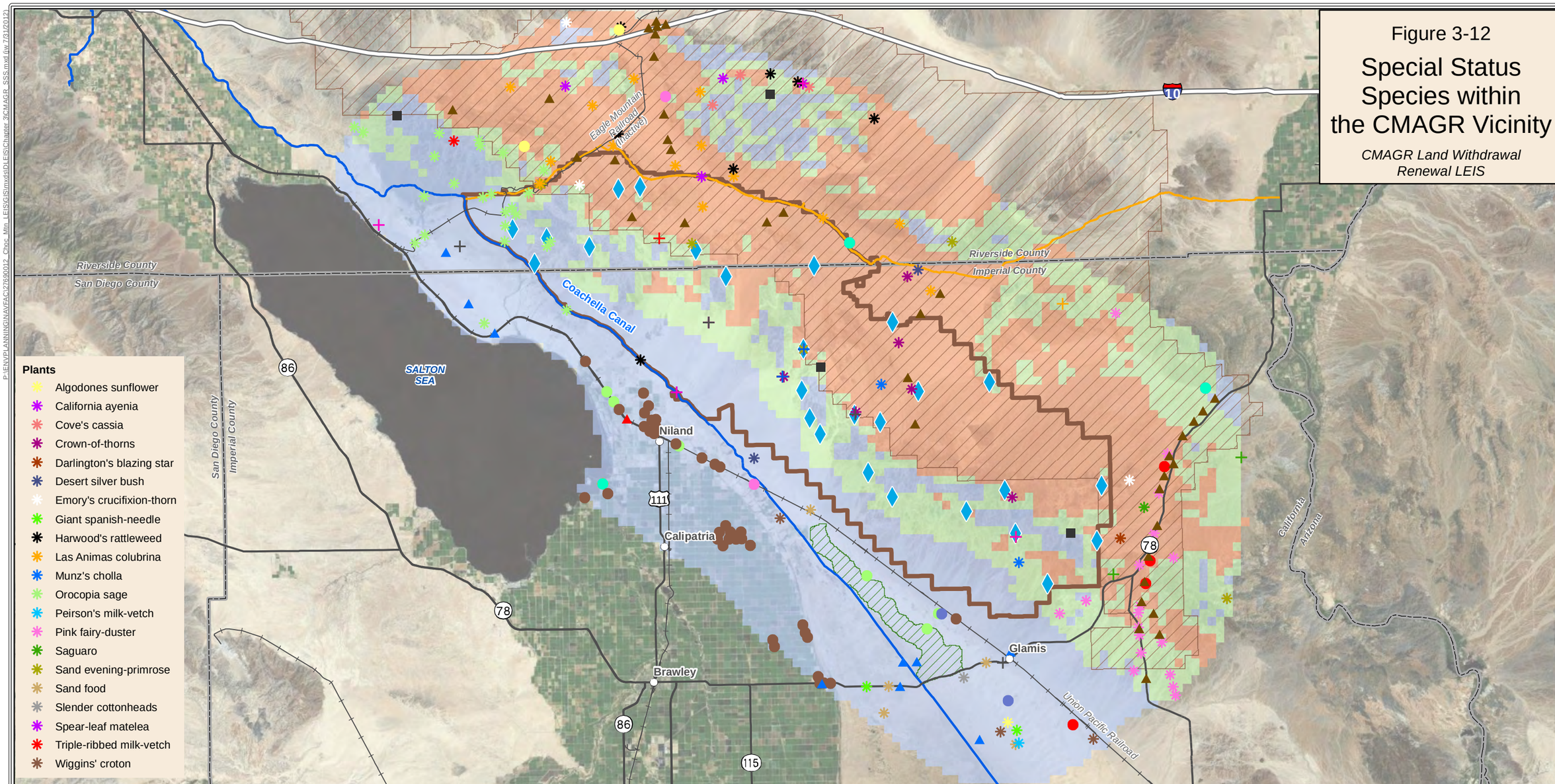

Figure 3-12

Special Status Species within the CMAGR Vicinity

CMAGR Land Withdrawal Renewal LEIS

Legend

- Existing CMAGR Boundary
- Bradshaw Trail
- Coachella Canal

Modeled Desert Tortoise Habitat

- Low
- Moderate
- High

Critical Habitat

- Desert tortoise
- Peirson's milk-vetch

Big Game

- Nelson's bighorn sheep

Mammals

- American badger
- California leaf-nosed bat
- Pallid bat
- Pocketed free-tailed bat
- Western mastiff bat
- Western small-footed myotis
- Western yellow bat

Birds

- Burrowing owl
- Crissal thrasher
- Gila woodpecker
- Le Conte's thrasher
- Loggerhead shrike
- Merlin
- Prairie Falcon

Amphibians and Reptiles

- Couch's spadefoot
- Flat-tailed horned lizard
- Mohave desert tortoise

- Wildlife Water (Guzzler)
- City\Town
- County Boundary
- Railroad
- Interstate
- Highway

Source:
Critical Habitat: USFWS 2010
Desert Tortoise Model: USGS 2009
Special Status Species: California Natural Diversity Database 2011
Range Features: IGI&S 2010 - 2011, YRMD 2010 - 2011
Base Map: CASIL 2010, ESRI 2010, USGS NHD 2010
Imagery: Bing Aerials © 2010 Microsoft Corporation

Coordinate System: WGS 1984 UTM Zone 11N
Projection: Transverse Mercator
Datum: WGS 1984
Units: Meter

This Map is for Reference Use Only.

Although every effort has been made to ensure the accuracy of the information, errors and conditions originating from physical sources to develop the database may be reflected in the data supplied. The user must be aware of data conditions and ultimately bear responsibility for the appropriate use of the information with respect to the possible errors, original map scale, collection methodology, currency of the data, and other conditions specific to certain data. This information does not depict all possible resources. Field verification of all data is required for site-specific projects. This information is deemed reliable, but not guaranteed.

Map Scale 1:475,000

0 2.5 5 7.5 10
Miles
0 2.5 5 7.5 10
Kilometers

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Table 3-15 Summary of Federal, State, or Bureau of Land Management Listed Species Dismissed from Further Analysis

Common Name *Scientific Name*	Federal Status	BLM Status	State Status	Species or Habitat			Habitat Association
				Present	Potential	Absent	
Big Game							
Burro mule deer (*Odocoileus hemionus eremicus*)	None	None	None	x			Occurs in desert wash woodland communities with dense cover and good forage near permanent water during summer and away from water in other seasons (BLM 2002).
Mountain Lion (*Puma concolor brownii*)	None	None	SSC		x		Occurs in low mountains and large dry desert washes with riparian or shrubby vegetation interspersed with irregular terrain or rocky outcrops (Bolster 1998). Follows the yearly movements of mule deer, and is known to spend the hot summer and fall in riparian areas along the Colorado River and in dense desert wash woodlands near the Coachella Canal (BLM 2002).
Special Status Animals							
Amphibians							
Couch's spadefoot (*Scaphiopus couchii)*	None	S	SSC		x		Occurs in Sonoran desert scrub, related semi-desert grasslands, and occasionally next to agricultural fields (Brennan and Holycross 2006, Stebbins 2003). Breeding pools usually occur in valleys but also can form in lower rocky arroyos and canyons.
Reptiles							
Flat-tailed horned lizard (*Phrynosoma (Anota) mcallii*)	CA	S	SSC		x		Occurs in Sonoran desert scrub dominated by creosote bush in low dunes and flatlands with a deep, sandy substrate (Brennan and Holycross 2006, Flat-tailed Horned Lizard Interagency Coordinating Committee 2003).
Colorado Desert fringe-toed lizard (*Uma notata*)	None	S	SSC		x		Occurs in open dune fields, washes, river banks, and shrub-invaded sand hummocks with at least sporadic, open patches of fine, unconsolidated or wind-blown sand (Brennan and Holycross 2006, Stebbins 2003).
Birds							
Burrowing owl (*Athene cunicularia*)	None	S	SSC, FP	x			Inhabits desert scrublands, grasslands, agricultural areas, and golf courses (WFO and CDFG 2008).
Northern harrier (*Circus cyaneus*)	None	None	SSC, FP	x			Prefers open habitats with lookout perches such as shrubs or fence posts. These habitats include weedy borders of rivers, lakes, streams, freshwater marshes, grasslands, weed fields, pastures, and some croplands (including alfalfa and melons).
Golden eagle (*Aquila chrysaetos*)	BGEPA	S	FP	x			Forages in grassy and open shrubby habitats and nests primarily on cliffs, but has been known to nest in large trees. (Source?)
Ferruginous hawk (*Buteo regalis*)	None	None	SSC, FP	x			Overwinters in desert scrub and agricultural areas of the Imperial Valley (WFO and CDFG 2008).
Swainson's hawk (*Buteo swainsoni*)	None	S	T, FP		x		Most often found in grasslands, shrub lands, and agricultural areas, where open land for foraging and trees for roosting and nesting are available.
Merlin (*Falco columbarius*)	None	None	Watch List, FP		x		Occurs in grasslands, shrub lands, woodlands, and agricultural areas with suitable perch sites.

Common Name *Scientific Name*	Federal Status	BLM Status	State Status	Species or Habitat			Habitat Association
				Present	Potential	Absent	
Prairie falcon (*Falco mexicanus*)	None	None	FP	x			Found in areas where cliffs provide secure nesting sites (WFO and CDFG 2008). This species occurs in all vegetation types in the desert, although sparse vegetation provides the best foraging habitat (WFO and CDFG 2008). Predominantly a winter resident in the Colorado Desert (WFO and CDFG 2008).
Peregrine falcon (*Falco peregrinus*)	None	None	FP		x		Occurs in areas with rocky, steep cliffs, primarily near water, where prey (shorebirds, songbirds, and waterfowl) concentrations are high. Nests are found on ledges of cliffs, and sometimes on man-made structures such as office towers and bridge abutments (USFWS 2001).
Loggerhead shrike (*Lanius ludovicianus*)	None	None	SSC	x			Occurs in a wide variety of open habitats, including shrub-scrub habitats, chaparral, fencerows, old orchards, mowed roadsides, cemeteries, golf courses, agricultural fields, riparian woodlands, and open woodlands (WFO and CDFG 2008).
Gila woodpecker (*Melanerpes uropygialis*)	None	S	E		x		Occurs in low desert scrub with saguaro, paloverde, ironwood, or mesquite trees (WFO and CDFG 2008). Also frequents riparian woodlands and dry desert washes with a high density of trees and tree-like shrubs.
Crissal thrasher (*Toxostoma crissale*)	None	None	SSC	x			Uses a variety of vegetation communities but consistently inhabits tall, dense brush and shrub thickets in dry desert washes irrespective of the plant composition (WFO and CDFG 2008). Individuals have been encountered in mountain chaparral and oak-piñon-juniper woodlands in parts of Arizona (Corman and Wise-Gervais 2005).
LeConte's thrasher (*Toxostoma lecontei*)	None	None	SSC	x			Inhabits sparse desert scrub habitats with few scattered trees or tall shrubs (Corman and Wise-Gervais 2005). It often nests in spiny shrubs or densely branched cactus. Uses scattered shrubs and cactus for cover, most frequently saltbush and cholla.
Lucy's warbler (*Oreothlypis luciae*)	None	None	SSC		x		Occurs in lowland riparian habitat including tamarisk, mesquite-willow, cottonwood-mesquite, and cottonwood-willow associations and in mid-elevation ash-walnut-sycamore-live oak associations and tamarisk thickets, rarely in palo verde and ironwood (Johnson et al. 1997).
Vaux's swift (*Chaetura vauxi*)	None	None	SSC		x		Usually roosts and nests in large cavities in a variety of tree species and less frequently in artificial structures. Forages over a variety of habitats, including over water at various heights.
Mammals							
California leaf-nosed bat (*Macrotus californicus*)	None	S	SSC	x			Mating, maternity, and overwintering roosts are in caves or mines that provide a warm temperature of about 80°F (Adams 2003). Forages almost exclusively along dry desert washes within about 6 miles of the roost site (Adams 2003).
Pallid bat (*Antrozous pallidus*)	None	S	SSC	x			Occurs in desert scrub, piñon-juniper woodlands, and transition forest habitats. Roosts in small colonies of up to 20 individuals in rock crevices, buildings, and other built structures (Adams 2003), and occasionally in caves, mines, rock piles, and tree cavities.

Common Name *Scientific Name*	Federal Status	BLM Status	State Status	Species or Habitat			Habitat Association
				Present	Potential	Absent	
Western yellow bat (*Lasiurus xanthinus*)	None	None	SSC	x			Occurs in desert and semi-desert habitats of the southwestern United States (Adams 2003). Commonly roosts beneath dead palm fronds in both native and non-native palm trees, in cottonwoods in riparian gallery forests and woodlands, and in tree-like yuccas (Adams 2003).
Western small-footed myotis (*Myotis ciliolabrum*)	None	S	None	x			Occurs in deserts, chaparral, riparian zones, and western coniferous forests; it is most common above the piñon-juniper woodland zone (Adams 2003). Individuals are known to roost singly or in small groups in cliff and rock crevices, buildings, concrete overpasses, caves, and mines (Adams 2003).
Pocketed free-tailed bat (*Nyctinomops femorosaccus*)	None	None	SSC	x			Occurs in a variety of plant communities from desert scrub through pine-oak forests, but the species is most common in desert and semi-desert environments (Adams 2003). In California, found primarily in creosote bush and chaparral habitats in or near granite boulders, cliffs, or rocky canyons (Adams 2003) and roosts primarily in crevices of rugged cliffs, high rocky outcrops, and slopes (Adams 2003).
Big free-tailed bat (*Nyctinomops macrotis*)	None	None	SSC	x			Primarily inhabits rugged, mountainous terrain in desert and semi-desert habitats. Occurs in desert scrub, woodlands, and evergreen forests (Adams 2003) and roosts in rock crevices where cliffs occur and occasionally roosts in buildings, caves, and tree cavities (Adams 2003).
Western mastiff bat (*Eumops perotis*)	None	S	SSC	x			Most common in areas with desert scrub and broad open expanses (Adams 2003). Foraging habitat includes dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas (Adams 2003). Primarily a cliff-dwelling species that roosts in rock crevices, under exfoliating slabs of rock, in shallow cliff-side caves, and in buildings (Adams 2003).
American badger (*Taxidea taxus*)	None	None	SSC	x			Characteristically inhabits open habitats and avoids heavily wooded areas (CDFG 2011, Fitzgerald et al. 1994). Occurs in prairies, meadows and parklands in forested areas, alpine tundra, and desert and semi-desert shrublands (Fitzgerald et al. 1994).
Plants							
Harwood's rattleweed (*Astragalus insularis var. harwoodii*)	None	None	CNPS 2.2, SH S2.2		x		Occurs in Sonoran desert scrub in dunes and other areas with a sandy substrate (CNPS 2011, SEINet 2011).
Peirson's milk-vetch (*Astragalus magdalenae var. peirsonii*)	T	None	E		x		Occurrence limited to the Algodones Dunes and Gran Desierto. (CNPS 2011, SEINet 2011). Designated critical habitat for the species occurs in the Algodones Dunes from SR 78 to approximately Mammoth Wash.
Triple-ribbed milk-vetch (*Astragalus tricarinatus*)	E	None	SH S1.2		x		Occurs on rocky exposed slopes, ridges, and rockslides in upland areas with a decomposed granite substrate (Amsberry and Meinke 2007).
California ayenia (*Ayenia compacta*)	None	None	CNPS 2.3, SH S3?1[8]		x		Occurs on bajadas and rocky slopes (CNPS 2011, SEINet 2011).

[8] Adding an "?" to the rank represents more certainty than S3S4 (in the range of vulnerable to apparently secure), but less certainty than S3 (vulnerable).

Common Name *Scientific Name*	Federal Status	BLM Status	State Status	Species or Habitat			Habitat Association
				Present	Potential	Absent	
Pink fairy-duster (*Calliandra eriphylla*)	None	None	CNPS 2.3, SH S2S3		x		Occurs on sandy, rocky soils in washes, gullies, and mesas and in dry desert wash woodlands with blue paloverde, ironwood, and smoketree (CNPS 2011, SEINet 2011).
Sand evening-primrose (*Camissonia arenaria*)	None	None	CNPS 2.3, SH S2	x			Occurs in Sonoran desert scrub dominated by creosote bush, with sandy to rocky substrates (CNPS 2011, SEINet 2011).
Saguaro (*Carnegiea gigantea*)	None	None	CNPS 2.2, SH 1.2		x		Occurs on rocky slopes, bajadas, and well-drained flats with a sandy to gravelly substrate (CNPS 2011, SEINet 2011). In the western part of its range, saguaro is increasingly restricted to dry wash habitats.
Emory's crucifixion-thorn (*Castela emoryi*)	None	None	CNPS 2.3, SH S2S3		x		Occurs on sandy to gravelly substrates on bajadas and in dry washes (CNPS 2011, SEINet 2011).
Las Animas colubrine (*Colubrina californica*)	None	None	CNPS 2.3, SH S2S3.3	x			Occurs along washes and dry slopes with coarse substrates (CNPS 2011, SEINet 2011).
Wiggins' croton (*Croton wigginsii*)	None	S	CNPS 2.2, SH S1.2, RCNPPA		x		Grows in the Colorado Desert within Sonoran desert scrub on fine sandy soils of dunes and sand fields in the Algodones Dunes (CNPS 2011, SEINet 2011).
Munz's cholla (*Cylindropuntia munzii*)	None	S	CNPS 1B.3, SH S1.2	x			Grows in Sonoran desert scrub on sandy to gravelly substrates along washes and canyon walls (CNPS 2011, SEINet 2011).
Desert silver bush (*Argythamnia claryana or Ditaxis claryana*)	None	None	CNPS 2.2, SH S1		x		Grows on sandy substrates in Sonoran and Mojave desert scrub, often near dry washes and on bajadas (CNPS 2011, SEINet 2011).
Crown-of-thorns (*Koeberlinia spinosa var. tenuispina*)	None	None	CNPS 2.2, SH S2.2	x			Occurs in the Colorado Desert on rocky or gravelly soils in washes and ravines within Sonoran desert scrub and within dry desert wash woodland dominated by blue paloverde, ironwood, and smoketree (CNPS 2011, SEINet 2011).
Algodones sunflower (*Helianthus niveus var. tephrodes*)	None	S	CNPS 1B.2, SH S1.2		x		Occurs in the Algodones Dunes in dune environments with fine sands and a cover of creosote bush desert scrub (CNPS 2011, SEINet 2011).
Spear-leaf matelea (*Matelea parvifolia*)	None	None	CNPS 2.3, SH S2.2	x			Occurs in Sonoran and Mojave on gravelly, rocky soils in hills and mountains in desert scrub plant communities and associates with creosote bush (CNPS 2011, SEINet 2011).
Darlington's blazing star (*Mentzelia puberula [oreophila]*)	None	None	CNPS 2.2, SH S2		x		Grows commonly on rock outcrops and talus along canyon walls in creosote bush desert scrub, primarily in the Mojave Desert (CNPS 2011, SEINet 2011).
Slender cottonheads (*Nemacaulis denudata var. gracilis*)	None	None	CNPS 2.2, SH S2		x		Grows in sand dunes and deep sandy soil and associates with sparse desert scrub and coastal strand plant communities (CNPS 2011, SEINet 2011).
Giant Spanish-needle (*Palafoxia arida var. gigantea*)	None	S	CNPS 1B.3, SH S2		x		Grows in Colorado Sonoran desert scrub and desert dunes with deep, fine, sandy soils (CNPS 2011, SEINet 2011).

Common Name *Scientific Name*	Federal Status	BLM Status	State Status	Species or Habitat			Habitat Association
				Present	Potential	Absent	
Sand food (*Pholisma sonorae*)	None	S	CNPS 1B.2, SH S2		x		Occurrence restricted to the Algodones Dunes and deep sands in the Imperial Valley in California, as well as dunes in southwestern Yuma County, Arizona, and northwestern Sonora, Mexico (CNPS 2011, SEINet 2011).
Orocopia sage (*Salvia greatae*)	None	None	CNPS 1B.3, SH S2	x			Occurs in the Colorado Desert in Sonoran desert scrub on bajadas, alluvial fans, and desert dry washes with sandy gravelly soils (CNPS 2011, SEINet 2011). Occurs with creosote bush, blue paloverde, ironwood, and smoketree (CNPS 2011, SEINet 2011).
Cove's cassia (*Senna covesii*)	None	None	CNPS 2.2, SH S1	x			Grows in Sonoran desert scrub or near dry desert washes or slopes with sandy soil (CNPS 2011, SEINet 2011).

Federal Status: Endangered Species Act of 1973 (T = Threatened, E = Endangered, CA = Candidate), BGEPA= Bald and Golden Eagle Protection Act of 1940
BLM Status: S = sensitive
State Status:
California Department of Fish and Game (SSC = Species of Special Concern, FP = Fully Protected (Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.)
California Native Plant Society Rankings
CNPS 1B.2 (1: rare, threatened, or endangered in California and elsewhere, .2: Fairly threatened in California [20-80% occurrences threatened / moderate degree and immediacy of threat])
CNPS 1B.3 (1: rare, threatened, or endangered in California and elsewhere, .3: Not very threatened in California [<20% of occurrences threatened / low degree and immediacy of threat or no current threats known])
CNPS 2.2 (2: rare, threatened, or endangered in California but common elsewhere, .2: Fairly threatened in California [20-80% occurrences threatened / moderate degree and immediacy of threat])
CNPS 2.3 (2:rare, threatened, or endangered in California but common elsewhere, .3: Not very threatened in California [<20% of occurrences threatened / low degree and immediacy of threat or no current threats known])
California State Heritage Rankings
SH S2.2 (S2: Imperiled; .2: fairly endangered in California [20-80 percent occurrences threatened])
SH S1.2 (S1: Critically Imperiled; .2: fairly endangered in California [20-80 percent occurrences threatened])
SH S3 (S3: Vulnerable)
SH S2S3 (S2: Imperiled; S3: Vulnerable)
SH S2S3.3 (S2: Imperiled; S3: Vulnerable; .3: not very endangered in California [less than 20 percent of occurrences threatened])
RCNPPA = Rare California Native Plant Protection Act

The CMAGR is the primary installation harboring desert tortoise habitat in the Colorado Desert in California (USFWS 1990, 1994a). In 1994, about 6.6 million acres in four states were designated as Critical Habitat for the Mojave population of the desert tortoise, including about 183,419 acres (40 percent) of the northeastern half of the CMAGR (USFWS 1994b; see Figure 3-12). Occurrences of the Mojave desert tortoise in the CMAGR are reported from the northeastern side of the Chocolate Mountains and southward along SR 78 (CNDDB 2011) (Figure 3-12). Suitable habitat occurs for the species throughout the CMAGR, but density estimates are low for the west side of the Chocolate Mountains (Dames & Moore 1995, Nussear et al. 2009) (Figure 3-12). The highest densities of Mojave desert tortoises in the surrounding region had been on the Chuckwalla Bench, but precipitous declines have occurred due to factors affecting the species throughout its range. These have included habitat loss, diseases, excessive predation on young tortoises by ravens and coyote, collecting, shooting, highway and vehicle kills, and other factors.

The recovery plan for the Mojave desert tortoise was recently updated in 2011 (USFWS 2011). Military operations (e.g., construction and operation of bases, ranges, and field maneuvers) have taken place in the Mojave Desert since 1859 and can affect tortoises and their habitats similarly to other large human settlements (i.e., illegal collection of tortoises, trash dumping, increased raven (*Corvus corax*) populations, domestic predators, OHV use, increased exposure to disease, and increased mortality) (USFWS 1994a; Krzysik 1998; Boarman 2002). The value that military lands can provide for conservation has long been recognized (Stein et al. 2008). Restricted-access military lands provide an extensive network of tortoise habitats that are managed either directly or indirectly for desert tortoise conservation. Military lands with conservation objectives expressed through compliance with the Sikes Act include a great deal of desert tortoise habitat outside of and contiguous with designated tortoise conservation areas (USFWS 2011).

Designated critical habitat for the desert tortoise occupies about half of the CMAGR. Target areas within the designated critical habitat are not part of the critical habitat area because the constituent elements for which the area was designated have been removed by military training activities. However, about 95 percent (177,000 acres) of the critical habitat in the CMAGR is in areas of negligible to low military surface use. Approximately 300 acres of military use roads pass through the critical habitat and about 9,300 acres of the critical habitat within the CMAGR are in areas of moderate military use to support the secondary weapons impact areas. Near the northern perimeter of the CMAGR, including some land south of the Bradshaw Trail, some to the critical habitat was acquired through purchases from the Land and Water Conservation Fund (LWCF) .

Desert bighorn sheep (*Ovis canadensis nelsoni*) – BLM Sensitive

Nelson's desert bighorn is found in the desert mountains of southeastern California. Desert bighorn sheep favor open, rocky, and steep terrain and avoid dense vegetation that blocks visibility (CDFG 2011). Habitat used by desert bighorn also includes springs and plateaus (BLM 2002). The CMAGR subpopulation is part of a larger Sonoran meta-population.

Long-term survival of local sub-populations of bighorn sheep requires movement of individuals among regional subpopulations to prevent genetic bottlenecks, to maintain viable population numbers, and to recolonize vacant or formerly occupied areas (Bleich et al. 1990 and Schwartz et al. 1986 *in* BLM 2002). Desert bighorn sheep will move from mountains through valleys to reach preferred habitat sites (Bleich et al.1990 *in* BLM 2002). The Coachella Canal, Interstate 10, and SR 78 are filter-barriers that inhibit or prevent historical movement of bighorn sheep between regional mountain ranges (BLM 2002). Historical movement corridors from the Chocolate Mountains to the Orocopia Mountains, Chuckwalla Mountains, and Palo Verde Mountains likely remain intact, because little or no development occurs between these mountain ranges.

CDFG offers limited hunting of this subspecies; the agency allowed 24 tags in the Colorado Desert in 2011. Desert bighorn in the CMAGR cannot be hunted because of the safety hazards associated with military training that necessarily keeps the area closed to public use.

3.8 CULTURAL RESOURCES

Under the NHPA of 1966, as amended, significant cultural resources, referred to as historic properties, represent any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP. Historic properties also include resources determined to be National Historic Landmarks (NHL), which represent nationally significant historic places designated by the Secretary of the Interior because they possess exceptional value or quality in illustrating or interpreting U.S. heritage. A cultural resource is considered significant if it meets one of the NRHP criteria and retains sufficient historic integrity to convey its significance. Generally, cultural resources are temporally associable with either the prehistoric or historic periods.

Traditional cultural places (TCPs) also are included among historic properties. TCPs (which are addressed in the amended NHPA) are cultural resources associated with the practices or beliefs of a living community that are rooted in that community's history. These resources play an important role in maintaining the community's cultural identity. Examples of cultural resources that may be significant for Native American communities and potentially NRHP-eligible include locations associated with the traditional beliefs of a group about its origins, its cultural history, or the nature of the world or locations where Native American religious practitioners have historically gone or continue to go to perform ceremonial activities in accordance with traditional cultural rules of practice. Guidelines for evaluating whether a Native American cultural resource may be eligible for NRHP listing is provided in the *National Register Bulletin 38* (Parker and King 1998).

Inventory Methods

A multi-faceted approach was implemented to develop a general overview of known cultural resources within the CMAGR. This approach included a review of existing data from past reports and studies for the identification and evaluation of historic properties, the completion of a supplemental record search of the California Historical Resources Information System (CHRIS) by the Eastern Information Center (EIC) and by the South Coastal Information Center (SCIC), the submission of an information request to the Native American Heritage Commission (NAHC), and additional research of available data sources. The record search, the NAHC information requests, and additional research were focused on those areas along the existing perimeter of the CMAGR where boundary realignments are proposed, and within a 0.5-mile radius of these proposed boundary realignment areas.

The NAHC was contacted to request a Sacred Lands File (SLF) search and a listing of individuals and groups believed to have knowledge of the area. Individuals and groups identified by the NAHC were contacted to solicit any questions, comments, or concerns regarding the project. The purpose of the supplemental record searches and the Native American coordination is to determine if other sensitive or significant Native American cultural resources have been identified in areas that could be affected by proposed boundary realignment since the completion of other past studies.

In addition to the above, other sources were identified and reviewed for information pertaining to cultural resources. Studies reviewed include, but are not limited, to the *Integrated Cultural Resources Management Plan for the Chocolate Mountain Aerial Gunnery Range, California* (AECOM 2011), the *Final Environmental Impact Statement for the West Coast Basing of the F-35B* (DoN 2010), the *Final Environmental Impact Statement for the West Coast Basing of the MV-22* (DoN 2009a), and the *Yuma*

Training Range Complex (YTRC) FEIS (USMC 1997). These documents served as primary sources for the following section. Research requests were submitted for access to cultural resources records available through MCAS Yuma, DoN, BLM, and local governments and agencies that control property in, or immediately adjacent to, the areas where boundary realignments are proposed. Site-specific research also was completed for proposed boundary realignment areas and their immediate vicinities, including Certified Local Government annual reports and other data; Historic American Buildings Survey (HABS) and the Historic American Engineering Record (HAER) records; the National Register Information System, the on-line database for National Register sites; Calisphere Digital Resources; Online Archive of California; Government Land Office Plat Maps; Sanborn Fire Insurance Maps; local historical societies and libraries; private collections; and inventory files and data on-file with other agencies.

3.8.1 Cultural Resource Setting

As recently as May 2011, an Integrated Cultural Resources Management Plan (ICRMP) for the CMAGR was created for MCAS Yuma (AECOM 2011). In addition to this ICRMP, MCAS Yuma developed a cultural affiliation study to accompany the ICRMP (AECOM 2010), along with a detailed Regional Archaeological Research Design (RARD; Cleland and Wahoff 2006) for use in the management of cultural resources. These documents served as primary sources upon which the following regional cultural setting overview is based. Current knowledge of the prehistory and history of the California Colorado Desert is considered in detail elsewhere (Cleland and Wahoff 2006; Schaefer 1994) and is summarized below.

In addition to these studies, the Marine Corps continues to consult with the State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation regarding operational changes at the CMAGR. For example, a Programmatic Agreement was developed to address activities connected to the West Coast basing of the MV-22 Osprey (see Appendix F). The intended purpose of this Programmatic Agreement was to achieve compliance with Section 106 of the NHPA and to provide an overall framework for the Section 106 process.

Previously recorded cultural resources and the range of resource types potentially within specified proposed boundary realignment areas or the project vicinity were identified in addition to the regional cultural setting. The following discussion summarizes the results of this inventory, which was based on the results from record search requests, as well as information inquiries, additional background research, and the review of previous reports and investigations pertaining to cultural resources.

3.8.1.1 Regional Cultural Setting, Overview

Regional Prehistory

The CMAGR is situated within the Colorado Desert in a region that had few cultural resource investigations until the 1980s. As more extensive cultural resource evaluations and data recovery are completed, a clearer picture of the cultural history of the Colorado Desert is beginning to emerge (Schaefer 1994; Schaefer and Laylander 2007). In a recent review of the prehistory of the Colorado Desert, Schaefer and Laylander (2007) point out that though the prehistory in this region has its own distinct material manifestations, it is nevertheless embedded in a larger context that includes the Mojave and Sonoran deserts. Furthermore, the course of prehistory in the area was influenced throughout the Holocene by the Colorado River as it periodically inundated the Salton Trough and created Lake Cahuilla (Schaefer and Laylander 2007; Weide 1976). For the purpose of the present review, the history for the Salton Sea basin and surrounding Colorado Desert is generally differentiated into three periods: Early (or Paleo-Indian), Archaic, and Late Prehistoric/Protohistoric (or Patayan).

Early Period

This period generally refers to the earliest settlement of the Colorado Desert region, continuing into the terminal Pleistocene and early Holocene periods and is most commonly associated with the disputed Paleoindian cultural traditions such as the Clovis and Folsom, and the San Dieguito complex (ca. 12,000 to 8,500 years before present [B.P.]), the latter of which was first identified by Malcolm Rogers (1966). The primary subsistence strategy associated with the early period centered on hunting and gathering activities dependent upon the exploitation of available animal and biotic resources. Stone tool assemblages identified as San Dieguito include an extensive array of lithic artifacts including bifaces, choppers, scrapers, crescents, and other tools, many of which are associated with hunting and gathering activities or functions. Cultural resources from this period in the Colorado Desert are generally represented as lithic scatters or rock features such as cleared circles, trails, and geoglyphs located on deflated desert pavement surfaces commonly situated along the shorelines of Pleistocene lakes or near major drainage areas (Rogers 1966; Warren 1966).

Archaic

Despite this period being scantly represented in the Colorado Desert region (Schaefer 1994; Weide 1976), it is estimated that the Archaic Period lasted approximately 8,500 to 1,500 years B.P. and represented a time when regional adaptations became well established within diverse local conditions. Some researchers have proposed that the desert regions may have been broadly abandoned during this period due to broad climactic shifts (Hayden 1976). The artifact assemblage during this period includes extensive concentrations of stone tools, most notably the Pinto-style projectile points, and the more regular appearance of a flat, smaller variety of milling stone. Groundstone tools, including manos, metates, mortars, and pestles were developed to aid in the processing of new food resources and are commonly found in artifact assemblages throughout the Mojave and Colorado deserts (Moratto 1984). In addition to stone tools, people of the Colorado Desert may have used wooden milling utensils and other artifacts of organic materials that are not typically preserved in the archaeological record. Ethnographic records show use of wooden mortars and pestles, items such as hooked sticks for shaking mesquite pods down from trees, nets to collect cactus and then beat them against the ground to remove the needles, digging sticks for excavating rodents from burrows or digging up plants, and throwing sticks for hunting hare and other small game (Barker 1976).

The most prominent sites associated with this period include the Indian Hill Rockshelter (McDonald 1992) in Anza Borrego Desert State Park, the Truckhaven cairn burial, and a preceramic occupation along the old Lake Cahuilla shoreline (Moratto 1984:404), as well as several sites in the Coachella Valley (Love and Dahdul 2002). Some suggest that the presence of these sites indicate that the Colorado Desert region was not entirely unoccupied during the early and middle portions of the Archaic Period and that people may have only been present on a seasonal basis because of limited access to resources (Fagan 2003; Weide 1976). As the presence or absence of Lake Cahuilla is not well known from this period, the scarcity of sites also might indicate that the Salton Trough was generally dry (Schaefer and Laylander 2007).

Late Prehistoric/Protohistoric Period

Recent research shows that around A.D. 1200, the Colorado River shifted course and refilled Lake Cahuilla (Schaefer and Laylander 2007). This refilled lake provided a stable year-round water supply in the Colorado Desert. People began to repopulate the Colorado Desert; some were following the river on its route from the Colorado River Valley and some were attracted from the Mojave Desert or the mountain ranges to the west (Moratto 1984; Weide 1976). Ceramic wares, which had been introduced centuries before in other areas, were brought into this region with the influx of people. The Patayan

cultural complex, which dates roughly from 1450 B.P. to the historic period, is the most notable presence in the Colorado Desert during this period.

Drastic changes in the artifact assemblage, economic and kinship systems, and settlement patterns are associated with the Late Prehistoric Period. Changes that occurred during this period include the introduction of the bow and arrow (as attested to by the appearance of Cottonwood Triangular and Desert side-notched series projectile points), the paddle and anvil pottery technique, a transition in human burial practice from inhumations to cremations, the appearance of ornate rock art and intaglios/geoglyphs, expansive trade networks, and floodplain agriculture along the lower Colorado River (McGuire and Schiffer 1982; Rogers 1945; Schroeder 1975, 1979). Materials commonly used in projectile point production during the Late Prehistoric to Protohistoric Period include chalcedony, chert, quartzite, quartz, fine-grained basalt, andesite, and obsidian. Isotropic materials such as obsidian also were preferred sources for projectile points, and access to such materials was improved due to the receding shoreline of Lake Cahuilla, the result of which exposed a local obsidian source, Obsidian Butte, located between 131 feet to 230 feet below sea level at the southern end of the Salton Sea.

Regional History

The regional history of the Chocolate Mountain area begins with the first appearance of European explorers to breach the desert regions, the Spanish. The Spanish began to explore parts of California as early as 1539, after which Spanish exploration became more sporadic for the next 200 years due to the remoteness of the area and difficult accessibility. Multiple expeditions dating to the 1700s, including those led by Father Francisco Garcés (1771), Pedro Fages (1772), and Captain Juan Bautista de Anza (1774), saw the return of the Spanish to the area and the establishment of overland routes that helped open up the region to travel (Beck and Haase 1974:15).

The discovery of gold in California in 1848 and the resultant influx of emigrants west marked the beginning of the Early American Period. During this time, the remote and often hostile desert regions of southern California became even more accessible for settlement due to the establishment of forts and camps throughout Arizona, Nevada, and California. The development of wagon roads and, later, a mail route and stage lines, facilitated access to, and exploitation of, the desert regions of southern California. Particular to the Chocolate Mountain area, Dr. Isaac Smith surveyed a route along the eastern flank of the Salton Basin from Dos Palmas to Yuma in 1857, and in 1862 William Bradshaw scouted an overland stage route from San Bernardino to La Paz, Arizona, that skirted across the northern and northeastern edges of the Chocolate Mountains. The trail travelled by William Bradshaw was the first road across Riverside County as an overland stage route.

The period between the 1870s and 1942 was marked by a steep increase in the development of the Colorado Desert, which was predominantly dependent on the establishment of transportation and access to reliable water. In 1872 the Southern Pacific Railroad was constructed connecting Los Angeles to present-day Indio, California; eventually spanning the entire distance from Indio to Yuma, Arizona. All along the route small communities developed, including Dos Palmas, Frinks, and Amos, all of which are adjacent to the present-day CMAGR western boundary. Other important railroad lines soon followed; among them were the Southern Pacific and the Atchison, Topeka, and Santa Fe railroads appearing in 1881. These railroads further facilitated the settlement and exploitation of the region. The most notable example of this was the marked increase in mining activities in the Colorado Desert, which peaked between 1890 and 1910 and reappeared during the 1930s (Morton 1977; Rice et al. 1996). As noted in the RARD the heaviest mining activity was localized in the southeastern half of the Chocolate Mountains range.

One of the major obstacles hindering the settlement of the Imperial Valley during most of the 19th Century was the lack of a reliable water source. The CMAGR ICRMP notes that agricultural development of the area encouraged the California Development Company to begin construction of a canal in the lower Imperial Valley during the late 1890s and the completion of a canal along the old Alamo River channel to carry water from the Colorado River to the Imperial Valley in 1901 (AECOM 2011). Soon thereafter, agricultural pursuits increased, as did population and settlement, which resulted in the founding of new cities and communities as illustrated by the 1905 establishment of El Centro. Soon a new channel was sought to alleviate the silting of the Alamo Canal. This construction led to the accidental flow of the Colorado River into the Imperial Valley between 1904 and 1907, and resulted in the formation of the Salton Sea. To bring water to the eastern Imperial Valley, the Coachella Canal was later constructed between 1936 and 1940. A more detailed discussion of this canal can be found in Section 3.8.2.

History of the Chocolate Mountain Aerial Gunnery Range

The following brief history of the CMAGR is taken directly from the CMAGR ICRMP (AECOM 2011). Use patterns of the Colorado Desert region changed during WWII. Large swaths of the desert were tapped by the U.S. military for training and maneuvering exercises, the most notable of which were led by General George S. Patton, Jr., who established the Desert Training Center (DTC). The DTC was later changed to the California-Arizona Maneuver Area (CAMA) and focused on training military personnel in desert survival and warfare. With the administrative headquarters of the DTC situated at Camp Young, near what is now Chiriaco Summit, the entire area of the DTC encompassed some 18,000 square miles in southeastern California, western Arizona, and southern Nevada. Aside from Camp Young, ten other divisional camps were also established (Henley 1992:8). Continuing this tradition of military use of the area, the Chocolate Mountains became the site for Camp Dunlap, a Marine Training Center that later changed to the CMAGR (Beck and Haase 1974:88). CMAGR land and airspace have served as a bombing range since WWII. In 1966, the cantonment for Camp Billy Machen was constructed in the western CMAGR, which serves as a training camp for the Navy SEALs.

3.8.1.2 Record Search Results

Records searches were completed by the EIC, located at the University of California, Riverside, as well as by the SCIC at San Diego State University (SDSU). These record searches included a review of relevant previously recorded cultural resources and previous investigations that were completed within the areas that would be affected by proposed boundary realignments and within a 0.5-mile search radius of these lands (see Figures 2-1 and 2-2). Information reviewed included location maps for all previously recorded trinomial and primary cultural resources; DPR 523 series forms and updates for all cultural resources previously identified; previous investigation boundaries; and National Archaeological Database (NADB) citations for associated reports, technical reports, historic maps, and historic addresses. This search also included properties listed on the NRHP and the California Points of Historical Interest (CPHI), California Historical Landmarks (CHL), Caltrans Historic Highway Bridge Inventory, California Historical Resources Inventory, local city and county registries of historic properties, and the California Register of Historical Resources (CRHR).

Eastern Information Center Results

A cultural resource records search was requested from the EIC on 8 August 2011, which is the CHRIS cultural resources repository for Riverside County. The EIC also reviewed other sources, including maps and manuscripts housed at the EIC, the Office of Historic Preservation (OHP) Archaeological Determinations of Eligibility (ADOE) listing, the OHP Directory of Properties in the Historic Property Data File (HPD), as well as copies of relevant portions of historical topographic maps on file at the information center. Results of the record search completed by the EIC were received on 17 August 2011. The records search results indicated that 17 previous cultural resources studies have been completed in or

within the 0.5-mile radius of the lands that would be affected by proposed boundary realignments. Ten of these studies were conducted within portions of areas affected by the proposed boundary realignments. In addition to the 17 previous studies, seven other reports were identified by the EIC as providing overviews of cultural resources within the general project vicinity. The EIC likewise identified 25 cultural resource properties previously recorded within the lands that would be affected by proposed boundary realignments and an additional 31 properties recorded within the 0.5-mile record search radius. The EIC summary identified one property listed in OHP ADOE, the Bradshaw Trail, as not evaluated for inclusion on the National Register of Historic Places; however, the ADOE printout provided by the EIC notes the status code for this property as "2S2." This designation indicates an individual property that has been determined eligible for listing on the National Register and is simultaneously listed in the California Register. The EIC review of the OHP HPD also identified another property, the Coachella Canal, as not evaluated for inclusion on the National Register. The Coachella Canal carries a status code of "7R," which represents a property identified in reconnaissance level survey but not evaluated.

South Coastal Information Center Results

A cultural resources records search was requested from the SCIC on 3 August 2011. The SCIC is the cultural resources repository for San Diego and Imperial counties. The records search was completed by SCIC staff and included a review of all previously recorded cultural resources and previously conducted cultural surveys within the lands that would be affected by the proposed boundary realignments and within a 0.5-mile record search radius around the lands that would be affected by the proposed boundary realignments. Additionally, the SCIC consulted other sources that included a review of historic addresses for historic properties and a review of historic maps. The results of the record search completed by the SCIC were received on 18 August 2011. These results identified 47 previously conducted cultural surveys, 29 previously recorded cultural resources within the area that would be affected by the proposed boundary realignments, and 78 previously recorded cultural resources within 0.5-mile of the area that would be affected by the proposed boundary realignments. The majority of previous cultural investigations identified by the SCIC covers or crosses into portions of these lands. SCIC results indicate the presence of the Coachella Canal, but do not provide clear indication of the determination of eligibility for portions of this property within Imperial County.

3.8.1.3 DoN/USMC/Other Agencies Cultural Resources Records

DoN and MCAS Yuma documentation associated with cultural resources management programs and efforts were considered. MCAS Yuma records indicate that a total of 329 cultural resources have been identified at CMAGR; these consist of several different site types with a prehistoric, historic-period, or multi-component (historic-period and prehistoric) temporal association. The National Register eligibility has not been evaluated for 265 of the 329 resources; 60 have been evaluated and were determined as not eligible. Four resources identified by MCAS Yuma are determined eligible for listing on the NRHP. Among these, one is described as eligible, while three are recommended as eligible with the concurrence of the California SHPO. The site types identified include a cabin, camp sites, mining camp sites, chipping stations, ceramic and lithic scatters, debitage, cleared circles, a fire ring, a geoglyph, a habitation site, a historic complex, a lake area, mining and prospecting sites, petroglyph sites, quarries, pot-drop sites, roads, a rock cairn, other rock features and rock rings, survey markers, trails, trash dumps, well, and dump sites. The site type for some resources is unknown, while some of the listed site types were described as not re-located.

A series of historical aerial images taken of the CMAGR property dating to 1943 shows several segments of the Coachella Canal while it was under construction. On several slides within this set of images, a dry linear canal feature is clearly visible, and at times the canal is identified in the images as the "All American Canal." Site records for the Coachella Canal on file at both the EIC and the SCIC indicate that

before the name "Coachella Canal" this feature was referred to as the "All American Canal." A more detailed discussion of this canal is provided below.

3.8.2 Historic Resources

Sources of information reviewed for the historic-period resources research included the National Register Information System, the online database for National Register sites; CPHI, CHL, and the California Historical Resources Inventory; Calisphere Digital Resources and Online Archive of California for historic photos, maps, and documents; California State University, Chico California Historical Topographic Map Collection (http://cricket.csuchico.edu/spcfotos/maps/topo_search.html); local historical societies and libraries (websites of Palm Springs Historical Society, Pioneers Museum and Cultural Center, and Salton Sea History Museum); general plans; and inventory files and data on-file with other agencies. Research did not reveal the presence of any NRHP-eligible or -listed historic-period resources. However, historic-period resources were identified during review of the current topographic maps and general internet searches based on map locations. As indicated in the CMAGR RARD, the built environment within the CMAGR is generally not a primary concern due to the minimal presence of buildings or structures, though the RARD also notes that the most common historic-period resources are those associated with mining or military training activities (2001). Similarly, the CMAGR ICRMP states that no TCPs have been identified within the CMAGR; however, it notes that the potential for such properties of importance to Native Americans exists (AECOM 2011). Historic-period resource types identified include the Coachella Canal, other waterworks structures or features, Camp Dunlap, other military-related locations and features, the Niland-Glamis Road, the Niland-Blythe Road, other historic-period trails and roads, Eagle Mountain Railroad, Southern Pacific Railroad, other railroads (industrial railroad through Salt Creek), Acolita Dike, gravel pits, mining prospects, Gas Line Road, and the Bradshaw Trail. The Bradshaw Trail has been determined eligible for inclusion in the NRHP and is discussed in more detail below.

The Bradshaw Trail

William D. Bradshaw, a former soldier based in Los Angeles, established the Bradshaw Trail, which became the most important route to the La Paz mines in southern Arizona (Sturm 1993). When Bradshaw heard the news of the gold discovery at La Paz, he quickly decided to establish a new trail that would be a more direct and less dangerous route than the others. In 1862, Bradshaw assembled a party of eight that left San Bernardino on a fairly well-known route through San Gorgonio Pass and Whitewater Canyon to Agua Caliente and from there to the Cahuilla villages at the Salton Sink. While at the Salton Sink, Bradshaw convinced the Cahuilla chief, Cabezon, and a visiting Maricopa man from Arizona to draw him a map of the Native American trade route between there and the Colorado River that passed along well-spaced watering spots known only to the Native Americans. Bradshaw and his group then followed the map that directed them along the south side of the Orocopia and Chuckwalla Mountains to Lone Palm Oasis or Soda Spring, then to Dos Palmas, followed by Tabaseca Tank, Chuckwalla Well, and Mule Spring near the Mule Mountains, to Willow Spring in Palo Verde Valley, before reaching the river where they crossed to Arizona at a place he called Providence Point to Olivia on the Arizona side. The same year that William Bradshaw established the overland course, stage lines began using the route to carry passengers from Los Angeles to La Paz.

The trail travelled by William Bradshaw in 1862 was the first road across Riverside County used as an overland stage route. This general path was primarily used between 1862 and 1877 to haul miners and other passengers to the gold fields. By 1868, the U.S. Post Office had begun using the series of passes and paths to deliver mail to Prescott, Arizona. After the Southern Pacific Railroad to Arizona was completed, stage lines gradually eliminated their use of the Bradshaw Trail. The eligibility of this resource has been evaluated, and the Bradshaw Trail has been determined eligible for inclusion in the NRHP. A report authored by Jerry Schaefer and his associates, which is on file at the EIC, states that as part of the North

Baja Pipeline Project a formal determination of eligibility for the entire Bradshaw Trail was made. This report states that "the Federal Energy Regulatory Commission (FERC) made a formal determination of National Register eligibility for the entire Bradshaw trail in a letter to SHPO dated December 13 2001" and that "...FERC received concurrence from SHPO on February 19, 2002" (Schaefer et al 2003: 105).

Coachella Canal

Construction on the "Old Coachella Canal" began in 1935 to funnel water from the All American Canal, located well south of the current CMAGR near Calexico, California, for irrigation purposes throughout the Coachella Valley. Activities for the construction of this 123.5-mile-long canal began in 1934-1935 and it was not until 1949 that the first water traveled along its course. This canal crosses through both Imperial and San Diego counties and, as such, has been recorded under different resource identification numbers. For the portion within Imperial County, the Coachella Canal has been recorded as CA-IMP-7658, while in Riverside County this resource is identified as P-33-005705.

The segment of the Coachella Canal within Imperial County was first recorded in 1997 by ASM Affiliates (ASM) and later updated by M. Avina (1999), and S.N. Ghabhláin for ASM (2003). In Riverside County, this canal was recorded in 1983 by C. Foulkes; it was also updated by S.N. Ghabhláin in 2003. According to the site records, construction of the Riverside County portion of the canal began in 1938 by the Coachella Valley Water District, and it was completed in 1948. The 1997 updated site record indicates that construction activity on this canal was intermittently halted as a result of WWII, once in 1941 and again in 1944. It is also noted in the site record that, once complete, the canal remained in use until the 1980s when the Old Coachella Canal was decommissioned and a newer, concrete-lined canal was entered into service. According to the records search results from the EIC, the Coachella Canal currently has a California Historical Resource Status Code of "7R," which means that this cultural resource was identified during a reconnaissance level survey and has not been evaluated for eligibility to the NRHP.

3.8.3 <u>Cultural Resources</u>

Research results indicate that site types within and in the vicinity of the CMAGR include a plethora of prehistoric and historic-period resources that range from isolated finds to complex settlements or campsite locations. Prehistoric resource types include isolated prehistoric finds, lithic and ceramic scatters, large habitation sites, rock shelter sites, cleared circles, trails, rock cairns and other rock features, petroglyph and geoglyph locations, and trails. The vast majority of identified cultural resource types within the CMAGR and its immediate vicinity are temporally associated with the prehistoric period. Historic-period resource types consist of isolated finds; trash scatters (can, glass, other debris, or a combination); camp sites; abandoned structural remains or foundations; rock alignments; military maneuver or related locations; and abandoned town-sites, roads, railroad segments and features associated with the railroad. Many historic-period resources are associated with early mining activities in the area or WWII military training activities (Cleland and Wahoff 2006).

Chocolate Mountain NRHP Archaeological District

One NRHP archaeological district is present within DoN and BLM managed lands within the southern portion of the CMAGR (AECOM 2011). This Chocolate Mountain Archaeological District is described as encompassing 198 square miles, of which 169 miles are within the CMAGR. This district was determined eligible for listing in 1973, based upon the work of a National Park Service archaeologist named Charles M. McKinney (McKinney n.d.). The majority of McKinney's original documentation related to work he performed has been lost. The archaeological district represents a high concentration of numerous prehistoric sites associated with the San Dieguito complex. Since its formation, 90 sites have been recorded within portions of this district in the CMAGR; 30 of which have been evaluated. Other sites have also been recorded within this district on BLM lands, though these sites have not been

evaluated as contributors to the district. Reassessment of this district and redefinition of the district boundary has been recommended (AECOM 2011).

3.8.4 Cultural Resource Management

3.8.4.1 Regulatory Context

As a U.S. military installation, the primary regulatory context governing the management of cultural resources within the confines of the CMAGR is federal. Several important federal statutes and regulations are of paramount importance, including the ARPA, NEPA, NHPA, and NAGPRA. A multitude of other regulations pertaining to cultural resources are also pertinent; among them, Executive Orders and Memoranda, and several U.S. Navy and U.S. Marine Corps guidelines and policies, specifically DoDI 4715.13 and 4702.10 . A detailed listing and discussion of applicable laws and regulations is available in the CMAGR ICRMP (AECOM 2011).

3.8.4.2 Previous Investigations and Management Plans, Cultural Resources

As mentioned above, a number of prior investigations, reports, and management plans have been developed for the CMAGR, the most recent of which is the CMAGR ICRMP (AECOM 2011; see also Apple and Cleland 2001; Cleland and Wahoff 2006 and 2010). All of these documents provide comprehensive overviews of the cultural context, as well as in-depth summaries of previous cultural resources investigations completed for or within the confines of the CMAGR. A cursory summary of the more detailed discussions offered by these publications is provided below.

The earliest investigations in the Colorado Desert region were spearheaded by Malcolm J. Rogers who recorded and tested a wide array of sites across the Colorado and Mojave deserts, as well as northern Baja, California. As part of a monumental effort by Rogers, the CMAGR area was first surveyed as part of two research efforts: a large survey effort along the 12-meter (40-foot) western shoreline of Lake Cahuilla, and surveys relating to Roger's interest in Native American trail networks. As a result of this activity, numerous village and habitation sites were recorded along the Lake Cahuilla shoreline, some of which are within or near to the CMAGR, "mainly in the area between the present-day community of Niland and the borders of Imperial/Riverside Counties" (AECOM 2011: 29-30).

Assessment of the CMAGR and its environs continued into the early 1970s under the auspice of work completed by Charles M. McKinney. McKinney completed an assessment of the Chocolate Mountains area for a broader Geothermal Land Leasing Program study and, though little of his original documentation survives, an NRHP Archaeological District was established in 1973 as a result of his investigation. The von Werlhofs became involved in the study of the region during the mid-1970s and into the 1980s, including more investigations into the study of trails and the earliest studies completed specifically for the CMAGR. Multiple cultural resource management investigations have occurred within the Colorado Desert since the 1980s, with a few inside the CMAGR. Under such work, as of 2011, approximately 62,000 acres of the CMAGR have been intensively surveyed for cultural resources, comprising less than 14 percent of the entire range (AECOM 2011:30).

3.8.4.3 Native American Heritage Commission, Sacred Lands File Search Results

The NAHC was contacted on 4 August 2011 to request a search of the SLF as part of a preliminary background check. The SLF represents a separate data repository maintained and updated by the NAHC regarding areas or resources of traditional cultural significance to Native Americans. Many areas and resources harbor traditional cultural significance to Native Americans for a variety of reasons, among them being religious, cultural, or economic. A response letter was received from the NAHC by fax on 12 August 2011 that indicated no Native American cultural resources were identified in the specified area. The NAHC response notes that their Sacred Lands inventory is not exhaustive and that inadvertent

discovery of Native American cultural resources is possible. Also provided in the NAHC response is a summary of state and federal statutes relating to Native American historic properties of religious and cultural significance to Native American Indian tribes, as well as a listing of Native American individuals and organizations to be contacted for further information regarding cultural resources, the area, or for comment.

Additional letters were prepared, addressed to the individuals identified by the NAHC, and sent by email or fax on 17 August 2011, and later by certified priority mail on 18 August 2011. Follow-up phone calls to all individuals listed by the NAHC, for whom telephone numbers were provided, were made on 30 August 2011. Messages were left for those individuals who were unavailable and comments received in response to letters and follow-up telephone calls were documented, including date of response, method of contact, and a description of comments received (see Appendix H).

3.9 NOISE

3.9.1 Noise Metrics and Regulations

3.9.1.1 Acoustics Fundamentals

Noise is generally defined as loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity and that interferes with or disrupts normal activities. Although prolonged exposure to high noise levels has been demonstrated to cause hearing loss, the principal human response to environmental noise is annoyance. The response of individuals to similar noise events is diverse and influenced by the type of noise, the perceived importance of the noise and its appropriateness in the setting, the time of day and the type of activity during which the noise occurs, and the sensitivity of the individual.

Noise also may affect wildlife, as evinced by apparent disruption of resting, foraging, migrating, and other life-cycle activities; however, sensitivity to noise varies with species. Further, wildlife observed in proximity to human activities and land uses have likely developed habituation (to a degree that allows their life-cycle activities to continue without significant effect) to continuous, intermittent, and even impulsive man-made sounds.

Sound is a physical phenomenon consisting of minute vibrations that travel through a medium, such as air, and are sensed by the human ear. Sound is generally characterized by several variables, including frequency and intensity. Frequency describes the pitch of the sound and is measured in Hertz (Hz), while intensity describes the sound's loudness and is measured in decibels (dB). Decibels are measured using a logarithmic scale. A sound level of zero dB is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal speech has a sound level of approximately 60 dB. Generally, sound levels in the range of approximately 110 to 120 dB can be felt inside the human ear as discomfort, levels between 130 to 140 dB are felt as pain, and levels above this range risk ear tissue damage (Berglund and Lindvall 1995). The minimum change in the sound level of individual events that an average human ear can detect is about 1 to 2 dB. A 3- to 5-dB change is readily perceived. A change in sound level of about 10 dB is usually perceived by the average person as a doubling (or if decreasing by 10 dB, halving) of the sound's loudness.

Due to the logarithmic nature of the decibel unit, sound levels cannot be added or subtracted directly and are somewhat cumbersome to handle mathematically; however, some simple rules are useful in dealing with sound levels. For instance, if a sound's energy is doubled, the sound level increases by 3 dB, regardless of the initial sound level. By way of example, 60 dB + 60 dB = 63 dB; and 80 dB + 80 dB = 83 dB.

Sound level is usually expressed by reference to a known standard. This report refers to sound pressure level (SPL, or L_p) and sound power level (PWL, or L_w). In expressing sound pressure on a logarithmic scale, the sound pressure is compared to a reference value of 20 micropascals (µPa). SPL depends not only on the power of the source, but also on the distance from the source and on the acoustical characteristics of the space surrounding the source. PWL, on the other hand, is independent of these environmental factors. To help distinguish the two descriptors, one may use a lighting analogy: the wattage of a light bulb when turned on will be a constant 100 watts, but the brightness or intensity of the light changes with receiver distance and other parameters (for example, are the room walls painted white, which is reflective, or an absorptive black color?).

Hz is a measure of how many times each second the crest of a sound pressure wave passes a fixed point. For example, when a drummer beats a drum, the skin of the drum vibrates a number of times per second. When the drum skin vibrates 100 times per second it generates a sound pressure wave that is oscillating at 100 Hz, and this pressure oscillation is perceived by the ear/brain as a tonal pitch of 100 Hz. Sound frequencies between 20 and 20,000 Hz are within the range of sensitivity of the best human ear.

Sound from a tuning fork contains a single frequency (a pure tone), but most sounds one hears in the environment do not consist of a single frequency and instead are composed of a broad band of frequencies differing in sound level. The method commonly used to quantify environmental sounds consists of evaluating all frequencies of a sound according to a weighting system that reflects the typical frequency-dependent sensitivity of average healthy human hearing. This is called "A-weighting," and the decibel level measured is referred to as dBA. In practice, the level of a noise source is conveniently measured using a sound level meter that includes a filter corresponding to the dBA "curve" of decibel adjustment per octave band center frequency (OBCF) to a "flat" or unweighted SPL. "C-weighting," which has less adjustment in the lower frequency spectrum than A-weighting, is typically applied to assess impulsive sounds such as a sonic boom or ordnance detonation and is denoted by the units "dBC."

Although sound level value may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a mixture of noise from distant sources that creates a relatively steady background noise in which no particular source is identifiable. A single descriptor, the L_{eq} (equivalent continuous noise level), may be used to describe sound that is changing in level. L_{eq} is the energy-mean dBA during a measured time interval. It is the "equivalent" constant sound level that would have to be produced by a given source to equal the acoustic energy contained in the fluctuating sound level measured. In addition to the energy-average level, it is often desirable to know the acoustic range of the noise source being measured. This is accomplished through the maximum L_{eq} (L_{max}) and minimum L_{eq} (L_{min}) indicators that represent the root-mean-square maximum and minimum noise levels measured during the monitoring interval. The L_{min} value obtained for a particular monitoring location is often called the acoustic floor for that location. To describe the time-varying character of environmental noise, the statistical noise descriptors L_{10}, L_{50}, and L_{90} are commonly used. They are the noise levels exceeded 10 percent, 50 percent, and 90 percent of the measured time interval, respectively. Sound levels associated with the L_{10} typically describe transient or short-term events. Half of the sounds during the measurement interval are softer than L_{50} and half are louder, so it is often called the "median" sound level. Levels associated with L_{90} often describe background noise conditions and/or continuous, steady-state sound sources.

Day-night sound level (L_{dn}) is defined as the dBA for a 24-hour day with a 10 dB penalty added to nighttime sound levels (10:00 p.m. to 7:00 a.m.) to compensate for increased sensitivity to noise during usually quieter evening and nighttime hours. The Community Noise Equivalent Level (CNEL) is also defined as the dBA for a 24-hour day. It is calculated by adding a 5 dB penalty to sound levels in the evening (7:00 p.m. to 10:00 p.m.) and a 10 dB penalty to sound levels at night (10:00 p.m. to 7:00 a.m.),

thus providing somewhat greater compensation than L_{dn} for increased sensitivity during such time periods when a quiet environment is expected.

Sound levels of typical noise sources and environments are provided in Table 3-16 to provide the reader a frame of reference.

Table 3-16 Sound Pressure Levels of Typical Noise Sources and Noise Environments

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet Fly-over at 1,000 feet (300 meters)	110-100	Rock Band
Gas Lawn Mower at 3 feet (1 meter)	100-90	
Diesel Truck at 50 feet (15 meters), at 50 mph (80 kilometers/hour)	90-80	Food Blender at 3 feet (1 meter)
Commercial Area, Gas Lawn Mower at 100 feet (30 meters)	70	Vacuum Cleaner at 10 feet (3 meters)
Heavy Traffic at 300 feet (90 meters)	60	Normal Speech at 3 feet (1 meter)
Quiet Urban Daytime	50-40	Large Business Office
Quiet Urban/Suburban Nighttime	40-30	Theater, Large Conference Room (Background)
Quiet Rural Nighttime	30-20	Library, Bedroom at Night, Concert Hall (Background)
	20-10	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	0	

Source: Caltrans 2009.

Additional noise metrics that are considered applicable to this LEIS and consistent with those described in the F-35B West Coast Basing FEIS (DoN 2010b) include the following:

- A-weighted Sound Exposure Level (SEL). Like L_{max}, SEL describes a single noise event whereas L_{dn} and CNEL are time-averaged metrics describing the cumulative noise environment of individual noise events over longer periods. Unlike L_{max}, however, SEL represents both the intensity of a sound and its duration. For instance, individual time-varying noise events such as aircraft overflights have a sound level that gradually rises and then falls through a defined period of time during which the event occurs. SEL thus provides a measure of the net impact of the entire acoustic event, but not the direct sound level heard at any given time. During such an overflight, SEL would include both the instantaneous (for aircraft noise, this is defined generally as one-eighth of a second, or a "fast" response time in terms of sound level measurement) L_{max} and the lower noise levels that might be measured at a location as the aircraft approaches and recedes.
- Onset-Rate Adjusted Monthly variant of L_{dn} (L_{dnmr}) and CNEL ($CNEL_{mr}$). These are specifically used for describing cumulative aircraft noise exposure from airspace and range operations.
- C-weighted L_{dn} (CL_{dn} or dBC L_{dn}), is specifically used for describing noise exposure from ordnance activity and sonic booms.
- Numbers of Events At or Above a Specified Noise Threshold (NA) describes a metric for potential speech interference.

Noise Induced Permanent Threshold Shift (NIPTS) expresses, in terms of average dB, potential hearing loss.

3.9.1.2 Applicable Laws, Ordinances, Regulations and Standards

While military aircraft are exempt from the federal Noise Control Act, which only covers aircraft certified by the FAA, the FAA regulates airspace and approves military as well as civil aviation flight routes. Noise effects on the environment are considered in this flight route approval process, as they are in the regulations that govern the EIS process for the military, and they are assessed with respect to land use compatibility. Exterior noise levels up to 65 dBA L_{dn} are considered compatible with potentially noise-sensitive receivers or land uses such as residences, transient lodging, classrooms, and medical facilities; and thus this threshold can serve as a guidance indicator of potential noise effect for such land uses that are in the vicinity of the CMAGR.

Similarly, the noise elements from general plans for both Riverside and Imperial counties have adopted similar land use compatibility guidelines with respect to noise level ranges that would be considered "normally acceptable" or "marginally acceptable" for residential-type land uses. In general, such noise level ranges or thresholds, which for residential-type land uses are generally consistent with the afore-stated 65 dBA L_{dn}, are applied to new development considered for an area. In other words, if a project alternative considered in this LEIS would result in an area of potential development, the current or estimated noise level associated with that alternative might either preclude certain types of new development or land use, or allow such development only upon incorporation of some noise level reducing features or mitigation.

3.9.2 <u>Noise Setting</u>

The ambient noise environment of the CMAGR and its immediate surroundings can be characterized as having components from a variety of military and non-military man-made activities in addition to natural sounds.

3.9.2.1 Defining Existing Conditions and Sources

The contribution to the ambient noise environment from military operations, largely from aircraft and ordnance delivery, has recently been studied and discussed in both the MV-22 West Coast Basing Final Environmental Impact Statement (FEIS) (DoN 2009a) and the F-35B West Coast Basing FEIS (DoN 2010b) documents. Both of these studies compared existing or baseline conditions associated with operations at the CMAGR with conditions that reflected expected changes to CMAGR operations due to the proposed West Coast basing actions for these respective aircraft. The more recent of the two studies, for F-35, included proposed MV-22 operations in the baseline. In December 2010, the DoN approved the F-35B West Coast Basing FEIS Preferred Alternative in its ROD; hence, for purposes of this LEIS, the noise analysis presented in the F-35B West Coast Basing FEIS is the most current assessment of noise from military operations, and that its "proposed" (i.e., proposed changes to CMAGR operations that would occur due to F-35 West Coast basing adoption) condition set represents existing military noise contribution to the ambient noise environment.

Non-military man-made sources of noise in the region primarily include roadway and rail traffic, commercial and industrial operations (including agricultural activity and equipment), human activities (for example, off-road vehicle operation, property landscaping or maintenance, etc.) as well as operating heating, ventilation, and air conditioning (HVAC) equipment at residences or agricultural land uses where such activities occur.

Natural sounds would be expected to include seasonal or year-round contribution from present wildlife species, with examples such as birdsong and insect activity (for example, cricket or beetle chirps). Livestock and domesticated animals (for example, horses, dogs, etc.), while associated with human activity, might also be considered part of the natural sound environment. Wind passing through ground

vegetation also produces audible sound contribution, which can even dominate a background sound environment when sustained average wind speeds are of sufficient magnitude.

3.9.2.2 Physical Setting and Noise-sensitive Receivers

The area between the CMAGR southwestern boundary and the Salton Sea appears to contain a variety of land uses that include either residential uses on what may otherwise be agricultural land, residential communities such as Bombay Beach and Niland, and even commercial resorts such as Glamis North KOA and the apparent residences near area attractions such as Salvation Mountain. The latter two examples appear to abut the Coachella Canal and might thus be considered representative of closest off-range potentially noise-sensitive receivers with respect to the CMAGR boundary.

3.9.3 Noise Models

3.9.3.1 Military Operations

The approved F-35B West Coast Basing FEIS (DoN 2010b) modeled aircraft operations with conditions and parameters including summarized considerations as follows:

- Sonic booms (generated by aircraft traveling at airspeeds in excess of Mach 1) and factors affecting their magnitude and audibility at ground-level receivers
- Reference data on which the semi-empirical noise models are based, such as that for the F-35 aircraft
- "Area-type" operations, where aircraft are uniformly distributed horizontally within an airspace unit and reflect mission types such as:
    - Rotary-wing close air support in five working areas
    - Air-to-Air (helicopter and F-5 operations) in three working areas
    - Air Combat Maneuvers in three working areas
    - Area Reconnaissance in one working area
    - Fixed-wing close air support with forward air controller and artillery in seven working areas
    - Low Altitude Training and Air Interdiction in one working area
- "Route-type" operations, where aircraft are dedicated to a specific route (for example, bombing track or ingress/egress route) and reflect as follows:
    - Low altitude rotary-wing close air support missions
    - High altitude fixed-wing close air support
- Ordnance delivery training would occur within the R-2507
- Each aircraft type is modeled at speeds and altitudes specific to each mission
- Modeling used the busiest month, since the modeled aircraft fly R-2507 daily during the busiest month (30 days) of activity

3.9.3.2 Non-military Noise Sources

With respect to non-military sources of noise, exposure levels at various distances from roadways can be coarsely estimated from guidance provided by the Federal Transit Administration (FTA) in its *Transit Noise and Vibration Impact Assessment* document (FTA 2006). Alternatively, or when the distance

between a receiver and a roadway or rail segment exceeds 800 feet, this guidance also offers an estimate of noise exposure based on population density. These estimates of non-military noise contribution to the ambient sound environment can then be compared with results from a field survey conducted late June 2006 in the vicinity of the Niland Gas Turbine Plant (GTP) as part of its CEC Application for Certification (AFC). The purpose of the field survey was to measure daytime and nighttime outdoor sound levels at representative noise-sensitive receiver locations near the proposed GTP (such as residences), and observe apparent noise-producing events and activities.

3.9.4 Noise Exposures at the Chocolate Mountain Aerial Gunnery Range

3.9.4.1 Military Operations

Aircraft Noise Exposure

Figure 3-13 shows the results of the F-35B West Coast Basing FEIS (DoN 2010b) modeled "proposed" aircraft operations for its approved Preferred Alternative, which will be considered characteristic of CMAGR aircraft operations for this LEIS due to its approval by the corresponding DoN ROD.

Ordnance Noise Exposure

Figure 3-13 also illustrates modeled ordnance noise from the F-35B West Coast Basing FEIS Preferred Alternative and shows that the 62 dBC CNEL contours do not extend beyond the current government property boundaries and hence do not expose off-range persons or housing units to noise levels greater than 62 dBC CNEL.

3.9.4.2 Non-military Noise Sources

As described in the Niland GTP Final Initial Study, results from the ambient noise field survey performed at a residential receiver on Cuff Road, approximately 800 feet north of Beal Road and approximately 1,600 feet east of what is now the operating Niland GTP facility, indicate that hourly Leq ranges from 39 to 60 dBA over a continuous 24-hour period (CEC 2006) and includes intermittent sources such as roadway traffic, rail traffic, and railroad crossing bells. Without information to the contrary, these measurement results also would appear to include sound from distant military operations conducted at the CMAGR concurrent with the survey period (28-29 June 2006). The nearest CMAGR boundary location is just over 2 miles away from this measurement position.

Based on population density of approximately 2,500 persons per square mile for the community of Niland, the estimated daytime and nighttime average sound levels of 50 and 40 dBA Leq, respectively, and per FTA guidance, fall within the above-stated measured hourly L_{eq} range from the field survey performed before construction of the Niland GTP. Given the sensitivity penalty applied to nighttime hours, the effective L_{dn} would be approximately 50 dBA per the same FTA guidance.

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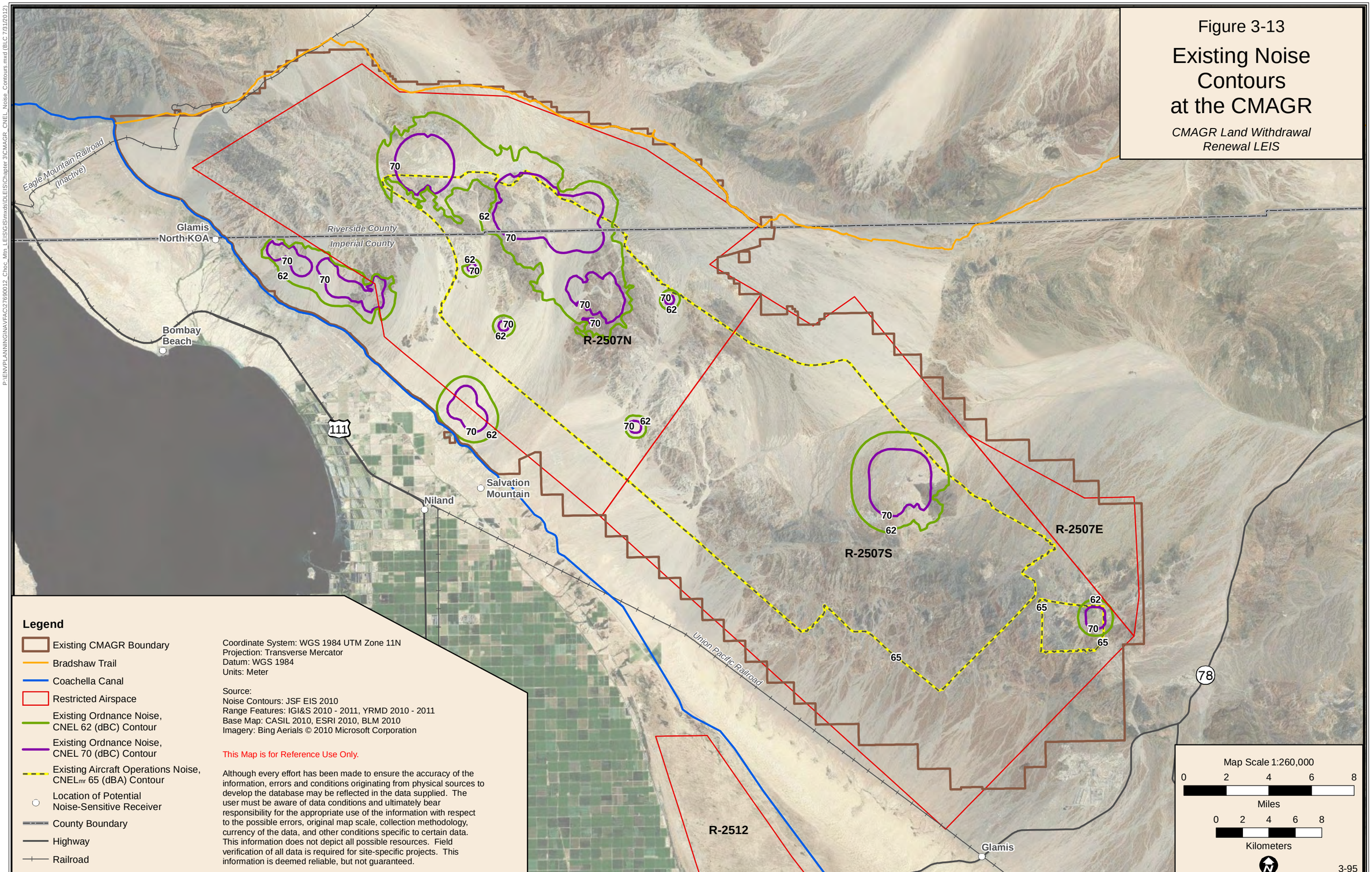
Figure 3-13
Existing Noise Contours at the CMAGR
CMAGR Land Withdrawal Renewal LEIS
Eagle Mountain Railroad (Inactive)
Glamis North KOA
Riverside County
Imperial County
Bombay Beach
111
Salvation Mountain
Niland
R-2507N
R-2507S
R-2507E
R-2512
Union Pacific Railroad
Glamis
78
70
62
65
Legend
Existing CMAGR Boundary
Bradshaw Trail
Coachella Canal
Restricted Airspace
Existing Ordnance Noise, CNEL 62 (dBC) Contour
Existing Ordnance Noise, CNEL 70 (dBC) Contour
Existing Aircraft Operations Noise, CNELmr 65 (dBA) Contour
Location of Potential Noise-Sensitive Receiver
County Boundary
Highway
Railroad
Coordinate System: WGS 1984 UTM Zone 11N
Projection: Transverse Mercator
Datum: WGS 1984
Units: Meter
Source:
Noise Contours: JSF EIS 2010
Range Features: IGI&S 2010 - 2011, YRMD 2010 - 2011
Base Map: CASIL 2010, ESRI 2010, BLM 2010
Imagery: Bing Aerials © 2010 Microsoft Corporation
This Map is for Reference Use Only.
Although every effort has been made to ensure the accuracy of the information, errors and conditions originating from physical sources to develop the database may be reflected in the data supplied. The user must be aware of data conditions and ultimately bear responsibility for the appropriate use of the information with respect to the possible errors, original map scale, collection methodology, currency of the data, and other conditions specific to certain data. This information does not depict all possible resources. Field verification of all data is required for site-specific projects. This information is deemed reliable, but not guaranteed.
Map Scale 1:260,000
0 2 4 6 8
Miles
0 2 4 6 8
Kilometers
3-95

3.10 VISUAL RESOURCES

3.10.1 Visual Resource Setting

Visual resources consist of the landforms, vegetation, and human development within a landscape that define the visual character of an area. Visual resource management objectives have not been established for DoN or BLM land within the CMAGR. However, NEPA requires that consideration be given to aesthetic concerns as part of "a systematic and interdisciplinary approach which will ensure the integrated use of the natural and social sciences, and the environmental design arts in planning and decision-making which may have an effect on man's environment." As stipulated in 40 CFR Part 1508.8, "effects include ... aesthetic, whether direct or indirect or cumulative ... both beneficial and detrimental."

For this assessment, the sensitive viewer is defined as the recreational users, tourists/travelers, and inhabitants of the area. Because the range is closed to the public, the region of influence for visual resources for this analysis is a buffer area within 5 miles of the existing or proposed range boundary, whichever extend farther.

3.10.2 Visual Resources

3.10.2.1 Viewer Sensitivity and Project Visibility

Visual sensitivity is a measure of public concern for the scenic or visual landscape. Visual sensitivity is dependent on various indicators of public concern, such as the type of users, amount of use, special areas such as wilderness, adjacent land uses, and public interest in the proposed action.

The degree of project visibility is based on viewing distance, screening, and backdrops. The contrast of structures and activities within the landscape typically decreases with increased viewing distance because the details and scale/dominance are reduced. The contrast also decreases with increased similarity of structures and activities to the backdrop of vegetation, landform, and development.

3.10.2.2 Scenic Quality

Scenic quality is a measure of the visual appeal of a characteristic landscape. It is given a high, moderate, or low rating based on factors such as diversity of landform, water, vegetation, cultural modifications, adjacent scenery, and scarcity.

Scenic quality is related to the uniqueness of the landscape within a region. The CMAGR is in the Sonoran Desert subregion of the Basin and Range Physiographic Province. The subregion is characterized by mountain ranges and intervening desert plains. The range is adjacent to the Salton Basin subregion that includes the Algodones Dunes (Imperial Sand Dunes) (Fenneman 1931). The smallest ecological subregions (level IV) are the Central Sonoran/Colorado Desert Mountains and the Central Sonoran/ Colorado Desert Basins. The subregions contain scattered low mountains and large areas of palo verde-cactus shrub and giant saguaro cactus (EPA 2010, 2011).

The most visually unique views with the highest scenic quality within the 5-mile region of influence are in the area where the Sonoran Desert and Salton Basin subregions meet at the sand dunes. The overall landscape of the CMAGR is common in the physiographic subregion and the level IV ecoregion. The range has local diversity or interest because the Chocolate Mountains provide a variety of form, line, color, and texture. The landforms vary from tall vertical peaks to low horizontal and diagonal mountains, with colors ranging from dark tan to chocolate brown. The vegetation on the desert plains also has a variety of form, line, color, and texture and varies from scattered green to olive shrubs, with large-scale weak horizontal lines and small-scale vertical lines, to green, round to oval trees in a dotted/stippled pattern.

The most noticeable facilities and disturbances in the region of influence include paved and dirt roads, rural residences, small communities, farms, canals and dikes, transmission and utility lines, and gravel pits.

3.10.2.3 Data Collection Methods

Viewshed of Facilities and Disturbances

Military facilities and physical disturbances are generally screened from views outside the range by topography and vegetation. Some facilities and disturbances, especially those close to the boundary and above ground, may be visible. Examples include:

- Camp Billy Machen, several structures including a communications tower, less than 0.1 mile from the boundary
- SWAT target villages, including several structures, 1.6 miles from the boundary
- Vicinity of Artillery Firing Area 1, earthen bunkers and parallel berms, 0.7 mile from the boundary
- Vicinity of Artillery Firing Area 2, earthen rectangular berm targets, 2.2 miles from the proposed boundary

From all the facilities and disturbances mapped for this LEIS, 15 locations with the greatest potential of being seen outside the boundary were used to develop a viewshed map. The viewshed is the area from which a viewer might be able to see range facilities and disturbances that are not blocked by topography. For the computer analysis of the viewshed, a digital elevation model with a resolution of 33 feet (10 meters) was used. The facilities and disturbances were assigned heights as follows: Camp Billy Machen – 35 feet, other structures including earthen berms – 15 feet, and ground disturbances – ground level. The average eye height of the viewer was assumed to be 5.5 feet.

The viewshed is limited to the ROI 5 miles beyond the existing or proposed Range boundary, whichever extends farther. This distance, the foreground-middleground distance zone of 0 to 5 miles, is used by the BLM and other federal agencies to delineate the distance where management activities may be viewed in detail (Figure 3-14). This 5-mile buffer area covers approximately 962,000 acres.

Key Observation Points

Key observation points (KOPs) are viewing locations that represent areas where visually sensitive viewers could be most affected by a change in the landscape. They are chosen based on potential visibility of range facilities from several locations with sensitive viewers. The computer generated viewshed analysis data was overlaid on a 1:500,000 scale aerial photo as a tool to determine initial KOPS based on seen areas.

Locations of potentially sensitive viewers within the viewshed were determined using the BLM's Imperial Sand Dunes Recreation Area 8.5-by-11-inch map and various GIS data layers and base maps, including internet (Bing) and DoD aerial photographs at various scales. Fifteen potential KOP locations were identified. These locations were surveyed in the field for potential visibility of Range features and situations of the viewers.

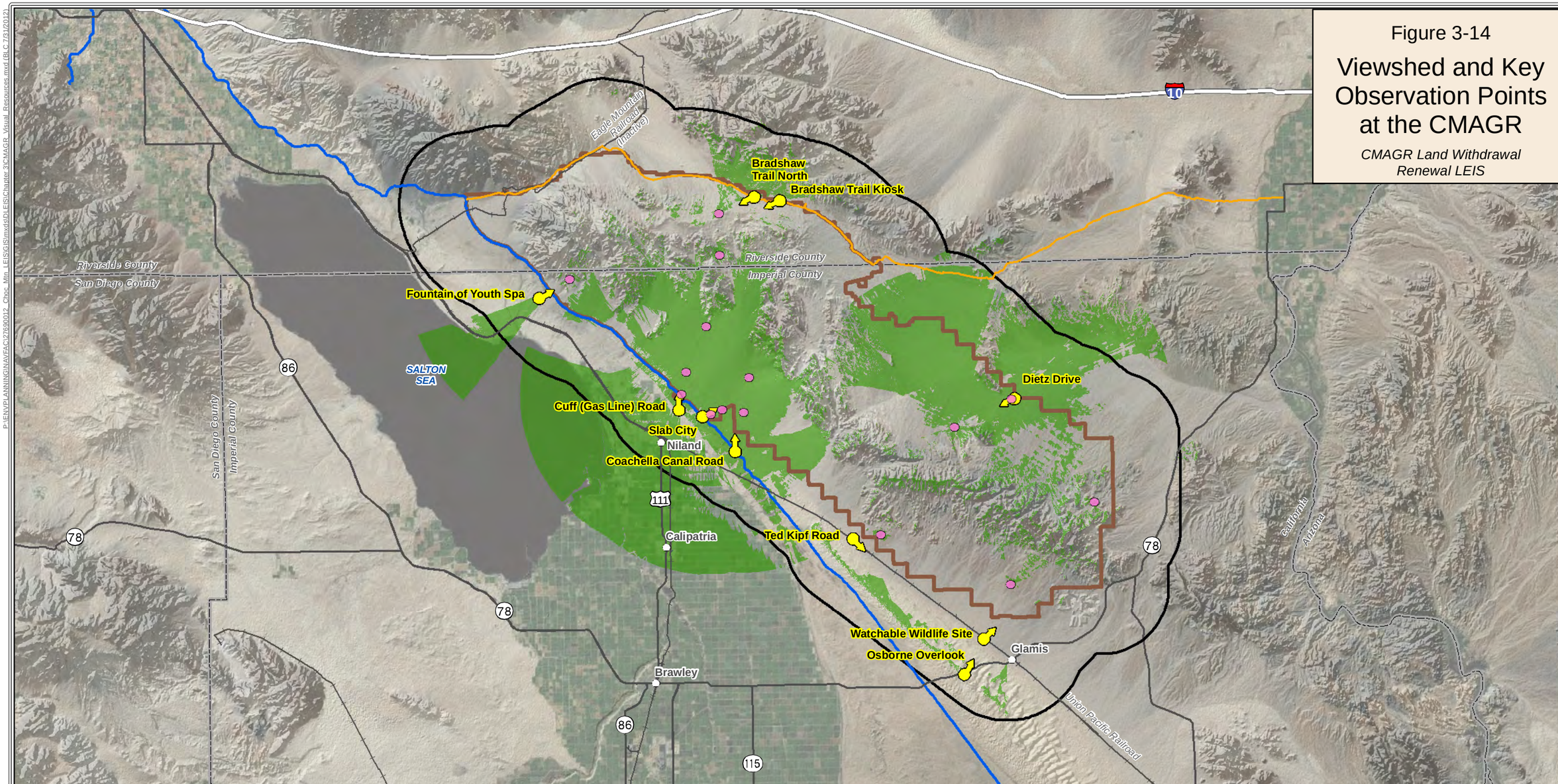

Figure 3-14

Viewshed and Key Observation Points at the CMAGR

CMAGR Land Withdrawal Renewal LEIS

Legend

- Existing CMAGR Boundary
- Bradshaw Trail
- Coachella Canal
- Key Observation Point (arrow indicates viewing direction)
- Selected Facilities and Disturbances
- Viewshed of Selected Facilities and Disturbances
- Region of Influence - Five Miles
- City\Town
- County Boundary
- Railroad
- Interstate
- Highway

Coordinate System: WGS 1984 UTM Zone 11N
Projection: Transverse Mercator
Datum: WGS 1984
Units: Meter

Source:
Key Observation Points, Viewshed,
Region of Influence: URS 2011
Facilities and Disturbances: URS 2011
based on 2009 Aerials provided by IGI&S
Range Features: IGI&S 2010 - 2011, YRMD 2010 - 2011
Base Map: CASIL 2010, ESRI 2010
Imagery: Bing Aerials © 2010 Microsoft Corporation

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Although every effort has been made to ensure the accuracy of the information, errors and conditions originating from physical sources to develop the database may be reflected in the data supplied. The user must be aware of data conditions and ultimately bear responsibility for the appropriate use of the information with respect to the possible errors, original map scale, collection methodology, currency of the data, and other conditions specific to certain data. This information does not depict all possible resources. Field verification of all data is required for site-specific projects. This information is deemed reliable, but not guaranteed.

Map Scale 1:475,000

0 2.5 5 7.5 10
Miles
0 2.5 5 7.5 10
Kilometers

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The closest sensitive recreational viewers are along the Bradshaw Trail, in the North Algodones Dunes Wilderness, and in the ISDRA. The largest number of sensitive travelers/tourists consists of visitors to the Osborne Overlook. The closest and largest number of sensitive inhabitants consists of the residents of Slab City, and visitors of Lark, Fountain of Youth, and Seaview spas.

Of the 15 potential KOP locations surveyed, 10 KOPs were selected to represent the sensitive viewers (see Figure 3-14). The Osborne Overlook, Watchable Wildlife Site, and Ted Kipf Road KOPs are not in the viewshed but were chosen for views of the largest area proposed to be added to the range with Alternative 2. The Osborne Overlook KOP also provides an overall view of the southern end of the range, which is the part seen by most of the viewers.

Scenic quality was analyzed from each KOP looking toward the facility, disturbance, or proposed expanded boundary. The scenic quality indicators used in the analysis are listed in Table 3-17.

Table 3-17 Scenic Quality Rating Indicators

Scenic Quality Rating	Scenic Quality Indicators
High	Landscape elements (landforms, vegetative patterns, water characteristics, and cultural features) have high visual appeal
	Landscape has high degrees of variety, vividness, intactness, harmony, and uniqueness (attributes)
	Distinctive landscapes that attract people to view
Moderate-to-High	Landscape elements have moderate-to-high visual appeal
	Landscape characteristics have a mix of moderate and high values
	Landscape may contain built features that neither complement nor detract from overall visual quality
Moderate	Landscape elements are moderately appealing
	Landscape characteristics have common or ordinary values
	Landscape may contain inharmonious built features, but they are subordinate
Low-to-Moderate	Landscape elements have low-to-moderate appeal
	Landscape has weak or missing characteristics and is somewhat common throughout a broad geographic area
	Landscape may have prominent though not dominant inharmonious built features
Low	Landscape elements have low-to-no appeal
	Landscape is missing character or is common throughout a broad geographic area
	Landscape is dominated by inharmonious built features

A list of the existing visual conditions for each KOP is presented in Table 3-18. A representative photograph from each KOP is included in Appendix G.

Table 3-18 Existing KOP Visual Conditions

KOP	Distance From CMAGR Boundary	Facility, Disturbance, or Proposed Boundary Closest to KOP	Sensitivity (Viewers and Location)	Scenic Quality
Osborne Overlook	4.6 miles southwest of the boundary (3.0 miles west-southwest of the proposed boundary)	Proposed expanded boundary and southern end of the range	Tourists and recreationists at the overlook along State Route 78, 4 miles west of Glamis (no visitor facilities).	Moderate to high for overall view; some distinctive peaks, mountains, and plains provide variety in form, line, color, and texture with the adjacent Imperial Sand Dunes. Moderate for the proposed desert plain addition.
Watchable Wildlife Site	1.7 miles southwest of the boundary (400 feet southwest of the proposed boundary)	Proposed expanded boundary	Tourists and recreational users at parking area for Watchable Wildlife Site and North Algodones Dunes Wilderness, 3 miles northwest of Glamis.	Moderate, some distinctive mountain peaks. (Immediate foreground views of railroad track, pipeline road, and utility lines are considered the viewers' platform and are not included in the scenic quality rating.)
Ted Kipf Road	0.7 mile west of the boundary (on the proposed boundary)	Proposed expanded boundary	Recreational users at a dike along Ted Kipf Road just east of railroad crossing.	Moderate, common desert plains.
Coachella Canal Road	1.0 mile west-southwest of the boundary	Bunker and material storage	Recreational users at a dike along Coachella Canal Road by Flowing Wells Road.	Moderate, common basin and range landscape.
Slab City	200 feet southwest of the boundary	Bivouac and work area	Residents in homes near a dike along Coachella Canal Road.	Moderate, common basin and range landscape.
Cuff (Gas Line) Road	0.7 mile south of the boundary	Camp Billy Machen	Residents from Niland at a county gravel pit.	Moderate, common basin and range landscape.
Fountain of Youth Spa	1.0 mile southwest of the boundary	SWAT structures	Residents on Spa Road heading east toward the spa entrance, 0.8 mile to the east.	Low to Moderate, common mountain views, most of the view of the desert plain is occupied by the canal dike, community, and landfill.
The Bradshaw Trail North	0.3 mile inside the existing CMAGR boundary (on the proposed boundary)	Target complex	Recreationists on the Bradshaw Trail about 6 miles east-southeast of Gas Line Road.	Moderate, views dominated by common rolling plains with scattered vegetation.
The Bradshaw Trail Kiosk	On the boundary	Bombing disturbance	Recreationists on the Bradshaw Trail at the kiosk, about 2 miles east-southeast of the Bradshaw Trail North KOP.	Moderate, scattered mountain peaks dominated by rolling plains with scattered vegetation.
Dietz Drive	On the boundary	Forward arming and refueling point and artillery firing area	Residents and recreationists at the corner of Dietz and Skyline drives.	Moderate, common desert plain.

3.11 PUBLIC HEALTH AND SAFETY

3.11.1 Safety Setting

This section discusses historical and present conditions that contribute to range safety within the CMAGR study area, and an overview of the regulations established for the protection of health and safety. The study area for public health and safety is determined by the geographic extent of military operations associated with the CMAGR. In terms of air operations, the study area includes the restricted airspace overlying the range (R-2507N, R-2507S, and R-2507E). For ground operations, the study area includes the CMAGR land area and its immediate vicinity.

The CMAGR includes a land area of 458,530 acres and the associated restricted airspace covers 401,920 acres. About 5 percent of the CMAGR supports surface uses that cause or may cause moderate to complete levels of physical disturbance to the ground surface, vegetative communities, and surface drainages. The balance of the range provides the land need for WDZs or SDZs to ensure a 99.9999 percent level of containment; in other words, the probability of munitions (for inert ordnance) or a hazardous fragment (for live ordnance) escaping the containment area is one in a million. This level of containment is designed to protect public health and safety. Within SWATs 4 and 5, no impacts from aviation weapons are permitted, as training in this area is primarily for the use of ground-based infantry weapons such as rockets, mortars, and demolition charges.

The CMAGR provides a large land and airspace area for air tactics; CAS missions; laser system operations; and air-to-ground bombing, rocket, and strafing exercises. All types of live and inert conventional ordnance up to 2,000-pound general purpose bombs, including MK 20 (Rockeye) and cluster bomb units, are authorized in defined target areas in accordance with Station Order 3710.6I, Range and Training Area Standard Operating Procedures (StaO 3710.6I). Deliveries of Rockeyes and cluster bombs are restricted to one designated target polygon in R-2507N. Inert or live ordnance may be delivered on all designated targets in R-2507S and on targets in the northern portion of R-2507N; the southern portion of R-2507N is authorized for inert ordnance only (see Figure 1-5). Ordnance operations must be coordinated with the Range Scheduling Office. All high explosive ordnance deliveries are restricted to the hours 6 a.m.to 10 p.m. Pacific time (local California time) for noise abatement purposes (StaO 3710.6I).

Updated in July 2010, Draft StaO 3710.6I defines the procedures and regulations for Commands using the Range and Training Areas (RTA) managed by MCAS Yuma, including the CMAGR. StaO 3710.6I specifies individual responsibilities; gives descriptions of available training ranges; provides instructions on how to schedule the RTA; and defines safety regulations for all live fire, maneuver, and air operations within the RTA.

CMAGR activities include training of members of the armed forces in the use and handling of military munitions, ordnance, and weapon systems on both land and in the air. As part of the Range Management Department, Operations Division, the Range Control Officer (RCO) is responsible for range safety. The CMAGR Range Safety Officer and range inspectors serve as the direct representatives of the RCO for the enforcement of StaO 3710.6I and safety standards throughout the RTA (USMC 2010).

As outlined in the documents developed by the Office of the Chief of Naval Operations (OPNAV 3500.39A) and the Marine Corps (MCO 3500.27A), Operational Risk Management is employed at the training ranges to identify and assess hazards and implement controls for all phases of training events. The requirements for air and ground safety of all civilians and military personnel as well as the public at large are outlined in these documents and provide for a process to maintain readiness in peacetime, achieve success in combat while balancing the need to safeguard people and resources (DoN 2000).

3.11.2 Aviation Safety

The FAA is responsible for ensuring safe and efficient use of airspace by military and civilian aircraft and supporting national defense requirements. To meet these requirements, the FAA has established regulations for airspace safety, developed airspace management guidelines, implemented a civil-military common system, and coordinated cooperative activities between the FAA and the DoD. MCAS Yuma schedules all or portions of seven restricted areas, including R-2507N, R-2507S, and R-2507E overlying the CMAGR and had adopted specific air safety rules as directed in the StaO 3710.6I.

Range safety procedures include the application of the recently updated Draft StaO 3710.6I along with the 2006 publication of MCO 3550.1, which requires the RCO to approve entry of personnel or aircraft into

the range training area. Communications between all air and ground based civilian and military personnel is critical and MCAS Yuma has very descriptive directions for how all entry and exit procedures are to be handled. Should any civilian or unauthorized aircraft stray into or purposely enter the controlled airspace at the CMAGR, MCAS Yuma has strict procedures to immediately halt all military training missions until the violating aircraft can be safely guided away or removed from the restricted airspace.

A recent assessment of procedural control on the range was conducted to determine whether the level of communication between pilots and range management is fully effective. The assessment revealed that there were weak communications signals in some of the areas of the Chocolate Mountains, which has been remedied. Another procedural change improved communications with aircrews to provide more timely information regarding ground personnel and range-unique restrictions, update the Range Facility Management Support System, and better account for all delivered ordnance by location (Schulz 2011).

Chapter Four of StaO 3710.6I provides the "rules of engagement" for all aircraft operating within the CMAGR. Under these provisions, Range Control has complete authority to refuse any aircraft in violation of the directive. All pilots are briefed on the flight plan layout and associated course rules, and are given the aircrew safety brief as well. The directives also specify procedures for drop tanks, bombs, chaff, and flares.

Chaff and flare deployment, which are defensive mechanisms used by aircrews to avoid detection and/or attack by adversaries, is authorized throughout R-2507N and R-2507S areas. SOPs for chaff operations include restrictions to protect airport surveillance radar, altitude restrictions for chaff operations, restrictions to protect weather radar, dictates to use current weather data for chaff flow predictions; and contact information for the MCAS Yuma Frequency Manager (StaO 3710.6I).

Before any live ordnance drop, pilots are required to confirm that all targets are clear before engagement with the target. As part of the MCAS Yuma Air Safety Program, a WDZ Tool was developed to ensure that munitions and hazardous fragments are contained within the range boundary. The WDZ Tool allows for input of aircraft type, ordnance to be used, and delivery parameters that ensure that a 99.9999% level of containment is achieved so as not to endanger personnel located adjacent to the range area boundary.

3.11.3 Ground Safety

3.11.3.1 Unauthorized Entry

To protect the general public from intentional or accidental entry onto the CMAGR, a series of signs warning unauthorized personnel not to enter the RTA are posted along the perimeter of the range in areas frequented by visitors. The signs are placed closely enough so that an individual standing anywhere along the range perimeter will be able to see a sign when looking to either the left or right. The warnings are written in both English and Spanish. MCAS Yuma Range Maintenance is responsible for keeping warning signs up to date.

MCAS Yuma periodically conducts a physical patrol of the range boundaries along with local and federal law enforcement officials and maintains access control gates at the entry and exit points to the CMAGR. In addition, MCAS Yuma has conducted public outreach programs to raise awareness of the military training mission at CMAGR and the associated dangers and hazards.

Unauthorized personnel are not allowed on the CMAGR at any time, but there are occasions where trespassers or "scrappers" access the range despite these patrols, the public outreach and education, and the warning signs. Scrappers are individuals who enter the CMAGR without authorization for the purpose of removing salvageable materials such as aluminum, brass, and copper. Scrappers have been known to be armed and sometimes present a danger to anyone who approaches them. Under Station Order 5532,

requirements have been established regarding the use of force by non-law enforcement personnel. Standard procedure is to immediately notify Range Control with a complete description of the trespassers and their location. In accordance with StaO 3710.6I directives, any live fire exercises are terminated until such a time that the trespassers are removed from the range. Unauthorized personnel and vehicles found within range boundaries or spotted by either an airborne crew or authorized person is cause to abort ordnance training operations in that area, thereby interfering with training activities. In 2009, nearly 245 range hours were lost to unauthorized users. There were 29 recorded incidences of unauthorized users penetrating the CMAGR boundary reported for the 2010 and 2011 calendar years combined (MCAS Yuma 2010-2011).

3.11.3.2 Ground Activities

Chapter Six of StaO 3710.6I provides specific guidance for use of the range for ground training activities. Range scheduling is required to obtain ground access for training and ground maintenance to the roads beneath the associated airspace to resolve conflicts with aviation training. When possible, specific co-use is coordinated between the ground entity and scheduled aviation units(s) when simultaneous range occupation can be accomplished in a safe manner.

Numerous rifle, machinegun, rocket, and explosive demolition training exercises are conducted within SWAT-4 (adjacent and southwest of R-2507N) and SWAT-5 (adjacent and northwest of R-2507N). Aircrews are instructed to exercise extreme caution when entering/exiting CFAs Niland and Bombay (which overlie SWAT-4 and SWAT-5, respectively), due to hazards from munitions fired from the ground ranges.

A SDZ tool has been used to define the ground and airspace designated within the training complex for both vertical and lateral containment of projectiles, fragments and other debris from the launching and detonation of a weapon system. The SDZ Tool is used to generate a “worst case scenario” to ensure the safety of all on and off range personnel (MCO 3570.1).

3.11.3.3 Ordnance and Unexploded Ordnance Safety

Explosives Ordnance Disposal (EOD) is routinely performed to neutralize hazards from live fire training exercises. Though periodic sweeps are performed on the range, UXO can be found scattered throughout the CMAGR. Unexploded bombs, rockets, cannon rounds, and other types of ordnance may be encountered anywhere, lying on the ground or partially to fully buried due to impact and resulting explosion. These munitions have the potential to explode, even though they have lain in the desert for decades. In fact, age may have rendered them more unstable and more prone to detonation by disturbance than when they were actually dropped or fired. It is impossible to tell if ordnance is safe from its appearance, so it must be treated as if it were live and must not be touched. EOD personnel provide a 24-hour first-response capability for MCAS Yuma and civil authorities. Targets associated with R-2507 are closed during EOD sweeps and range maintenance. Dates of these closures are published via the range notification websites.

3.11.4 <u>Non-Military Health and Safety Issues</u>

3.11.4.1 Environmental Hazards

Environmental Hazards associated with the CMAGR include hot daytime temperatures, strong sunlight and sunburn hazard, and the non-availability of water sources throughout the CMAGR. For this reason, as well as the extremely hazardous military mission conducted at the range, MCAS Yuma has taken the approach that all non-authorized personnel are to keep out of the boundaries unless permitted. Authorized civilian personnel often access the northern boundary of the CMAGR along the Bradshaw Trail and are

guided by warning signs of hazards and no-entry to make sure they stay on the trail and remain north of the CMAGR.

3.11.4.2 Range Environmental Vulnerability Assessment

In addition to strict controls on access to the CMAGR, MCAS Yuma has also conducted a Range Environmental Vulnerability Assessment (REVA) to study potential off-range impacts associated with the use of military munitions. The baseline REVA identifies potential chemical hazards associated with the ordnance used on operational ranges. The baseline assessment indicated minimal environmental impacts off-range from surface water runoff due to the lack of rainfall, evaporation rate, and distance to ecological receptors. The detected levels of contaminants are considered to have no or minimal effect on wildlife, groundwater, or surface waters. Because none of the ground or surface waters discharge to any human receptors, there is no potential risk to human health.

3.12 HAZARDOUS MATERIALS AND WASTE

3.12.1 Hazardous Materials and Waste Setting

The affected environment for hazardous materials and waste is related to the past and present hazardous materials use and hazardous waste disposal practices on the CMAGR.

3.12.1.1 Regulatory Guidance

Hazardous materials are defined as chemical substances that pose a substantial hazard to human health or the environment. Hazardous materials include hazardous substances, extremely hazardous substances, hazardous chemicals, and toxic chemicals. In general, these materials pose hazards because of their quantity, concentration, physical, chemical, or infectious characteristics. Hazardous materials may be found in the form of a solid, liquid, semi-solid, or contained gaseous material that alone or in combination may (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible illness; or (2) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Hazardous waste is regulated under the RCRA, which provides the EPA the authority to control hazardous waste from “cradle-to-grave,” including its generation, transportation, treatment, storage and disposal. RCRA identifies hazardous wastes with lists of specific wastes, and categorizes wastes that exhibit a specific characteristic (for example, it is ignitable, corrosive, reactive, or toxic in accordance with RCRA-specific definitions). The EPA uses the term “hazardous substance” for chemicals that, if released into the environment above a certain amount, must be reported and, depending on the threat to the environment, federal involvement in handling the incident can be authorized under CERCLA. Also, as part of the MCAS Yuma Range Management, the CMAGR is required to adhere to environmental requirements enforced by the California EPA. For the purpose of this discussion, the term “hazardous substance” is used in this document to refer to either hazardous materials or hazardous waste if the specific distinction is not relevant.

3.12.1.2 Historical Regulatory Actions

In the early 1980s, the Navy Installation Restoration Program (IRP) was established to search for, investigate, and clean up Navy sites that were contaminated with chemicals and hazardous substances in the years before safe handling and waste management practices were in place. During the second phase of the IRP, sites with munitions and explosives-related contaminants were investigated. These investigations were performed in compliance with CERCLA.

In 1992, the Navy conducted a Preliminary Assessment of the CMAGR to look for signs of hazardous waste disposals or spills. Seven sites were identified, two of which were eliminated. Site 2, an open burn site consisting of burnt scrap metal, was eliminated because it was located in an active live fire range, and the DoD prohibits sampling due to safety concerns at active ranges. The scrap metal at the site was removed through Range Operations and Maintenance. Site 3 (diesel fuel stain) consisted of a fuel spill area approximately 10 feet in diameter beneath a 500-gallon above-ground storage tank. This site is not classified as an IRP site because petroleum spills are addressed under RCRA. Site 3 was closed in 1994 after approximately 45 cubic yards of contaminated soil was excavated and properly disposed. Groundwater sampling and analysis was conducted and the results revealed that the groundwater had not been impacted from the spill.

The remaining five sites were along the central-southwestern CMAGR property boundary where Navy SEAL training activities took place. The sites were formerly used by the Navy for disposal of trash and debris such as empty storage drums, scrap metal, shell casings, paint cans, glass bottles, old bombing vehicles, and construction materials. The Navy searched the records of what was disposed of at each site and found no evidence of hazardous substances. Soil samples were analyzed from each site and no chemical contamination from the debris was found. Debris from the sites was consolidated and then properly disposed of off site.

3.12.2 Management of Hazardous Materials and Wastes and Petroleum, Oil, and Lubricants

Training activity on the CMAGR consists of air-to-air, air-to-ground, low altitude tactics, laser, landing zone, FARP, unmanned aircraft system, and, helicopter support team operations. For most of these training operations, munitions are obtained at MCAS Yuma where the flights originate.

The Environmental Director has the overall responsibility for management of the hazardous materials and waste program at the CMAGR. The Compliance Director is second in command for this program. Fuel storage tanks are located only within the Camp Billy Machen area. There is one 180-day hazardous waste accumulation area on the range where petroleum-contaminated soil generated during training missions is stored. No satellite accumulation areas for hazardous wastes are on the CMAGR nor are there any open burn/open detonation sites for munitions treatment. According to the Environmental Director, no Notice of Violation has been issued against the range (Rodriguez 2011).

Periodically, artillery training is conducted concurrently with air-to-ground activities, and ammunition is needed for use by ground personnel. Ammunition is delivered to the Siphon 8 Field ASP, which is located near the southwestern boundary of the range, just northwest of the Speed Bag air strip, and is stored in ordnance storage igloos. All ASPs require armed guards while ammunition and ordnance are present, and an MCAS inspector must be present at the time of delivery. The ammunition is only kept in this location during the training mission when artillery batteries are in the Artillery Firing Area.

In addition to delivery of ordnance to the storage igloos for artillery training, military vehicles access the range for a variety of reasons. Vehicle access is needed to perform target maintenance as well as to perform construction and service activities. Fuel trucks are needed to deliver aviation fuel during FARP exercises, and vehicles need to access the Siphon 8 Bivouac Area, and the Speedbag Airfield. Depending on the density of unexploded ordnance on the range, vehicles are sometimes used during EOD efforts.

Whenever vehicles are in use, there is the possibility of spills or leaks of petroleum, oils, and lubricants. Military personnel accessing the range take precautions against spills and leaks by laying large plastic tarps on the ground on which vehicles can park. During FARP activities, fuel is transferred from fuel trucks to fuel bladders from which the aircraft are refueled. In this case, containment areas lined with plastic tarps and surrounded by elevated berms are used to protect against spills. Fuel trucks enter the containment areas to transfer the fuel and protect against spills.

Spill Prevention, Control and Countermeasure Plans, and Storm Water Management Plans have been developed for the range and the Camp Billy Machen area. In addition, SOPs have been developed to govern the use, storage, and accountability of ammunition and explosives. These SOPs include:

- NAVSEA OP 5 Volume 1 Seventh Rev, Ammunition and Explosives Safety Ashore (DoN 2009c)
- MCO P8020.10, Marine Corps Ammunition Management and Explosive Safety
- NAVSEA SW020-AG-SAF-10, Transportation Safety Handbook for Ammunition Explosives and Related Hazardous Material

Detailed daily records are kept of all range ordnance expenditure events, including the event date, type of activity (range training, open burning, open detonation, tamped detonation, and range clearance), type of munitions expended, and the quantity expended. This information is used to evaluate the usage in anticipation of preparation of annual Toxic Chemical Reporting submittals and for tracking information regarding the release of munitions constituents from the range to off-range areas.

Two above-ground storage tanks are located at the Camp Billy Machen Navy SEAL training compound. Both have a capacity of 1,200 gallons; one contains diesel fuel and the other contains unleaded gasoline. There also is one 180-day Hazardous Waste Accumulation Area for storing weapons cleaning solvents and rags for disposal. As with the CMAGR, records are kept at Camp Billy Machen to track miscellaneous material storage such as oils, lubricants, adhesives, sealants, battery terminal cleaners and protectors, brake fluid, brake cleaner, antifreeze, spray paint, degreasers, and routine cleaning products (Rodriguez 2011). For EPCRA Reporting Year (RY) 2010, 43 individual hazardous materials were listed. Four 55-gallon drums of various grades of oil were listed along with several other types of oils in 5-gallon cans. Other products were identified in packages ranging from 1 fluid ounce to 1 gallon. Quantities of these products were deemed to be minimal.

3.12.3 Hazardous Materials and Waste Conditions

3.12.3.1 Toxic Chemical Reporting

The Emergency Planning and Community Right-to-Know Act (EPCRA), or Title III of the Superfund Amendments and Reauthorization Act of 1986, acknowledges the public's right to information concerning toxic chemical usage and releases to the environment. Facilities that are required to submit a Toxics Release Inventory (TRI) Report under EPCRA Section 313 must complete a Form R of each listed toxic chemical that meets the reporting criteria.

Reports documenting range activities (i.e., ordnance expenditures) and non-range activities are required. The CMAGR consists of several training ranges and the NSWG training facility at Camp Billy Machen. No non-range munitions activities were conducted at the CMAGR to warrant preparation of the non-range activities report. Ordnance expenditure training missions at Camp Billy Machen are directed at the targets located on the CMAGR, so those calculations are included in the report for range activities.

Reporting Year 2006 was the first year that EPCRA 313 requirements were implemented for CMAGR operations at which time eight toxic chemicals exceeded the EPCRA Section 313 thresholds. For reporting purposes below, MCAS Yuma uses two categories; "Manufactured" or "Otherwise Used." The toxic chemicals associated with CMAGR operations exceeding the reporting thresholds were:

- Aluminum (fume or dust) – 369,711 pounds (lb) (otherwise used)
- Barium compounds – 15,371 lb (otherwise used)

- Benzene – 13,993 lb (otherwise used)
- Copper – 413,753 lb (otherwise used)
- Lead – 74,756.9 lb (otherwise used)
- Lead compounds – 6,788.7 lb (manufactured), 7,882.5 lb (otherwise used)
- Nitroglycerin – 145,483 lb (otherwise used)
- Phosphorus (yellow or white) – 14,266 lb (otherwise used)

For the most recent reporting year (RY 2010), six toxic chemicals associated with CMAGR operations exceeded the EPCRA Section 313 thresholds. The toxic chemical exceeding the reporting thresholds were:

- Aluminum (fume or dust) – 215,984 lb) (otherwise used)
- Copper – 166,937 lb (otherwise used)
- Lead – 40,614.3 lb (otherwise used)
- Lead compounds – 1584.1 lb (manufactured), 924.9 lb (otherwise used)
- Nitroglycerin – 40.682 lb (otherwise used)
- Napthalene – 14,581 lb (otherwise used)

In each of the cases where a toxic chemical exceeding the reporting thresholds was repeated from RY 2006 to RY 2010, the weight of the exceedence was reduced in RY 2010.

For RY 2006 for non-range activities, no toxic chemicals exceeded the reporting thresholds. During RY 2007, diesel fuel and gasoline were identified as exceeding reporting thresholds in Building 6001, and in RY 2008, diesel fuel and gasoline were identified as exceeding reporting thresholds in Building 6006.

3.12.3.2 Range Environmental Vulnerability Assessment

Hazardous constituents contained in munitions delivered to the CMAGR air-to-ground ranges are usually consumed in a series of chemical reactions that occur upon detonation. Occasionally the munitions do not fully detonate or do not detonate at all. If EOD teams do not recover these undetonated munitions and the munitions case is damaged or eventually corrodes, the MCs could be available to the environment and cause an unacceptable risk to human health and the environment.

The U.S. Marine Corps REVA program meets the requirements of the current DoD Directive 4715.11 Environmental and Explosives Safety Management on Operational Ranges within the United States and DoD Instruction 4715.14 Operational Range Assessments. The purpose of the REVA program is to identify whether there is a release or substantial threat of a release of MCs from the operational range or range complex areas to off-range areas. This is accomplished through an assessment of operational range areas, development of conceptual site model (CSM), and, where applicable, screening-level fate and transport modeling of the REVA indicator MCs. Indicator MCs selected for the REVA program include octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX), hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX), trinitrotoluene (TNT), and perchlorate. To identify whether there was a release or substantial threat of a release of MCs from the operational range or range complex areas to off-range areas, an initial REVA was conducted in 2008.

The REVA was conducted for the Yuma Training Range Complex, which includes the CMAGR. A total of 35 range areas were identified in CMAGR North and 15 range areas in CMAGR South. Loading rates for MCs were calculated for each area. The MCs loading rates at 12 of the sites in CMAGR North and all 15 of the sites in CMAGR South were found to be potentially significant (greater than 1 milligram per square meter per year). Because surface water in the washes draining from the CMAGR is not used as a potable water source, as an irrigation water source, or for any contact activity, either on range or off range, no human or ecological receptors were identified in the baseline. The pathways evaluated for REVA include both surface water and groundwater. Since no complete exposure pathway was identified, it was assumed that there was no potential risk to human health or the environment. All operational ranges will be reassessed at a minimum every 5 years to ensure both long-term sustainability to the ranges and protectiveness to human health and the environment.

3.12.3.3 Preliminary Site Evaluation

Some of the alternatives being considered in this LEIS would realign the boundary of the CMAGR to more closely follow prominent geographic features. These alternatives could result in the disposal of some properties currently included in the CMAGR range and/or the acquisition of land not currently included in the CMAGR. To evaluate the environmental condition of these properties, a Preliminary Site Evaluation was conducted. The purpose of the Preliminary Site Evaluation was to gather information about the subject properties and surrounding areas to identify conditions indicative of releases or threatened releases of hazardous substances, pollutants and contaminants, petroleum or petroleum products, and controlled substances. The Preliminary Site Evaluation was accomplished by, and limited to, review of agency databases and other reasonably ascertainable records regarding past and current land use for indication of the manufacture, generation, use, storage and/or disposal of hazardous substances at the site.

Two general areas were evaluated. The first is the land adjacent to the Bradshaw Trail located along the northern border of the CMAGR in Riverside County (see Figure 2-1). The second area consists of land located adjacent to the southwest portion of the CMAGR in Imperial County (see Figure 2-2). The Bradshaw Trail area consists of portions of 168 non-contiguous land parcels totaling approximately 3,172 acres and stretching over approximately 38 miles. The southwest area along the UPRR consists of all and/or portions of 45 adjacent land parcels totaling approximately 12,717 acres. No municipal water, sanitary sewer, storm water or electrical supply systems appear to service these properties.

Available historical documents reviewed dated back to 1943 and indicated that the CMAGR has been utilized for aerial gunnery and bombing training since the WWII period. However, it appears that the areas (along the Bradshaw Trail and along the proposed UPRR) that lie on the perimeter of the CMAGR generally have not supported specific range-related activities. These areas remain vacant.

Review of aerial photographs indicates that activities associated with FARP Star Assault have encroached onto a portion of the northwestern corner of the site along the UPRR. This action could be considered to be a potential Recognized Environmental Condition (REC). Based on the proximity of the site to an active military range, there is the potential for the presence of errant UXO or munitions and explosives of concern (MEC) and/or associated debris on the subject property. No RECs were identified in connection with current or historical operations identified in aerial photographs, topographic maps of the lands proposed for acquisition or disposal, and available records.

3.13 SOCIOECONOMICS

3.13.1 Socioeconomic Setting

This section discusses existing socioeconomic conditions in the area potentially affected by the CMAGR land withdrawal. The following analysis focuses primarily on existing socioeconomic conditions within the ROI, as defined below. The degree of effect of the CMAGR on affected areas (states, counties, communities, and Native American Reservations) in the vicinity of the CMAGR, and the affected areas in the vicinity of the installations that regularly use the CMAGR are determined to fully describe the affected environment.

3.13.2 Socioeconomic Region of Influence

The ROI for the socioeconomic environment of the CMAGR includes areas in the immediate vicinity of the CMAGR, and installations that rely on the CMAGR to support a significant component of their training mission. The majority of aircraft that train at the range originate from squadrons based at MCAS Yuma in Arizona and MCAS Miramar in California. Other local squadrons that regularly or occasionally use the CMAGR are stationed at MCAS Camp Pendleton and NAS North Island in California and Luke Air Force Base in Arizona.

Table 3-19 lists the states, counties, communities, and Native American Reservations with the potential to be affected by the CMAGR land withdrawal, and particularly if the land withdrawal is not renewed. These include the communities and cities within the vicinity of the CMAGR (Coachella, La Quinta, Indio, Indian Wells, Palm Desert, Palm Springs, Blythe, Niland, Calipatria, Brawley, El Centro, and Glamis); MCAS Miramar in San Diego (El Cajon, Poway, San Diego, and Santee), California; MCAS Yuma in Yuma (Yuma), Arizona; MCAS Camp Pendleton (Oceanside) and NAS North Island (Coronado) in San Diego County, California; and Luke AFB in Maricopa County (Glendale, Phoenix, and Surprise), Arizona. The Native American Reservations in the vicinity of the CMAGR and vicinity of the installations (Agua Caliente Reservation, California; Augustine Reservation, California; Cabazon Reservation, California; Cahuilla Reservation, California; Morongo Reservation, California; Torres-Martinez Reservation, California; Fort Yuma Reservation [Quechan Indian Tribe], California/Arizona; Cocopah Reservation, Arizona; Colorado River Reservation, Arizona/California; Gila River Reservation, Arizona) are evaluated as well. Communities associated with the five primary military installations affected by the CMAGR are shown in Table 3-19, by county, with Native American Reservations shown separately. As shown on Figure 3-15, the ROI includes five counties, 22 communities[9], and 10 Native American Reservations.

[9] Data are available for all the communities within the ROI, except for Glamis, California. Glamis is not an incorporated place or a Census Designated Place (CDP), according to the U.S. Census Bureau. A CDP is a recognizable community or concentration of population that is not an incorporated place. An area not defined as a place or CDP is considered to be included in the remainder of the county, for which there are no specific Census data.

Table 3-19 Region of Influence for CMAGR Withdrawal

Jurisdiction (State and Counties)	Communities, Cities, and Native American Reservations
California	
Riverside County	Coachella, La Quinta, Indio, Indian Wells, Palm Desert, Palm Springs, Blythe
Imperial County	Niland, Calipatria, Brawley, El Centro, Glamis
San Diego County	El Cajon, Poway, City of San Diego, Santee, Coronado, Oceanside
Arizona	
Yuma County	Yuma
Maricopa County	Glendale, Phoenix, Surprise
Native American Reservations	Agua Caliente Reservation, CA; Augustine Reservation, CA; Cabazon Reservation, CA; Cahuilla Reservation, CA; Morongo Reservation, CA; Torres-Martinez Reservation, CA; Fort Yuma Reservation, CA/AZ; Cocopah Reservation, AZ; Colorado River Reservation, AZ/CA; Gila River Reservation, AZ

3.13.3 General Demographic Trends and Economic Conditions

Data such as population, employment by level of participation and industry sector, household income, poverty status, and race and ethnicity were collected for the ROI. The data were compiled, and the following demographic and economic conditions and trends were identified. Data on poverty status and race and ethnicity are detailed in Section 3.14, Environmental Justice.

Population Trends and Projections

The population for each of the states, counties, communities, and Native American Reservations is listed in Table 3-20. All but four of the communities in the ROI had a population exceeding 20,000 in 2010 and only five of the 22 communities in the ROI had a population exceeding 100,000 in 2010 (data for Glamis were not available). Only one of the 10 Native American Reservations in the ROI had a population exceeding 20,000 in 2000. Population data for 2010 were not available for the Native American Reservations at the time of preparation of this document. The greatest percent of annual growth in population between 2000 and 2010 was 28.09 percent in Surprise, Arizona. The other communities had annual growth that ranged between 0.08 percent and 8 percent except for two communities, Poway and Coronado, which experienced a decrease in annual population growth from 2000 to 2010 by 0.05 percent and 2.15 percent, respectively. Table 3-21 provides population projections for the counties and states within the ROI.

In general, population projections indicate that California state and associated counties are expected to continue their growth pattern through 2050. Population projections for the state of Arizona and associated counties indicate a similar growth pattern between 2010 and 2020. However, annual population growth between 2020 and 2050 will continue at a smaller rate.

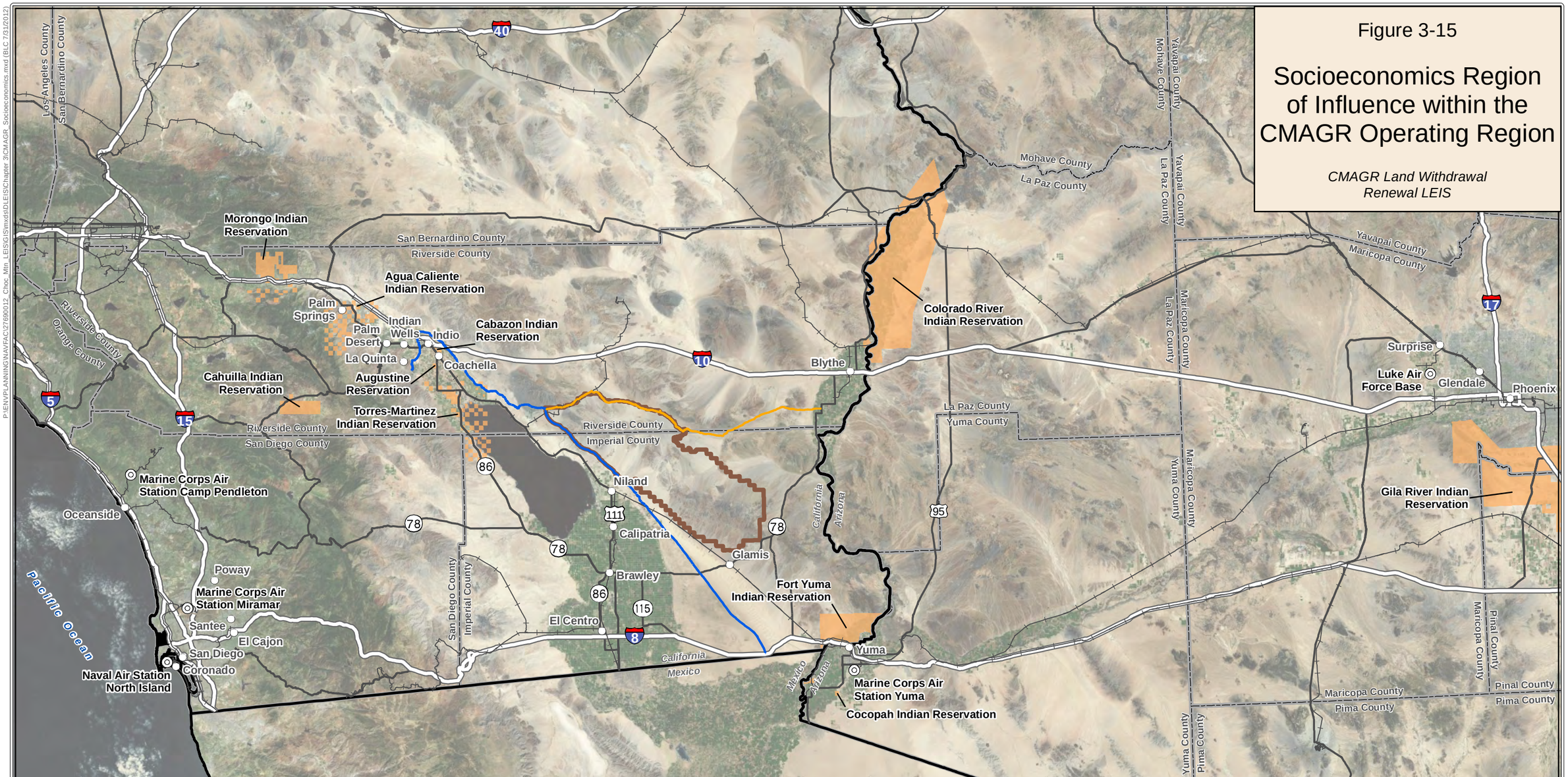

Figure 3-15

Socioeconomics Region of Influence within the CMAGR Operating Region

CMAGR Land Withdrawal Renewal LEIS

P:\EN\PLANNING\NAVFAC\27690012_Choc_Mtn_LEIS\GIS\mxd\DLEIS\Chapter 3\CMAGR_Socioeconomics.mxd (BLC 7/31/2012)

Legend

- Existing CMAGR Boundary
- Bradshaw Trail
- Coachella Canal
- Military Airfield
- Indian Reservation
- City\Town
- Railroad
- Interstate
- Highway
- County Boundary
- State Boundary

Coordinate System: WGS 1984 UTM Zone 11N
Projection: Transverse Mercator
Datum: WGS 1984
Units: Meter

Source:
Range Features: IGI&S 2010 - 2011, YRMD 2010 - 2011
Base Map: CASIL 2010, ESRI 2010, BIA 2005
Imagery: Bing Aerials © 2010 Microsoft Corporation

This Map is for Reference Use Only.

Although every effort has been made to ensure the accuracy of the information, errors and conditions originating from physical sources to develop the database may be reflected in the data supplied. The user must be aware of data conditions and ultimately bear responsibility for the appropriate use of the information with respect to the possible errors, original map scale, collection methodology, currency of the data, and other conditions specific to certain data. This information does not depict all possible resources. Field verification of all data is required for site-specific projects. This information is deemed reliable, but not guaranteed.

Map Scale 1:1,400,000

0 10 20 30 40
Miles

0 10 20 30 40
Kilometers

Table 3-20 Population and Average Growth from 2000 to 2010

Jurisdiction	2000	2010	Average Growth Number and Annual Growth Rate 2000-2010	
			Total Number	Annual Percent
Riverside County, California				
Riverside County	1,545,387	2,189,641	644,254	4.17%
Coachella	22,724	40,704	17,980	7.91%
La Quinta	23,694	37,467	13,773	5.81%
Indio	49,116	76,036	26,920	5.48%
Indian Wells	3,816	4,958	1,142	2.99%
Palm Desert	41,158	48,445	7,290	1.77%
Palm Springs	42,807	44,552	1,745	0.41%
Blythe	20,463	20,817	354	0.17%
Imperial County, California				
Imperial County	142,361	174,528	32,167	2.26%
Niland	1,143	1,006	-137	-1.19%
Calipatria	7,289	7,705	416	0.57%
Brawley	22,052	24,953	2,901	1.32%
El Centro	37,835	42,598	4,763	1.26%
San Diego County, California				
San Diego County	2,813,833	3,095,313	281,480	1.0%
El Cajon	94,869	99,478	4,609	0.49%
Poway	48,044	47,811	-233	-0.05%
City of San Diego	1,223,400	1,307,402	84,002	0.69%
Santee	52,975	53,413	438	0.08%
Coronado	24,100	18,912	-5,188	-2.15%
Oceanside	161,029	167,086	6,057	0.38%
California	33,871,653	37,253,956	3,382,303	0.10%
Yuma County, Arizona				
Yuma County	160,026	195,051	35,725	2.20%
Yuma	77,515	93,064	15,549	2.00%
Maricopa County, Arizona				
Maricopa County	3,072,149	3,817,117	744,968	2.42%
Glendale	218,812	226,721	7,909	0.36%
Phoenix	1,321,045	1,445,632	124,587	0.94%
Surprise	30,848	117,517	86,669	28.09%
Arizona	5,130,632	6,999,810	1,869,178	3.64%
Native American Reservations				
CMAGR Area				
Agua Caliente Reservation, CA	21,358	N/A	N/A	N/A
Augustine Reservation, CA	N/A	N/A	N/A	N/A
Cabazon Reservation, CA	806	N/A	N/A	N/A
Cahuilla Reservation, CA	154	N/A	N/A	N/A
Morongo Reservation, CA	954	N/A	N/A	N/A
Torres-Martinez Reservation, CA	4,146	N/A	N/A	N/A
MCAS Yuma Area				
Fort Yuma Reservation, CA	2,376	N/A	N/A	N/A
Cocopah Reservation, AZ	1,025	N/A	N/A	N/A
Colorado River Reservation, AZ/CA	9,201	N/A	N/A	N/A
Luke AFB Area				
Gila River Reservation, AZ	11,257	N/A	N/A	N/A

Notes: Data for Arizona state and counties are from U.S. Census 2000 and U.S. Census 2010. N/A means data are not available. Data for Glamis were not available. There are discrepancies for Arizona County in Table 3-19 and Table 3-20 due to actual U.S. Census data versus Arizona Department of Commerce projections, respectively.
Sources: California Department of Finance 2010a; U.S. Census 2000 and 2010; U.S. Census 2010a.

Table 3-21 Population Projection and Average Annual Growth

Jurisdiction	2000	2010	Average Annual Growth Rate 2000-2010	Total 2020 Projection	Average Annual Growth Rate 2010-2020	Total 2030 Projection	Average Annual Growth Rate 2020-2030	Total 2050 Projection
California								
Riverside County	1,545,387	2,189,641	4.1%	2,904,848	3.3%	3,507,498	2.1%	4,730,922
Imperial County	142,361	174,528	2.2%	239,149	3.7%	283,693	1.9%	387,763
San Diego County	2,813,833	3,095,313	1.0%	3,550,714	1.5%	3,950,757	1.1%	4,508,728
California	33,871,648	37,253,956	1.0%	42,206,743	1.3%	46,444,861	1.0%	59,507,876
Arizona								
Yuma County	160,656	198,637	2.4%	271,361	3.7%	316,158	1.7%	377,598
Maricopa County	3,097,620	4,063,802	3.1%	5,276,074	3.0%	6,207,980	1.8%	7,661,423
Arizona	5,130,632	6,999,810	3.6%	8,779,567	2.5%	10,347,543	1.8%	12,830,829

Sources: California Department of Finance 2007, Arizona Department of Commerce 2011.

Employment

Table 3-22 details the civilian labor force, total employed and unemployed, and unemployment rates for each of the states, counties, and communities within the ROI as reported by the California Economic Development Department and Bureau of Labor Statistics. In California, the total statewide labor force in June 2011 was 18,071,900, and the total number of unemployed individuals was 2,183,100, for an unemployment rate of 12.1 percent. Riverside, Imperial, and San Diego counties had unemployment rates of 14.4, 28.5, and 10.4 percent, respectively. San Diego County is the only county with a lower unemployment rate than the California statewide average. Of the communities in California, Calipatria had the highest unemployment rate of 30.1 percent, and the City of San Diego had the highest number of unemployed individuals at 72,300.

In Arizona, the total statewide labor force in May of 2011 was 3,174,810, and the total number of unemployed individuals was 312,744, for an unemployment rate of 9.9 percent. Yuma and Maricopa counties had unemployment rates of 27.3 and 8.8 percent, respectively. Of the communities in Arizona, the City of Yuma had the highest unemployment rate with 22.1 percent, and Phoenix had the highest number of unemployed individuals with 82,841. Data for the Native American Reservations within the ROI were not available.

Table 3-22 Civilian Labor Force, Total Employment, Number Unemployed and Employment Rates for the Region of Influence

Jurisdiction	Civilian Labor Force	Total Employment	Number Unemployed	Unemployment Rate
Riverside County, California				
Riverside County	900,200	770,800	129,400	14.4%
Coachella	12,200	9,500	2,700	22.3%
La Quinta	14,400	13,300	1,100	7.6%
Indio	27,000	22,800	4,20	15.5%
Indian Wells	1,700	1,600	100	5.8%
Palm Desert	24,400	22,300	2,100	8.6%
Palm Springs	25,800	22,900	2,900	11.2%
Blythe	7,000	5,800	1,200	17.2%
Imperial County, California				
Imperial County	76,000	54,300	21,600	28.5%
Calipatria	1,700	1,200	500	30.1%
Brawley	13,100	9,000	4,100	31.2%
El Centro	22,000	16,000	6,000	27.2%
San Diego County, California				
San Diego County	1,565,800	1,403,700	162,100	10.4%
El Cajon	53,300	45,900	7,500	14.0%
Poway	27,900	26,200	1,700	6.1%
City of San Diego	699,000	626,600	72,300	10.3%
Santee	32,800	29,900	2,900	8.8%
Coronado	8,700	8,100	600	6.9%
Oceanside	85,800	77,300	8,500	9.9%
California	18,071,900	15,888,800	2,183,100	12.1%
Yuma County, Arizona				
Yuma County	92,098	66,954	25,144	27.3%
Yuma	49,785	38,797	10,988	22.1%
Maricopa County, Arizona				
Maricopa County	1,995,744	1,820,921	174,823	8.8%
Glendale	128,787	117,007	11,780	9.1%
Phoenix	802,032	719,191	82,841	10.3%
Surprise	35,296	31,422	3,874	11.0%
Arizona	3,174,810	2,862,066	312,744	9.9%

Notes: Data are current as of June 2011 for California and Arizona. Data for Native American Reservations and Niland were not available.
Sources: California Economic Development Department 2011a, 2011b; Bureau of Labor Statistics 2011a, 2011b.

Income Characteristics

As shown in Table 3-23, the 1999 median household income in California was $47,493.[10] The median household income for the California counties included in the ROI was lower than the statewide average. San Diego County was near the statewide average with a median household income of $47,067. There are six communities in the ROI in California with median household incomes greater than the statewide average, with Indian Wells being the highest at $93,986.

[10] As of July 2011, the most complete data for the communities in the ROI for median household income were the U.S. Census 2000 data.

Table 3-23 Income Characteristics. 1999

Affected Area	Median Household Income ($)
Riverside County, California	
Riverside County	42,887
Coachella	28,590
La Quinta	54,552
Indio	34,624
Indian Wells	93,986
Palm Desert	48,316
Palm Springs	35,973
Blythe	35,324
Imperial County, California	
Imperial County	31,870
Niland	25,592
Calipatria	30,962
Brawley	31,277
El Centro	33,161
San Diego County, California	
San Diego County	47,067
El Cajon	35,566
Poway	71,708
City of San Diego	45,733
Santee	53,624
Coronado	66,544
Oceanside	46,301
Yuma County, Arizona	47,493
Yuma County	32,182
Yuma	35,374
Maricopa County, Arizona	
Maricopa County	45,358
Glendale	45,015
Phoenix	41,207
Surprise	44,156
Arizona	40,558
Native American Reservations	
CMAGR Area	
Agua Caliente Reservation, CA	37,560
Augustine Reservation, CA	-
Cabazon Reservation, CA	29,773
Cahuilla Reservation, CA	36,364
Morongo Reservation, CA	51,071
Torres-Martinez Reservation, CA	21,993
MCAS Yuma Area	
Fort Yuma Reservation, CA and AZ	20,929
Cocopah Reservation, AZ	27,120
Colorado River Reservation, AZ/CA	27,216
Luke AFB Area	
Gila River Reservation, AZ	18,599

Note: Data for Glamis were not available.
Source: U.S. Census 2000c.

The median household income for Arizona was $40,558. Yuma County is below the Arizona statewide average with $35,374 in median household income, and Maricopa County was above the statewide average with $45,358. Glendale, Phoenix, and Surprise were all above the statewide average and the City of Yuma was below the statewide average.

Morongo Reservation was the only Native American Reservation in the ROI that was above its respective statewide median household income, with $51,071 compared to the California median household income of $47,493. The Gila River Reservation in Arizona reported the lowest median household income of $18,599. There was no median household income reported for the Augustine Reservation.

3.13.4 Economic Profiles

The CMAGR is located in both southern Riverside County and northern Imperial County in California. There is no economic activity within the CMAGR as it is restricted to military training operations. The area along the northern border of the CMAGR (Riverside County) is primarily desert open space. The CMAGR borders federal lands primarily used for habitat conservation and recreation. There is no direct economic activity in the vicinity of the CMAGR with the exception of BLM campsites and BLM Long-Term Visitor Areas that often require camping fees (BLM 2002). The area immediately south of the CMAGR (Imperial County) is primarily used for agriculture, with some open desert. The agricultural lands border the CMAGR near the Salton Sea.

California's economy is based primarily on government, professional and business services, retail trade, and leisure and hospitality. The economy of Riverside County is based primarily on government, retail trade, leisure and hospitality, and education and health services. Imperial County's economy is based primarily on government, agriculture, transportation, warehousing, utilities, and retail trade. The economy of San Diego County is focused on government, professional business services, leisure and hospitality, and educational and health services (California EDD 2011c).

The Arizona economy is based primarily on government, educational and health services, professional and business services, and leisure and hospitality. The economy of Yuma County, Arizona, is based primarily on government, retail trade, educational and health services, and leisure and hospitality. The economy of Maricopa County is based primarily on educational and health services, retail trade, government, and leisure and hospitality (U.S. BEA 2009).

Military contributions to community economies are most pronounced in the communities nearest to the installations in the ROI where aircraft squadrons that train at the CMAGR area based. Table 3-24 lists the cities near these installations and provides the leading industries in these cities.

Table 3-24 Leading Industries near Military Installations

City	Leading Industries
MCAS Miramar	
El Cajon	construction, health services, educational services, hospitality and leisure
Poway	educational services, professional and business services, health care services, computer and electronic services
San Diego	educational services, professional and business services, science and technology, health care services
Santee	construction, health care services, educational services, government
MCAS Yuma	
Yuma	government, educational services, health care services, hospitality and leisure
MCAS Camp Pendleton	
Oceanside	health care services, educational services, hospitality and leisure, construction
NAS North Island	
Coronado	professional and business services, educational services, government, health care services
Luke AFB	
Glendale	construction, health care services, educational services, finance and insurance
Phoenix	educational services, professional and business services, health care services, retail services
Surprise	health care services, construction, finance and insurance, government

Notes: Educational and health care services are grouped for state and county data, but shown as separate industries at the city level. Table 3-24 lists the top four industries for each city from left to right.
Source: California Economic Development Department 2011c.

3.14 ENVIRONMENTAL JUSTICE

3.14.1 Environmental Justice Setting

The ROI for evaluating the affected environment for Environmental Justice includes the same states, counties, communities, and Native American Reservations indicated in Section 3.13, Socioeconomics. [11]

3.14.2 Environmental Justice Background

Title VI of the Civil Rights Act of 1964 prohibits discrimination on the basis of race, color, or national origin by all federal agencies or activities receiving federal financial assistance.

Executive Order

Presidential EO 12898 of February 11, 1994, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," is intended to ensure that federal departments and agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. This order requires the EPA and all other federal agencies (as well as state agencies receiving federal funds) to develop strategies to address Environmental Justice. Pursuant to EO 12898, federal agencies ensure that part of their mission is to achieve Environmental Justice and to allow for a meaningful opportunity to participate in the development of, compliance with, and enforcement of,

[11] Data are available for all the communities within the ROI, except for Glamis, California. Glamis is not an incorporated place or a Census Designated Place (CDP), according to the U.S. Census Bureau. A CDP is a recognizable community or concentration of population that is not an incorporated place. An area not defined as a place or CDP is considered to be included in the remainder of the county, for which there are no specific Census data.

federal laws, regulations, and policies affecting human health or the environment regardless of race, color, national origin, or income.

Council on Environmental Quality guidelines for implementing the EO are directed at NEPA-related activities and include the following.

- When NEPA requires an analysis of environmental effects, each federal agency should analyze the health, economic, and social effects of a proposed action on minority populations and low-income populations.
- Mitigation measures outlined in NEPA documents should, whenever feasible, address significant and adverse effects of proposed federal actions on minority populations and low-income populations.
- The public participation component of NEPA should include identifying potential effects and mitigation measures in consultation with affected communities and improving the accessibility of public meetings, official documents, and notices to affected communities.

3.14.3 Environmental Justice Conditions

Low Income Populations

As shown in Table 3-25, approximately 5.15 percent of the population of California was living below the poverty line in 1999. Of the counties in the California ROI, all are above the statewide percentage, with Imperial County at 22.58 percent, Riverside County at 14.17 percent, and San Diego County at 12.43 percent. The communities of Indian Wells, Poway, and Coronado have lower percentages of the population living below the poverty line than the statewide percentage, with 3.4, 4.28, and 4.98, respectively. The California community with the highest percentage (28.86 percent) living below the poverty line was Coachella. In California, the City of San Diego had the highest number of individuals living below the poverty line, with 172,527.

In 1999, Arizona had approximately 13.91 percent of the population living below the poverty line. Yuma County is above the statewide poverty line with 19.23 percent, and Maricopa County is below with 11.75 percent. Only the cities of Yuma and Phoenix have higher percentages than Arizona, with 14.67 and 15.79 percent, respectively. The Arizona community with the highest percentage and number of individuals living below the poverty line was Phoenix, with 15.79 percent and 205,320, respectively; Surprise had the lowest percentage and number of individuals living below the poverty line, at 8.74 percent and 2,689, respectively.

Table 3-25 Population and Percentage of Individuals Living Below the Poverty Line in the Region of Influence

Affected Area	Total Population for Whom (1) Poverty Status Is Determined	Income in 1999 Below the Poverty Level	Percent Below the Poverty Level
Riverside County, California			
Riverside County	1,511,153	214,084	14.17%
Coachella	22,411	6,468	28.86%
La Quinta	23,618	1,847	7.82%
Indio	48,400	10,419	21.53%
Indian Wells	3,792	129	3.4%
Palm Desert	41,063	3,766	9.17%
Palm Springs	42,438	6,402	15.09%
Blythe	11,601	2,423	21.75%
Imperial County, California			
Imperial County	131,459	29,681	22.58%
Niland	1,205	258	21.41%
El Centro	36,945	8,405	22.75%
Calipatria	3,182	771	24.23%
Brawley	21,841	5,806	26.58%
San Diego County, California			
San Diego County	2,722,408	338,399	12.43%
El Cajon	92,758	15,469	16.68%
Poway	47,762	2,044	4.28%
City of San Diego	1,181,612	172,527	14.6%
Santee	51,989	2,823	5.43%
Coronado	17,704	881	4.98%
Oceanside	159,599	18,492	11.59%
California	33,100,044	4,706,130	5.15%
Yuma County, Arizona			
Yuma County	154,251	29,670	19.23%
City of Yuma	74,347	10,910	14.67%
Maricopa County, Arizona			
Maricopa County	3,027,299	355,668	11.75%
Glendale	215,389	25,688	11.93%
Phoenix	1,300,100	205,320	15.79%
Surprise	30,763	2,689	8.74%
Arizona	5,021,238	698,669	13.91%
Native American Reservations			
CMAGR Area			
Agua Caliente Reservation, CA	21,214	2,229	10.51%
Augustine Reservation, CA	-	-	-
Cabazon Reservation, CA	799	248	31.04%
Cahuilla Reservation, CA	168	62	36.9%
Morongo Reservation, CA	908	163	17.95%
Torres-Martinez Reservation, CA	4,029	1,698	42.14%
MCAS Yuma Area			
Fort Yuma Reservation, CA and AZ	2,342	776	33.13%
Cocopah Reservation, AZ	1,052	330	31.37%
Colorado River Reservation, AZ/CA	8,892	1,939	21.81%
Luke AFB Area			
Gila River Reservation, AZ	10,794	5,625	52.11%

Notes: Percentages are rounded to the nearest decimal. Data for Glamis were not available.
(1) Following the Office of Management and Budget's Statistical Policy Directive 14, the Census Bureau uses a set of money income thresholds that vary by family size and composition to determine who is in poverty. If a family's total income is less than the family's threshold, then that family and every individual in it is considered in poverty. The official poverty thresholds do not vary geographically, but they are updated for inflation using Consumer Price Index. The official poverty definition uses money income before taxes and does not include capital gains or noncash benefits (such as public housing, Medicaid, and food stamps). Poverty status is in 1999 dollars.
Sources: U.S. Census Bureau 2000a, 2000c.

The Gila River Reservation in Arizona is the only community in the ROI that has incidences of poverty exceeding 50 percent, with 5,625 individuals or 52.11 percent, living below the poverty line. Of the Native American Reservations in the ROI, Gila River Reservation had the highest number and percentage of individuals living below the poverty line; the Cahuilla Reservation had the lowest number, with 62 individuals. Of the Native American reservations, the Agua Caliente Reservation had the lowest percent of individuals living below the poverty line, with 10.51 percent.

The typical threshold for Environmental Justice communities of concern and affected areas in the ROI is discussed in detail in Section 4.14.

Minority Populations

As shown on Table 3-26, there are some communities within the ROI with high populations of racial and ethnic minorities. In California, the communities of Coachella, Indio, Calipatria, Brawley, and El Centro, and Imperial County as a whole have minority populations above 50 percent. Among the communities within the ROI, Coachella had the highest percent of minority population (97.39 percent), although the greatest number of minority individuals is 487,193 in the City of San Diego.

As presented in Table 3-26, the areas displaying the highest concentration of minorities are Native American Reservation areas, where the total minority population is as high as 96.3 percent; there are 10,840 minority individuals in the Gila River Reservation. All of the Native American Reservations had high minority populations except for Agua Caliente and Colorado River Reservations. There were no records available for the Augustine Reservation.

Table 3-26 Total Minority Population in the Region of Influence

Affected Area	Total Population for Whom Race and Hispanic/Latino Origin Was Determined	Total Minority Population by Race (Other than White) and Percentage Minority (1)		Total Hispanic/Latino Origin Population and Percentage (2)	
Riverside County, California					
Riverside County	1,545,387	531,909	34.42%	559,575	36.21%
Coachella	22,724	13,914	61.23%	22,132	97.39%
La Quinta	23,694	5,092	21.49%	7,584	32.01%
Indio	49,116	25,213	51.33%	37,028	75.39%
Indian Wells	3,816	140	3.69%	113	2.96%
Palm Desert	41,155	5,416	13.16%	7,031	17.08%
Palm Springs	42,807	9,276	21.67%	10,155	23.72%
Blythe	11,825	5,286	44.7%	5,345	45.2%
Imperial County, California					
Imperial County	142,361	72,071	50.63%	102,817	72.22%
Niland	1,143	408	35.69%	632	55.29%
Calipatria	7,247	4,943	68.21%	4,245	58.58%
Brawley	22,096	10,434	47.22%	16,514	74.74%
El Centro	37,835	20,107	53.14%	28,219	74.58%
San Diego County, California					
San Diego County	2,813,833	941,994	33.48%	750,965	26.69%
El Cajon	94,869	24,663	26%	21,313	22.47%
Poway	48,044	8,237	17.14%	4,974	10.35%
City of San Diego	1,223,400	487,193	39.82%	310,752	25.4%
Santee	52,975	7,046	13.3%	6,016	11.36%
Coronado	24,100	3,759	15.6%	2,369	9.83%
Oceanside	161,029	54,163	33.64%	48,691	30.24%

Affected Area	Total Population for Whom Race and Hispanic/Latino Origin Was Determined	Total Minority Population by Race (Other than White) and Percentage Minority (1)		Total Hispanic/Latino Origin Population and Percentage (2)	
California	33,871,648	13,701,589	40.45%	10,966,556	32.38%
Yuma County, Arizona					
Yuma County	160,026	50,757	31.72%	80,772	50.47%
City of Yuma	77,515	24,547	31.67%	35,400	45.67%
Maricopa County, Arizona					
Maricopa County, AZ	3,072,149	695,790	22.65%	763,341	24.85%
Glendale	218,812	53,519	24.46%	54,343	24.84%
Phoenix	1,321,045	382,192	28.93%	449,972	34.06%
Surprise	30,848	4,327	14.03%	7,184	23.29%
Arizona	5,130,632	1,257,021	24.5%	1,295,617	25.25%
Native American Reservations					
CMAGR Area					
Agua Caliente Reservation, CA	21,358	2,417	11.32%	2,628	12.3%
Augustine Reservation, CA	-	-	-	-	-
Cabazon Reservation, CA	806	330	40.94%	731	90.69%
Cahuilla Reservation, CA	154	123	79.87%	26	16.88%
Morongo Reservation, CA	954	745	78.09%	194	20.36%
Torres-Martinez Reservation, CA	4,146	2,680	64.64%	3,821	92.16%
MCAS Yuma Area					
Fort Yuma Reservation, CA and AZ	2,376	1,726	72.64%	662	27.86%
Cocopah Reservation, AZ	1,025	551	53.76%	47	4.59%
Colorado River Reservation, AZ/CA	9,201	4,244	46.13%	2,920	31.74%
Luke AFB Area					
Gila River Reservation, AZ	11,257	10,840	96.3%	1,055	9.37%

Notes:
(1) The races that the Census tallies as "Other than White alone" are "Black or African American alone," "American Indian and Alaska Native alone," "Asian alone," "Native Hawaiian and Other Pacific Islander alone," and "Some other race alone."
(2) White is considered non-Hispanic white only. The federal government considers race and Hispanic/Latino origin (ethnicity) to be two separate and distinct concepts. People identified as Hispanic or Latino origin may be of any race. The data summarized in this table present minority population as individuals that answered a race category other than "white." The data summarized in the right column of this table present Hispanic/Latino as a separate category to determine the percent ethnic minority.
Source: U.S. Census 2000b.

4. ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

Chapter 4 reports the foreseeable environmental impacts that likely would result from implementing each of the five individual alternatives studied in this LEIS. Action Alternatives 1 through 4 would each renew the CMAGR land withdrawal and continue military use of the range, and Alternative 5, the no-action alternative, would allow the land withdrawal to expire, which would end military use of the range and trigger its closure and decommissioning. The environmental impacts reported in this LEIS are defined as modifications to the environment that would be brought about by implementing either one of the action alternatives or the no-action alternative. Impacts can be beneficial or adverse and may arise as either a direct or indirect consequence of implementing a proposed action. Cumulative effects, which consider the effects of the proposed action together with other past, present, and reasonably foreseeable future actions, are addressed in Chapter 5.

Direct effects are caused by the action and occur at the same time and place as the action. Indirect effects are reasonably foreseeable consequences that are also attributable to the action but that occur later in time than the action and/or at a location away from the action. As provided at 40 CFR 1508.27, the significance of an impact is defined in terms of context, intensity, and the effect on the resource.

As indicated in Section 3.1, where applicable, the impact assessment in this LEIS considered the effects of the action and no-action alternatives in the context of two geographic scales—a landscape-unit scale and a local scale. The impact assessments at the landscape-unit scale regard the CMAGR as a whole and reflect the size of the range, projected long-term use patterns at the range, and its physical geography and ecological setting. As described in Section 3.1, at 458,530 acres the CMAGR is almost twice the size of the Salton Sea, about four times larger than the largest nearby wilderness area, and about 86 percent as large as the area of Imperial County in 2010 that was in agricultural production (see Figure 1-1). Although military use at the CMAGR would be expected to evolve incrementally over time, as described in Sections 2.2.4 and 3.2, the patterns of land and airspace use for the foreseeable future would be expected to be generally consistent with current conditions in terms of range and airspace infrastructure and surface and airspace use effects. Alternatives 1 through 4 would each continue the same status quo patterns of military land and airspace use. As a result, continuing military use at the CMAGR would result in essentially the same natural resource management decisions and direct and indirect environmental impacts regardless of which action alternative might be selected to effect renewal of the range. Thus, renewal of the range would provide no basis for differentiating the action alternatives from each other on the basis of environmental effects likely to result from continuing military use. The environmental effects of the action alternatives, however, could be distinguished from the effects that would result from the no-action alternative, which would terminate military use range wide and create the potential for follow-on civilian use. In other words, selection of the no-action alternative would trigger a change in land and airspace use across the entire landscape unit that comprises the CMAGR.

The physical geography and ecological setting also supports consideration of the CMAGR as a contiguous landscape-scale unit. The Chocolate Mountains form the central topographic backbone of the range and are almost entirely enclosed within the military reservation (see Figure 1-1). The mountain range is bound on both sides of its long irregular flanks by broad bajadas that generally slope outward and downward to the military reservation boundary. Most of the surface water drainage within the CMAGR leads from the peaks and ridges of the Chocolate Mountains into channels that flow out of the military reservation. Although certainly connected to the greater basin and range province that characterizes the larger region, the CMAGR can be characterized as occupying a physiographic subunit within that province.

A similar range-wide perspective is of value for considering the ecological position of the CMAGR and the implications of the range renewal versus non-renewal alternatives. Located within the northwest corner of the Sonoran Desert, the CMAGR is close enough to the Mojave Desert to the north for its plant communities and wildlife to be influenced by transitions between these two natural ecoregions. The internal landscape of the range continues to be in a largely undeveloped and relatively undisturbed condition in which natural processes continue to predominate. At the landscape scale, the BLM lands that generally surround the range to the north, east, and south are similarly undeveloped and undisturbed and exhibit the predominance of natural processes. Significantly, however, the CMAGR abuts a sharp divide (marked by the Coachella Canal) between the extensively developed agricultural, industrial, and urbanized area of the Imperial Valley to the west, and the relatively undeveloped more natural landscapes to the east. Given the alternatives of renewing or not renewing the CMAGR, the future implications of the range as a major land use and ecological factor in the greater region would be best assessed at the landscape-scale.

Local scale assessments are suitable in this LEIS for considering the differences in environmental outcomes that would occur as a result of the range boundary alignments proposed by Alternatives 1 through 4. Although the proposed boundary realignments would either increase or decrease the total area of the CMAGR by only about 2.2 percent or 0.5 percent, respectively, and likely would have little relevance at a landscape scale, the effects of these proposals must also be assessed at a scale consistent with the locations affected by the realignments.

The likely environmental impacts of implementing each of the four action alternatives and the no-action alternative on each of the resource areas described in Chapter 3 are identified in Chapter 4, in the same order that the resource areas are described in Chapter 3. Action Alternatives 1 through 4 are described in Chapter 2 in terms of four action elements—proposed boundary alignment and withdrawal area, proposed duration of the land withdrawal, proposed CMAGR management assignments, and proposed management assignments for land released from the CMAGR (see Table 2-1). The likely impacts of each element of the action alternatives on each of the resource areas are generally addressed in the order that the elements are described in Chapter 2.

4.2 RANGE AND AIRSPACE OPERATIONS

The impact analysis for range and airspace operations considered the following potential effects:

- **Airspace structure and access to airspace.** Actions that would change user access to airspace or that would otherwise constrain flight operations could impact military and/or civil aviation.
- **Training capabilities and capacities.** Actions that would limit access at the CMAGR for training or limit or otherwise adversely affect training activities could impact the training capabilities and/or capacities of the range.
- **Range management.** Actions that could affect the ability of range management to support training operations, maintain range security and safety, and/or operate efficiently and effectively.

4.2.1 Alternative 1

Alternative 1 would renew the CMAGR land withdrawal without change from its current condition, including the range boundary and land area, withdrawal duration, and agency management assignments. This action would preserve the existing military training capabilities and capacities of the CMAGR and would not change the conduct of military activities at the range, in the overlying and adjacent special use airspace, or at bases in the regional operating area (see Figures 1-4 and 1-5). Civil aviation access to airspace in the CMAGR region and civil flight operations would also be unchanged from the current conditions (see Figure 3-1).

The CMAGR boundary would remain as it currently is aligned with Alternative 1. As a result, the DoN and Marine Corps would continue to be responsible for managing about 647 acres of DoN land north of the Bradshaw Trail that is not needed for either current or future military purposes (see Figure 3-2). Further, the BLM would continue to be responsible for managing about 2,174 acres of withdrawn BLM land along the Bradshaw Trail and south of the Niland-Blythe Road that also is not needed for either current or future military purposes. Nevertheless, non-military use of the withdrawn BLM land would continue to be subject to the limitations provided by the national defense land withdrawal legislation.

The Marine Corps is responsible for protecting public safety at the CMAGR by maintaining a well demarcated range boundary that is clearly posted with prohibited entry and danger/hazard area warning signs. This management responsibility would continue to be complicated, however, by the retention of the DoN and BLM land north of the Bradshaw Trail as the trail would continue to provide a public access corridor that would be internal to the range boundary. Posting prohibited entry and danger/hazard area signs on the actual range boundary in this area would be completely ineffective. The Marine Corps would have no way of effectively meeting its public safety obligations other than to continue to post the required range warning signs along the southern side of the Bradshaw Trail. This consequence would continue to encumber the combined total of about 2,821 acres of DoN and BLM land north of the Bradshaw Trail with split management jurisdictions and restrictions on use.

The CMAGR and its associated military airspace would also be unchanged by the proposed 20-year duration of the CMAGR land withdrawal. Although a 20-year renewal period is less than the foreseeable continuing need for the range, national defense land withdrawal legislation provided by Congress, including the CMLWOA, has typically included additional provisions for requesting further renewal of the land withdrawal if the military need for the withdrawn land would continue beyond the established duration. Assuming that range renewal legislation based on Alternative 1 would include a provision for requesting a subsequent renewal, there is no likely reason to conclude that a land withdrawal duration of 20 years would prematurely curtail or otherwise affect military training at the CMAGR, in the overlying and adjacent special use airspace, or at bases in the regional operating area. Civil aviation access to airspace in the CMAGR region and civil flight operations would also be unchanged from the current conditions by this element of Alternative 1. Compared to longer withdrawal durations, the 20-year duration would, however, increase the cost of administering the range and securing its continuing availability for training by increasing the frequency of renewal application and assessment cycles.

Responsibility for land management at the CMAGR, which is currently split between the DoN and DoI, would also be unchanged by Alternative 1; DoN would be responsible for DoN land and BLM would be responsible for DoI/BLM land (see Figure 1-2). The military training capabilities of the CMAGR likely would be unaffected by the continuing split land management responsibilities, although the cost and management efficiencies for administering the range likely would be higher than if a single agency managed the range.

4.2.2 Alternative 2

Alternative 2 would renew the CMAGR land withdrawal but would also realign the range boundary and land area, increase the duration of the withdrawal to 25 years, and transfer responsibility for managing withdrawn BLM land in the range to the DoN. Jurisdiction for DoN land released from the range would be transferred to the DoI.

Like Alternative 1, Alternative 2 would preserve the existing military training capabilities of the CMAGR and, with one potential exception, would not change the conduct of military training activities at the range, in the overlying and adjacent special use airspace, or at bases in the regional operating area. The potential exception pertains to the proposed realignment of the southwestern boundary of the range to generally be contiguous to the ROW of the UPRR and Mesquite Regional Landfill Rail Spur and the

implications of this action for military operations in the range (see Figure 2-2). This action would add about 11,903 acres of BLM land to the range and would support a subsequent Marine Corps action to acquire about 658 acres of privately owned land, which would be within the administrative boundary of the CMAGR, through existing real estate acquisition procedures.

The proposed southwestern realignment is not prompted by a need to support an existing, proposed, or even contemplated training mission at the CMAGR, but rather by the need to establish a range boundary that would better safeguard public safety and deter inadvertent trespass. Nevertheless, the action would expand the range sufficiently in a location that would create some potential operational capabilities. However, it is important to note that the capabilities described in the following paragraph reflect only potential capabilities based simply on the dimensions and configuration of the proposed realignment area relative the existing dimensions and configurations of the CMAGR and the R-2507S restricted airspace. Even if the southwestern realignment is approved by Congress, detailed mission, safety, and environmental planning would be necessary before a proposed training use of the realignment area could be implemented. That planning could result in a proposed mission not being approved because of limitations or concerns other than the mission's consistency with the potential operational capabilities of the realignment area.

About 52 percent (or about 6,500 acres) of the southwestern realignment area would underlie an existing portion of R-2507S restricted airspace that extends beyond the current land boundary of the CMAGR (see Figure 2-2). The part of the realignment area that would be within the lateral boundaries of R-2507S potentially could be used to support the outer margins of a WDZ for aircraft ordnance deliveries in the interior of the CMAGR. This potential could allow weapons to be delivered by tactics or at new target locations that would establish a WDZ that affects the realignment area. This same expansion area also could potentially be used to support firing positions and SDZs for artillery, mortars, or other surface-to-surface weapons or surface-to-air weapons that are oriented to fire into the interior of the range. No portion of the realignment area would be suitable for use as a designated target impact area because the close proximity to the CMAGR boundary would make it impossible to contain the WDZs or SDZs associated with the target within both the limits of the range and R-2507S. The entire new range area potentially would be suitable for use as FARPs, other LZs, UAS operations, or other non-firing training or range support activities. The portion of the realignment area that would underlie R-2507S would be classified as an ordnance delivery containment area, and the remainder of the additional range land would be classified as a no live-fire training, support, and range control area (see Section 3.2.4 and Figure 3-2). The private land encompassed within the boundary realignment could not be used for range operations, including WDZ or SDZ overlays, unless either the land or use rights are acquired by the DoN.

Neither the boundary realignment nor potential future military operations in the southwestern range realignment area would change special use airspace dimensions or operational procedures and would not impact civil airspace user access to airspace or flight operations.

Alternative 2 would also implement the Niland-Blythe Road and the full Bradshaw Trail realignments of the northern CMAGR boundary (see Figure 2-1 and Tables 2-2 and 2-3). The boundary realignment would support subsequent Marine Corps actions, through existing real estate acquisition procedures, to acquire about 10 acres of state and 455 acres of private land that would be within the administrative boundary of the CMAGR. The additions of BLM, state, and private land to the CMAGR along its northern perimeter would benefit the ability of the Marine Corps to maintain a secure boundary, but the acquisition of these scattered perimeter areas would not meaningfully alter the operational capacities of the range. These additions to the CMAGR would not affect military or civil use of airspace either at the range or in the adjacent region and would not affect military activities at bases in the regional operating area.

The release of about 2,821 acres of DoN and BLM land, including the Bradshaw Trail and affected areas to the north, from the CMAGR would consolidate management of that land with the BLM and would eliminate the current agency management redundancies and land withdrawal restrictions on land use. Future use of the Bradshaw Trail and other released land would be managed in accordance with the FLPMA and other applicable law. Use of the released land, however, should remain compatible with the military activities at the CMAGR, which would continue to include low-level over flight of the released land. Release of the land north of the Bradshaw Trail would not affect military training at the CMAGR, in the overlying and adjacent special use airspace, or at bases in the regional operating area. Civil aviation access to airspace in the CMAGR region and civil flight operations also would be unchanged from the current conditions by this element of Alternative 2.

The CMAGR and its associated military airspace likely would be unchanged by the proposed 25-year duration of the CMAGR land withdrawal. Although a single 25-year renewal period would provide a time horizon that is less than the foreseeable continuing need for the range, the range renewal legislation likely would include the provision typical of military land withdrawal acts that would authorize the DoN to request a subsequent renewal. Thus, there is no likely reason to conclude that a land withdrawal duration of 25 years would prematurely curtail or otherwise affect military training at the CMAGR, in the overlying and adjacent special use airspace, or at bases in the regional operating area. Civil aviation access to airspace in the CMAGR region and civil flight operations would also be unchanged from the current conditions by this element of Alternative 2. Compared to the shorter withdrawal duration of 20 years proposed by Alternative 1, the 25-year duration would decrease the cost of administering the range and securing its continuing availability for training by decreasing the frequency of renewal application and assessment cycles.

The transfer of management responsibility for the withdrawn BLM land in the CMAGR from the DoI to the DoN would eliminate agency management redundancies, reduce management costs, and increase management efficiencies. The natural resources of the range would be managed in accordance with the Sikes Act. The Sikes Act was purposefully developed to meet the needs of U.S. military installations and would provide management policy guidance for conserving and rehabilitating natural resources in a manner that supports the long-term use of the CMAGR for military purposes. Preparation of an INRMP for each installation is mandated and, among other requirements, the INRMP must provide for no net loss in the capability of the installation lands to support the military mission of the installation (16 U.S.C. § 670a(b)(1)(I)). This is essentially a sustainable use provision that mandates that resource management and use priorities must be consistent with and support the primary purpose of the installation. Resources are to be managed and non-military use permitted and regulated in such a way that the use of the installation for its intended military mission would not be curtailed or limited by resource protection or sustainability constraints imposed by the lack of appropriately focused conservation or rehabilitation activities or by the adverse effects from non-military use. The FLPMA includes provisions for protecting, conserving, and restoring resources providing for sustainable multiple use of those resources. The FLPMA provides no equivalency, however, to the priority policy and procedural guidance provided by the Sikes Act for managing natural resources at a military installation in a manner that is consistent with and supports the military purposes of the installation. These actions generally would not affect the military training capabilities or activities at the CMAGR, special use airspace, bases in the regional operating area, or civil aviation.

4.2.3 Alternative 3

Alternative 3 would renew the existing land withdrawal area and boundary of the CMAGR with the exception that the range area and boundary would be modified by the Niland-Blythe Road and full Bradshaw Trail boundary realignments (see Figure 2-1). The foreseeable effects of these two boundary realignments would be the same as described for these realignments under Alternative 2.

Like Alternative 1, Alternative 3 would preserve the existing military training capabilities of the CMAGR and would not change the conduct of military training activities at the range, in the overlying and adjacent special use airspace, or at bases in the regional operating area. Civil aviation access to airspace in the CMAGR region and civil flight operations would be unchanged from current conditions by any Alternative 3 actions.

Jurisdiction for withdrawn BLM land in the CMAGR would be permanently transferred under Alternative 3 from the DoI to the DoN. This action would convey the same management efficiency benefits and the same advantages for sustaining the natural resource of the CMAGR to support the military use of the range for the long-term as would the transfer of resource management responsibility from DoI to DoN under Alternative 2 (see Section 4.2.2). Alternative 3 however, would make these benefits permanent and would eliminate the need to conduct and process periodic application and assessment cycles to secure renewal of the range land withdrawal. Alternative 3 also directs that unneeded and released DoN land would be disposed of through existing GSA authorities and procedures. These actions would not directly affect military training capabilities or activities at the CMAGR, in special use airspace, or at bases in the regional operating area.

4.2.4 Alternative 4

Alternative 4 would renew the existing land withdrawal area and boundary of the CMAGR with the exception that the range area and boundary would be modified by the partial Bradshaw Trail boundary realignments (see Figure 2-3). Like the full Bradshaw Trail realignment, the partial realignment would release the Bradshaw Trail and DoN land and currently withdrawn BLM land from the range, but would not include additional BLM, state, or private land in the range. Like Alternative 1, Alternative 4 would preserve the existing military training capabilities of the CMAGR and would not change the conduct of military training activities at the range, in the overlying and adjacent special use airspace, or at bases in the regional operating area. The foreseeable effects of the partial Bradshaw Trail boundary realignment on military range operations, special use airspace, military bases in the regional operating area, and military and civil airspace use would be the same as described for the full Bradshaw Trail boundary realignment under Alternative 2 except that effects resulting from acquiring additional range land would not occur.

Alternative 4 shares the same proposal as Alternative 2 for assigning agency land management responsibilities at the CMAGR and for a 25-year duration of the land withdrawal. Alternative 4 would have the same effects on military training capabilities and activities at the CMAGR, special use airspace, military bases in the regional operating area, and military and civil airspace users as would Alternative 1 for these action elements.

4.2.5 Alternative 5 (No Action)

Alternative 5 would result in the closure, decommissioning, and eventual non-military reuse of the CMAGR. Expiration of the land withdrawal for the BLM land in the CMAGR likely would trigger an immediate closure of the range to military training operations, which in turn would have rapid and cascading impacts on military training capabilities, capacities, and operations throughout the BSTRC, the greater regional range complex operating area, and the military bases that support the units that train at these range and airspace complexes (see Figure 1-4).

Although the DoN would continue to hold jurisdiction for roughly half of the land within the CMAGR, the loss of the BLM land for supporting training coupled with the checkerboard-like distribution of DoN and BLM land within the range (see Figure 1-2) would essentially render the DoN land useless for supporting the live-fire aviation and ground training for which the range is highly valued. Military surface use needs and requirements for containing weapons range WDZs and SDZs clearly indicate that DoN and

BLM land must be used jointly and in common to provide sufficient land space to support live-fire weapons training at the CMAGR (see Figures 3-2 and 3-3).

Conceivably, some ground-based training or support activities, such as FARP or UAS operations or academic classes at Camp Billy Machen, could continue on DoN parcels alone; however, the potential interest and benefit in pursuing such activities on residual parcels of the former range is uncertain. The real and full value of and justification for the CMAGR has long been its capabilities and capacities to support realistic, multiple, and often integrated training activities. Training integration at the CMAGR takes four key forms:

- Individual aircrews or ground combatants participate in a series of training missions, which are each designed to develop a particular combat skill, such that over successive training evolutions, the individual integrates multiple proficiencies into his/her combat skill set.
- Individual aircrews or ground combatants conduct training missions that include multiple combat tasks designed to develop his/her ability to integrate and combine multiple combat skills into a single integrated mission.
- Multiple aircrews or ground combatants conduct training missions together with the objective of coordinating and combining their efforts to develop/improve their abilities to fight as an integrated combat team.
- Air and ground forces participate together in a combined arms training evolution to develop/improve their abilities to fight as an integrated air-ground combat team.

As indicated, the potential to conduct some individual training activities on the DoN land remaining at the former CMAGR might be present following the loss of both the withdrawn BLM land and live-fire training capabilities, but the capability to support realistic training and training integration would unravel. Training functions conducted on residual DoN land would have to be pursued in relative isolation, without the complex, realistic training challenges of multiple-mission tasks and combined-arms integration provided by the CMAGR.

The continuing need within the BSTRC and greater regional range complex operating area for the training capabilities and capacities at the CMAGR would not end as a consequence of closing the range in accordance with Alternative 5. Rather, closure of the CMAGR would precipitate an urgent need to either restore its training capabilities and capacities elsewhere within the region or to find replacement training opportunities outside of the region. Currently, 42 percent and 39 percent of all Marine Corps helicopter and fixed-wing aircraft squadrons, respectively, are based in the greater CMAGR region and use the range. Furthermore, MCAS Yuma and the BSTRC together are the most active training deployment destination for Marine Corps aviation, and they are used by Navy, Air Force, Army, and Reserve aviation units as well. A number of factors, such as year-round flying weather, combine to account for the significance of the BSTRC as a training destination. However, none are more important than the capability of the CMAGR to support live ordnance deliveries in a tactical training environment that realistically simulates the air-ground battlespace in which the Marine Corps is tasked to fight and defeat hostile forces. The CMAGR is the Marine Corps' premiere land-based range for tactical aviation training with live ordnance; a capability that is not replicated within the eastern two-thirds of the country.

The extensive and complex range, airspace, and basing planning that would be necessary to realign training missions and develop new training capabilities and capacities within the greater CMAGR region or at locations elsewhere in the country to compensate for the closure of the CMAGR is beyond the scope of this LEIS. A survey of some of the prominent challenges of replacing CMAGR training capabilities

and capacities, however, will illustrate the scope of effects that closure of the CMAGR would have on airspace and ranges.

If the CMAGR were to close, the clear preference would be to reestablish its critical training capabilities and capacities within the BSTRC to provide continuing training support to squadrons based in the region and preserve the multifaceted and multi-tiered training capabilities at the BSTRC and larger regional range complex operating area that are used service-wide to hone the warfighting capabilities of the Marine Corps (see Section 1.3.2).

Although the CMAGR is a multifaceted range, its core capability is air-to-ground ordnance training, most importantly the ability to support the tactical delivery of air-to-ground live and inert ordnance. This capability is central to the way Marine Corps aviation trains, and is not duplicated elsewhere in the Marine Corps. This capability exists due to the combined effects of restricted areas R-2507N/S/E and the underlying land areas. This capability is enhanced by the surrounding military operating areas, restricted areas, and air traffic controlled airspace areas.

In addition to supporting aviation training for all of the services, the CMAGR also supports ground tactical training for both the Marine Corps and Naval Special Forces Command. Marine Corps ground training generally focuses on support of aviation training, most notably the twice annual WTI courses. The Marine Corps has deployed infantry battalions in support of these events in the past, and plans to continue that support into the future.

Naval Special Forces use SWATs 4 and 5 within the CMAGR extensively. Immediately adjacent to R2507N, the SDZs of SWATs 4 and 5 are underneath two controlled firing areas, with portions of the SDZs extending into the R-2507. This dual use of the R-2507 serves to greatly reduce the amount of land and airspace ground forces would otherwise require. Compensating for these core live-fire and live ordnance training capabilities within the BSTRC for both the aviation and special warfare communities likely would be the greatest challenge to overcoming the loss of the CMAGR.

BSTRC capabilities for live-fire aviation and ground combat training outside of the CMAGR are briefly described in the "Training with Live Ordnance" subsection of Section 1.3.2.1. The bulls-eye targets at the El Centro ranges and BMGR West are generally limited to basic instruction in air-to-ground delivery with inert ordnance (see Figure 1-4). The urban CAS range at BMGR West provides limited tactical air-to-ground training in a simulation of a confined 1,500-foot radius urban setting, but only with inert ordnance. YPG can accommodate live ordnance drops, but these deliveries are supported only on instrumented test ranges, and there are no air-to-ground tactical training ranges there. YPG is a major DoD test range at which training opportunities are a secondary priority and limited. BMGR East, which is used periodically as an auxiliary training area for the WTI Course and other Marine Corps training evolutions, provides three extensive tactical aviation training ranges, but the target sets at these ranges are nearly all restricted to inert ordnance. BMGR East also is already intensively used for Air Force student pilot instruction and beyond the unrefueled training radius of fixed-wing aircraft based at MCAS Miramar and the unrefueled radius of all home-based Marine Corps helicopter squadrons. There are no special warfare or other tactical ground-combat training ranges within the BSTRC other than the SWATs at the CMAGR. Thus, there is no ready replacement within the BSTRC for the live-fire and live-ordnance training capabilities and capacities at the CMAGR.

Creating new live-fire and live-ordnance training capabilities and capacities within the BSTRC region would be the only option for replacing those that would be lost with the closure of the CMAGR. Given the existing commitments of land and airspace in the BSTRC region not already dedicated to military training use, the option of creating an entirely new range to replace the CMAGR is likely infeasible.

The only opportunity in the BSTRC that could be given consideration would be developing new live-fire and live-ordnance tactical ranges within BMGR West or revamping BMGR East tactical ranges to support training with live ordnance. Both of these ranges have the land and airspace dimensions that potentially could support live-fire and live-ordnance tactical ranges. However, these proposals are highly speculative, and implementation would face important obstacles at each location. As previously relayed in Section 1.3.2.2, the CMAGR and BMGR West are both vital BSTRC assets that provide complimentary rather than redundant training benefits. Although BMGR West currently lacks the live-fire and live-ordnance capabilities of the CMAGR, years of investment have developed a robust and sophisticated training environment at BMGR West. The facilities there include—but are not limited to—the Yuma TACTS range, which is capable of simultaneously challenging up to 36 aircrews with simple or complex and tactically realistic problems involving air-to-air, air-to-surface, and/or surface-to-air combat; ground support areas for fully integrating air support, air defense, and other ground units with the aviation element in MAGTF training; two inert ordnance target sets including the urban target complex; and bare-bones forward airfields for tactical fixed-wing aircraft and helicopter operations. A live-fire and live-ordnance tactical range conceivably could be developed within the midst of this existing training infrastructure but not without tradeoffs between the existing and proposed training capabilities. Live-ordnance targets would place the existing infrastructure in jeopardy of destruction if the targets were not located so that the axes of attack appropriately protected existing facilities. Given the wide distribution of existing infrastructure at BMGR West, the constraints on the potential target locations likely would limit the diversity and realism of a live-ordnance tactical range if the priority were to protect the existing training capabilities. Alternatively, a higher priority could be assigned to more fully developing the capabilities of the prospective training tactical range, and some existing training infrastructure likely would have to be sacrificed, which would diminish the diversity and/or realism of the existing training capabilities.

Training use of live-ordnance requires access constraints to protect the safety of both military personnel and the public. Non-participating and unprotected participating persons cannot enter active WDZs or SDZs during live ordnance delivery missions. Entry by persons into range areas that may be affected by post-mission UXO would also have to be controlled, limited, or prohibited to protect their safety. These constraints likely would further complicate or limit the relocation, use, and/or maintenance of range infrastructure—such as electronic instrumentation, forward airfields, and ground support areas—that currently supports training other than live-ordnance delivery. UXO issues would also complicate and possibly constrain the use of ground support areas during training evolutions that require the participation of ground units.

The tradeoffs discussed thus far represent only a cursory assessment of the potential conflicts that likely would arise from attempts to locate a new live-ordnance tactical range within the existing training priorities and infrastructure of BMGR West. Others are likely. Assuming the infrastructure conflicts could be adequately resolved, the need for further tradeoffs likely would arise concerning the scheduling of continuing training missions and the new live-ordnance training mission. More than 43 percent more aviation training sorties were scheduled at BMGR West in FY 2010 than at the CMAGR. Training rates at BMGR West and CMAGR have been either nearly the same or reversed (more sorties schedule at CMAGR) in various other years. The implication is that if the training capabilities of the CMAGR and BMGR West have to be combined at BMGR West alone, then the volume of training that currently occurs at each independent range likely would not be sustainable. In other words, scheduling limitations likely would impact sortie rates if the capabilities of these ranges would be combined at BMGR West alone.

All of these speculations about actions that may be taken to offset the consequences of closing the CMAGR on aviation training capabilities, capacities, and operations have been limited to mission and scheduling conflicts that likely would arise from a need to realign the live ordnance training capabilities at the CMAGR to BMGR West. The likely outcome is that the diversity and/or realism of the existing

aggregate training capabilities and capacities of the BSTRC would be significantly diminished. This conclusion is reached without consideration of how relocating Navy SEAL live-fire training to BMGR West would further complicate and likely exacerbate the need for adverse tradeoffs among training mission priorities.

Further, no consideration of potential environmental issues or concerns that may constrain opportunities to optimize the benefits of all training missions has been included in this assessment. For example, Sonoran pronghorn (*Antilocapra americana sonoriensis*), a federally listed endangered species, is present in the eastern third of BMGR West and in BMGR East, and the flat-tailed horned lizard (*Phrynosoma mcalli*), which is managed under a conservation agreement to avert a need to list it as threatened, occupies the westernmost portions of BMGR West. The presence of these two species and other environmental factors likely would constrict further the potential degree to which a live-ordnance tactical range could be developed in either BMGR West or BMGR East to compensate for the closure of the CMAGR.

The MCAGCC at Twentynine Palms, which is located outside of the BSTRC and BMGR East, but still within the un-refueled operating radius of fixed-wing aircraft at MCAS Miramar and MCAS Yuma, likely would be the first range considered as a candidate to absorb and replicate lost live-ordnance training capabilities at the CMAGR. The MCAGCC is, however, beyond the un-refueled operating radius of helicopter squadrons based in the BSTRC region. The potential for the MCAGCC to serve as an alternative to the CMAGR is discussed in the "Training with Live Ordnance" subsection of Section 1.3.2.1. As with BMGR West and BMGR East, the immediate issue at the MCAGCC would not be the adequacy of its land and airspace dimensions, but rather, the potential conflicts with existing training infrastructure and schedules. In particular, the MCAGCC is already heavily scheduled for pre-deployment training of MAGTFs; this function likely would be a higher priority in the consideration of the tradeoffs in training capabilities and capacities that would occur if a substantial proportion of the CMAGR mission were to be relocated to the MCAGCC. The Marine Corps is evaluating the implementation of the Marine Air Ground Task Force Training Program at the MCAGCC. This program will replace the pre-deployment program that has been the focus of effort. The MAGTF Training Program will utilize the majority of the base, resulting in reduced areas and availability for units and aircraft not directly involved in the training.

Existing ranges at distances beyond that of the MCAGCC from the BSTRC that would have the basic dimensions needed to support the live-ordnance training mission of the CMAGR are all beyond the un-refueled operating radius of both the fixed-wing aircraft and helicopter squadrons based in the BSTRC region. These ranges—including the Army National Training Center and Naval Air Warfare Center China Lake in California, the Air Force Air Warfare Center Nevada Test and Training Range, the Air Force Utah Test and Training Range, the Army White Sands Missile Range and McGregor Range in New Mexico, and possibly others in Idaho, Colorado, and Alaska—all have assigned test and/or training missions. Should the CMAGR live-ordnance training mission be relocated to any of these sites, it would raise potential concerns for mission displacement, curtailment, or other negative tradeoffs. In addition to the potential losses of military training capabilities and capacities that may be triggered, moving CMAGR training missions to any of these ranges would likely also require massive and frequent deployments or major base realignments of Marine Corps squadrons from the CMAGR region to these faraway ranges.

Continuation of the R-2507N/S/E restricted airspace would not be directly or immediately impacted by the expiration of the CMAGR land withdrawal, but the resulting termination of live-fire missions at the range and in this airspace likely would trigger, at a minimum, a near-term review of requirements for its floor at the ground surface, full lateral dimensions, and ceiling. In fact, the requirement for continuing the restricted area designation as compared to either changing its status to a MOA/ATCAA or canceling the special use airspace designation altogether likely would be part of the review. Additionally, the requirements for some of the MOAs/ATCAAs and MTRs closely integrated with the training missions at

the CMAGR likely would also be called into review with modifications to or cancellations of those airspace areas and MTRs as possible outcomes.

In summary, closure of the CMAGR likely would have negative impacts on military training capabilities and capacities beyond those that would be curtailed by the loss of this range alone. Attempts to compensate for the loss of CMAGR training capabilities within the BSTRC, at BMGR East, or the MCAGCC likely would cause tradeoffs that would diminish existing capabilities at the other ranges, cause training mission scheduling conflicts, and reduce the overall capabilities and capacities of these range complexes in aggregate. Closure of the CMAGR likely would adversely impact and, to a degree, unravel the multidimensional and multi-tiered training system that has been developed over decades at the integrated system of ranges, range complexes, and military bases in southern California and Arizona for preparing MAGTFs.

4.3 NON-MILITARY LAND USE

This section discusses the potential effects on land ownership and planned land uses in the CMAGR study area that are expected to result from the alternatives. Elements of the alternatives that are most applicable to the analysis are whether the CMAGR is renewed for continued military use or is not renewed. The duration of the withdrawal (whether for 20 years, 25 years, or indefinite) would not influence land ownership and planned land uses. The primary impacts to land use are associated with adopted environmental management plans, utility and renewable energy corridors, and recreation.

The method for analysis of non-military land use with regard to the proposed alternatives is to conduct a comparison between the land uses that currently exist, within the ROI of the CMAGR as discussed in Chapter 3, and the adoption of any of the proposed alternatives. The duration of impact is considered long-term unless otherwise noted.

The 2006 BLM Resource Management Plans for California's Public Lands, the California Desert Conservation Area Plan, and the six related plan amendments were used to evaluate potential impacts to land status and management, agricultural, residential, commercial, and industrial land uses. Riverside County and Imperial County General Plans were also reviewed. The land use designations associated with the ROI are Rural Development Area for BLM-administered lands and Reclamation-administered lands. These lands are primarily undeveloped with little to no existing residential, commercial, industrial, or public facilities located within the Project area.

For the purposes of this LEIS, the impact analysis considered the following potential effects on non-military land use, which would be considered adverse if they result in:

- Conflicts with adopted environmental management plans and approved county plans
- Changes in utility, right-of–way, or natural resource easements
- Interference with currently established recreational, agricultural, or other landscape level uses of the area

4.3.1 <u>Alternative 1</u>

The boundary and withdrawal area would remain unchanged from the current condition with Alternative 1. Agency management responsibilities on the CMAGR would be unchanged from current conditions and training operation would continue. The DoN would continue to manage range operations

and the DoN land per the Sikes Act, and BLM would continue to manage DoI withdrawn land per FLPMA.

Landscape level land uses within the ROI would remain unchanged from the conditions that currently exist and no current or potential land uses would be affected by continuing military training. The associated environmental management plans and approved county plans would continue functioning in their current capacity. Utility, renewable resources exploration, and right-of-way easements would continue to be possible in the designated Multiple-Use Classes (MUCs) defined by the CDCA Plan. Transportation corridors would not be impacted.

Recreational opportunities would be unchanged. The BLM allows primitive camping within 300 feet of the Bradshaw Trail except in the designated Chuckwalla-Palen Wilderness Area. Evidence of recreational camping within 300 feet of the trail in the area north of the CMAGR was noted during field reconnaissance. Under Alternative 1, the land withdrawal would last for 20 years, although there could be subsequent renewal authorizations. Land development adjacent to and near the CMAGR would continue to be influenced by the military operations within the range, such as exposure to military aircraft noise and concerns for tall structures that could be an obstruction hazard to low-flying aircraft. Lands within the CMAGR boundary would continue to be reserved for military purposes, and public access would continue to be prohibited within the CMAGR, including for appropriative uses, such as grazing and mining.

4.3.2 Alternative 2

With Alternative 2, the CMAGR boundary and withdrawal area would be realigned parallel to and approximately 30 feet from the Bradshaw Trail, the Niland-Blythe Road, the UPRR, and the Mesquite Regional Landfill Rail Spur, excluding these features from the range (see Figures 2-1 and 2-3). Responsibility for managing withdrawn BLM land would be transferred to the DoN. The DoN would manage DoN and BLM lands per Sikes Act.

4.3.2.1 Northern Section of the CMAGR

Direct effects from the boundary realignment would be noted from the landscape level (Figure 2-1). The boundary adjustment along the Bradshaw Trail would create a clear demarcation between the range boundaries and non-range lands. No changes to Riverside County's approved plans would be required. The tracts of land north of the Bradshaw Trail that would not be renewed would include about 647 acres of DoN land and about 1,924 acres of BLM land. The released DoN lands potentially could be transferred to the BLM, but they would not be available for appropriation under the public land laws or other public uses as provided by the FLPMA until the Secretaries of the Interior and Navy assess the extent of contamination and other environmental conditions associated with these lands. Should the Secretary of the Interior decide to accept the released land, BLM could open these lands to public land laws in accordance with the FLPMA. The released BLM lands could be reassessed per the current MUC category designation in this region. These lands may be considered for utility, natural resources development, and right-of-way easements and permitting.

The new boundary alignment would better demark the range boundary, decreasing the potential for recreationists traveling on the Bradshaw Trail to enter accidentally into the range boundaries. BLM management of the Bradshaw Trail, which is a National Backcountry Byway, and periodic county maintenance of the trail could be accomplished without encroaching into the CMAGR. Public safety is further discussed in Section 4.11.

4.3.2.2 Southern Section of the CMAGR

Alternative 2 would also realign a portion of the southwestern CMAGR boundary to follow the Mesquite Regional Landfill Rail Spur and the UPRR's Sunset Route. This alignment would create a clear demarcation between the range boundaries and non-range lands. The UPRR plans to expand the route into a double-track corridor for 9 miles along this area. The expansion of the new line would assist in creating an additional buffer for the range, and the boundary realignment would not interfere with the railroad's expansion plans. No changes to Imperial County's approved plans would be required for this alternative. The realignment would preclude non-military land uses—such as renewable energy development, OHV and dispersed recreation, or utility projects—from the BLM land that would be included in the CMAGR for the first time. Ongoing energy or utility projects do not occur in the area and would not be impacted by the proposed withdrawal, but potential future projects would be excluded. The area, which is not currently used extensively for dispersed recreation, is designated as a limited OHV use area in which there are no designated travel routes. Withdrawal of this area as a part of the CMAGR would have little effect on current recreation use, but would also preclude future opportunities to promote the area for either OHV or dispersed recreation.

4.3.2.3 Land Management Responsibilities

The responsibility for managing the currently withdrawn BLM lands as well as the lands affected by the realigned boundary would be transferred to the DoN for their management under Alternative 2. DoN lands currently located within the CMAGR that are not proposed for renewal with Alternative 2 would be released for use by the BLM and managed under the terms outlined by FLPMA. BLM's current California Desert Conservation Area Plan, the Northern and Eastern Colorado Desert Coordinated Management Plan, and the Western Colorado Desert Routes of Travel Designations Plan note the location and boundary of the CMAGR, but exclude the range land from their planning area because the land is withdrawn from public use. With implementation of this alternative, the plans may be updated to reflect the change in the range boundary, acreage calculations, and associated maps and figures. Assuming lands are exchanged between BLM and DoN, the BLM planning areas would change to include lands not renewed and to exclude lands acquired by DoN; while the revisions would be minor, BLM may elect to amend their plans to reflect these changes.

Roughly 50 percent of the CMAGR is composed of DoN land and is managed in accordance with the Sikes Act. As a result, approximately every other section of land in the CMAGR is managed alternatively by either the Marine Corps, acting for the DoN, or the BLM. The Sikes Act that requires DoD agencies to develop resource management plans for all lands within a military reservation. BLM is responsible for managing the almost 50 percent of the CMAGR that is composed of withdrawn public land and for preparing a management plan for that land in accordance with FLPMA. All of the land within the CMAGR would be managed according to the regulations promulgated in the Sikes Act.

4.3.2.4 Duration of Range Renewal

Alternative 2 would renew the land withdrawal and authorize the use of the range land for military purposes for 25 years, and would allow for subsequent renewal of the land withdrawal. The procedural process and effects would be the same as those discussed under Alternative 1.

4.3.3 <u>Alternative 3</u>

With Alternative 3, the CMAGR boundary would incorporate the full realignment along the Bradshaw Trail and the Niland-Blythe Road. The management responsibilities for lands not renewed would be disposed of through existing procedures following an assessment of the environmental condition and potential contamination level of these lands.

BLM lands within the CMAGR would be congressionally transferred to DoN and the lands would be managed in accordance with the Sikes Act. This would eliminate the land withdrawal condition and essentially establish the range for military purposes indefinitely. There would be no expected changes to the region from a landscape perspective. The continued use of the CMAGR would not disrupt any existing land uses associated with the ROI, and the range would continue to be consistent with adopted environmental management plans and approved county plans. Existing land uses in the ROI—including utility, renewable resources, and right-of-way easements; currently established recreational opportunities; agricultural; or other landscape-level uses of the area—would not change. Effects noted along the Bradshaw Trail would be the same as discussed in Alternative 2. This alternative would have the greatest potential to keep the CMAGR for military purposes in perpetuity and exclude the lands from other public purposes.

4.3.4 Alternative 4

With Alternative 4, the boundary and withdrawal area would be changed to incorporate the partial Bradshaw Trail alignment. Agency management responsibilities for withdrawn BLM land within the CMAGR would be transferred to DoN, as previously discussed in Alternative 2. Management responsibilities for lands not renewed would be the same as Alternative 3. The duration of range renewal for withdrawal and reservation of DoI land within the CMAGR boundary would be 25 years, which is the same as Alternative 2.

4.3.5 Alternative 5 (No Action)

The land withdrawal under Alternative 5 would expire in October 2014, which would ultimately close the range lands for military purposes. The boundary would no longer define an active range, but would demarcate a post-range planning and clean-up area. The DoN would continue to manage closed DoN range land per Sikes Act until disposition of DoN land is determined.

While military operations would be discontinued, there would be a planning effort to allocate current military operations and to begin a clean-up process for the range. In the near term, as decontamination processes are initiated and implemented, no alternative land uses could be introduced within the CMAGR. Under guidance from the FLTFA, the BLM would be the managing federal jurisdiction for the public lands located within the current boundary. The DoN lands within the range would become excess property if the CMAGR were to close and would be either transferred to another federal agency, such as the BLM, or disposed of as surplus through existing GSA authorities. The BLM would be responsible for developing a management plan and designating multiple categories as driven by the CDCA. A small proportion of the range, about 5 percent, supports surface uses that have caused or may cause moderate to complete levels of physical disturbance to the ground surface, vegetative communities, and surface drainages. Within this small percentage of the range, the target areas where live, high explosive munitions are dropped may be contaminated to the extent that future public use would not be possible. Other training areas as well as WDZ and SDZ buffer areas would not be available for potential future public uses until the land could be decontaminated (see additional discussion in Section 2.6). The BLM would assess a re-designation of land uses and would be required to address additional plan amendments to the California Desert Conservation Area plan, the Northern and Eastern Colorado Desert Coordinated Management plan and the Western Colorado Desert Routes of Travel Designations plan. Assuming range lands are rendered safe for other purposes, certain lands within the range might be developed for uses compatible with the level of decontamination. New opportunities could potentially be developed for the expansion of existing utility corridors, renewable energy rights-of-way, transportation projects, or other possible uses.

The closure of the CMAGR may also increase opportunities for recreational uses such as hiking, camping, birding, hunting, and other recreation-based activities.

4.4 GEOLOGICAL RESOURCES

This section qualitatively evaluates the impacts to Geological Resources for the proposed land uses under Alternatives 1 through 5 (No Action).

The impact analysis considered the following potential effects:

- **Loss of vegetation and physical or biological crusts** – Permanent loss of vegetation or physical or biological crusts to bare or disturbed ground could lead to accelerated wind and water erosion. Disturbed soils take a long time to recover in a desert environment.
- **Soil productivity** – Reduced soil productivity by soil compaction or erosion loss could occur that would prevent successful stabilization and re-establishment of native cover.
- **Temporary erosion/desertification** – Disturbed soils could result in physical or biological soil crust destruction, vegetation loss, accelerated wind and water erosion, fugitive dust generation, increased sediment loads, and/or degraded water quality.
- **Soil contamination** – Range operation could contaminate soils from chemicals (for example, spilled fuels), explosives, or unexploded ordnance.
- **Energy and mineral resource development** – Withdrawal or release of land would preclude or allow energy and mineral resource exploration and/or development.

Direct effects on soils by military surface use primarily consist of physical disturbance of the near-surface soil layers that could result in loss of soil structure, increased soil compaction, destruction of physical or biological crusts, loss of vegetative cover, introduction of invasive non-native plant species, and/or accelerated wind and water erosion. Fuel spills, explosive residues, and exploded and unexploded ordnance debris could result in soil contamination. Indirect effects on soils include reduced surface water infiltration with an associated increase in surface water runoff, soil productivity decline resulting in poor plant growth or seed germination, and soil contamination migration. Both direct and indirect effects on soils would occur as a result of continued military surface-disturbing activities such as target complexes and off-road vehicle use. Many of these effects would also occur if the CMAGR is released for recreational use, utility construction, or energy and mineral resource development.

Vegetative cover and physical or biological crusts can be disrupted by surface uses. The limited vegetative cover and physical or biological crusts existing at the CMAGR stabilize the soils, reduce wind and water erosion, and locally increases soil productivity. Desert environments, like the CMAGR, are dominated by biological crusts at or near the soil surface. Soils with healthy biological crusts supply conditions favorable to plant growth because they provide high amounts of nutrients and plant available water, both of which are limiting factors for plant growth in the desert. Soils with well-established and undisturbed biological crusts have much greater resistance to soil erosion than less well-developed crusts or bare soil.

Physical or biological crusts can be destroyed by sediment deposition from accelerated wind or water erosion of disturbed soils. Burial of these crusts kills organisms in the crust, eliminating the crust's function in soil stabilization and nutrient contribution that is needed for soil productivity. Vegetative cover may also be damaged by surface use, resulting in subsequent wind and water erosion through abrasion, burial, or deposition of dust on plants, which reduces their ability for photosynthesis, minimizes transpiration, and causes increased soil surface temperatures. Loss of native vegetative cover in disturbed soil areas also increases the chance of invasive, non-native plant species introduction, colonization, and naturalization.

Wind erosion of soils is influenced by vegetation and terrain at different scales. Soil roughness and vegetative cover affect the local transport and deposition of soil particles by sheltering the soil from the force of the wind, slowing down wind speeds, and trapping soil particles that move to the bare areas between plants. Damage to vegetation, soil crusts, or desert pavement exposes bare soil to wind, which picks up and transports soil particles until topography reduces wind speed and deposits the soil particles. If vegetation, soil crusts, or desert pavement are damaged or destroyed by surface use disturbance and not provided adequate recovery periods, wind erosion would cause the bare ground to expand downwind until slowed by terrain.

Water erosion is more localized at the CMAGR but can also cause substantial damage, especially along off-road tracks and disturbed target areas with steep slopes. Water erosion can result in increased sediment loads, downstream sedimentation, and/or degraded water quality, especially along ephemeral drainages at the CMAGR. Loss of vegetation and soil crusts accelerates water erosion in disturbed soils.

The long-term effects on soils are related to the areal extent of the surface impacts and the length of time necessary for the soils to recover or stabilize following surface disturbance. Soil recovery requires re-establishment of soil stability, hydrologic function, and protective covers, such as vegetation and biological crust. The status of these indicators is used to measure the health of the land and sustainability of soils. The length of time for full recovery varies depending on the soil type, climatic conditions, size of the area disturbed, and land use during recovery. In addition, recovery of desert soils is very slow, taking decades or perhaps a century or more to form a new crust. At the CMAGR, full recovery of the soil is less likely in areas that experience repeated disturbance, such as the target areas, especially when combined with the desert environment. Limited recovery of soil stability and ground or vegetative cover may be all that could be expected once surface disturbance occurs.

4.4.1 Alternative 1

For geologic resources, the primary direct impact from Alternative 1 would be continued disturbance of range soils by military surface use, and indirect impacts from erosion. The boundary alignment under Alternative 1 would remain unchanged and would not influence the primary military surface use areas. Soils can be affected adversely by exploded and unexploded weapons debris, chemical or explosive residues, and fuel spills. These direct effects are confined largely in the weapons target and support areas, which are about 5 percent of range soils. Range soils disturbed by military operations under Alternative 1 could be locally indirectly impacted because the disturbed soils are susceptible to increased wind and water erosion. Soil disturbance results in altered soil structure, destruction of physical and biological crusts, desert pavement, or vegetated surfaces, potentially resulting in increased fugitive dust, loss of soil productivity, and increased sediment load and/or sedimentation in ephemeral drainages on the range. Loss of native vegetative cover in disturbed soil areas also increases the chance of invasive, non-native plant species introduction, colonization, and naturalization. Sediment loads are not expected to be transported off range because streamflow is ephemeral and most of the intensely disturbed soil areas are located about 3 miles or more inside the range boundaries.

Disturbed soils may also experience changes in water infiltration or holding capacities. Soil permeability can either be increased or decreased by military activities, resulting in more or less water infiltration, because of the disruption of the existing soil structure or compaction from weapon impacts and off-road vehicle use. Changes in soil permeability may locally increase surface water runoff, increase or decrease water loss via evaporation, or improve or reduce vegetation growth and transpiration.

Soils can be affected adversely by exploded and unexploded weapons debris, chemical or explosive residues, and fuel spills. The significance of soil impacts depends on the size of the area affected. These effects are confined largely to the core and secondary weapons impact areas and ground support areas and military roads. Collectively, the areas of the CMAGR subject to moderate to complete levels of

disturbance are about 5 percent of the range (see Table 3-6); this is considered a minor impact to soils on a range-wide basis. The high evaporation rates and low precipitation at the range likely would limit the spread of chemical or explosive residues in soils outside the target areas. Soils not impacted by military surface use would continue to be unaffected. Furthermore, because military surface disturbing activities are negligible to low for about 95 percent of the CMAGR (see Table 3-6), and because other land uses (such as grazing, mining, and recreation) are not allowed, the military reservation prevents the range from exposure to soil disturbance associated with these other types of uses.

Previous studies suggest there may be geothermal energy resources underlying certain areas within the CMAGR. The extent of such resource, and feasibility of developing the resource, has not been determined. Renewable energy development, including geothermal energy development, is not planned for the CMAGR, and would not occur if such development would have any adverse effects on military training within the CMAGR. If in the future there is a renewable energy resource identified that could be developed without any unacceptable impacts to military training, development of such resource would be jointly coordinated, as appropriate, between the Department of the Navy and Department of the Interior.

4.4.2 Alternative 2

The potential impacts of implementing Alternative 2 on geologic resources are much the same as those under Alternative 1. The boundary realignment, withdrawal duration, and change in land management responsibilities do not affect the small percentage of land already disturbed by military surface use at a moderate to complete level. Soils affected by military surface use would continue to be disturbed and subject to disturbed soil structure, loss of soil crusts and vegetation, introduction of invasive, non-native plant species, accelerated wind and water erosion, increased runoff and sediment loads, and downstream sedimentation along ephemeral drainages. Energy and mineral resources would continue to be withdrawn and unavailable for exploration and/or development; this would extend to prohibit energy and mineral development in the land that would be acquired by the realigned boundary. Land outside of the new boundary could be impacted by increased recreational use, utility corridor construction, or energy or mineral resource development; however, the percentage of land affected by the boundary realignment is small, and the likely impacts would be negligible. Land not impacted by military surface use would continue in their natural state if the CMAGR is renewed.

4.4.3 Alternative 3

The potential impacts of implementing Alternative 3 on geologic resources are much the same as those under Alternative 1. The boundary realignment, withdrawal duration, and change in land management responsibilities do not affect the small percentage of land already disturbed by military surface use. Soils affected by military surface use would continue to be disturbed and subject to disturbed soil structure, loss of soil crusts and vegetation, introduction of invasive, non-native plant species, accelerated wind and water erosion, increased runoff and sediment loads, and downstream sedimentation along ephemeral drainages. Energy and mineral resources would continue to be withdrawn and unavailable for exploration and/or development. Land outside of the new boundary could be impacted by increased recreational use, utility corridor construction, or energy or mineral resource development; however, the actual percentage of land affected by the boundary realignment is small, and the likely impacts would be negligible. Land not impacted by military surface use would remain in its natural state if the CMAGR is renewed.

By transferring the BLM land to the DoN, there would be no need to request a renewal of the land withdrawal and some of the existing land withdrawal application requirements would no longer apply (for example, mineral resource analysis). DoN jurisdiction would likely preclude future mining opportunities on the CMAGR.

4.4.4 Alternative 4

The potential impacts of implementing Alternative 4 on geologic resources are much the same as those under Alternative 1. The boundary realignment, withdrawal duration, and change in land management responsibilities do not affect the small percentage of land already disturbed by military surface use. Soils affected by military surface use would continue to be disturbed and subject to disturbed soil structure, loss of soil crusts and vegetation, introduction of invasive, non-native plant species, accelerated wind and water erosion, increased runoff and sediment loads, and downstream sedimentation along ephemeral drainages. Energy and mineral resources would be withdrawn permanently from the public domain and unavailable for exploration and/or development. Land outside of the new boundary could be impacted by increased recreational use, utility corridor construction, or energy or mineral resource development; however, the actual percentage of land affected by the boundary realignment is small, and the likely impacts would be negligible. Land not impacted by military surface use would remain in its natural state if the CMAGR is renewed.

4.4.5 Alternative 5 (No Action)

For geologic resources, future land uses that could occur if the CMAGR is not renewed under Alternative 5 (No Action) may include clean-up and/or restricted land use of areas previously disturbed by military operations and recreational use; utility corridor construction; or mining and geothermal, solar, or wind energy resource development. Cessation of military surface uses would eliminate future soil disturbance at weapons impact areas and reduce the susceptibility of the disturbed soils to further erosion and allow them to recover to their natural state. Release of the CMAGR lands to another DoD agency, the BLM, or the State of California would likely open unrestricted lands to public use and/or mineral resource development.

Clean-up of land disturbed by military operations may increase soil erosion, depending on the extent that subsurface cleanup activities and the tools used to remove ordnance from the surface (for example, the need to drive trucks cross country to a target area). It would be premature to speculate on the nature of clean-up activities, but certain control measures to minimize soil erosion could be used. While the dangers associated with the potential for unexploded ordnance may be too great for decontamination in core weapons impact areas associated with targets, decontamination of lesser impacted areas could result in substantial surface disturbance. In some cases, soils exposed to hazardous constituents remaining from ordnance detonations and ordnance that did not detonate on impact and has leached into the soils may need to be removed for treatment, such as thermal processing, or disposed of in an authorized off-range facility to remove the hazardous constituents. Soil areas that are cleaned up or have restricted public access would also become less susceptible to increased erosion over time as they return to their natural undisturbed state.

Depending on the future land uses allowed if the CMAGR is not renewed, impacts to geologic resources could be considerable. While future allowable uses are undefined at this time, a few examples of potential use can help to understand the potential effects. Recreational use, particularly off-road activities, would likely increase the overall susceptibility of soils to erosion or runoff. Off-road travel would also locally increase naturally-occurring wind and water erosion by altering soil structure and destroying physical or biological soil crusts, desert pavement, or vegetated surfaces, potentially resulting in increased fugitive dust and sediment loads and/or sedimentation in the ephemeral drainages. Off-road travel would compact soils along frequently used roads or trails and increase storm water runoff during precipitation events. Off-road travel, along with the loss of native vegetative cover in disturbed soil areas, would increase the chance of invasive, non-native plant species introduction, colonization, and naturalization. Utility corridor construction would have similar impacts to recreational use; however, the impacts could be minimized by using proper soil erosion control measures.

Mineral or energy exploration and development would likely have the most significant impacts to CMAGR geologic resources. Mineral or geothermal energy exploration would have similar soil impacts to recreational use or utility corridor construction. Exploration likely would involve off-road travel, seismic surveys, or drilling, which temporarily would increase the susceptibility of soils to wind and water erosion or runoff. Development of mineral or energy resources would have more significant impacts on geological resources, particularly soils, because of the construction and build out of mine facilities, including surface or underground workings and/or heap leach pads; or, geothermal power plant facilities, including production wells and brine ponds, solar panel fields, wind turbines, and other infrastructure, such as paved roads, rail spurs, or electrical transmission lines and substations that would likely increase the area of soils susceptible to wind and water erosion. These activities promote increased sediment loss, sediment loads, sedimentation, and runoff in the ephemeral drainages. However, erosion and runoff control measures likely would be implemented during mining to reduce sediment transport and minimize water quality effects. Open-pit mining also would have the potential to generate large waste rock or tailing volumes which would be stored on adjacent land and may oxidize and produce acid rock drainage. Mining may also increase geologic hazards such as unstable slopes or open mine workings. Withdrawal and injection of geothermal fluids into the subsurface may also locally increase seismic activity.

4.5 WATER RESOURCES

This section qualitatively evaluates the impacts to Water Resources for the proposed land uses under Alternatives 1 through 5 (No Action).

The impact analysis considered the following potential effects:

- **Surface Water Hydrology** – Disruption of soil structure, damage to or loss of vegetation, soil crusts, or desert pavement, soil compaction could lead to altered drainage patterns, increased runoff, erosion, and sedimentation, and increased flooding in ephemeral drainages on the range.
- **Surface Water Quality** – Increased runoff and erosion could lead to increased sediment loads and degraded surface water quality as well as increased evaporation and decreased groundwater recharge.
- **Groundwater Availability** – Location of the range in a desert environment limits groundwater recharge and likely limits the availability of groundwater as a reliable water supply. Anthropogenic activities could potentially deplete limited groundwater resources.
- **Groundwater Quality** – Limited recharge and high evaporation rates at the range may result in poor groundwater quality that is not suitable for use. Anthropogenic activities at the range may contaminate groundwater by inadvertent spills of chemicals or explosives.

Currently, the CMAGR is largely undeveloped except for limited areas disturbed by military surface use. With the action alternatives, continued military surface use would occur largely within the previously disturbed areas and would not increase surface water hydrology or quality impacts that may have occurred. Potential surface water hydrology impacts that might occur as a result of military surface use include alterations to landforms and topography; disruption of soil structure; damage to or loss of vegetation, soil crusts, or desert pavement; soil compaction that could lead to altered drainage patterns, increased runoff, erosion, and sedimentation; and increased flooding in ephemeral drainages on the range. Military surface use also may impact surface water quality by increased sediment loads (for example, increased turbidity), inadvertent fuel spills, chemical and explosive residues, and the occurrence of exploded and unexploded ordnance debris. Surface water on the CMAGR is limited to intermittent or

ephemeral streams and is not plentiful; it is typically of poor quality, and is not used as a water supply source. Areas currently exposed to moderate to complete military surface use disturbance are estimated to be about 5 percent of the total CMAGR, which minimizes the overall surface water impacts. Because targets tend to be centralized within the range to provide adequate safety buffers and because most other military surface uses are well within the range boundary, off-range impacts to surface water are not anticipated.

The military does not use groundwater at the CMAGR. Military surface uses do not appear to affect groundwater availability or quality. Groundwater at the CMAGR is thought to be of naturally limited availability and poor quality because of the high evaporation and low precipitation rates, which limit recharge and increase total dissolved solids concentrations in water in desert environments. The high evaporation rates and low precipitation at the range also limit the spread and migration of chemical or explosive residues that may be present in the target area soils to the underlying groundwater.

Because the military does not use the water resources at the CMAGR and the operations have no direct effects on the watershed, renewal of the CMAGR with any of the action alternatives would have no landscape-scale effect on water resources in the region.

4.5.1 Alternative 1

Like for geologic resources, the notable indirect impact to water resources if the CMAGR is renewed under Alternative 1 would be potentially increased sediment loads, sedimentation, and/or degraded water quality in ephemeral drainages resulting from the direct effect of continued disturbance by military surface use and the resulting erosion of range soils. As discussed in Section 3.11.4.2, the REVA found no or only minimal impact from munitions constituents in surface water at the CMAGR. While concern for off-range transport of UXO from surface water runoff has been identified, the EOD clearances conducted at the CMAGR have not demonstrated that any substantial migration of UXO has occurred, and no off-range occurrences of UXO as a result of entrainment in sediment flows have been reported (Malcolm Pirnie, Inc. 2008).

With Alternative 1, the range boundary would remain unchanged, and the primary military surface use areas would also remain unchanged. Soils disturbed by military operations would continue to be susceptible to periodic wind and water erosion during infrequent storm events. Military activities locally increase naturally-occurring erosion in target and off-road use areas by altering the soil structure and destroying physical or biological soil crusts, desert pavement, or vegetated surfaces and exposing them to wind and water erosion, transport, and sedimentation during infrequent storm events. The dispersed nature of military activities at the CMAGR, however, has limited the disturbed soil acreage in each watershed and this limited and dispersed military use would not change under Alternative 1. As illustrated in Table 3-6, moderate to complete soil disturbance impacts are estimated to occur on about 5 percent of the CMAGR. Soil disturbance in these areas locally increases fugitive dust emissions and the sediment load, sedimentation, and suspended sediment in ephemeral surface waters. Little if any of the eroded sediment is thought to be transported off range and, in most areas, the increased sediment load in the ephemeral drainages does not appear to reach natural off-range receiving waters such as the Colorado River or the Salton Sea. The limited surface water and groundwater resources present on the CMAGR are not currently used for military operations and would not be used if the CMAGR is renewed. Continued withdrawal of CMAGR land from the public domain would preclude potential impacts to water resources from exploration and/or development of mineral resources.

4.5.2 Alternative 2

The potential impacts of implementing Alternative 2 on water resources are the same as those under Alternative 1. The boundary realignment, withdrawal duration, and change in land management

responsibilities would not influence the amount of land already disturbed by military surface use from the existing condition. Soils affected by military surface use would continue to be disturbed and subject to disturbed soil structure, loss of soil crusts and vegetation, accelerated wind and water erosion, fugitive dust emissions, increased runoff and sediment loads, and downstream sedimentation along ephemeral drainages. The limited surface water and groundwater resources present on the CMAGR currently are not used for military operations and would not be used if the CMAGR is renewed per the terms identified for Alternative 2. Energy and mineral resources would continue to be withdrawn and unavailable for exploration and/or development. The approximately 2,821 acres released from the range with the realigned boundary potentially could be impacted by increased recreational use, utility corridor construction, or energy or mineral resource development. Because no new surface-disturbing military land uses are proposed within the land that would be acquired with Alternative 2, no increase in adverse effects to water resources would be anticipated. Land not impacted by military surface use would continue to remain in its natural state if the CMAGR is renewed.

4.5.3 Alternative 3

The potential impacts of implementing Alternative 3 on water resources are the same as those under Alternative 1. The boundary realignment, withdrawal duration, and change in land management responsibilities would not influence the amount of land already disturbed by military surface use from the existing condition. Soils affected by military surface use would continue to be disturbed and subject to disturbed soil structure, loss of soil crusts and vegetation, accelerated wind and water erosion, fugitive dust emissions, increased runoff and sediment loads, and downstream sedimentation along ephemeral drainages. The limited surface water and groundwater resources present on the CMAGR currently are not used for military operations and would not be used if the CMAGR is renewed per the terms identified for Alternative 3. Energy and mineral resources would continue to be withdrawn and unavailable for exploration and/or development. The approximately 2,821 acres released from the range with the realigned boundary could be impacted by increased recreational use, utility corridor construction, or energy or mineral resource development; however, the likely impacts would be negligible. Land not impacted by military surface use would continue to remain in its natural state if the CMAGR is renewed.

4.5.4 Alternative 4

The potential impacts of implementing Alternative 4 on water resources are the same as those under Alternative 1, except that approximately 2,287 acres would be released from the range with the partial Bradshaw Trail realignment of the CMAGR boundary (see Figure 2-3). The boundary realignment, withdrawal duration, and change in land management responsibilities would not influence the amount of land already disturbed by military surface use from the existing condition. Effects on soils and associated influence on runoff and sediment loads, and downstream sedimentation along ephemeral drainages would be unchanged. Released land could be impacted by increased recreational use, utility corridor construction, energy or mineral resource development, or other uses; however, the likely impacts would be negligible.

4.5.5 Alternative 5 (No Action)

Impacts to water resources may increase if the CMAGR is not renewed under Alternative 5 (No Action) because of the potential for other types of land uses.

While future allowable uses are undefined at this time, a few examples of potential use can help to understand the potential effects of alternative land uses. If the range is not renewed, and following a planning period to clean-up the range and determine potentially compatible uses, the range may be open to recreation use, utility corridor construction, energy (for example, geothermal, solar, or wind) and mineral exploration and development, or other uses. These activities, which would result in ground disturbance, would have similar impacts on surface water hydrology as ground disturbance from military

surface use. The limited surface water may be captured (for example, retention ponds) and used to supply water to geothermal or mine facilities, further limiting groundwater recharge. Surface water quality impacts likely would increase as the potential for increased sediment loads, inadvertent chemical spills, geothermal cooling water or brine discharges, and acid mine drainage would increase. Potential surface water impacts likely would be less controlled (for example, off-road recreational use), more widespread (for example, geothermal or mine infrastructure development), and not limited to designated areas as currently occurs for military surface use. Increased land use likely would increase the potential impacts on surface water hydrology and quality.

Cessation of military surface use would eliminate future soil disturbance associated with military operations. However, clean-up of lands disturbed by military operations may increase soil erosion, sediment loads, or degrade water quality (for example, suspended solids), depending on the extent that subsurface cleanup activities and the tools used to remove ordnance from the surface (for example, the need to drive trucks cross country). It would be premature to speculate on the nature or extent of clean-up activities, but disturbance areas could be substantial and contribute to increased soil erosion, sediment loads, and degraded water quality along the ephemeral drainages, until the soils are stabilized and become adequately revegetated to return the land to its natural processes.

While any future uses of the range would be speculative until further planning occurs, some potential uses have been identified for a comparative analysis of effects associated with alternative activity. Recreational use, utility corridor construction, and mining and energy development potentially would increase soil erosion and subsequent sediment transport and sedimentation impacts along ephemeral surface waterways during infrequent storm events. Mining and energy (for example, geothermal, solar, or wind) development could change surface water use. The limited surface water may be captured (for example, retention ponds) and used to supply water to geothermal or mine facilities, further limiting groundwater recharge. Mining and energy development may also increase the potential for surface water and groundwater contamination by the inadvertent release of mine waters, geothermal fluids, chemicals, or acid rock drainage to the environment. Potential water resources impacts likely would be less controlled (for example, off-road recreational use), more widespread (for example, geothermal or mine infrastructure development), and not limited to designated areas as currently occurs for military surface use. Potential increased land use under Alternative 5 (No Action) likely would increase the potential impacts on surface water resources compared to those under its current military use, depending on the future land uses allowed.

Should the range be opened to recreation use, utility corridor construction, energy (for example, geothermal, solar, or wind) and mineral exploration and development, or other uses, there may or may not be an increased demand for groundwater. Groundwater likely would not be used for recreational activities or utility corridor construction, so potential impacts on groundwater availability and quality probably would not occur with these uses. It is likely that energy and mineral resource development would attempt to develop groundwater as a water supply because of restrictions on imported surface water allocations for non-agricultural facilities. Excessive use of the limited groundwater resource present at the CMAGR likely would cause significant aquifer drawdown, which could impact long-term local groundwater availability. Groundwater removed from the underlying aquifers likely would not be replenished because of the high evaporation and low recharge rates at the CMAGR. Energy or mineral resource development could impact groundwater quality. Geothermal fluids containing elevated dissolved solids could be released inadvertently into the subsurface and degrade the existing marginal to poor groundwater quality. Reinjection of geothermal water to the subsurface likely would not impact shallow groundwater quality. Heap leaching operations or acid mine drainage from mine development could also be released to the subsurface and impact groundwater quality.

4.6 AIR QUALITY

The following sections describe the potential impacts associated with Alternatives 1 through 5, and the analysis of general conformity to the State Implementation Plan for action alternatives. The impact analysis considered the following potential effects on a qualitative basis:

- Ground-based operational emissions
- Aircraft operational emissions

4.6.1 Alternative 1

Under Alternative 1, the withdrawal of BLM land at the CMAGR for military training purposes would be renewed for 20 years with no changes in the boundary or management responsibilities. This alternative would result in the continuation of baseline impacts related to current military training operations. Because the emissions generated by ground-based and flight operations are not expected to change as a result of this alternative, no new air quality impacts are anticipated, and detailed emissions were not calculated.

Emission sources at the CMAGR range include, but are not limited to: military aircraft operations (including fuel combustion); dropping and/or firing of live ordnance by aircraft and/or ground forces in training; vehicle travel on unpaved roads associated with ground force and naval special warfare training; range maintenance activities; and wind-generated dust from both disturbed and undisturbed portions of the desert terrain. Vehicles and aircraft combust fuel, resulting in the emission of criteria pollutants and greenhouse gases; whereas ground vehicle movement, the use of live ordnance, and wind generally result in dust. Aircraft operations associated with the CMAGR are presented in Table 4-1, based on the results of recent environmental analysis for changes in military aircraft operations involving the CMAGR. Emissions resulting from other activities, such as ground force training and range maintenance, are not included in the quantitative results presented; although, as with the aircraft operational emissions, they would not be affected by the proposed land withdrawal renewal action that is the subject of this LEIS.

Table 4-1 presents an estimation of annual military aircraft operational emissions associated with the anticipated F-35B and MV-22 training operations at the CMAGR, together with assumed operations of legacy aircraft (including AV-8B, F/A-18 A/C/D, CH46) that will be replaced over various transitional time periods.

Table 4-1 Estimated Annual Emissions Due to Limited[1] CMAGR Aircraft Operations (Riverside and Imperial Counties)

Activity	Annual Emissions (tons per year)[2]					
	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$[5]
Riverside County						
AV-8B[3]	0.92	0.37	0.03	0.03	0.55	0.54
F/A-18 A/C/D[3]	0.26	0.71	0.05	0.04	0.67	0.66
CH46 Operations[4]	0.41	0.08	0.07	0.01	0.04	0.04
F-35B Operations–Training[6]	0.14	1.53	0.03	0.11	0.64	0.63
MV-22 Operations–Training[7]	0.78	21.41	0.02	0.60	2.38	2.38
Total	2.51	24.10	0.20	0.79	4.28	4.25
Imperial County						
AV-8B[3]	1.21	0.49	0.03	0.04	0.73	0.72
F/A-18 A/C/D[3]	0.34	0.93	0.06	0.06	0.88	0.87
CH46 Operations[4]	1.66	0.33	0.29	0.03	0.15	0.15
F-35B Operations–Training[6]	0.19	2.01	0.04	0.15	0.85	0.84
MV-22 Operations–Training[7]	3.11	85.66	0.06	2.42	9.54	9.54
Total	6.51	89.42	0.48	2.70	12.15	12.12

SOURCES:
F-35B Operations – (DoN 2010b). This readily available information is based on projected Year 2017 operations.
MV-22 Operations—Table B1-102. Chocolate Mountain Range MV-22 Aircraft Emissions - Fiscal Year 2017(DoN 2009a). For consistency, estimated 2017 data were also used for MV-22 operations.
NOTES:

[1] Estimated emissions in the above table are noted as limited because they do not include all aircraft used at CMAGR. It also does not include emissions resulting from the use of ordnance, ground force training, and maintenance activities because these are also baseline activities.

[2] While the total emissions are greater than those presented in the affected environment section, these increases are not due to the action proposed in this LEIS (renewal, or non-renewal of CMAGR); the emissions are the subject of previously approved NEPA projects (i.e., West Coast basing of new aircraft). Retirement (or phasing out) of the legacy aircraft will take place over various time periods, as follows: AV-18B, 2012-2016; F-18, 2017-2023; CH-46, underway and expected to be completed by 2020.

[3] AV-8B and F/A-18 A/C/D emissions are based on low altitude (less than 3,000 feet above ground level [AGL]) sortie data obtained from "Table 58. Annual Flight Operations for Chocolate Mountain Aerial Gunnery Range R-2507," from F-35B West Coast Basing EIS (DoN 2010b). As obtained, these annual emissions data are not specific to a particular year.

[4] CH-46 operational emissions are based on data obtained from Table B1-35, Chocolate Mt. Range CH-46 Aircraft Emissions – Fiscal Year 2014 (DoN 2009). The data presented above are estimated fiscal year 2014 CH46 operational emissions. As noted in Table B1-121 of the same report, because approximately 80/20% of the CMAGR occurs within the Imperial/Riverside County portions of the SSAB, the estimated emissions within the CMAGR were distributed by these proportions into these areas.[5]

Because $PM_{2.5}$ emissions were not provided in the referenced reports for AV-8B, F/A-18 and CH46 aircraft and are due to liquid fuel combustion, the $PM_{2.5}$ emissions values were estimated to be equal to 99% of PM_{10} emissions. This is consistent with South Coast Air Quality Management District's "Final –Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds" dated October 2006.

[6] In the case of the F-35B aircraft operations, emissions are based on low altitude activity, noted as "40 minutes of cruise x 40% below 3,000 feet AGL" in the prior EIS.

[7] As noted in Table B1-121 of the MV-22 EIS, because approximately 80/20% of the CMAGR occurs within the Imperial/Riverside County portions of the SSAB, the estimated emissions within the CMAGR were distributed by these same percentages into these areas.

Ongoing military operations and range clearance activities that are currently part of the CMAGR operations would continue to occur under Alternative 1. For this reason, and because the CMAGR boundary and withdrawal area would remain unchanged, there would be no change in emissions with Alternative 1.

4.6.2 Alternative 2

Under Alternative 2, the boundary and withdrawal area of the CMAGR would be changed to implement the full Bradshaw Trail, UPRR, and Niland-Blythe Road realignments (see Figure 2-1 and Figure 2-2), making the boundary more recognizable by following prominent geographic features. Because the emissions generated by ground-based and flight operations are not expected to change as a result of this alternative, no new air quality impacts are anticipated.

Emissions sources at the CMAGR, as described under Alternative 1 (including military aircraft operations, use of live ordnance, vehicle travel on unpaved roads, range maintenance activities and wind-generated dust), would continue; thereby, CMAGR emissions would remain unchanged. The land proposed for non-renewal (or release) under Alternative 2 is not known to have been used for former targets and is at the periphery of the range; for this reason, the need for remedial actions is highly speculative and emissions for such activity have not been estimated.

Direct effects would be limited to emissions associated with vehicles and equipment needed to erect warning signs or other boundary demarcation activities and are anticipated to be very low, infrequent, and would be considered within the range maintenance activities currently occurring at CMAGR. The boundary would be accessible by existing access roads, so no cross-country travel would be necessary. Indirect effects are not anticipated, other than fugitive dust resulting from wind erosion of previously disturbed soil that continues to be subject to ongoing disturbance.

While the annual operational emissions estimate for military aircraft presented in Table 4-1 is also appropriate for Alternative 2, the presented emissions do not include other activities, such as ground force training and range maintenance. As with the aircraft operational emissions, emissions that result from the use of live ordnance, wind-blown dust, or ground force training and range maintenance activities would not be affected by the proposed land withdrawal renewal action that is the subject of this LEIS. Furthermore, there is no air quality-related difference between a 20-year and 25-year renewal duration (other than in a total emissions for each time period), as the range activities would likely just be displaced but not avoided.

4.6.3 Alternative 3

Alternative 3 would transfer the BLM land to the DoN, making a land withdrawal duration moot. Because the emissions generated by ground-based and flight operations are not expected to change as a result of this alternative, no new air quality impacts are anticipated.

Current emissions sources at the CMAGR, as described under Alternative 1 (including military aircraft operations, use of live ordnance, vehicle travel on unpaved roads, range maintenance activities and wind-generated dust), would continue; thereby, CMAGR emissions would remain unchanged. However, unless the military determined in the future that there would be no need for the CMAGR, the emissions associated with military operations could continue in perpetuity.

While the annual operational emissions estimate for military aircraft presented in Table 4-1 is also appropriate for Alternative 3, the presented emissions do not include other activities, such as ground force training and range maintenance. As with the aircraft operational emissions, these ground-related emissions resulting from the use of live ordnance, wind-blown dust, or ground force training and range maintenance activities would not be affected by the proposed land withdrawal renewal action that is the subject of this LEIS.

4.6.4 Alternative 4

Under Alternative 4, no lands would be added to the CMAGR, but approximately 2,287 acres would be released.

Direct effects would be limited to emissions associated with vehicles and equipment needed to erect warning signs or other boundary demarcation activities and are anticipated to be very low, infrequent, and would be considered within the range maintenance activities currently occurring at CMAGR. Indirect effects are not anticipated, other than fugitive dust resulting from wind erosion of previously disturbed soil that continues to be subject to ongoing disturbance. As with Alternative 2, the land proposed for non-renewal (or release) is not known to have been used for former targets and is at the periphery of the range; for this reason, the need for remedial actions is highly speculative and emissions for such activity have not been estimated.

Because agency management assignments and the duration of the CMAGR renewal would have no influence on emissions, the effects on air quality would be approximately the same as those described for Alternative 3.

4.6.5 Alternative 5 (No Action)

Since air-to-ground operations would cease at the CMAGR under Alternative 5, emissions associated with military aircraft operations would be expected to be substantially less than those presented in Table 4-1; however, until post-range planning determines which operations could reasonably continue, the magnitude of the decrease cannot be estimated. The training conducted at the CMAGR likely would be displaced to other training ranges, which could result in transferring the emissions associated with military operations to a different location.

Land development of the CMAGR and any necessary remediation response is highly speculative. It is anticipated that a remedial response would have a greater effect if the remedial activities increase ground disturbance in areas with negligible military surface use.

4.6.6 General Conformity

A portion of the CMAGR lies within Imperial County, and a portion lies within Riverside County. The conformity *de minimis* thresholds for Imperial County and Riverside County are presented in Table 3-11.

The proposed renewal and/or realignment options of the CMAGR land withdrawal presented in Alternatives 1 through 4 would result in no emissions increase. Furthermore, per 40 CFR 93.153, the conformity requirements do not apply to judicial and legislative proceedings (LEIS) that would result in no emissions increase. Therefore, the DoN concludes that the general conformity rule does not apply to Alternatives 1 through 4, and a Conformity Analysis would not be required. For this reason, a Record of Non-Applicability (RONA) was prepared and provided in Appendix E.

4.7 BIOLOGICAL RESOURCES

At a landscape scale, the CMAGR and the general region east of the Coachella Canal and UPRR function as a relatively intact Sonoran Desert ecosystem. While not all species in the area are native, most of the plant and animal species that occurred in the area in the early 1900s are still present in the region. The CMAGR and the nearby wilderness areas offer large tracts of land that are relatively unfragmented, allowing wildlife to maintain movement patterns.

This Section discusses impacts to biological resources that are expected to result from the alternatives. The impact analysis considered the following potential effects:

- Damage and/or loss of vegetation
- Introduction of invasive non-native plant species on disturbed soils
- Erosion near or in wetlands and along or in waters of the U.S.
- Destruction of burrows of small mammals and reptiles
- Alteration or destruction of wildlife habitat
- Mortality, injury, or disturbance of wildlife species

4.7.1 Alternative 1

Under Alternative 1, the withdrawal of BLM land at the CMAGR for military training purposes would be renewed for 20 years. This alternative would result in the continuation of baseline impacts related to current military training operations. Impacts were considered for military use over the entire CMAGR, including both the withdrawal parcels and DoN parcels.

4.7.1.1 Withdrawal Renewal and Continued Military Use

Landscape level surface uses and expected levels of disturbance within the CMAGR are presented in Table 3-6. Approximately 5 percent of the CMAGR is subject to moderate to complete levels of disturbance, including core and secondary weapons impact areas, ground support areas, and roadways. Approximately 95 percent of the range is subject to only low to negligible levels of disturbance. These data indicate that plant and wildlife communities can function without discernable constraint from surface disturbing activities within about 95 percent of the range. Munitions constituents from ordnance would be expected within designated weapons impact areas. However, there are also procedures to prevent releases of munitions constituents and perform clean-up, should an off-range release occur. As discussed in Section 3.12.3.2, the Marine Corps evaluates impacts of munitions constituents on biological resources through the REVA program. A REVA including the CMAGR was conducted in 2008 (Malcolm Pirnie, Inc. 2008).

Vegetation

As indicated above, local direct vegetation damage and loss would continue as a result of range renewal, but impacts would be concentrated in and limited principally to existing targets and core weapons impact areas, road corridors, and ground support areas, which comprise less than 1 percent of the CMAGR surface, and when combined with the secondary weapons impact area are about 5 percent of the CMAGR. Impacts in high disturbance areas may be expected to continue, which would prevent vegetation from re-establishing functional communities with densities and diversity characteristic of the Colorado desert. Military surface use areas with moderate levels of disturbance may also be expected to experience continuing impacts, but in these locations vegetation communities persist, although in a somewhat diminished state. Introduction of invasive non-native plant species could be a local indirect impact where ground surfaces are in a disturbed state and existing native vegetation has been damaged or destroyed.

Wetlands and Waters of the U.S.

Continued military activities that could affect wetlands and Waters of the U.S. locally include vehicle use, ordnance impacts, or other ground disturbing activities. Existing substrate within many of the washes is loose and erodible. Ground disturbance related to military activities could continue to contribute to erosion to the extent that military operations, such as driving within and across washes, occurs resulting

in indirect effects. Of the 1,647 acres of potential wetlands cited by the National Wetland Inventory database as occurring at the CMAGR, 61 acres occur within high disturbance areas, 236 acres occur within moderate disturbance areas, and 1,350 acres occur within low to negligible disturbance areas. The NWI findings have not been validated by ground surveys and the NWI database overestimates the occurrence of wetlands within the CMAGR.

Wildlife Habitats

Ordnance delivery in target areas would continue to prevent vegetation from being re-established and would continue to jeopardize and destroy burrows of small mammals and reptiles. Vegetation damage would also continue to result from range maintenance activities, such as operational range clearances to remove expended ordnance and debris from CMAGR targets and roads. Vegetation damage from disturbances in desert wash woodlands would disturb impact sensitive and valuable wildlife habitats. Wildlife that would potentially be indirectly impacted by loss of wash woodland habitat include special status species discussed in Section 3.7.5 as well as a variety of migratory and breeding resident bird species, rodents, and reptiles. Although wildlife habitat damage and loss in moderate to high disturbance areas of the CMAGR may be locally severe, several factors mitigate these impacts. First, the areas affected are localized and in aggregate comprise only a small portion of the range. Second, the patterns of military surface use at the CMAGR are relatively stable and target and other high disturbance areas typically serve for many years with little increase in size. The need to develop new targets and other high disturbance areas arises infrequently so there has also been little growth over the years in the numbers of these areas. Third, since 95 percent of the CMAGR serves primarily to support WDZs and SDZs and receives only low or negligible levels of surface disturbance, the overall quality of wildlife habitat at the range is determined principally by natural processes. Thus, the CMAGR comprises an important unit in the greater ecological landscape of the region. Renewal of the CMAGR in accordance with Alternative 1 would be expected to provide continued conservation benefits to wildlife habitat.

A key wildlife management activity at CMAGR is the development and maintenance of artificial water sources. The only open water sources within the CMAGR available to wildlife are tanks, guzzlers, and tinajas (natural bedrock depressions). There are 26 existing and five proposed guzzlers within the CMAGR. The 26 existing and four proposed guzzler sites are located within low to negligible disturbance areas. The remaining proposed guzzler would be located within a low to moderate disturbance area. Ordnance delivery at or near water sources potentially could result in contamination of water consumed by wildlife or cause direct damage to guzzlers or tanks. Elevated levels of aluminum, boron, and magnesium have been observed in ordnance crater sediments at the Barry M. Goldwater Range (DoD 1998). The risk to wildlife waters at the CMAGR from ordnance delivery must be considered as low, however, because these facilities are located away from designated target areas and almost exclusively in low to negligible disturbance areas that would not receive contaminated sediments. No data is available to assess specific ordnance delivery impacts on tinajas at the CMAGR, but the potential for impacts would appear to be low as these features are typically located in mountain and other upland locations, which would place them away from designated targets in low to negligible disturbance areas. No change in the conditions of wildlife waters or tinajas would be expected to occur as a result of the renewal of the CMAGR in accordance with Alternative 1.

Direct local impacts to wildlife species can involve mortality, injury, or disturbance from human activities. Delivery of inert or high explosive ordnance in target areas as well as vehicle use can result in mortality or injury to wildlife. Aircraft collision mortalities are unlikely to jeopardize any wildlife populations at the CMAGR because these collisions are rare and occur most frequently during take-off and landing (DoN 2010b), as opposed to the overflights that occur at the CMAGR. Public access would continue to be restricted from the CMAGR, which reduces the potential for other human disturbance of both wildlife habitat and individual animals of the various wildlife species. No change in the potential for

direct impacts to wildlife would be expected to occur as a result of the renewal of the CMAGR in accordance with Alternative 1.

Noise from aircraft overflights, ordnance delivery, or other military activities can disturb wildlife. A number of studies of the effects of noise on wildlife have been conducted in diverse settings. Although there appears to be consensus among investigators that noise does directly affect wildlife and that these effects are increased by the magnitude, frequency, and duration of the noise, few conclusions have been reached concerning the extent or significance of such changes. Wildlife responses to aircraft range from apparent disregard to panic fleeing, and vary with season, reproductive status, exposure to aircraft, aircraft type, distance from aircraft, and other factors. Studies indicate that ungulates (hoofed animals) may respond to low-level overflights with increased heart rates and have been observed fleeing low-level aircraft (DoD 1998). However, these investigators concluded that aircraft disturbances monitored in these studies were minimal and of short duration. Additionally, the investigators concluded that the responses of the animals decreased with increased exposure, suggesting that they habituate to the disturbance (DoD 1998). Noise from aircraft, ordnance delivery, or other military activities is not believed to be an issue of concern for wildlife populations at the CMAGR. No change in noise impacts on wildlife would be expected to occur as a result of the renewal of the CMAGR in accordance with Alternative 1.

Many wildlife species must be able to move on a daily and/or seasonal basis to secure forage or prey, find water, locate cover, and/or complete various life cycle stages. With the possible exceptions of some localized areas, such as Camp Billy Machen or an active ground support area occupied by troops, there are almost no impediments to wildlife movements in the CMAGR. Continuation of military training at the CMAGR would not impact or impede wildlife movement corridors. No changes in wildlife movements or freedom of movement would be expected to occur as a result of the renewal of the CMAGR in accordance with Alternative 1.

Special Status Species

The following discussion addresses impacts to the Mojave desert tortoise and the desert bighorn sheep, which are both special status species at the CMAGR. Special status species from the general region that were excluded from further analysis in this LEIS because available information indicates that they are unlikely to occur at the CMAGR are listed in Table 3-15.

Mojave desert tortoise (*Gopherus agassizii*) – Federally Threatened, State Threatened

Local direct impacts to tortoises resulting from training activities include direct mortality due to ordnance delivery or collisions with vehicles. Some tortoises are also likely killed in burrows collapsed by ordnance delivery or vehicle use. The 1996 Biological Opinion (BO) issued by the USFWS for military activities at the CMAGR determined that these activities were not likely to jeopardize the continued existence of the desert tortoise, nor were they likely to result in the significant destruction or adverse modification of critical habitat for the desert tortoise. As discussed in Section 4.7.1.1, the aggregate effects of military training at the CMAGR have resulted in degradation or loss of habitat, including special status species habitat, but the activities that cause or may cause moderate to complete levels of physical disturbance to the ground surfaces, vegetation communities, and surface drainages have affected only about 5 percent of the range after 70 years of use. Military activities across the remaining 95 percent of the range typically have been and continue to be localized and widely dispersed. In aggregate, military use within this part of the range has caused only low to negligible levels of habitat disturbance, which has provided important conservation benefits to desert tortoise and other native species (Stein et al. 2008). The 1996 BO provides for an annual take allowance of 11 tortoises injured/killed and 112 tortoises harassed. No mitigation measures are currently proposed beyond those included in the 1996 Biological Opinion for CMAGR. Desert tortoise protection measures prescribed by the 1996 BO include:

- Take reporting
- Clearance surveys for new ground disturbing activity
- Surveys of training activity sites to determine potential need for relocation
- Preparation and implementation of a Desert Tortoise Management Plan with a finalization deadline of 1 year after finalization of the NECO Plan
- Designation of a desert tortoise management representative who would survey all ground support areas for take following operations
- Preparation of an annual monitoring report for submittal to the USFWS
- Surveys to facilitate density estimates across the CMAGR
- Establishment of a portion of the CMAGR as part of the Chuckwalla Desert Wildlife Management Area (DWMA), with Limited Use Zones within the DWMA where military activity is excluded

No changes in the current conditions of the Mojave desert tortoise population and its habitat in the CMAGR or the effects of military training on this species and its habitat would be expected to occur as a result of the renewal of the range in accordance with Alternative 1. The habitat conservation effects of renewing the range likely would facilitate the continued conservation and recovery of this threatened species.

Desert bighorn sheep (*Ovis canadensis nelsoni*) – BLM Sensitive

The overall effects of military activities at the CMAGR on desert bighorn sheep are minimal and are likely more than offset by the habitat conservation and enhancements. The aggregate effects of 70 years of military use on wildlife habitat within the range have been minimal and habitat in the range is well protected from disturbance or loss from non-military land uses. A relatively extensive system of wildlife waters have been developed in the range to augment the habitat requirements of this animal. Additionally, breeding and foraging habitat is widely available to the north, east, and southeast of the CMAGR and there are no or few filter barriers that would impede bighorn sheep movements between the CMAGR and these other habitats. Limited hunting of this species is allowed in California, but access to the CMAGR for hunting is not compatible with military training. The direct impact of noise on ungulates is inconclusive, but presumably individuals currently inhabiting the CMAGR have acclimated to aircraft fly-over and ordnance explosion noise. The potential for direct mortalities to bighorn sheep likely is minimal because training activities that could cause direct mortalities, such as ordnance delivery and driving, generally are concentrated within about 5 percent of the CMAGR and do not include the habitat areas of most favorable quality for this species.

No changes in the current conditions of the desert bighorn sheep population and its habitat in the CMAGR or the effects of military training on this species and its habitat would be expected to occur as a result of the renewal of the range in accordance with Alternative 1. The habitat conservation effects of renewing the range likely would facilitate the continued conservation and recovery of this species.

4.7.1.2 20-Year Range Renewal

No adverse effects to wildlife habitat or any wildlife species would be likely to occur as a result of the land withdrawal duration of 20 years that would be provided by Alternative 1. No changes in military activities are foreseen over this period of time that would be likely to adversely affect the overall conditions of wildlife habitat or wildlife populations. Proposed changes in use or for new uses would be addressed, as necessary through applicable NEPA planning and consultations in accordance with the ESA. The terms of the current 1996 BO would remain in effect for Mojave desert tortoise. Consultation

with the USFWS would have to be reinitiated if there are changes in potential impacts to threatened or endangered species, or if incidental take levels are exceeded. The current habitat and species conservation benefits of the CMAGR would be expected to continue for the duration of the withdrawal. Congress would presumably provide the DoN with the option to request a subsequent land withdrawal for the CMAGR should the military need for the range exceed 20 years. It is anticipated that another LEIS would be prepared and impacts to biological resources would be re-evaluated in support of such a request.

4.7.2 Alternative 2

Under Alternative 2, the withdrawal of DoI land at the CMAGR by the DoN for military training purposes would be renewed for 25 years, and the Bradshaw Trail, UPRR, and Niland-Blythe Road realignments of the range boundary would be implemented.

4.7.2.1 Withdrawal Renewal and Continued Military Use

Specific impacts related to the withdrawal renewal and continued military use of the CMAGR under Alternative 2 are similar to those under Alternative 1 (see Section 4.7.1.1).

4.7.2.2 Boundary Realignment

Under Alternative 2, the boundary and withdrawal area would incorporate the full Bradshaw Trail, UPRR, and Niland-Blythe Road realignments.

Overall impacts to biological resources as a result of the proposed boundary realignments likely would be negligible. It is anticipated that most of the acquired land areas would predominantly function only as buffer zones in which there would be little or no direct military surface use. The UPRR realignment may provide an exception to this prognosis as sufficient land space with overlying restricted airspace would be acquired to potentially support some military activities, but there are currently no proposals for surface use of that area. Future proposals to introduce military surface use to the UPRR realignment area would be addressed through applicable NEPA planning and consultations in accordance with the ESA. No occurrences of federally listed species are reported from the UPRR realignment area. The Alternative 2 realignments would incorporate an additional 8 acres of potential wetlands as identified by the National Wetland Inventory database in the range.

On a landscape level incorporation of adjacent land into the CMAGR would result in the conservation and protection of biological resources in those areas from OHV activities and other public uses. Increased protection from OHV trespassing onto the CMAGR may also result from the realignments resulting from the increased effectiveness that the realigned boundaries would be expected to provide for deterring trespass. Disposed lands could be subject to a number of public uses that could potentially degrade the biological resources in comparison to military management of those lands, however, BLM planning and impact assessment processes would evaluate these potentials before the introduction of new activities.

The UPRR acquisition area is near the Algodones Dunes and may contain fringe habitat for species adapted to dunes such as the Colorado Desert fringe-toed lizard, flat-tailed horned lizard, Harwood's rattleweed, Peirson's milk-vetch, Wiggin's croton, Algodones sunflower, slender cottonheads, giant Spanish needle, and sand food (see Table 3-15). With the exception of Peirson's milk-vetch, these species are not protected under the federal Endangered Species Act and are special status only as State Species of Special Concern, BLM Sensitive species, and/or CNPS rare plants. The proposed acquisition area does not include high value dune habitat and these species have not been reported from this area. Core habitat for these dune specialists occurs outside the acquisition area in the nearby Algodones Dunes.

4.7.2.3 Management Transfer to DoN

Under this alternative, responsibility for managing DoI withdrawn land would be transferred to DoN, and the DoN would manage the CMAGR under the Sikes Act. DoN-exclusive management of the CMAGR would maintain the focus on preserving natural resources in consideration of military mission, with active management and conservation of special status species that are not federally protected, including BLM sensitive species, and CNPS rare plants. The DoN is obligated to protect sensitive biological resources under the Sikes Act. Unifying management under the DoN could also provide more consistent, complete, and simplified management of biological resources in the CMAGR. Under the current dual management system, management responsibility is inconsistent and unclear due to the checkerboard pattern of land management. Management transfer to the DoN would necessitate an INRMP that could focus more specifically on management of natural resources in the context of a military training range. DoN management also would release BLM lands from the multiple-use provisions designated under FLPMA, such as grazing, development, mining, and OHV use that can consume and degrade habitats for plants and animals. Protection for federally threatened and endangered species, such as the desert tortoise, would continue to be addressed on transferred lands under the Endangered Species Act, with administration and oversight by the USFWS. The management transfer would likely improve management of sensitive species compared to the current dual management by DoN and BLM by clearly giving responsibility to one agency.

4.7.2.4 25-Year Range Renewal

No adverse effects to wildlife habitat or any wildlife species would be likely to occur as a result of the land withdrawal duration of 25 years that would be provided by Alternative 2. Although Alternative 2 would provide a withdrawal duration that would be 5 years longer than the 20 years that would be provided by Alternative 1, the effects of the 25 year duration on biological resources would likely be similar to those of the shorter duration.

4.7.3 <u>Alternative 3</u>

Under Alternative 3, BLM land in the CMAGR would be permanently transferred to the DoN and the full Bradshaw Trail and Niland-Blythe Road realignments of the range boundary would be implemented. DoN-exclusive management of the CMAGR would maintain the focus on preserving natural resources in consideration of military mission, with active management and conservation of special status species that are not federally protected, including BLM sensitive species, and CNPS rare plants.

4.7.3.1 Withdrawal Renewal and Continued Military Use

Specific impacts related to the land withdrawal renewal and continued military use of the CMAGR under Alternative 3 are similar to those under Alternative 1 (see Section 4.7.1.1).

4.7.3.2 Boundary Realignment

The full Bradshaw Trail and Niland-Blythe Road realignments of the CMAGR boundary proposed by Alternative 3 would have the same overall negligible effects on biological resources as described for these realignments under Alternative 2.

4.7.3.3 Management Transfer to DoN

Specific impacts related to the management transfer to DoN under Alternative 3 are similar to those under Alternative 2 (see Section 4.7.2.3).

4.7.3.4 Permanent Range Renewal

The permanent range renewal that would occur as a result of the transfer of BLM land to the DoN as proposed by Alternative 3 would have the same effect on biological resources as that of Alternative 2, which included a 25-year land withdrawal duration, but with the likely option of subsequent renewals.

4.7.4 Alternative 4

Under Alternative 4, the withdrawal of BLM land at the CMAGR by the DoN for military training purposes would be renewed for 25 years, and the partial Bradshaw Trail realignment of the range boundary would be implemented.

4.7.4.1 Withdrawal Renewal and Continued Military Use

Specific impacts related to the withdrawal renewal and continued military use of the CMAGR under Alternative 4 are similar to those under Alternative 1 (see Section 4.7.1.1).

4.7.4.2 Boundary Realignment

The partial Bradshaw Trail realignment of the CMAGR boundary proposed by Alternative 4 would have similar overall negligible effects on biological resources as described for the full Bradshaw Trail realignment under Alternative 2.

4.7.4.3 25-Year Range Renewal

The effects of the 25-year land withdrawal duration proposed by Alternative 4 on biological resources would be the same as the effects of the 25-year duration proposed by Alternative 2.

4.7.5 Alternative 5 (No Action)

Under Alternative 5, the CMAGR would be closed, decommissioned, and prepared for eventual reuse.

Direct and indirect impacts associated with military activities would no longer occur potentially allowing for a slow recovery of degraded vegetation and affected wildlife communities. However, land uses presently prohibited under military withdrawal, such as mining and OHV use, may be allowed. The potential for the public to use released land that remains under DoN jurisdiction would have to be determined through planning conducted in accordance with the Sikes Act and to the extent that such use would not be inconsistent with hazards that may be present from UXO.

Effects from decontamination activities and removal of military facilities on the range would be addressed in separate NEPA documentation. The remediation response is speculative, but it is anticipated that it could have a greater effect if the remedial activities increase ground disturbance in areas with negligible military surface use. Impacts from alternative land uses and associated mitigation measures would be evaluated through additional NEPA documentation following a public planning process for the future use of these lands. Agencies with jurisdictional responsibility for future land uses include BLM, DoD, USFWS, CDFG, and state and local agencies or governments.

4.8 CULTURAL RESOURCES

Potential impacts on the cultural environment are assessed pursuant to Section 101(b)(4) of NEPA, which directs federal agencies to preserve important historical and cultural aspects of our nation's heritage. As discussed in Section 3.8, the potential impacts of Federal actions on cultural resources must also be considered relative to the guidance of a number of laws, depending on the nature of the resource being

impacted. Marine Corps responsibilities for assessing the potential for its activities to affect cultural resources as provided by the National Historic Preservation Act (NHPA), Archaeological Resources Protection Act (ARPA), Native American Graves Protection and Repatriation Act (NAGPRA), and American Indian Religious Freedom Act (AIRFA) are discussed below. The applicability of these and other Federal laws, ordinances, regulations, and standards (LORS) to the protection and management of cultural resources at the CMAGR and the assessment of potential effects on these resources are summarized in Table 4-2 .

Table 4-2 Federal Laws, Ordinances, Regulations, and Standards (LORS)

LORS	Applicability
National Environmental Policy Act (NEPA) 42 U.S.C. §§ 4321 *et seq.*	Requires Federal agencies to consider potential environmental impacts of projects with federal involvement and to consider appropriate mitigation measures.
Federal Lands Policy and Management Act (FLPMA) 43 U.S.C. §§ 1701 *et seq.*	Requires the Secretary of the Interior to manage public lands in a manner that will protect the quality of scientific, scenic, historical and archaeological values.
National Historic Preservation Act (NHPA) 16 U.S.C. §§ 470 *et seq.*	Establishes national policy of historic preservation; requires that Federal agencies consider effects to significant cultural resources (i.e., historic properties) prior to undertakings.
Section 106 of the Federal Guidelines 16 U.S.C. § 106 of the NHPA	Requires Federal agencies to take into account the effects of projects on historic properties (resources included in or eligible for the NRHP). It also gives the Advisory Council on Historic Preservation (ACHP) and SHPO an opportunity to consult.
Archaeological Resources Protection Act of 1979 (16 U.S.C. §§ 470aa-470mm)	Governs the collection of archaeological resources on public and Indian lands.
Native American Graves Protection and Repatriation Act (1990) (25 U.S.C. §§ 3001 *et seq.)*	Defines “cultural items,” “sacred objects,” and “objects of cultural patrimony;” establishes an ownership hierarchy; provides for review; allows excavation of human remains, but stipulates return of the remains according to ownership; sets penalties; calls for inventories; and provides for return of specified cultural items.
American Indian Religious Freedom Act, 42 U.S.C. § 1996	Provides protection of exercise of Native American religious practices.
Antiquities Act of 1906 (16 U.S.C. §§ 431-433)	Establishes criminal penalties to protect cultural resources on Federal lands.
Archeology and Historic Preservation: Secretary of Interior’s Standards and Guidelines 48 CFR. 44716 (29 Sep 1983)	Provides a set of standards and guidelines for archaeology and historic preservation. These are considered to be the appropriate professional methods and techniques for the preservation of archaeological and historic properties. The Secretary’s standards and guidelines are used by Federal agencies. The State Historic Preservation Office (SHPO) refers to these standards in its requirements for selection of qualified personnel and in the mitigation of potential impacts to cultural resources on public lands in California.

LORS	Applicability
Executive Order 11593, Protection of the Cultural Environment", 13 May 1971 (36 Federal Register 8921)	(1) Orders the protection and enhancement of the cultural environment through requiring Federal agencies by to administer the cultural properties under their control in a spirit of stewardship and trusteeship for future generations, (2) initiates measures necessary to direct their policies, plans and programs in such a way that federally owned sites, structures, and objects of historical, architectural or archaeological significance are preserved, restored and maintained for the inspiration and benefit of the people, and (3), in consultation with the ACHP (16 U.S.C. 4701), institute procedures to assure that Federal plans and programs contribute to the preservation and enhancement of non-federally owned sites, structures and objects of historical, architectural or archaeological significance.

NOTES:
ACHP = Advisory Council on Historic Preservation; FLPMA = Federal Lands Policy and Management Act; LORS = Laws, ordinances, regulations and standards; NAHC = California Native American Heritage Commission; NEPA = National Environmental Policy Act; SHPO = State Historic Preservation Office; U.S.C = United States Code

Assessment of effects under NHPA Section 106 involves several steps, starting with identification of the Area of Potential Effects (APE) for the undertaking. The APE of an undertaking is defined as "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist" (36 CFR 800.16(d)). The APE for this LEIS includes the current boundary of the CMAGR and the areas of potential boundary realignment described in Section 2.3.1.

The next step in the Section 106 assessment process is to identify historic properties within the APE (see Section 3.8 of this LEIS). Step 3 is to determine if the undertaking (Alternative 1, 2, 3, or 4) or a decision to close the range by allowing the land withdrawal to expire (Alternative 5) would affect historic properties. Cultural resources that are included or eligible for inclusion in the NRHP are referred to as historic properties in the NHPA. The NHPA provides that if an "… undertaking is a type of activity that does not have the potential to cause effects on historic properties, assuming such historic properties were present, the agency official has no further obligations under section 106 or this part" (36 CFR § 800.3(a)(1)). If an undertaking would have an effect on historic properties, it must then be determined whether or not the effect will be adverse to those resources. Section 106 of the NHPA provides guidance for determining the levels of effect on cultural resources that may result from a proposed undertaking (36 CFR § 800.9). If an adverse effect is identified, the federal agency must consult with the SHPO, Native American tribes, and other stakeholders to avoid, minimize, or mitigate the adverse effect. The Marine Corps has initiated consultation with the California SHPO on the proposed undertaking.

ARPA prohibits the collection of archaeological resources from public lands (and Indian lands) without a permit issued by the land managing agency, and establishes criminal and civil penalties for removal, sale, purchase, exchange, transportation, receipt, or offering of any archaeological resource obtained from public lands (or Indian lands) in violation of any provision, rule, regulation, ordinance, or permit under the act, or under any federal, State, or local law.

NAGPRA establishes rights of Indian tribes to claim ownership and repatriation of human remains, funerary objects, sacred objects, and objects of cultural patrimony held or controlled by federal agencies and museums that receive federal funds. Intentional excavations and inadvertent discoveries of such items must follow plans developed in consultation with Native Americans. The Marine Corps follows the NAGPRA regulations.

AIRFA established a policy to protect and preserve for American Indians the inherent right of freedom to believe, express, and exercise their traditional religions, including but not limited to access to religious sites, use and possession of sacred objects, and freedom to worship through ceremonials and traditional rites. The Marine Corps complies with AIRFA by obtaining and considering the views of Indian leaders when a proposed land use might conflict with traditional Indian religious beliefs or practices, and by avoiding unnecessary interference with Indian religious practices as projects are implemented.

Since range operations would not change under any of the action alternatives, no new effects to historic properties at the CMAGR would be anticipated as a result of the range renewal, renewal duration, and management responsibility portions of the proposed action/undertaking. Alternative 1, 2, 3, or 4 would each also leave the current ICRMP and MV-22 Programmatic Agreement in place.

The boundary realignment elements of Alternatives 2, 3, and 4, and property disposal Alternatives 3 and 4 have the potential to affect cultural resources, and are evaluated in additional detail below.

Alternative 5, the no-action alternative, would prompt closure and decommissioning of the CMAGR and likely non-military reuse of much of the DoN and BLM lands that comprise the current range. Closure, decommissioning, and reuse of the CMAGR would likely affect historic properties; however, as described in Section 2.6, the actions that would cause these effects cannot be predicted in detail at this time and would be the subject of future analysis and consultation.

4.8.1 Alternative 1

Alternative 1 would renew the status quo conditions at the CMAGR established by the CMLWOA, meaning that there would be no changes to the range boundary or land withdrawal area, 20-year duration of the withdrawal, or the split in DoN and DoI management responsibilities. As already indicated, the proposed renewal of the land withdrawal would have no effect on the performance or distribution of ongoing military activities at the range except to permit them to continue after the October 2014 expiration date of the current land withdrawal. Previous assessments have found that military activities at the CMAGR can directly or indirectly affect historic properties or other cultural resources as a result of target construction, explosive ordnance delivery by aircraft or surface fires, vehicle use, operational range clearances, or other training or support activities. Although the extent to which historic properties or other cultural resources may have been affected by past military use of the CMAGR is not specifically known, contemporary management of the range dates from the development of the 1997 Yuma Training Range Complex Final Environmental Impact Statement (USMC 1997), which provided the first range-wide assessment of impacts on historic properties or other cultural resources from ongoing and proposed military activities. The potential for training activities that were proposed for the CMAGR following the completion of the 1997 EIS to affect historic properties or other cultural resources were addressed in subsequent NEPA documentation. The 2009 and 2010 EISs prepared for the West Coast basing and operation of the MV-22 and F-35B aircraft, respectively, are the most prominent examples (DoN 2009a and DoN 2010b). These EISs addressed the potential for the use of either of these two aircraft to affect cultural resources at the CMAGR. The Marine Corps completed Section 106 consultations relative to actions proposed through the 1997, 2009, and 2010 EISs and all other applicable NEPA documentation for the range.

The 1997 EIS also provided the first comprehensive inventory of CMAGR ground locations used in direct support of military training activities. That assessment found that direct effects of military activities on terrestrial resources at the range were confined principally to the inventoried use areas, which in aggregate comprised a small proportion of the range. The 1997 finding was updated and corroborated by the surface use inventory completed for this LEIS, which indicates that direct military use areas, including the core and secondary weapons impact areas, that cause moderate to complete levels of disturbance to the ground surface, comprise only about 5 percent of the range surface in aggregate (see Section 3.2.4.6).

The balance of the range area has experienced low to negligible surface disturbing impacts, as indicated in Table 3-6. Both active and inactive use areas were incorporated in the inventory to provide results that reflect the 70-year legacy of the CMAGR. Only a small percentage of the CMAGR property has been inventoried for the presence of cultural resources and a detailed inventory of cultural resources at the range is not available. Thus, the results of the military surface use inventory cannot be used to gauge the extent to which historic properties or other cultural resources have been affected by 70 years of military use. The inventory does show, however, that the great preponderance of surface impacting effects from both past and present military use are concentrated in less than 5 percent of the range area and that there has only been a slow and incremental change in the distribution of military surface use areas over time. Although historic properties or cultural resources that may occur in these concentrated use areas may be impacted by military activities, the presence of the CMAGR has likely also afforded a strong conservation benefit to historic properties that are located in the remaining 95 percent of the range.

As already noted, Marine Corps compliance with the NHPA and other laws and regulations applicable to cultural resources at the range is currently guided by the 2011 ICRMP and the 2009 MV-22 Programmatic Agreement, which was incorporated in the ICRMP. Renewal of the CMAGR land withdrawal in accordance with Alternative 1 would allow continued military training at the range, but would not change either military use of the range from current conditions or the determination of effect represented in the MV-22 Programmatic Agreement that military use of LZs by the MV-22 at the CMAGR has on historic properties. In other words, Alternative 1 would cause no new effects to historic properties or other cultural resources. Renewal of the range land withdrawal would also continue the responsibility of federal agencies using and managing the range to comply with the NHPA, ARPA, NAGPRA, AIRFA, and other applicable cultural resources laws and regulations for ongoing activities and proposed actions.

4.8.2 Alternative 2

Alternative 2 differs from Alternative 1 in that it would incorporate the full Bradshaw Trail, UPRR, and Niland-Blythe Road realignments of the range boundary, increase the duration of the land withdraw to 25-years, and transfer responsibility for managing withdrawn BLM land from the DoI to the DoN. Alternative 2 would also transfer DoN land released from the CMAGR north of the Bradshaw Trail to the BLM to be managed by that receiving agency along with formerly withdrawn BLM land. The boundary realignments would incorporate about 10,735 acres into the range for the first time and release a total of about 2,821 acres of DoN and currently withdrawn BLM land from the range. Cultural resources would not be affected by the range renewal, renewal duration, or management responsibility portions of the action/undertaking proposed by Alternative 2.

The search of CHRIS indicates that cultural properties have been recorded by previous surveys at five sites—including the Bradshaw Trail and the Eagle Mountain Railroad—located within parcels proposed for acquisition along the southern side of the Bradshaw Trail and at 28 sites within parcels proposed for acquisition along the UPRR. These sites, or other unrecorded cultural resources that may occur within the proposed acquisition parcels, would not be directly affected by the boundary realignment action. These parcels would be used to complete a contiguous and geographically prominent boundary, which would enhance the security of the range against inadvertent trespass (see Figures 2-1 and 2-2). No proposals have been identified to use or develop the parcels for any military surface use other than enhancing the security of the range boundary. The action may indirectly benefit any cultural resources within the parcels proposed for acquisition in two ways: (1) by precluding land uses that could adversely affect these resources and (2) by providing increased security from vandalism, looting, or other damage that may result from chance discovery of sites by public visitors or intentional criminal activity.

The land that would be acquired with the UPRR realignment, up to 12,561 acres, is of sufficient size that it could potentially support future military surface uses, such as a FARP, that are in addition to its proposed boundary security purposes (see Section 2.3.1). Although, no additional uses have been proposed for this area at this time, future proposals for military activities in the affected area would require consideration in accordance with NEPA at that time. New future military use of the acquired area also would be subject to the NHPA, ARPA, NAGPRA, AIRFA, and other applicable law and regulations governing the protection and management of cultural resources. Marine Corps use and management of property acquired along the Bradshaw Trail or the UPPR would be guided by the CMAGR ICRMP.

The search of CHRIS indicates that cultural properties have been recorded by previous surveys at 21 sites within DoN or currently withdrawn BLM parcels along the Bradshaw Trail or south of Niland-Blythe Road proposed for release from the CMAGR as a consequence of implementing boundary realignments proposed by Alternative 2. These recorded sites, or other unrecorded cultural resources that may occur within the proposed release parcels, also would not be directly affected by this action. Public and government use of the Bradshaw Trail would be unaffected by the release of the DoN and BLM land. Public activity along the north side of the trail corridor may affect cultural resources that may be present, but the release of the land from the CMAGR would leave this potential unchanged from the present condition. The transfer of DoN land by Congressional action to the DoI as proposed by Alternative 2 would place all of the released land under BLM management jurisdiction. No new land uses have been proposed or are reasonably foreseeable for the land that would be released from the range. The BLM would not begin planning for the reuse of the affected parcels until after Congress takes action to enact the Bradshaw Trail and Niland-Blythe Road realignments. All of the released DoN and currently withdrawn BLM parcels would continue to be subject to the NHPA, ARPA, NAGPRA, AIRFA, and other applicable law and regulations governing the protection and management of cultural resources.

None of the 36 Native American tribes or tribal bands that were contacted during scoping for this LEIS reported that resources of traditional, religious, or cultural significance are located within the parcels slated for either release from or acquisition for the CMAGR as a result of boundary realignment actions proposed by Alternative 2. Further, no resources of traditional cultural significance to Native Americans were identified as occurring within these parcels by the search of the SLF database or through follow-up communications with Native American individuals and organizations listed by the NAHC to be contacted for further information (see Section 3.8.4.3). If Native American resources of traditional cultural significance are subsequently identified to occur within parcels proposed for acquisition, the Marine Corps would ensure that tribes have appropriate access to these resources in accordance with the AIRFA.

4.8.3 Alternative 3

Alternative 3 incorporates the full Bradshaw Trail and Niland-Blythe Road realignments of the range boundary, but not the UPRR realignment proposed by Alternative 2. Alternative 3 also differs from Alternative 2 in that (1) DoN land released from the CMAGR as a result of the Bradshaw Trail boundary realignment would be disposed of through existing GSA authorities and procedures—rather than a Congressional transfer to the BLM—and (2) Congress would transfer management responsibility for withdrawn BLM land in the renewed CMAGR to the DoN. Cultural resources would not be affected by the range renewal, renewal duration, or management responsibility portions of the action/undertaking proposed by Alternative 3.

The effects on cultural resources of the land acquisitions proposed by the Alternative 3 boundary realignments would be the same as those described for Alternative 2. Cultural resources that are known to occur or may occur within withdrawn BLM parcels proposed for release from the CMAGR as a consequence of the full Bradshaw Trail or Niland-Blythe Road realignments would not be affected by this action as described for Alternative 2. Disposal of DoN land to be released from the CMAGR, however,

potentially may lead to adverse affects on cultural resources. The first priority for the disposal of the DoN parcels in accordance with GSA authorities and procedures would be an administrative transfer of the land to another federal agency; transfer to the BLM would be the most probable outcome. Administrative transfer to the BLM would have the same effects on cultural resources as the legislative transfer to this agency proposed by Alternative 2. In the event that the Secretary of the Interior or the Secretary of another federal department would not accept transfer, the DoN land may be transferred out of federal jurisdiction to a state or county agency or Native American tribe or private ownership, which may result in adverse effects on cultural resources that are known to occur or may occur on the property. The potential effects of disposing of released DoN land through GSA authorities and procedures to non-federal entities would receive further consideration in accordance with NEPA and other applicable law should Congress elect not to transfer released land to the BLM.

4.8.4 Alternative 4

Alternative 4 would incorporate the same proposals for the renewal of the range, land withdrawal duration, and management responsibility assignments as Alternative 2 and the same disposal procedures for released land as Alternative 3. The effects of these proposed actions on cultural resources would be the same as those described for Alternatives 2 and 3. Alternative 4 would incorporate the partial Bradshaw Trail realignment, which would release DoN and currently withdrawn BLM land that includes the Bradshaw Trail and the CMAGR areas currently north of the trail, but not the acquisition of BLM, state, or private land south of the trail. Not acquiring land south of the Bradshaw Trail would have no effect on cultural resources. The effects on cultural resources of disposing of the land released from the CMAGR by the partial Bradshaw Trail realignment would be the same as described for Alternative 3.

4.8.5 Alternative 5 (No Action)

Under Alternative 5 the current land withdrawal for the CMAGR would expire and the range would be closed. General plans for decommissioning and decontaminating the range in accordance with existing legal guidance and programs are described in Section 2.6. As also indicated in Section 2.6, procedures for the disposition of DoN land from the closed range are less certain and would require planning that would not begin before Congress determined to allow the CMAGR land withdrawal to lapse. Barring new Congressional decisions on the matter, planning for the potential reuse of the closed range land would also have to begin, although progress may be impeded until headway is made on the disposition of DoN land. UXO contamination may constrain the spectrum of potential land uses that could be considered in some locations of the closed range, but otherwise areas of the former range may warrant attention for uses spanning the possibilities from wilderness to industrial development. Against this somewhat uncertain outlook, it would appear likely that cultural resources that may be present in the CMAGR would be affected by some of the actions that would be proposed to decommission, decontaminate, and reuse the closed range. Both the DoN and DoI would be involved in the processing of the closed CMAGR. Management and use of the closed CMAGR would continue to be subject to the operation of the NHPA, including consultations in accordance with Section 106, ARPA, NAGPRA, AIRFA, and other applicable law and regulations governing the protection and management of cultural resources. Thus, the potential effects of the closure process and future land use proposals on cultural resources would be addressed by the responsible agency at such time that these issues become timely. A decision to allow the CMAGR land withdrawal to expire, however, would have no direct effects on cultural resources.

4.9 NOISE

The following discussion of potential noise effects of Alternatives 1 through 5 focuses on areas in the immediate vicinity of the CMAGR. The existing noise environment, as described in Section 3.9 of this LEIS, is generally expected to continue under each of the action alternatives. Slight localized differences in noise exposure among the action alternatives may be due to the proposed boundary shifts along the Bradshaw Trail and Niland-Blythe Road realignments and the UPRR realignment, as proposed in various combinations by the four action alternatives. The main reason for emphasis on the boundary realignment element associated with land withdrawal renewal is that, in general, if the noise sources in a before-and-after analysis do not change and are largely unaffected by the other range renewal elements under consideration, then the potential for direct impact must relate to the receiver—either its location or character (i.e., land use or presence of sensitive receiver) changes. Because the noise sources (i.e., CMAGR airborne and ground-based operations) are not expected to change from current baseline conditions, the following subsections use the premise that:

- No off-range populations are currently exposed to 65 dBA CNEL or 62 dBC CNEL due to CMAGR operations (as described in Section 3.9.4).
- The current ambient CNEL or L_{dn} at representative and/or potential noise-sensitive receivers is comprised of a number of natural and man-made noise-producing sources.
- The evaluation of current speech interference, nighttime awakenings and potential for hearing loss is as described and discussed in the F-35B West Coast Basing FEIS (DoN 2010b).

The impact analysis for noise considered opportunities for this current baseline status to change, based primarily on the effects of source-to-receiver distance alterations caused by CMAGR boundary realignments.

4.9.1 Alternative 1

Under this alternative, the current CMAGR boundaries remain unchanged and thus do not result in shortening the distances between one or more noise-producing sources (for example, ground-based artillery or aircraft flight training operations or related activity) and off-range noise-sensitive receivers. Thus, ambient noise exposure at all areas in the vicinity of CMAGR is expected to remain similar to current conditions. As there are currently no known noise impacts from CMAGR as described in Chapter 3, and because the noise-producing ground-based and flight operations are not expected to change as a result of this alternative, no new direct or indirect noise impacts are anticipated.

4.9.2 Alternative 2

Under this alternative, the current CMAGR boundaries would be changed to reflect the full Bradshaw Trail, UPRR, and Niland-Blythe realignments.

As shown in Figure 2-1, usage of the Bradshaw Trail as a CMAGR northern boundary appears to shorten the distance between one or more noise-producing sources (for example, ground-based training operations or related activity) and off-range locations by as much as 0.5 mile. For purposes of this discussion, off-range areas shall be interpreted to include privately-owned land in Figure 2-1, which may potentially contain current or future noise-sensitive receivers. Since neither CMAGR flight operations nor airspace boundaries are expected to change as a result of this alternative, the small boundary shifts would potentially only affect distances to noise-producing ground-based activities that are primarily in the controlled firing areas in the northwestern part of R-2507N. As shown in Figure 3-13, other ground-based noise sources and ordnance noise are deep within the range and far from the proposed boundary shifts, and are therefore not likely to cause noise levels different from current conditions at off-range locations.

Furthermore, if ground-based activities near the northern boundary shifts are also unchanging as a result of this alternative, then the CMAGR northern boundary change would not affect the source-to-receiver distances and thus not be expected to result in new direct or indirect impacts.

Along the southwestern CMAGR area, as shown in Figure 2-2, this alternative would position a new boundary nearly 2.5 miles closer to Glamis, where many recreational users of the Algodones Dunes visit or pass through for fuel and supplies. While this might create an opportunity for a CMAGR ground-based training operation or activity to become physically closer to receivers in proximity to Glamis, no such operations are currently proposed. As shown on Figure 1-5, there are currently no ground-based noise-generating activities located in this area of the CMAGR. Additionally, due to the recreational OHV uses that currently occur (and would be expected to continue) at and near Glamis, along with other sources of noise such as the nearby Mesquite Regional Landfill, the ambient sound environment would already be expected to be dominated by these existing recreational uses and less so by CMAGR ground-based operations or activity. The same might even be said, for certain time periods, of the Bradshaw Trail that is also frequented by recreational OHV traffic.

As there are currently no known noise impacts from CMAGR as described in Chapter 3, and because the noise-producing ground-based and airborne operations are not expected to change as a result of this alternative, no new direct or indirect noise impacts are anticipated.

4.9.3 Alternative 3

With respect to CMAGR boundary changes, this alternative would incorporate the same full Bradshaw Trail and Niland-Blythe Road realignments as that of Alternative 2, and thus the noise impact analysis for this alternative would be considered functionally similar to that of Section 4.9.2 for that proposed realignment.

As there are currently no known noise impacts from CMAGR as described in Chapter 3, and because the noise-producing ground-based and airborne operations are not expected to change as a result of this alternative, no new direct or indirect noise impacts are anticipated.

4.9.4 Alternative 4

Under this alternative, the current CMAGR boundaries would be changed to reflect the partial Bradshaw Trail realignments.

As shown in Figure 2-3, and unlike what is presented in Figure 2-1 for Alternatives 2 and 3, pulling the existing CMAGR northern boundary back to the south side of the Bradshaw Trail does not create opportunities for shortening the distance between one or more noise-producing sources (for example, ground-based or airborne training operation or related activity) and a potential noise-sensitive receiver, which for purposes of this discussion shall be interpreted to be what is depicted as privately owned land in Figure 2-3. As shown in Figure 3-13, ground-based noise sources and ordnance noise are largely deep within the range and far from the proposed boundary shifts, and are therefore not likely to cause noise levels different from current conditions at off-range locations. No changes in CMAGR flight operations, ground-based activities, or airspace boundaries are proposed, so ambient sound contributions from CMAGR under these non-changing conditions would be expected to remain unaltered and result in no anticipated generation of new noise impacts.

As there are currently no known noise impacts from CMAGR as described in Chapter 3, and because the noise-producing ground-based and airborne operations are not expected to change as a result of this alternative, no new direct or indirect noise impacts are anticipated.

4.9.5 Alternative 5 (No Action)

With the no-action alternative, the land withdrawal for the CMAGR would be allowed to expire in 2014, and the remaining DoN land would not provide an adequate restricted land-base to continue tactical aviation training. Because the dominant use of the range is air-to-ground training, most aviation training would cease. As long as the restricted airspace designation remains, air-to-air combat training could occur and helicopter training involving the use of FARPs or LZs on DoN land could potentially continue, although these operations may be discontinued at the CMAGR, as well. Regardless, not renewing the land withdrawal would severely curtail the opportunities for military training and thus eliminate most of the associated noise-producing sources from the ambient sound environment. The immediate or short-term resulting direct change to the future ambient sound environment would likely be a reduction of overall sound level, but the magnitude of the change would depend on a number of factors, including the applicable metric and the presence of other man-made and natural sound-producing activities or phenomena at a given receiver position in the study area (i.e., as described in Chapter 3 and in the vicinity of CMAGR, such as residential communities like Niland).

Indirectly, the sharp reduction and potential loss of military use of the CMAGR area suggests, albeit speculatively, that other ranges might see corresponding increases in ground and aircraft training operations. Should the CMAGR land withdrawal not be renewed, additional studies would be required to consider how to accommodate the training; these studies would need to address the potential noise impacts that could result at or near alternate training ranges and the installations used to home base aircraft.

The DoD closure process of CMAGR associated with the unavailability of the currently withdrawn BLM land would entail evaluation of and subsequent clean-up or disposition of UXO and potentially hazardous substances. These processes imply the usage of conventional and specialized equipment that would need to operate within the current CMAGR boundary—especially in known target areas—and correspondingly involve potentially substantial increases in passenger vehicle and heavy truck traffic noise (associated with personnel work shifts, deliveries to the work areas, and hauling hazardous substances off-range) along routes that provide access to these areas requiring clean-up. The scope of these operations is unknown at this time and speculative, as would be the estimates of noise produced and their contributions to the ambient sound environment.

4.10 VISUAL RESOURCES

Impacts to visual resources consider the existing scenic quality of the landscape, the contrast of the proposed action to the landscape, and viewers who are sensitive to the visual changes. Information presented in Section 3.10 of this LEIS forms the basis on which potential impacts are assessed.

Visibility of Range Facilities and Ground Disturbances

Visibility is based on screening, distance, backdropping and related facility contrast, and other factors, such as the angle of observation and light and atmospheric conditions. The main type of screening is topographic, although vegetation and structures may provide localized screening. With greater distance, landscape elements become less obvious and less detailed. The visual elements of form and line become more dominant than color or texture as distance from the observer increases. Backdropping is the ability of facilities and disturbances (such as bombing) to be visually absorbed when viewed against the background of landform, sky, vegetation, or development. The extent of visual absorption by the background is determined by the degree or complexity of visual elements and contrast of the facilities and disturbance to its surroundings. To provide maximum contrast for the impact assessment, all of the KOP photographs were taken so the CMAGR landscape was frontlit with the sun behind the photographer.

Level of Impact

Assessment of local-scale direct impacts was performed using the following considerations:

- The level of existing scenic quality
- The degree of perceived change (or project contrast) to the scenic quality
- Distance of the viewer from the facility or disturbance
- Sensitivity of the viewers

The three levels of impact criteria are defined as follows:

- **High (or major) impact:** The proposed alternative would likely cause a substantial long-term and adverse effect on landscape character or scenic quality on an existing viewshed due to the contrast between the facilities and disturbances and the level of existing scenic quality.
- **Moderate impact:** The proposed alternative would create a noticeable, but not substantial, change in landscape character or scenic quality; or would cause a noticeable, but not substantial, change on a sensitive viewer's viewshed.
- **Low (or minor)/negligible impact:** The proposed alternative would create negligible or no change in contrast and susceptibility to changes in scenic quality, viewer sensitivity, facility visibility, and viewer exposure.

The KOPs, locations, proposed activities that would be visible, type of viewers and their sensitivity, and scenic quality are included in Section 3.10.2.3, Table 3-16.

4.10.1 Alternative 1

Under Alternative 1, the CMAGR land withdrawal would be renewed for 20 years with no change in the boundary, management, or military activities. Table 4-3 shows the level of existing direct impact within the range that can be seen from the surrounding land. The seven KOPs chosen to represent current views of the CMAGR facilities and disturbances were not analyzed in depth because ongoing visual impacts would remain unchanged under Alternative 1. The Osborne Overlook, Watchable Wildlife Site, and Ted Kipf Road KOPs are discussed in greater detail under Alternatives 2, 3, and 4 because they were chosen to represent the change in available public views associated with boundary realignments.

Table 4-3 Visual Impacts Seen from the Key Observation Points

KOP	Facility Closest to KOP	Scenic Quality	Facility Visibility Including Contrast	Visual Impact	Alternative Applicable to KOP
Coachella Canal Road	Bunker and material storage	Moderate	Possible view of horizontal embankments and bare ground that have the same form, line, color, and texture as the horizontal to rolling landforms.	Negligible	1, 2, 3, 4
Slab City	Bivouac and work area	Moderate	Possible view of horizontal embankments and bare ground that have the same form, line, color, and texture as the horizontal to rolling landforms, including washes.	Negligible	1, 2, 3, 4
Cuff (Gas Line) Road	Camp Billy Machen	Moderate	Vertical communications tower with white round dishes contrasts with the horizontal greens, tans, and browns of the vegetation and landforms. Buildings and white storage tank are mostly screened by canal dikes. The camp facilities are near the non-military dikes, gravel pits, and transmission towers and appear to be associated with the non-military facilities.	Low	1, 2, 3, 4
Fountain of Youth Spa	SWAT structures	Low to Moderate	Not noticeable from this distance or angle (the structures are not visible from points closer to CMAGR).	Negligible	1, 2, 3, 4
Bradshaw Trail North	Target complex	Moderate	Not noticeable due to gentle ridges, which screen the targets.	Negligible	1, 2, 3, 4
Bradshaw Trail Kiosk	Bombing disturbance	Moderate	Small, round, and tan oval shapes visible within the landscape result from bomb explosions and contrast with the more massive horizontal and diagonal dark tan and brown mountain elements. Viewer attention is led in the opposite direction from the disturbance towards the informational kiosk.	Low	1, 2, 3, 4
Dietz Drive	Forward arming and refueling point and artillery firing area	Moderate	Views of brown, gray, and white structures are mainly blocked by trees. Structures are much less obvious than those on private land to the east of the range.	Low	1, 2, 3, 4
Osborne Overlook	None (shows proposed boundary expansion)	Moderate to High	None in the viewshed except for the Alternative 2 proposed land addition. Land is similar to the surrounding landscape.	Negligible	2
Watchable Wildlife Site	None (shows proposed boundary expansion)	Moderate	None in the viewshed except for the Alternative 2 proposed land addition. Land is similar to the surrounding landscape.	Negligible	2
Ted Kipf Road	None (shows proposed boundary expansion)	Moderate	None in the viewshed except for the Alternative 2 proposed land addition. Land is similar to the surrounding landscape.	Negligible	2

4.10.2 Alternative 2

Under Alternative 2, the CMAGR land withdrawal would be renewed for 25 years, the Marine Corps would assume natural and cultural resource management responsibilities for the withdrawn BLM land, and the boundary would be realigned to parallel the Bradshaw Trail (including acquisition of land up to the southern side of the trail), Niland-Blythe Road, and UPRR, as described in Section 2.3 and illustrated in Figures 2-1 and 2-2. The proposed boundary changes would be expected to have negligible impacts to the scenic quality of the range, and the Marine Corps management in accordance with the Sikes Act would not be expected to change the level of influence to visual resources.

The Osborne Overlook KOP provides an overall view of the proposed land addition east of the railroad. The land addition is a very minor visual element in the landscape that is dominated by the Chocolate Mountains, Imperial Sand Dunes, SR 78, and the surface mine near Glamis. At the Watchable Wildlife Site and Ted Kipf Road KOPs, dikes block the views of the surface of the plains in the proposed land addition. Views from the top of the dikes looking at the proposed land addition are similar to views of the surrounding BLM and DoN land. All the land proposed for boundary changes consists of dissected plains similar to the adjacent military range and public land. The visual impacts for all other KOPs would be the same as for Alternative 1 (Table 4-3).

Along the Bradshaw Trail, the released BLM-administered public lands would be subject to the types of land uses allowed in accordance with FLPMA, once the land had been evaluated for environmental concerns and safety risks and cleared for alternative uses. Being federal land, environmental evaluation in accordance with NEPA would be required for any project proposals for development of the land. The released DoN managed land would continue to be administered in accordance with the Sikes Act, until DoN disposes of its land through existing GSA authorities and procedures.

4.10.3 Alternative 3

Under Alternative 3, the BLM land within the CMAGR would be transferred to the DoN, thereby eliminating the need for any future land withdrawal. Boundary changes would be the same as for Alternative 2, except it would not incorporate the realignment with the UPRR. The proposed DoN management would be in accordance with the Sikes Act and would not be expected to change the level of influence to visual resources. The visual impacts would be the same as with Alternative 2 for the northern and eastern boundary area and the same as Alternative 1 for the southwestern boundary area, and as listed in Table 4-3. The released BLM managed public lands, once cleared of environmental or safety concerns, would be subject to the types of land use allowed in accordance with FLPMA and the BLM NECO Plan, but any development on this land would be subject to NEPA compliance.

4.10.4 Alternative 4

Under Alternative 4, the CMAGR land withdrawal would be renewed for 25 years (same as Alternative 2), the Marine Corps would assume natural and cultural resource management responsibilities for the withdrawn BLM land (same as Alternative 2). The boundary would be similar to Alternative 1 with the exception that DoN land north of the Bradshaw Trail would not be renewed, as providing for the partial Bradshaw Trail realignment. The released DoN land, once cleared of environmental or safety concerns, would be subject to the types of land use allowed in accordance with FLPMA and the BLM's NECO Plan, but any development on this land would be subject to NEPA compliance. The visual impacts would be similar to those listed for Alternative 2 and 3 and in Table 4-3.

4.10.5 Alternative 5 (No Action)

Under Alternative 5, the CMAGR land withdrawal would not be renewed. The DoN and BLM closed former range lands would begin to be evaluated in accordance with the MRP, and additional studies would be conducted by the Marine Corp and DoN to determine the extent and priority of range clean-up activities. Until additional studies and planning effort are undertaken, it would be speculative to estimate the types of changes that might occur within the landscape or the potential for future use of the land and how those might influence the visual environment, although uses comparable to those on adjacent lands might be expected. Changes would undergo further review under NEPA, and specific effects would be evaluated at that time.

The closure process would entail evaluation of and subsequent clean-up or disposition of UXO and potential hazardous substances, subject to Congressional funding authorization and project prioritization across USMC and DoN facilities. Although the scope of these operations is unknown and speculative, it

is anticipated that the motions of crews and machinery could add visual contrasts to the usually static landscape. These activities would be temporary and the visual impact would be low to negligible.

4.11 PUBLIC HEALTH AND SAFETY

This section discusses the potential effects on public health and safety that are expected to result from the alternatives. Information presented in Section 3.11 of this LEIS forms the basis on which potential impacts are assessed. In addition, potential issues associated with public health and safety identified during the agency and public scoping process were considered. Elements of the alternatives that are most applicable to the analysis are whether the CMAGR is renewed for continued military use or is not renewed. The duration of the withdrawal (whether for 20 years, 25 years, or indefinite) would not influence actions taken to protect public health and safety. MCAS Yuma would continue to be responsible for public safety measures, such as ensuring the boundary is marked with warning signs, regardless of which agency (DoN or BLM) has natural resource management responsibilities on the CMAGR. No changes in military operations are proposed, including for areas that could be affected by a boundary realignment; however, to ensure safety, a boundary realignment would influence the lands that would or would not be accessible by the public. Therefore, this section focused on the elements of the alternatives that could result in a different effect on public health and safety.

The impact analysis considered the following potential effects:

- Accidental or intentional trespass onto the range by unauthorized personnel
- Potential for weapons delivery containment area changes
- Site specific hazards and contamination

The method for analysis of public health and safety with regard to the proposed alternatives is to compare the safety conditions that would exist under each of the proposed alternatives as compared with the baseline of current conditions. Current risks include those related to military training activities. This risk is controlled by military protocols that have been established to minimize those potential risks. Occasionally, an accident occurs, but military protocols also have been established to react to incidents related to training activities and situations in a timely and safe manner. The SDZ and WDZ protocols provide procedures to contain munitions and munitions blasts within safety zones and away from the public. These protocols are available through Range Control.

As discussed in Section 3.11, the use of air-to-ground live munitions delivery is one of the primary training exercises employed at the CMAGR. Munitions are delivered to specific targets within the range. WDZs are established to ensure weapons delivery containment. The majority of WDZs that are established are based on the type of ordnance delivered to a target, the aircraft used, and the trajectory of the release (from high or low altitude, lofted, etc.). The DoD standard for WDZs on all ranges is that 99.9999 percent of the projectiles, fragments, debris, and components resulting from the firing, launching, and/or detonation of aircraft delivered ordnance will remain in the containment area. These containment areas would not change for any of the alternatives where the DoN maintains control of the CMAGR. The dual components of land and airspace serve to create a single training space that provides the capability for the execution of a wide variety of tactics and ordnance delivery. The air and ground range boundaries serve the dual purpose of containing and segregating military training activities from the public.

Other current risks at the CMAGR are related to unauthorized entry onto the range, whether intentional or accidental, creating the possibility of injury to trespassers and/or users of the range. The public is unauthorized to enter the CMAGR for safety reasons, and no change in this policy is proposed with any

of the action alternatives being considered. MCAS Yuma is responsible for range management, including efforts to mark the range boundary. Similarly, there are no public health and safety effects associated with the duration of the land withdrawal, with the exception of the no-action alternative, whereby the current land withdrawal would expire. Therefore, the analysis focused primarily on range boundary distinctions among the action alternatives

4.11.1 Alternative 1

Under this alternative, the boundary and withdrawal area would remain unchanged from the current condition. The potential for health and safety issues would also remain unchanged from current conditions. Warning signs are posted in English and Spanish at 200-foot intervals along the range boundary; however, if a sign gets knocked down or is not observed, persons could unintentionally enter the range. Posting and maintaining the warning signs is difficult in some areas where the boundary is only accessible by foot, particularly along the southwest boundary, which may be more than 3 miles from the nearest access road. If warning signs are knocked down, the boundary may not be clearly marked by an observable sign until the sign is replaced during the next scheduled maintenance along the boundary.

As described in Section 3.11, elements that contribute to maintaining safety include established WDZs and SDZs (shown in Figure 3-3), air safety rules to keep non-participating aircraft out of range airspace, procedures to abort live-fire exercises when range trespassers are detected, and EOD operations to neutralize hazards from live fire training exercises.

Scoping identified concerns regarding the potential for off-range transport of UXO from surface water runoff. CMAGR Explosives Ordinance Disposal (EOD) staff have reportedly observed submunitions (individual components of ordnance – see Appendix D) along various washes within the installation boundary and still on operational range area (Malcolm Pirnie, Inc. 2008). No off-range migration of UXO has been documented. The Marine Corps is committed to addressing all UXO safety concerns. Should UXO or other military debris be identified outside of the CMAGR, it would be addressed by the Military Munitions Response Program (MMRP).

4.11.2 Alternative 2

Under Alternative 2, the CMAGR boundary and withdrawal area would be realigned to follow prominent geographic features. The boundary would be realigned to be parallel to the Bradshaw Trail, UPRR, Mesquite Landfill Rail Spur, and the Niland-Blythe Road. Because these geographic features would better identify the CMAGR boundary, unintentional access would be expected to decrease, particularly once the signs used to mark the boundary are relocated along these features. Additionally, having the boundary follow a road facilitates maintenance of the signs because they are much more easily observed even when the roads are being used for access in situations other than for range maintenance.

DoN released land and BLM withdrawn land not renewed with Alternative 2 would be evaluated for potential hazards, such as unexploded ordnance, and the DoN would clean up the land before it would be considered for alternative land uses. While the land that would be excluded from the CMAGR with Alternative 2 is along the periphery of the range, and no targets are known to have been located in these areas, the land would still be carefully evaluated for the potential for errant projectiles, fragments, debris, and other munitions components. Clean-up and decontamination activities would be conducted by specially trained personnel, and appropriate health and safety measures would be observed to avoid injury or accidents. Planning efforts for future uses of the land would consider the level of decontamination required and the potential safety risk associated with the authorized future use (for example, if it would be safe to allow activities that might include subsurface earthwork).

As noted with Alternative 1, the Marine Corps is committed to addressing all UXO safety concerns and would evaluate and appropriately dispose of UXO or other range-related military debris, should any be identified outside of the CMAGR boundary.

4.11.3 Alternative 3

Under Alternative 3, the boundary separating the CMAGR from non-range lands would be realigned to incorporate the full Bradshaw Trail and the Niland-Blythe Road alignments (see Figure 2-1). No additional public land would be acquired to fully realign the boundary to these prominent geographic features, but certain parcels of DoN land would be released and certain parcels of BLM withdrawn land would not be renewed (see Figure 2-2). This would more clearly demarcate the northern range boundary compared to Alternative 1, but be less effective than Alternative 2. The challenges associated with posting and maintaining warning signs along the southwestern boundary would be the same as described for Alternative 1.

Alternative 3 would also transfer the BLM land within the CMAGR to the DoN and the DoN would manage the CMAGR land per the Sikes Act. While the range has historically been closed to public access and would remain closed to public access, the change in land jurisdiction potentially could help to reinforce that the CMAGR is a military reservation by eliminating the BLM administrative role because the public may be more familiar with BLM's multiple use principles that are applied to most public land within its jurisdiction.

As noted with Alternative 1, the Marine Corps is committed to addressing all UXO safety concerns and would evaluate and appropriately dispose of UXO or other range-related military debris, should any be identified outside of the CMAGR boundary.

4.11.4 Alternative 4

The withdrawal area would be changed to not renew DoN land north of the Bradshaw Trail, so that the boundary for Alternative 4 would partially align with the southern side of the trail. The effects would be the same as those described for Alternative 3.

4.11.5 Alternative 5

Under Alternative 5, the land withdrawal for the CMAGR would be allowed to expire in October 2014, and the remaining DoN land would not provide an adequate restricted land-base to continue tactical aviation training. Extensive clean-up procedures would need to be established before the public would be allowed to access areas of the range, which could take many years in areas with the greatest potential to be contaminated with UXO or other hazardous substances.

As described in Section 2.6, a separate planning effort by the DoD, similar to a military closure/reuse plan and study, would be required to define the reallocation of military uses, the clean-up processes, and the potential future uses of the land, so the effects of Alternative 5 on public health and safety can only be identified in a general way for the current analysis. The DoN would be responsible for all necessary cleanup activities. Portions of the range that primarily served as WDZs and SDZs may have the greatest potential to be decontaminated effectively enough to be safe for certain uses such as dispersed recreation, utility corridors, or renewable energy projects. Planning efforts for future uses of the land would consider the level of decontamination required and the potential safety risk associated with any future use that may be authorized. Some areas of the range may be so contaminated by ordnance and the potential for UXO that public health and safety could not be assured for other uses. If the CMAGR land withdrawal were allowed to expire, no public access would be granted until a thorough clean-up of all hazards was completed by the DoN.

4.12 HAZARDOUS MATERIALS AND WASTE

As noted in Section 3.12, for the purpose of this discussion, the term "hazardous substance" is used in this section to refer to either hazardous materials or hazardous waste if the specific distinction is not relevant. This section presents an analysis of the potential impacts to the management of identified hazardous substances in the CMAGR study area that are expected to result from the alternatives. Elements of the alternatives that are most applicable to the analysis are whether the CMAGR is renewed for continued military use or is not renewed. The duration of the withdrawal (whether for 20 years, 25 years, or indefinite) would not influence how hazardous substances are generated, used or managed. Additionally, DoN would be responsible for the safe handling and management of hazardous substances used or generated in military operations regardless of which agency (DoN or BLM) has natural resource management responsibilities on the CMAGR. No changes in military operations are proposed, including in areas that could be affected by boundary realignment; however, DoN would have responsibilities for appropriate clean up of land not renewed and assume certain responsibilities for land added to the CMAGR boundary. Therefore, this section focused on the elements of the alternatives that could result in a different effect associated with hazardous materials and hazardous wastes.

The analysis of hazardous substance management with regard to the proposed alternatives was assessed by first considering the use and presence of live fire ordnance, UXO, and other hazardous substances on site. Using this existing condition as a baseline, a comparison was made between procedural changes that could potentially come about in the way hazardous materials are used, managed, and cleaned up. The major potential risks related to management of hazardous substances are those related to military training activities. Military protocols have been established to minimize those potential risks, and to react in a timely and safe manner should an incident occur. Other risks involve the general public at large, who might accidently or knowingly trespass beyond the marked boundary of the range and potentially be exposed to a hazardous substance.

Live air-to-ground munitions delivery is one of the primary training exercises employed at the CMAGR. Munitions are delivered to specific targets that are surrounded by a largely undeveloped weapons delivery containment area that covers most of the range. This serves as a safety and security buffer intended to ensure that hazardous substances and explosives are contained within the range boundaries.

4.12.1 Alternative 1

Under this alternative, the boundary, withdrawal area, and withdrawal duration would remain unchanged. CMAGR management responsibilities would not change from the current condition. The quantities and locations of use and storage of hazardous materials and generation of hazardous wastes would also remain unchanged. Hazardous constituents from ordnance would be expected within the target impact areas. As noted in Section 3.12, there are fuel storage tanks at Camp Billy Machen; fuels, oils and lubricants may be used within the range to fuel and service helicopters and vehicles during training operations (USMC 2002). Additionally, there are procedures to prevent the releases and to clean up hazardous substances, should a release occur, as discussed in Section 3.12.

4.12.2 Alternative 2

Under Alternative 2, the CMAGR boundary and withdrawal area would be realigned to follow prominent geographic features. The new boundary alignment would incorporate the full Bradshaw Trail, UPRR, Mesquite Landfill Rail Spur, and the Niland-Blythe Road realignments. Because these geographic features would better identify the CMAGR boundary, unintentional access would be expected to decrease, particularly once the signs used to mark the boundary are relocated to parallel these features. Additionally, having the boundary follow a road facilitates maintenance of the signs because they are much more easily observed even when the roads are being used for access in situations other than for range maintenance.

Under Alternative 2, the CMAGR boundary would be realigned to parallel the Bradshaw Trail, Niland-Blythe Road, and UPRR, as shown in Figures 2-1 and 2-2.The quantities and locations of use and storage of hazardous substances and generation of hazardous wastes would remain unchanged. Most of these areas are within the interior portions of the range. Proposed changes in resource management responsibilities and in the duration of the land withdrawal would have no effect on the potential for incidents involving hazardous substances.

4.12.3 Alternative 3

Under Alternative 3, the CMAGR boundary line and withdrawal area would be changed to incorporate the full Bradshaw Trail and Niland-Blythe Road realignments and the authorization for CMAGR would not expire. Like Alternatives 1 and 2, no change in the quantities, locations, or management of hazardous substances would occur, and there would be no change in the potential for incidents involving hazardous substances.

4.12.4 Alternative 4

Alternative 4 would not renew DoN land north of the Bradshaw Trail, and DoN would assume management responsibilities for the BLM land within the range. The DoN would be responsible for the safe handling and management of hazardous substances used or generated in military operations regardless of which agency (DoN or BLM) has jurisdiction of the land and natural resource management responsibilities. Like Alternative 3, released land would be disposed of through existing GSA authorities and DoN would be responsible for any post-range clean-up requirements. Therefore, Alternative 4 would have the same effects as Alternative 3 with regard to hazardous substances.

4.12.5 Alternative 5

Under Alternative 5, the land withdrawal for the CMAGR would be allowed to expire in October 2014. The remaining DoN land would not provide an adequate restricted land-base to continue tactical aviation training. Extensive cleanup procedures would need to be established before the public would be allowed to access areas of the range, which could take many years in areas with the greatest potential to contain UXO or other hazardous substances. A separate planning effort would be required to define the reallocation of military uses and the potential future uses of the land. The DoN would manage DoN land until a decision is made regarding the disposition of the land. As described in Section 2.6, the Secretary of Defense, acting through the DoN, would determine which lands that have been used for training and testing may contain UXO, munitions, or munitions constituents. A separate environmental analysis and other CERCLA-related studies would be required to determine the extent and significance of risks associated with the hazard and the appropriate remedial actions that would be needed. Funding for decontamination of CMAGR lands would be subject to Congressional authorization and project prioritization across USMC and DoN facilities.

4.13 SOCIOECONOMICS

The ROI for socioeconomic impacts is defined in terms of the current contribution of the CMAGR to the social and economic environment of a specific region, which includes both the immediate CMAGR area and the economic, demographic, and social conditions of communities affected by military installations that use the CMAGR to support a significant component of their training activities. As such, the geographic extent for socioeconomic impacts is at the landscape-scale and a greater region of socioeconomic analysis, which includes much of southwestern Arizona and southern California. The communities in the vicinity of the CMAGR and in the vicinity of the military installations that use the CMAGR are indicated in Section 3.13.

This LEIS does not speculate as to how specific Marine Corps and DoN training requirements may be redefined or how units may be directed to other ranges, and, possibly, realigned to other home installations to compensate for the loss of the CMAGR. Economic modeling of changes in the contribution of the installations that use the CMAGR on their surrounding communities would be part of a separate environmental analysis. However, a brief discussion is provided below to illustrate the effect that a realignment of personnel could have on communities in the vicinity of installations should the "No Action" alternative be chosen and the range no longer used for training purposes. Additionally, there is no economic activity within the CMAGR itself, nor does the CMAGR directly contribute economically to the communities within the vicinity of the range.

The majority of aircraft that are used in training at the range originate from squadrons based at MCAS Yuma in Arizona and MCAS Miramar in California. Available economic information about these two installations suggests that these installations have beneficial economic impacts on their local communities, as described below.

MCAS Yuma has a direct beneficial economic impact on the City of Yuma and Yuma County. According to the Greater Yuma Economic Development Corporation, MCAS Yuma supports 80 percent of the Marine Corps' air-to-ground aviation training. With 4,249 military personnel and 1,877 civilian employees, MCAS Yuma has a total of more than $485 million in annual expenditures within Yuma County. Table 4-4 below highlights a 2009 report of the annual expenditures of MCAS Yuma within Yuma County.

Table 4-4 2009 Annual Expenditures of MCAS Yuma on Yuma County

Military and Civilian Payroll/Contracts	
Appropriated	
Military	$178,464,058
Civilian	$34,292,855
Non-Appropriated	
Marine Corps Community Services	$8,740,533
Billeting Fund	$470,822
Support Services	
Support/Non-Contract	$3,940,950
Commercial	$38,562,636
Construction/Service	$4,440,135
Other Government	$67,637,965
Total Payroll/Contracts	**$336,549,954**
Additional Expenditures	
Purchases	$9,009,257
Utilities	$6,808,550
Educational Assistance	$1,612,762
Medical	$9,806,400
Funding Retirement Population	$46,210,000
Miscellaneous	$9,539,317
Total Direct Beneficial Economic Impact to the Local Community in 2009	**$419,536,240**

SOURCE: Greater Yuma Economic Development Corporation. 2009; excerpts from the 2009 Command Chronology Report submitted by the City of Yuma Public Affairs Office.

The 2009 total direct beneficial economic impact to the local community of $419,536,240 represents the actual figures from wages, purchases, and other expenditures. This figure does not take into account indirect or induced economic impacts; for example, wages or household spending from MCAS Yuma employees support additional local economic activities, including the purchase of goods and services within the local community. This portion of spending, which is directed to local businesses and

employees, is once-again recirculated within the local economy, producing additional economic activity. This activity creates additional indirect and induced economic activity and jobs within the local community.

Similar baseline data are not available for MCAS Miramar. However, according to an economic impact study conducted in 2011 by the San Diego Military Advisory Council, DoD direct spending in the San Diego region in 2009 equaled $30.5 billion and sustained approximately 354,627 jobs with total earnings of $16.3 billion (San Diego Military Advisory Council 2011). The report does not detail the contribution of MCAS Miramar specifically to the total DoD economic impact in the San Diego region. According to the report, MCAS Miramar employs 9,237 active duty military—Marines, 510 active duty military—Navy, and 680 civilian employees. MCAS Miramar contributes to the overall DoD economic impact in the San Diego region.

Additionally, both MCAS Yuma and MCAS Miramar perform annual air shows that bring in visitors and additional expenditures. The MCAS Miramar Air Show draws up to 700,000 visitors annually. The weekend event brings an estimated $9.25 million to the San Diego region, resulting in a total economic impact of more than $17.27 million (San Diego Military Advisory Council 2011). An estimated 37,000 visitors attended the 2009 MCAS Yuma Air Show (Greater Yuma Economic Development Corporation 2009).

The installations that use the CMAGR for training were analyzed qualitatively for socioeconomic impacts. However, there was not sufficient information pertaining to employment and installation expenditures to quantitatively measure the indirect and induced effect on local economies. The socioeconomic impact analysis considered impacts to existing communities, quality of life, employment, housing, fiscal resources, populations, schools, police, fire, utilities, or public services resulting from the renewal of the CMAGR land withdrawal.

As analyzed below, there are no direct or indirect impacts to existing communities, employment, housing, fiscal resources, populations, schools, police, fire, utilities, or public services resulting from the renewal of the CMAGR land withdrawal. There are no indirect effects to communities within the ROI that would induce growth, change land use patterns, adversely affect quality of life, or increase population and growth rates. Renewal of the range under Alternatives 1 through 4 would continue the direct, indirect, and induced beneficial economic impacts, as previously indicated. This LEIS does not speculate as to how the CMAGR might be used if Alternative 5 were selected, because no preliminary plans or concepts have been developed related to redistributing the training. Therefore, there is no socioeconomic analysis associated with uses of the range other than for the current training purposes.

Alternatives 1 through 4 would allow for continued air combat training and other related defense purposes for at least the duration of the new withdrawal. Alternative 5 would end the use of the CMAGR as a military aviation training range on 31 October 2014, when the current withdrawal of public lands expires. Alternatives 1 through 5 are evaluated below based on boundary alignment and withdrawal area, and duration of range renewal. Alternatives 1 through 4 are not evaluated for management of the CMAGR or management of the land released from CMAGR, as management options would not impact socioeconomic resources. Under Alternative 5, BLM would manage public lands and potentially DoN disposed lands. The BLM would manage non-military use of these lands according to the multiple-uses provisions of FLPMA. Therefore, management of the CMAGR is evaluated for the no-action alternative. Range renewal elements are discussed in Chapter 2 and summarized in Table 2-1.

4.13.1 Alternative 1

No adverse socioeconomic impacts to existing communities, employment, housing, fiscal resources, populations, schools, police, fire, utilities, or public services are expected with renewal of the land

withdrawal, as there would be no expected changes to the operation and use of the CMAGR. Ongoing beneficial effects would continue. The continued use of the CMAGR would not disrupt an existing community, nor would it adversely affect the quality of life or socioeconomic resources of any community within the ROI. Military installations with missions supported by the CMAGR would continue to operate at current levels for an additional 20 years, and would continue to contribute to the beneficial socioeconomic effects within the affected communities and counties.

4.13.2 Alternative 2

This alternative incorporates the full Bradshaw Trail, UPRR, and Niland-Blythe Road realignments. It is anticipated that the military installations with missions supported by the CMAGR would continue to operate in a similar capacity, supporting approximately the current levels of training operations for 25 years; therefore, no adverse socioeconomic impacts to existing communities, employment, housing, fiscal resources, populations, schools, police, fire, utilities, or public services are expected. The location of training operations within the CMAGR would remain unchanged; therefore, military training operations would not encroach beyond the current boundary alignment closer to an established community as a result of the Alternative 2 realignment. The continued use of the CMAGR and the proposed boundary changes would not disrupt an existing community, nor would it adversely affect the quality of life or socioeconomic resources of any community within the ROI. Military installations with missions supported by the CMAGR would be expected to continue to operate at current levels for at least the 25-year duration of the CMAGR land withdrawal renewal, and would continue to contribute to the beneficial socioeconomic effects within the affected communities and counties. The Bradshaw Trail, UPRR, and Niland-Blythe Road would remain outside and adjacent to the CMAGR boundary, and therefore no effect is anticipated on these resources or the users of these travel corridors.

4.13.3 Alternative 3

Socioeconomic impacts under Alternative 3 would be similar to those described under Alternative 2, i.e., the CMAGR would continue to contribute to the socioeconomic beneficial impacts within the affected communities and counties and no adverse socioeconomic impacts to existing communities, employment, housing, fiscal resources, populations, schools, police, fire, utilities, or public services are expected. The boundary and withdrawal area would be changed to incorporate the full Bradshaw Trail and Niland-Blythe Road realignments, as shown in Figure 2-1. The location of training operations within the CMAGR would not change; therefore, military training operations would not encroach beyond the current boundary alignment closer to an established community as a result of the Alternative 3 realignment. Alternative 3 would not affect the socioeconomic conditions within the ROI, as there would be no expected changes to the operation and use of the CMAGR. The continued use of the CMAGR would not disrupt an existing community, nor would it adversely affect the quality of life or socioeconomic resources of any community within the ROI.

Alternative 3 would authorize use of the CMAGR indefinitely by transferring the public land to the DoN. It is anticipated that military installations with missions supported by the CMAGR would continue to operate indefinitely in a similar capacity as current conditions, and would continue to contribute to the socioeconomic benefits within the affected communities and counties.

4.13.4 Alternative 4

Socioeconomic impacts under Alternative 4 would be similar to those described above under Alternatives 2 and 3; that is, the CMAGR would continue to contribute to the beneficial socioeconomic effects within the affected communities and counties and no adverse socioeconomic impacts to existing communities, employment, housing, fiscal resources, populations, schools, police, fire, utilities, or public services are expected. The boundary and withdrawal area would be changed to incorporate the partial Bradshaw Trail realignment. Alternative 4 would authorize use of the CMAGR for an additional 25 years.

As with Alternative 3, the location of training operations within the CMAGR would not change as a result of Alternative 4; therefore, military training operations would not encroach beyond the current boundary alignment closer to an established community as a result of the Alternative 4 realignment. Alternative 4 would not affect the socioeconomic conditions within the ROI, as there would be no expected changes to the operation and use of the CMAGR. The continued use of the CMAGR would not disrupt an existing community, nor would it adversely affect the quality of life or socioeconomic resources of any community within the ROI. It is anticipated that the military installations with missions supported by the CMAGR would continue to operate in a similar capacity, supporting approximately the current levels of training operations for the 25-year duration of the land withdrawal. This would continue to contribute to the beneficial socioeconomic effects within the affected communities and counties.

4.13.5 Alternative 5 (No Action)

No preliminary plans or concepts have been developed related to closure of the CMAGR and redistribution of training. Therefore, this LEIS does not speculate as to how specific Marine Corps and DoN training requirements may be redefined or how units may be directed to other ranges, and, possibly, realigned to other home installations to compensate for the loss of the CMAGR. However, it is reasonable to assume that there would be some negative economic impacts to those communities near the installations that use the CMAGR for training should units relocate to other home installations. Non-renewal of the CMAGR could result in military mission changes at MCAS Miramar, MCAS Yuma, MCAS Camp Pendleton, NAS North Island, and Luke AFB. Currently, training at the CMAGR is mostly performed by the MCAS Yuma and MCAS Miramar installations. Therefore, the impact to local economies may be higher in those communities located in the vicinity of MCAS Yuma and MCAS Miramar.

As indicated in the introduction of Section 4.13, the presence of military installations, defense contractors, military personnel, and civilian employees has significant economic influence in the region of the installations that use the CMAGR for training. Communities supporting the CMAGR in the ROI could all be affected to some degree if the CMAGR were not renewed. Substantial changes in the overall installation mission capabilities that would directly result in the loss of employment would most likely occur at MCAS Yuma and MCAS Miramar. Adverse socioeconomic impacts would be greatest in Yuma County near MCAS Yuma, most likely in the City of Yuma, and in San Diego County near MCAS Miramar, in particular El Cajon, Poway, San Diego City, and Santee. It is less likely that the communities in the vicinity of the CMAGR would experience adverse economic impacts from non-renewal, as there is no economic activity within the CMAGR or economic activity related to the CMAGR within the vicinity of the range.

MCAS Yuma contributed $419,536,240 in direct economic activity to the local community in 2009. MCAS Miramar contributed a portion of the $30.5 billion in economic impact on the entire San Diego region from the DoD direct spending in the San Diego region in 2009. The no-action alternative could result in negative economic impacts to the communities near MCAS Yuma and MCAS Miramar installations, should the non-renewal of the CMAGR result in relocation of military personnel, and a subsequent reduction in direct economic activity to local communities.

Alternative 5 would result in the closure and decommissioning of the CMAGR and the likely decontamination and eventual non-military reuse of portions of the range. Management of public lands under Alternative 5 could result in use of the range for non-military land uses managed by BLM that may generate local economic activity. BLM manages land according to multiple uses (designated under FLPMA) such as grazing, development, mining, and OHV use. Not all non-military land uses have economic impacts, but possible economic benefits to communities nearby the CMAGR as a result of project/development construction related expenditures could have direct, indirect, and induced beneficial

impacts on local economies. However, negative economic effects would likely be experienced at the air stations or other installations where aircraft, aircrews, or other military personnel that train at the range are based. As discussed previously, closure of the CMAGR would precipitate an urgent need to either restore its training capabilities and capacities elsewhere within the region or to find replacement training opportunities outside of the region. Socioeconomic impacts from such changes would be evaluated through a public planning process and additional NEPA analysis.

4.14 ENVIRONMENTAL JUSTICE

As mentioned in Section 3.14.2 of this document, Presidential EO 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," is intended to ensure that federal departments and agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.

Evaluating whether a proposed action has the potential to have disproportionately high and adverse impacts on minority and/or low-income populations typically involves

- Identifying any minority or low income communities within an appropriate unit of geographic analysis
- Identifying any potential high and adverse environmental or human health impacts from the proposed action, and, if there are any such impacts
- Examining the spatial distribution of any minority or low-income communities to determine if they would be disproportionately affected by these impacts

Guidelines provided by the EPA and the CEQ indicate that a minority community may be defined as one where either the minority population of the affected area exceeds 50 percent or the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis (CEQ 1997; EPA 1998). The same guideline is used here to evaluate environmental justice impacts on low-income populations.

The affected area, although not defined by the EPA guidance, should be interpreted as that area that would or may be affected by the proposed action. The unit of geographic analysis for determining environmental justice impacts is the ROI as defined in Section 3.14, which includes both the immediate CMAGR area and the communities affected by military installations that use the CMAGR to support a significant component of their training activities. As such, the geographic extent to evaluate environmental justice impacts is at the same landscape- and regional-scale of the socioeconomic analysis, which includes much of southwestern Arizona and southern California.

Low-Income Populations

As indicated in Table 3-24 the Gila River Reservation in Arizona exceeds the EPA guideline of 50 percent of persons living below the poverty line. The percentage of persons living below the poverty line in the communities in Riverside, Imperial, and San Diego counties in California, range from 3.4 percent to 28.86 percent. The percentage of persons living below the poverty line in the communities in Yuma and Maricopa counties in Arizona, range from 8.74 percent to 19.23 percent. Within the Native American Reservations there are 10.51 percent to 52.1 percent of persons living below the poverty line. The Torres-Martinez Reservation in California represents the second highest percentage (42.14) of persons living below the poverty line. This community does not exceed the EPA guidance of 50 percent

or greater; however, it represents a percentage of persons living below the poverty line that is meaningfully greater than the percentage of persons living below the poverty line within the ROI.

Minority Populations

Table 3-25 shows the minority populations within the communities in the ROI. As indicated in Table 3-25 and Section 3.14.3, the minority population in Riverside, Imperial, and San Diego counties in California, ranges from 2.96 percent to 97.39 percent minority. The communities in Yuma and Maricopa counties in Arizona range from 14.03 percent to 45.67 percent minority. The Native American Reservations range from 4.59 percent to 96.3 percent minority.

The following communities in the vicinity of the CMAGR have minority populations that exceed the EPA threshold: Coachella (97.39 percent), Indio (75.39 percent), Brawley (74.74 percent), El Centro (74.58 percent), Calipatria (68.21), Niland (55.29 percent), Cabazon Reservation (90.69 percent), Cahuilla Reservation (79.87 percent), Morongo Reservation (78.09 percent), and Torres-Martinez Reservation (92.16 percent).[1] The following communities in the vicinity of the installations that use the CMAGR have minority populations that exceed the EPA threshold: Fort Yuma Reservation (72.64 percent), Cocopah Reservation (53.76 percent), and Gila River Reservation (96.3 percent). All of these communities exceed the EPA threshold of 50 percent minority population and represent potential communities of concern for environmental justice impacts.

Alternatives

Alternatives 1 through 4 would allow for continued air combat training and other related defense purposes. Alternative 5 would end the use of the CMAGR as a military aviation training range on 31 October 2014, when the current withdrawal of public lands expires. Alternatives 1 through 5 are evaluated below based on boundary alignment and withdrawal area, and duration of range renewal. Assignment options for management of the CMAGR or management of the land released from CMAGR would not impact a community of concern for environmental justice impacts; therefore, these components of alternatives for renewing the CMAGR are not discussed below. These range renewal elements are discussed in Chapter 2 and summarized in Table 2-1.

The renewal of the CMAGR is not anticipated to cause disproportionately high and adverse human or environmental effects on low-income or minority communities within the ROI. The communities of concern in the vicinity of the CMAGR and in the vicinity of installations that use the CMAGR would not experience environmental justice impacts because renewal of the range would not cause new direct or indirect environmental or human health impacts. Therefore, the renewal of the CMAGR would not result in adverse impacts to the communities of potential concern.

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[1] Some of the communities listed on Table 3-25 have a percentage of racial minority population and a percentage of Hispanic/Latino origin population. This is done because, according to the U.S. Census Bureau, White is considered non-Hispanic white only. The federal government considers race and Hispanic/Latino origin (ethnicity) to be two separate and distinct concepts. People identified as Hispanic or Latino origin may be of any race. The data summarized in Table 3-25 present minority population as individuals that answered a race category other than "white." The data summarized in the right column of Table 3-25 present Hispanic/Latino as a separate category to avoid double counting.

The percentage in parenthesis above represents the higher of the two percentages.

4.14.1 Alternative 1

The boundary and withdrawal area would remain unchanged from current condition. Renewal of the CMAGR for an additional 20 years would not disproportionately affect a potential community of concern for environmental justice. Therefore, there are no significant impacts that may degrade a low-income or minority neighborhood and affect the communities of concern.

4.14.2 Alternative 2

This alternative incorporates the full Bradshaw Trail, UPRR, and Niland-Blythe Road realignments. It is anticipated that military installations with missions supported by the CMAGR would continue to operate in a similar capacity, supporting approximately the current levels for 25 years. The location of training operations would remain unchanged within the CMAGR; therefore, military training operations would not encroach beyond the current boundary alignment. The communities of potential concern for environmental justice impacts in the vicinity of the CMAGR and in the vicinity of the installations that use the CMAGR for training would not experience a disproportionate effect, because renewal of the range is not anticipated to cause new direct or indirect environmental or human health impacts. Renewal of the CMAGR for an additional 25 years and boundary realignment would not disproportionately affect a low-income or minority neighborhood.

4.14.3 Alternative 3

Environmental justice impacts under Alternative 3 would be similar to those described under Alternative 2. The boundary and withdrawal area would be changed to incorporate the full Bradshaw Trail and Niland-Blythe Road realignments. Alternative 3 would authorize use of the CMAGR indefinitely. The location of training operations within the CMAGR would not change as a result of Alternative 3. Renewal of the CMAGR indefinitely and boundary realignment would not disproportionately affect a low-income or minority neighborhood, because renewal of the range is not anticipated to cause new direct or indirect environmental or human health impacts.

4.14.4 Alternative 4

Environmental justice impacts under Alternative 4 would be similar to those described under Alternatives 2 and 3. The boundary and withdrawal area would be changed to incorporate the partial Bradshaw Trail realignment. Alternative 4 would authorize use of the CMAGR for an additional 25 years. As with Alternative 1, 2, and 3, the location of training operations within the CMAGR would not change as a result of Alternative 4. Renewal of the CMAGR for an additional 25 years and boundary realignment would not disproportionately affect a low-income or minority neighborhood because renewal of the range is not anticipated to cause new direct or indirect environmental or human health impacts.

4.14.5 Alternative 5 (No Action)

This LEIS does not speculate as to how specific Marine Corps and DoN training requirements may be redefined or how units may be directed to other ranges, and, possibly, realigned to other home installations to compensate for the loss of the CMAGR. However, it is reasonable to assume that there would be some negative economic impacts on those communities nearest the installations that use the CMAGR for training, should units relocate to other home installations. Non-renewal of the CMAGR could result in military mission changes at MCAS Yuma, MCAS Miramar, MCAS Camp Pendleton, Luke AFB, and NAS North Island. Currently, training at the CMAGR is mostly performed by squadrons based at the MCAS Yuma and MCAS Miramar installations. Therefore, the impact to local economies may be higher in those communities located in the vicinity of MCAS Yuma and MCAS Miramar.

As indicated in Tables 3-24 and 3-25, there are no communities of concern for low-income or minority populations in the communities near MCAS Miramar. The Fort Yuma Reservation represents a community of concern for environmental justice (72.64 percent minority population) that could experience negative economic impacts if MCAS Yuma redefines training requirements or realigns military personnel to another installation, though they may not be disproportionate. It is not anticipated that the Gila River Reservation near Luke AFB would experience the same level of effect as the Fort Yuma Reservation, because Luke AFB personnel do not use the CMAGR as extensively.

As discussed previously, closure of the CMAGR would precipitate an urgent need to either restore its training capabilities and capacities elsewhere within the region or to find replacement training opportunities outside of the region. Socio-economic impacts from such changes would be evaluated through a public planning process and additional NEPA analysis.

4.15 UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

Unavoidable adverse impacts (also referred to as residual impacts) are the effects that would remain after mitigation measures have been applied. In general, unavoidable adverse impacts occur because there is no reasonable or effective mitigation to reduce the impact or the mitigation is not expected to be effective enough to reduce the level of impact to a low or negligible level. This section describes the unavoidable adverse impacts associated with any of the alternatives to renew the CMAGR. Alternative 5 was evaluated only for range and airspace operations; all other resource analysis of Alternative 5 would be speculative as to unavoidable adverse environmental impacts. Only the alternatives that could cause unavoidable adverse environmental impacts are discussed. Range and airspace operations, non-military land use, geological resources, biological resources, and cultural resources, have potential to be unavoidably adversely impacted by certain alternatives. Hazardous materials and waste could unavoidably adversely impact the environment as discussed below. Water resources, visual resources, and socioeconomic resources have no adverse effects and are excluded from this discussion. Air quality, noise, public health and safety, and environmental justice impacts are avoidable, and therefore, are not discussed below.

4.15.1 Impacts of Proposed Alternatives

Range and Airspace Operations

Under Alternative 5 the CMAGR would be closed, decommissioned, and slated for non-military use. Military training capabilities, capacities, and operations at the CMAGR would be lost. Recreating CMAGR training capabilities within the BSTRC, at BMGR East, or the MCAGCC would likely diminish some existing capabilities at the other ranges, cause training schedule conflicts, and reduce the aggregate capabilities and capacities of these range complexes. Loss of the CMAGR would also diminish the multidimensional and multi-tiered training system that has been developed at the integrated system of ranges, range complexes, and military bases in southern California and Arizona over decades for preparing MAGTFs. NSWG training would also have to be relocated. New routing opportunities may be created for civil aviation operations in special use airspace areas associated with closure of the CMAGR.

Non-Military Land Use

As long as the CMAGR remains withdrawn in accordance with Alternative 1, 2, 3, or 4 as a military reservation, land uses that are incompatible with military operations would not be allowed on the CMAGR.

Geological Resources

Renewal of the range in accordance with Alternative 1, 2, 3, or 4, would result in continued effects on soils by military surface use primarily within the core and secondary weapons impact areas, roads, and other areas with moderate to complete surface disturbance. These levels of disturbance from military use are limited to about 5 percent of the CMAGR and would primarily consist of physical disturbance of the near-surface soil layers that could result in loss of soil structure, increased soil compaction, destruction of physical or biological crusts, loss of vegetative cover, and/or accelerated wind and water erosion. Fuel spills, explosive residues, and exploded and unexploded ordnance debris could result in soil contamination. Indirect effects on soils, which would also primarily occur in areas of moderate to complete military surface use, include reduced surface water infiltration with an associated increase in surface water runoff, soil productivity decline resulting in poor plant growth or seed germination, and soil contamination migration.

For the duration of the land withdrawal, in accordance with any of the action alternatives, extraction of mineral and energy resources would continue to be precluded from CMAGR lands. While this is an unavoidable effect associated with renewal of the land withdrawal, the effect is not irretrievable because these resources would remain preserved for future development and use. However because of the intensive use of munitions, geological resource development may potentially be precluded even after expiration of the land withdrawal in some locations for safety reasons.

Biological Resources

Renewal of the range in accordance with Alternative 1, 2, 3, or 4,, would result in a continuation of the impacts to biological resources. Only a small proportion of the range supports surface uses that cause or may cause moderate to complete levels of physical disturbance to the ground surface, vegetative communities, and surface drainages. Vegetation communities have been affected by military operations in the past, especially within the highly disturbed areas associated with the core weapons impact areas (less than 0.5 percent of the CMAGR) where vegetative communities are eliminated. Physical disturbance of the ground surface generally decreases sharply with distance from individual targets and natural processes shaping ground/soil surfaces, surface drainages, and vegetative communities become increasingly predominant. Vegetation communities within the CMAGR have been altered, but continually re-vegetate and persist to provide productive biological communities. This process would continue if the range is renewed from ordnance impacts on targets, maintenance of existing roads and target areas, and damage to vegetation from off-road use of vehicles, primarily during ground forces training activities.

Continued military operations that could affect washes include off-road vehicle use, ordnance explosions, or other ground disturbance. Ground disturbance related to military activities could continue to contribute to erosion to the extent that military operations, such as driving within and across washes, occur. Impacts from ordnance at target areas would continue to prevent the re-establishment of vegetation.

Direct impacts to wildlife involve mortality, injury, or disturbance from human activities. Delivery of inert or high explosive ordnance in target areas as well as vehicle use can result in mortality or injury to wildlife. Noise from aircraft overflights can also disturb wildlife. None of these impacts are expected to jeopardize the continued existence of wildlife.

Cultural Resources

Renewal of the range, in accordance with Alternative 1, 2, 3, or 4, could result in a continuation of impacts through continued military use of the CMAGR. As the majority of cultural resources documented within the CMAGR represent archaeological sites that may be recommended or determined eligible based on their potential to yield information (Criterion D), direct impacts to such sites may occur as a result of direct ground-disturbing and ordnance delivery activities. Direct disturbances to cultural resources,

particularly archaeological sites, are more likely to occur at areas associated with target arrays. Such direct disturbance may affect the integrity of cultural resources.

Hazardous Materials and Waste

Renewal of the range, in accordance with Alternative 1, 2, 3, or 4, would result in a continuation of the impacts from hazardous constituents from ordnance within and adjacent to target arrays, including UXO. Other types of potentially hazardous materials used at the CMAGR include fuel stored at Camp Billy Machen; petroleum, oils and lubricants used within the range to fuel and service helicopters and vehicles during training operations; and ammunition stored on the range. Military protocols and procedures have been established to minimize potential risks associated with these materials, and to react in a timely and safe manner should an incident result in release of a hazardous substance.

4.16 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

A commitment of resources is irreversible when the effects of proposed activities result in limiting the future options for resource development or management. An irretrievable commitment refers to the lost production or use of a resource that would cause the resource to be unavailable for use by future generations. For example, the extraction of a nonrenewable mineral resource means it would not be available for use by a future generation. Alternatives 1, 2, 3, and 4 propose renewal of the CMAGR to support continued military training operations. Implementation of an action alternative would require the continuing commitment of resources in support of military training. Some of these resources would be irreversibly and irretrievably committed to these actions at least for the life of the range renewal. For some resources the commitment would extend beyond the life of the range.

With Alternative 5, the current withdrawal of BLM land in the CMAGR would expire at the end of October 2014, the BLM land would no longer be available for military purposes, and the remaining DoN land would not provide an adequate restricted land-base to continue tactical aviation training. At this time, the nature and extent of remediation or response actions is highly speculative, as is the future potential use for the land. If the land were remediated to allow for alternative land uses, it may be anticipated that uses may be similar to those already occurring in the vicinity, such as renewable energy generation, mining, recreation, or wilderness designation; these alternative uses could also result in irreversible and irretrievable commitments of resources. However, the extent to which non-renewal of the CMAGR would lead to such resource commitments is not addressed in this LEIS because it would be speculative to assume what non-military land uses may occur or which lands would be affected. In addition, such future uses would be subject to separate environmental analysis of irreversible and irretrievable commitment of resources.

Water resources and visual resources are not irreversible or irretrievable. Air quality, noise, public health and safety, and environmental justice are not resources and do not contribute to the irreversible and irretrievable commitment of any resources. These elements of the environment are not discussed below.

Range and Airspace Operations

Renewal of the CMAGR would provide continuing justification for retaining restricted areas R 2507N, R 2507S, and R 2507E for the life of the range renewal. These areas directly overlie more than 85 percent of the range land area and serve to contain and segregate live-fire training and other military activities. The CFAs provide the controlled environment necessary to allow Navy SEALs, or other ground troops the ability to execute essential training. Twenty-five types of air combat training activities currently occur on a regular basis at the CMAGR, adjacent MOAs and ATCAAs, and/or the El Centro Ranges to provide aircrews with the repertoire of combat skills that they need. Designation of these airspaces and areas as

restricted for military use would have to be irreversible and irretrievable for the life of the range, if the CMAGR is to continue to support live-fire training with aviation weapons. Civil aviation access to airspace in the CMAGR region and civil flight operations would continue to be excluded from the CMAGR.

Non-military Land Use

Renewal of the CMAGR would constitute an irreversible and irretrievable commitment of the range area to support various military land uses for at least the life of the range. The proposed renewal would continue the statutory closure of the range lands for all forms of appropriative land use, including grazing, development, mining, recreational use, and other public uses allowed by FLPMA, for the period of the land withdrawal. The range would be irreversibly and irretrievably committed to closed public access during the life of the range. These access limitations and closures are necessary to protect public safety and prevent interference with military operations.

Termination of the range land withdrawal would result in the ending of the reservation of the range lands for military purposes, and its closure to appropriative land uses to support those purposes. While military operations would be discontinued, a separate planning effort by the DoD, similar to a military closure/reuse plan and study, would be required to define the reallocation of military uses, the clean-up processes, and the potential future uses of the land. Assuming range lands are rendered safe for other purposes, certain lands within the range may be developed for uses compatible with the level of decontamination. New opportunities could potentially be developed for the expansion of existing utility corridors, renewable energy rights of way, transportation projects, or other possible uses. Former target areas, however, may be so burdened by UXO or munitions constituents that direct reuse of these locations would not be possible for safety reasons. These types of sites may be irretrievably lost for reuse after the life of the CMAGR.

Geological Resources

Contamination from UXO could render an area unsafe for future mining or other land uses, which could result in irreversible and irretrievable commitment of mineral resources even beyond the military use of the range. This potential already exists; however, the renewal of the range could cause additional unexploded munitions to accumulate and possibly exacerbate the effect.

Biological Resources

The proposed action could cause irretrievable impacts to biological resources including loss of vegetation, degradation of wildlife habitat, and mortality or disturbance to wildlife. Loss of vegetation and degradation of wildlife habitat are considered irretrievable because desert vegetation can be particularly slow to recover, and the proposed action does not include provisions for restoration or mitigation of damaged habitat. However, loss of vegetation and habitat is primarily concentrated in the core and secondary weapons impact areas, and other areas where military use has resulted in moderate to complete disturbance; these areas represents about 5 percent of CMAGR.

Impacts related to the mortality, injury, or disturbance of individual plants and animals are considered irretrievable; however, range renewal is not expected to cause irretrievable damage to the long-term health of any species as a whole at CMAGR. Wildlife populations at CMAGR would continue to persist at reduced densities due to the habitat loss and disturbance related to military training. Military training has been ongoing at CMAGR before this range renewal; therefore wildlife density reductions represent a reduction from pre-military use rather than existing conditions at CMAGR. The Biological Opinion covering take of desert tortoises due to military training at CMAGR includes mitigation; however, these mitigation measures do not necessarily prevent take, and the expected take represents an irretrievable impact.

Habitat loss due to the proposed action is considered an irreversible impact because the proposed action would require irreversible commitment of habitat at CMAGR for the purpose of military training for the life of the renewal. Portions of CMAGR may simultaneously function as wildlife habitat and military training area; however, areas adjacent to target arrays would preclude use as wildlife habitat.

Cultural Resources

Impacts to cultural resources ordinarily are thought of as irretrievable when physical disturbance occurs. Some such resources within the CMAGR or within lands proposed for incorporation into the CMAGR could be subject to damage from military on-the-ground activities or air-to-surface ordnance delivery, which may cause physical disturbance to cultural resources resulting in an irreversible and irretrievable loss of the resource; such disturbance would occur for the life of the CMAGR. However, extensive to complete disturbance of ground surface is mostly anticipated to occur at or near targets. Core and secondary weapons impact areas and other areas with moderate to complete military surface disturbance represent about 5 percent of CMAGR. Outside of these heavily disturbed areas , the effect of military ordnance delivery generally decreases sharply with increasing distance from targets. While some historic or archaeological resources may be damaged from munitions impact, ground troop training, or EOD clearance, an even greater amount of damage could potentially result with the no-action alternative, due to deactivation, post-range planning, and clean-up activities. If decontamination activities would be more extensive than current use and clearance practices, the potential for damage to cultural resources could be even greater with the no-action alternative.

Hazardous Materials and Waste

Continued use and presence of live fire ordnance and UXO potentially could irreversibly and irretrievably contaminate some portions of target impact areas , leaving these areas unsuitable for non-military land uses.

Should the range not be renewed, extensive cleanup procedures would need to be established before the public would be allowed to access areas of the range, which could take many years in areas with the greatest potential to be contaminated with UXO or other hazardous materials. A separate planning effort by the DoD, similar to a military closure/reuse plan and study, would be required to define the reallocation of military uses, the clean-up processes, and the potential future uses of the land. Until the land could be rendered safe, it would be irretrievably unavailable for other uses.

Socioeconomics

The CMAGR would be irreversibly and irretrievably unavailable for all forms of appropriative land use or other types of economic development during the life of the range withdrawal. However, renewal of the range in accordance with Alternative 1, 2, 3, or 4 would continue to provide economic benefits to the communities in the vicinity of the installations that use the CMAGR for training. The range would become potentially available for non-military economic uses following the termination of the range.

5. CUMULATIVE EFFECTS

5.1 INTRODUCTION

Cumulative effects are those additive or interactive effects that would result from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions (40 CFR § 1508.7). Interactive effects may be either countervailing—where the net cumulative effect is less than the sum of the individual effects—or synergistic—where the net cumulative effect is greater than the sum of the individual effects. The Council on Environmental Quality handbook for considering cumulative effects advises that focusing the cumulative effects analysis on meaningful cumulative impact issues, rather than on all conceivable impact relationships, is critical to the success of this analysis to support better decisions about the proposed action and alternatives (Council on Environmental Quality 1997). The handbook also advises that cumulative effects need to be analyzed in terms of the specific resources, ecosystem, and human community that may be affected by the proposed action or alternatives. The analysis must consider how cumulative effects may be manifested over short and long time frames and how they may cause meaningful impacts that extend over areas that may exceed political or administrative boundaries. Each affected resource, ecosystem, and human community must be analyzed in terms of its own capacity to accommodate additional effects, based on its own time and space parameters.

Section 5.2 provides the assessments of the effects of other past, present, and reasonably foreseeable futures actions on affected resources, ecosystems, and human communities in the CMAGR region. Section 5.3 provides the assessments of the cumulative effects of each alternative on individual resources when considered together with the effects of other past, present, and reasonably foreseeable futures actions. As indicated in Section 4.14, no adverse environmental justice impacts would be likely to occur as a result of Alternative 1, 2, 3, 4, or 5; consequently, no discussion of cumulative effects on environmental justice is included in Section 5.3. Assessments are provided for each of the other individual resource categories addressed in Chapter 4.0.

Cumulative effects analysis normally encompasses geographic boundaries beyond the immediate area of the proposed action, and a timeframe including past actions and reasonably foreseeable future actions. The geographic scope of the cumulative effects analysis varies by resource area. For example, the geographic scope of cumulative impacts on resources such as soils and vegetation is localized, whereas the geographic scope of air quality is the region. To support the cumulative effects analysis, the Marine Corps reviewed public documents to identify present and future military actions, other federal actions, and non-federal actions. The BLM, a Cooperating Agency on this LEIS, also provided information on potential renewable energy projects. The identification of a potential project as "reasonably foreseeable" does not constitute Marine Corps endorsement of such actions, only that they have been proposed and are appropriately considered within the scope of this analysis.

5.2 EFFECTS OF PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS

A list of 50 actions in total, including 32 past and present actions and 18 reasonably foreseeable future actions, have been identified that are relevant to the cumulative effects analysis of this LEIS (Table 5-1). The past and present actions listed are those that played important roles in shaping the current landscape, airspace, and socioeconomic conditions in which the CMAGR is located. The reasonably foreseeable future actions listed are those that will help to clarify how the environment of the CMAGR region may likely be expected to change as a result of factors other than the renewal or closure of the range. The locations of most of the actions listed in Table 5-1 are shown in Figure 5-1. Some actions, such as Number 10, development of the National Airspace System, have a general rather than specific location and are not depicted in Figure 5-1.

Table 5-1 Past, Present and Reasonably Foreseeable Future Actions Within the Region of Influence of the Chocolate Mountain Aerial Gunnery Range

Action Name	Action Summary
PAST and PRESENT ACTIONS	
1. Historic Mining	Mining was one of the earliest resource-based economic activities that supported settlement in the CMAGR region. 1780 - 1942.
2. Bradshaw Trail	A pioneering mining and stage coach route, the Bradshaw Trail was designated by the BLM as a National Backcountry Byway in 1992 (U.S. Department of Transportation, Federal Highway Administration 2010). The trail currently supports public recreation including OHV use; scenic travel; and access for camping, rockhounding, wildlife exploration, bird watching, and hiking (BLM 2009). 1862 - present.
3. Southern Pacific Railroad (SPRR), now Union Pacific Railroad (UPRR)	By 1877, the SPRR connected Los Angeles, CA, and Yuma, AZ; by 1881, the SPRR connected to the Texas and Pacific Railroad in Texas to complete the Nation's second transcontinental railway (Central Pacific Railroad Photographic History Museum 2012). In 1996, the UPRR and SPRR merged. In October of 2010, UPRR announced plans to expand to a double-track corridor for 9 miles within Imperial County (UPRR 2010). 1877 - present.
4. Salton Sea	The Salton Sea is a saline lake that currently covers about 242,640 acres (376 square miles) (Setmire 2000). 1905 - present.
5. Agriculture Production	Agriculture made possible by irrigation water from the Colorado River included about 536,209 acres in the Imperial Valley and about 78,530 acres in the Coachella Valley in 2010. 1901 - present.
6. Historic settlement	Early Spanish and Anglo settlements in the CMAGR vicinity were mining towns that began as early as the 1780s. A boom and bust cycle of mines and mining towns continued until about 1905. Lasting economic development and settlement began after 1900 when canal construction brought water for agriculture to the Imperial Valley. El Centro, the largest city in Imperial County with a 2010 U.S. census population of 42,598, was founded in 1906. Other communities include Imperial (1904), Brawley (1908), Calipatria (1919), Niland (1914), Mecca (unknown), and Coachella (1876), which had 2010 census populations of 14,758, 24,953, 7,705, 1,006, 8,577, and 40,704, respectively. 1780s - present
7. Imperial Irrigation District (IID)	Incorporated in 1911 to supply irrigation water, the IID is now a multifaceted utility company. IID provides Colorado River water to a total of 1,675 miles of canals in the Imperial Valley (IID 2011). About 97 percent of the water delivered by the IID is used for agricultural purposes. In the 1930s, IID began producing hydroelectric power and is now transitioning to modern power sources, such as solar and wind production. Three IID transmission lines traverse the CMAGR. 1911 - present.
8. Coachella Canal	The Coachella Canal was placed into service in 1949 as a Reclamation project. The canal delivers Colorado River water from the All-American Canal to agricultural land in the Coachella Valley. The canal is contiguous to the CMAGR boundary for about 26 miles and can be crossed only at 17 siphons over that distance. 1949 - present.
9. Highway and Road System	The highway and road system in the CMAGR vicinity grew from the Bradshaw Trail in 1862 to include a circuitous network of wagon and unpaved roads between Imperial Valley towns, several meandering and unpaved road links between the El Centro area and San Diego and between El Centro and Yuma, unimproved roads between the Imperial and Coachella valleys, and an unpaved precursor to the present-day SR 78 between Glamis and Blythe by the early 1920s. The first paved highways in the region, completed circa 1926, included U.S. 60, which connected Blythe and Los Angeles, and U.S. 80, which connected San Diego, El Centro, and Yuma. U.S. 80 was replaced by the completion of I-8 in 1964, and U.S. 60 was replaced by I-10 in 1972. SR 111, to the west of the CMAGR, was completed in the mid-1930s, but was not paved until about 1964. 1862 - present.
10. National Airspace System Development	The evolution of the complex of military ranges, special use airspace, high- and low-altitude civil airways and airspace, and military and civil airfields that constitute the National Airspace System in the CMAGR region began in the 1920s with the development of civil airfields and first-generation airways. Development of radio navigation airways began in the 1930s. Military activities, including the development of military airfields, ranges, and special use airspace, dominated aviation in southern California and Arizona during World War II, but most military airfields and ranges were closed and most special use airspace was cancelled shortly after the war. The Korean and Cold wars renewed the importance of the region for military training beginning in 1951, and some military airfields, ranges, and special use airspace were reactivated, including most of that that is currently incorporated in the BSTRC. Civil aviation was the principal developmental driver of the National Airspace System in the region before World War II, and military exigencies were predominant during the war. Although early 1950s events returned military requirements to an influential role in the evolution of aviation in the CMAGR region, from that time forward, neither military nor civil airspace users alone were to again dominate the process. Advances in aircraft and other aviation technology and military and civil user needs have prompted many structural and procedural changes to the regional National

Action Name	Action Summary
	Airspace System, but the basic structure of special use airspace and airways in use today was present by the early 1960s and on an overall basis has not changed markedly since the early 1980s (see Figures 1-6 and 3-1). 1920s - present.
11. Sonny Bono Salton Sea National Wildlife Refuge	The refuge, encompassing about 32,766 acres, was established in 1930 and is managed by the U.S. Fish and Wildlife Service as a sanctuary and breeding ground for birds and other wildlife. 1930 - present.
12. IID 161kV Transmission Line	This 161kV transmission line is maintained by IID and transects the CMAGR generally along the Niland-Blythe Road. The transmission line was constructed before 1934 and predates the CMAGR. 1934 - present.
13. CMAGR	Military use of the CMAGR began in 1942 for Marine Corps artillery training. Restricted airspace was established over most of the CMAGR area by 1942 and nearly completely encompassed the range by the close of World War II. Aviation training also occurred at the range during World War II. After the training lull between World War II and the Korean War, use of the CMAGR for aviation and some ground training resumed; the range has remained in continuous use until the present. 1942 - present.
14. NAF El Centro	NAF El Centro was established as MCAS El Centro in late 1942. Following World War II, the MCAS was re-commissioned as several different types of Naval air installations and finally as a NAF in 1979. NAF El Centro currently provides realistic training to active and reserve aviation units in aerial gunnery and bombing using the two El Centro range complexes within the R-2510A/B and R-2512 restricted airspaces and the CMAGR. 1942 - present.
15. El Centro Ranges	The El Centro Ranges and overlying restricted airspace were established in 1942 (see Figure 1-4). 1942 - present.
16. “Gasline” 161kV Distribution line	This 161kV distribution line is maintained by IID and transects the CMAGR along the Gas Line Road. The distribution line, which was built in 1954, serves Niland, Calipatria, Brawley, Imperial, El Centro, Heber, and Calexico. 1954 - present.
17. Southern California Gas Company	A Southern California Gas Company 24-inch natural gas pipeline transects the CMAGR and shares the ROW with the “Gasline” transmission line. The pipeline, which was built in or before 1954, serves Niland, Calipatria, Brawley, Imperial, El Centro, Heber, and Calexico. 1954 - present.
18. “F” -twin 230kV Transmission Line	The “F” twin 230-kV transmission lines, which were built in 1955, are maintained by IID and extend along the Niland-Blythe Road. 1955 - present.
19. “N” 161kV Transmission Line	The “N” 161-kV line, which was built in 1962, is maintained by IID and crosses the CMAGR boundary at two locations along the western boundary of the range and passes along the west side of the Coachella Canal near Camp Billy Machen. 1962 - present.
20. BLM Land Use Plans and Area Specific Plans	The 1980 California Desert Conservation Area (CDCA) Plan establishes management guidance for the protection and use of 25 million acres of federal land. The Northern and Eastern Colorado Desert Coordinated Management Plan (NECO) amended the CDCA plan for five million acres to provide landscape-scale, multiagency protection and conservation of natural resources while simultaneously balancing human uses of the ecosystems. The NECO includes the CMAGR and is the only resource management plan in effect for the range. The Western Colorado Desert Routes of Travel Designations Amendment (WECO) to the CDCA in 2003 designated preferred routes of travel across public lands managed by the BLM. 1980 - present.
21. Imperial Sand Dunes Recreation Area (ISDRA) and Proposed Recreation Area Management Plan (RAMP)	The ISDRA, which encompasses about 227,000 acres, was designated in 1972 by the BLM to manage and protect unique natural, cultural, and recreational resource values in the Algodones Dunes system. A Draft RAMP and EIS for the ISDRA was published in April 2010. ISDRA is a premier site for OHV recreation, but also encompasses 25,829 acres that are designated as the North Algodones Dunes Wilderness. The 2010 Draft RAMP/EIS shows that existing OHV use in most of the area between the UPRR and CMAGR near Glamis is limited to designated routes, which is not proposed for change. 1972 - present.
22. Areas of Critical Environmental Concern (ACECs)	The Dos Palmas, Corn Spring, Chuckwalla Desert Wildlife Management Area (DWMA), Singer Geoglyphs, North Algodones Dunes, and habitat associated with the flat-tailed horned lizard are specially managed by the BLM as ACECs. ACECs are generally managed for the protection of important cultural and natural resources but not at the exclusion of other compatible public uses. The listed ACECs are adjacent to or near the CMAGR and collectively encompass over 860,000 acres. 1980 - present.
23. BLM Designated Utility Corridors	Utility corridors, which are preferred locations for existing and future utility ROWs, were designated in the CMAGR area through the 1980 CDCA Plan and subsequent plan amendments or as provided by the Energy Policy Act of 2005 (P.L. 109-58 § 368). Utility corridors may support oil, gas, and/or hydrogen pipelines and electricity transmission and distribution facilities. 1980 - present.

Action Name	Action Summary
24. Mesquite Gold Mine	Opened in 1986 and one of the largest gold mines in the country, the Mesquite Mine extracts over 100,000 ounces of gold annually (valued at over $100 million). The mine, which abuts the CMAGR, is operated as an open pit mine and utilizes leaching pads for ore processing. One section of BLM withdrawn land was released from the CMAGR at the time of the 1994 CMLWOA for the expansion of this mine. 1986 - present.
25. 1994 Wilderness Designations and CMAGR land withdrawal	The California Desert Protection Act of 1994 (P.L. 103-433) designated eight wilderness areas in the vicinity of the CMAGR. Title VIII of the California Desert Protection Act of 1994 is cited as the CMLWOA of 1994 and provided for the renewal of the land withdrawal for the CMAGR. The eight wilderness areas include Mecca Hills (26,242 acres), Orocopia Mountains (55,614 acres), Chuckwalla Mountains (122,326 acres), Little Chuckwalla Mountains (28,034 acres), Palo Verde Mountains (30,605 acres), Indian Pass (32,419 acres), Picacho Peak (8,860 acres), and North Algodones Dunes (25,895 acres). 1994 - present.
26. Designated Critical Habitat for Threatened Species	In 1994, a total of about 6.6 million acres in four states was designated as critical habitat for the Mojave population of the desert tortoise, a federally listed threatened species, including about 183,419 acres within the northeastern half of the CMAGR, which is about 40 percent of the range (see Figure 3-12). Peirson´s milk-vetch was listed by California as a state endangered species in 1979 and by the USFWS as a federal threatened species in 1998. About 12,105 acres within the Algodones Duens is designated critical habitat for the milk-vetch (see Figure 3-12). No critical habitat is designated within the CMAGR, but critical habitat occurs within about 2.5 miles of lands proposed for acquisition along the UPRR (CCNDB 2011). 1994 - present.
27. Brawley Bypass SR 78 and SR 111 Expressway	The Brawley Bypass project will connect SR 86 and SR 111 through an 8-mile, four-lane divided expressway bypass to the northwest, north, northeast, and east of the City of Brawley. The project will include new bridges and an interchange, and accommodates for the future Brawley Airport expansion. Phase 1 construction began in February 2004 and was completed in May 2005; Phase 2 construction began in February 2008 and was completed in June 2011; and Phase 3 construction is underway and is scheduled to be completed in early 2013. 2004 - present.
28. Riverside County General Plan	The General Plan covers the unincorporated portion of Riverside County and states: "Prohibit new residential land uses, except construction of a single-family dwelling on a legal residential lot of record, within the current 60 [decibel] Community Noise Equivalent Level contours of the Chocolate Mountain Aerial Gunnery Range." DRAFT- Land Use Element, June 20, 2011. 2003 - present.
29. Imperial County General Plan	The 1993 General Plan designated the majority of the lands surrounding the CMAGR as Recreation and Open Space, which protects the unique character of the desert and range areas. This land use designation creates a compatible land use buffer for the CMAGR. 1993 - present
30. Big Game Guzzlers within CMAGR	The CDFG maintains 26 existing wildlife guzzlers in the CMAGR, particularly for the benefit of bighorn sheep and desert mule deer (see Figure 3-12). In 2009, the BLM and CDFG approved the installation of eight additional guzzlers; three have been built, and are counted among the 26 existing guzzlers, and five are pending (see Figure 5-1). Some of the guzzlers approved in 2009 were located to provide bighorn sheep and desert mule deer with sources of water away from the Coachella Canal, which is a drowning hazard to these animals. Each guzzler includes a 10,000-gallon fiberglass storage tank and a 2,500-gallon drinker.
31. Devers-Palo Verde No. 2 500-kV Transmission Line	This project includes a new 500/220-kV Colorado River Substation near Blythe and a new 111-mile 500-kV transmission line between the Southern California Edison Company's Devers Substation near Palm Springs and the new Colorado River Substation. Approved in July 2011, construction of the project was expected to begin in the 4th quarter of 2011 and be completed by the 3rd quarter of 2013. 2010 - present.
32. Chocolate Mountains Solar Farm Extension	A 49.9 MW photovoltaic (PV) solar power plant is to be located on 320 acres of previously disturbed private land northwest of Niland (CEQAnet 2010a). It is expected to become operational in late 2012. 2012 - present.
33. Upgrade Camp Billy Machen, MILCON P-771 at the CMAGR	Proposed upgrades at Camp Billy Machen would improve this facility to support on-going military training as currently performed. The proposed upgrades would improve the quality of life for personnel and provide sufficient instructional space, materials handling and material preparation facilities, and berthing. This would result in increased efficiencies and associated improvement in logistics, training, and ultimately, special operations forces readiness and operations. The proposed upgrades would occur both within the existing cantonment area and within an uninhabited area immediately adjacent to the cantonment area, a total project area of about 150 acres. 2011 - present.
REASONABLY FORESEEABLE FUTURE ACTIONS	
34. BLM West Chocolate Mountains Renewable Energy Evaluation Area	The West Chocolate Mountains Renewable Energy Evaluation Area, which encompasses 21,300 acres, will identify public land that should be made available for geothermal leasing, solar energy ROWs, and wind energy ROWs. The proposed action would identify sites within certain BLM-managed surface lands as suitable for authorizing ROWs for testing and developing solar and wind energy facilities, which the current CDCA Plan does not authorize (BLM 2010a). The 1980 CDCA Plan would be amended to support the preferred action. 2010 - present.

Action Name	Action Summary
35. BLM Wind Energy Project Applications	As of December 2011, seven applications were being processed by the BLM for wind energy projects on BLM land near or adjacent to the east side of the CMAGR. Five of the proposed projects—Oro Valley Wind, Oro Valley Type II, Black Mountain Wind, Black Mountain Wind Testing (Type II), and Gold Basin Type II—would encompass about 35,000 acres in the vicinity of the SR 78 and Ogilby Road intersection. The other two projects—John Deere Renewables Type II and Riverside Wind Energy Black Hills Type II—would encompass about 17,000 acres at a location immediately east of the CMAGR and south of the Imperial and Riverside county boundary. Four wind energy projects—Ocotillo Express, Ocotillo Wind Testing, Ocotillo Renewables Type II, and Ocotillo Express Type II—proposed for about 30,620 acres of BLM land in southwest Imperial County were also being processed by the BLM. All of these proposed wind project areas are located adjacent to existing transmission lines (BLM 2011e). 2011 - present.
36. BLM Solar Energy Project Applications/Authorizations	As of December 2011, five applications were being processed by the BLM for a solar energy projects on BLM land in the CMAGR region including: (1) Ogilby Solar on about 3,000 acres south of the CMAGR between SR 78 and Ogilby Road, (2) Imperial Solar (Solar Reserve) on about 4,000 acres south of the CMAGR near Mexico, (3) Ocotillo Sol on about 115 acres southwest of El Centro, (4) Dixieland Solar Farm on about 246 acres west of El Centro, and (5) Superstition Solar 1 on about 5,587 acres near the south end of the Salton Sea. Three additional solar projects—Centinela Solar Energy Project, Imperial Solar Energy Center West, and Imperial Solar Energy Center South—on private land southwest of El Centro were authorized for transmission on BLM land (BLM 2011f). 2011 - present.
37. IID "S" Line Upgrade 230-kV Project	The "S" Line project proposes to upgrade approximately 18 miles of the 230-kV overhead electrical transmission line by installing new double-circuit steel poles to replace the existing wood poles supporting a single 230-kV circuit. The "S" Line follows I-8 and SR 86 southwest of the City of El Centro, with the northern terminus at the El Centro Switching Station. The original ROW was amended/renewed in March 2010. 2010 - present.
38. Black Rock 1, 2, and 3 Geothermal Power Project	The proposed project (formerly Salton Sea Unit 6 30 Power Project) is for a 185-MW geothermal generating plant on an 80-acre parcel adjacent to the southern shore of the Salton Sea (CEC 2009). 2005 - present.
39. Hudson Ranch II	The Hudson Ranch II is a geothermal energy project near Niland that would produce approximately 49.9 MW of electricity on about 326 acres of land. A Mitigated Negative Declaration (environmental clearance) is in process with Imperial County. 2011 - present.
40. The Energy Solar Source I & II	Energy Solar Source I & II includes twin solar 80-MW project proposals. The projects would be built on two adjacent parcels of land of about 480 acres each. The projects have been approved by Imperial County and are in the final design phase. 2011 - present.
41. Imperial Valley Solar Company 1 Photovoltaic Solar Facility	The proposed project is to develop a 23-MW facility on a 123-acre site currently owned by IID. The power would be transmitted by a 2,400-foot-long, 13.2-kV, overhead transmission line into the existing IID Niland Substation (County of Imperial 2010b). 2011 - present.
42. Proposed California Desert Protection Act of 2011	Senate Bill S138, introduced into Congress on 25 January 2011 by Senator Dianne Feinstein, proposes designation of the Vinagre Wash Special Management Area, comprising about 74,714 acres, to conserve, protect, and enhance plant and wildlife values and outstanding and nationally significant ecological, geological, scenic, recreational, archaeological, cultural, historic, and other resources. The Act would also designate about 48,333 acres of the proposed Special Management Area as potential wilderness to be designated as wilderness when the Secretary of the DoI, in consultation with the Secretary of the DoD, determine that all activities on Federal land that are incompatible with the Wilderness Act have terminated. Potential wilderness areas would include: (1) 9,160 acres as additions to the existing Indian Pass Wilderness; (2) 17,436 acres as the Milpitas Wash Wilderness; (3) 13,647 acres as the Buzzard Peak Wilderness; and (4) 8,090 acres as additions to the existing Palo Verde Mountain Wilderness. 2009 - present.
43. Cahuilla Gold Project	Consolidated Goldfields Company proposes to conduct a gold exploratory drilling program (200 holes) on both tribal and private lands west of Salton Sea Beach. A Conditional Use Permit was granted in November 2010. If minable deposits are found, a formal plan of operations could be developed and additional regulatory review would be required before a mine opening. 2010 - present.
44. Mesquite Valley Regional Landfill	The Mesquite Valley Regional Landfill is an Imperial County-approved project that is planned for about 4,245 acres near Glamis and next to the Mesquite Gold Mine just south of the CMAGR. The project will receive waste via a 5-mile rail spur that will connect the landfill site to the UPRR mainline. The final Subsequent Environmental Impact Report was completed and approved by Imperial County in September of 2010. 2010 - present.

Action Name	Action Summary
45. Pending Urban Development Plans	As of January 2012, Imperial County Planning and Development Services was processing plans for five development projects (Imperial County Planning and Development Services 2011) in the vicinities of the cities of El Centro and Brawley that had reached the draft environmental impact report stage, including: a. The proposed 101 Ranch Project would include up to 6,986 homes on about 1,895 acres; up to four elementary schools; a junior high school; a community shopping center or mixed commercial/institutional residential facility; parks, recreation centers, paseos, trails, and landscaped open space; recreational vehicle storage; stormwater retention facilities and irrigation easements; and major roads. 2011 - present. b. The proposed Adler 70 Project would include 392 dwelling units on about 80 acres built as a mix of single-family detached residences and attached condominiums, a cluster of manufactured homes, a commercial/small business area, and a storm water detention basin/park. 2011 - present. c. The proposed Mosaic Project would include up to 1,154 residential dwelling units on about 201 acres, neighborhood commercial use, parks, and open space. 2011- present. d. The proposed Desert Springs Resort Project would be a recreational resort community on about 1,105 acres for motor sports and recreational vehicle (RV) enthusiasts with up to 411 water sport lots, 792 RV lots, 22 estate lots, 150 vacation villas, 100 garage villas, interconnecting lakes and waterways, and motor sport road courses. 2011 - present. e. The proposed Rancho Los Lagos Project would include up to 3,830 dwelling units on about 1,076 acres, two elementary schools, a community commercial center, business park, parks, golf course, open space, and major roads. 2011 - present.
46. Brawley Airport Expansion	Expansion of the Brawley Airport, which was opened in 1940, is under way but will continue until 2019. The project will eventually lengthen and upgrade the existing runway and taxiway and include a number of other improvements. 2010 - 2019.
47. Initiate F-35 Training at the CMAGR	In December 2010, the DoN announced its decision to base six operational F-35 squadrons (up to 16 aircraft each) at MCAS Miramar in California and five operational F-35 squadrons plus an Operational Test and Evaluation squadron (8 aircraft) at MCAS Yuma in Arizona. This basing action includes conducting readiness and training operations to attain and maintain proficiency in the operational employment of the F-35 and special exercise operations. Some squadrons may begin transitioning to F-35s as early as by the end of 2012. 2010 - present.
48. Reconfigure SWATs 4 and 5 at the CMAGR	The Marine Corps and NSW are coordinating requirements and proposed designs to reconfigure the capabilities of the training ranges within SWATs 4 and 5 to provide for improvements to efficiency, capacity, diversity, and tactical realism. 2011 - present.
49. SWATs 4 and 5 Restricted Airspace at the CMAGR	A preliminary proposal is being considered to replace CFAs Niland and Bombay with restricted airspace over SWATs 4 and 5 to support additional special warfare training capabilities and increased tempos, which would exceed the capacity of CFAs to provide adequate margins of safety to non-participating aircraft. Specific dimensions and operating procedures for the proposed restricted airspace have not yet been determined. 2011 - present.
50. North Gila - Imperial Valley #2 Transmission Line	The North Gila - Imperial Valley #2 project is a proposed 500 kV transmission line between the North Gila Substation in Yuma County, Arizona, and the Imperial Valley Substation in Imperial County, California. The project would cross a mix of BLM and private land; the route on BLM land would be in designated Utility Corridor L, which generally follows Interstate 8. The BLM is the lead federal agency for the project and plans to prepare an EIS/Environmental Impact Report (EIR) with scoping projected for the fourth quarter of 2012.
51. Desert Renewable Energy Conservation Plan (DRECP) and EIS/EIR	The proposed DRECP would establish the structure to integrate renewable energy development and biological resource conservation across more than 22-million acres of the Mojave and Colorado Desert regions of southern California, which includes the CMAGR. The DRECP will comprehensively address how participating entities with jurisdiction over renewable energy and transmission projects and related facilities in the desert of California will conserve natural communities and species pursuant to the California Natural Community Conservation Planning Act, federal ESA, and the FLPMA. The DRECP is a proposed multi-species Habitat Conservation Plan intended to conserve threatened and endangered species and natural communities, while also facilitating the timely permitting of renewable energy projects to help meet the State's goal of providing at least 33 percent of electricity generation through renewable energy by 2020 and the Federal government's goal of increasing renewable energy generation on public land. Scoping for the proposed DRECP and EIS began in August 2011; a draft DRECP, EIS, and EIR are scheduled for release Summer, 2012.

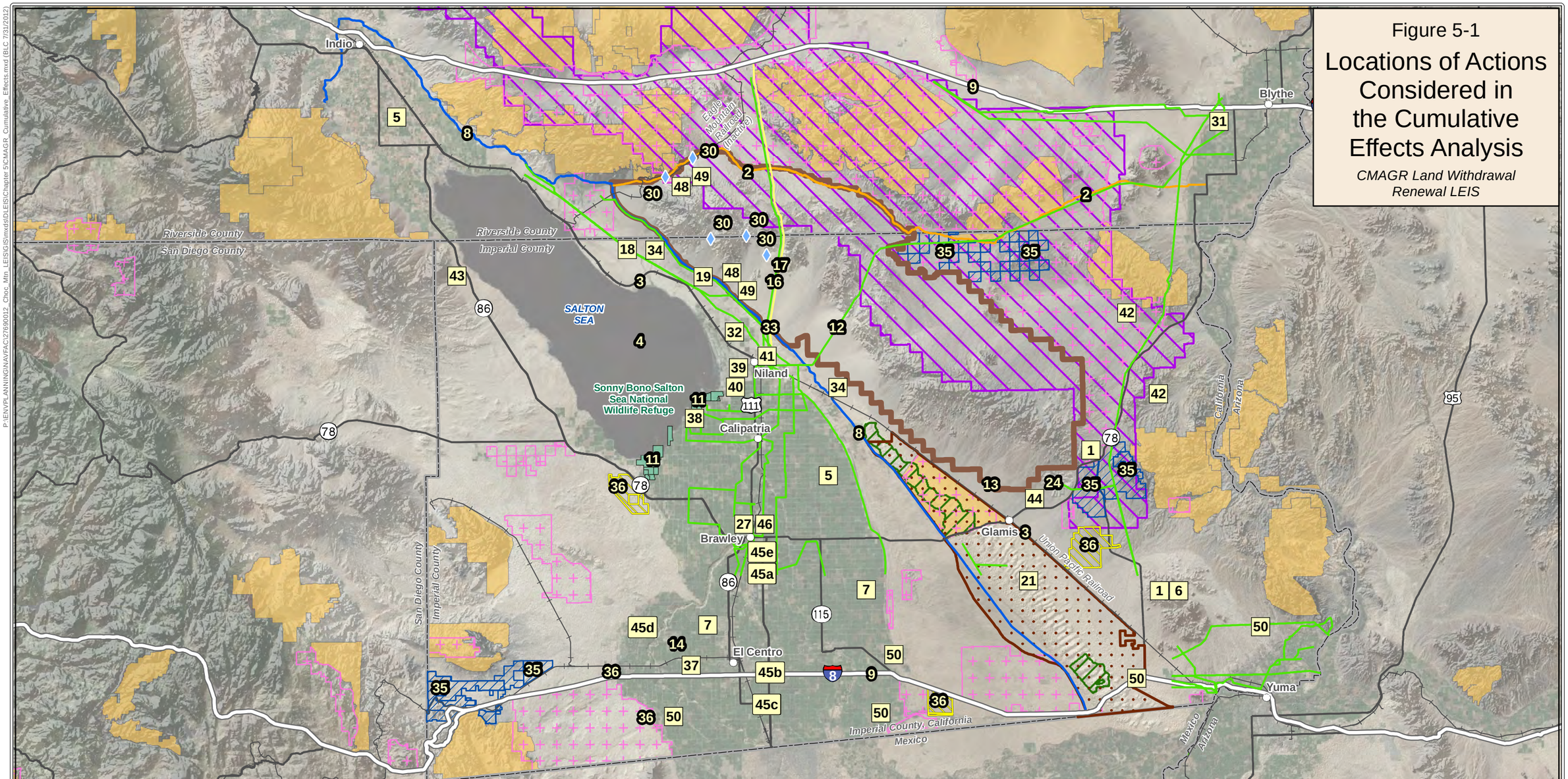

Figure 5-1

Locations of Actions Considered in the Cumulative Effects Analysis

CMAGR Land Withdrawal Renewal LEIS

Legend

- Existing CMAGR Boundary
- City\Town
- Railroad
- Interstate
- Highway
- County Boundary
- Bradshaw Trail
- Coachella Canal
- Gas Line
- Transmission Line
- Planned Wildlife Water (Guzzler)

Critical Habitat

- Desert tortoise
- Peirson's milk-vetch
- U.S. Fish and Wildlife National Wildlife Refuge
- BLM Imperial Sand Dunes Recreation Area
- BLM Solar Energy Application
- BLM Wind Energy Application
- BLM Wilderness Area
- BLM Area of Critical Environmental Concern
- 9 Action Site Location*
- 1 General Location of Action*

*This map shows the locations of 40 actions listed in Table 5-1. The locations of the other 10 actions are either applicable to the general CMAGR area, described in sufficient detail in Table 5-1, or depicted on other figures in this LEIS as referenced in Table 5-1.

Coordinate System: WGS 1984 UTM Zone 11N
Projection: Transverse Mercator
Datum: WGS 1984
Units: Meter

Source:
ACEC, Recreation, Wilderness, and Application Data: BLM 2008 - 2011
Critical Habitat: USFWS 2010
Range Features: IGI&S 2010 - 2011, YRMD 2010 - 2011
Base Map: CASIL 2010, BLM 2011, USFWS 2011, ESRI 2010, USGS NHD 2010
Imagery: Bing Aerials © 2010 Microsoft Corporation

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Map Scale 1:650,000

0 5 10 15 20 Miles

0 5 10 15 20 Kilometers

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5.2.1 Summary of the Additive and Interactive Effects of Past and Present Actions on the CMAGR Region

Natural and cultural resources and ecosystems are dynamic in that they change, at least on some timescale, in response to internal and/or external processes or pressures. Human communities also undergo changes that for a period of time may not be obvious but at other times can be sudden and/or dramatic. Human actions are often the source of either additive and incremental pressures, or dramatic events that can influence or radically change the trajectories of individual resources and ecosystems. The cumulative effects of human activities on the greater CMAGR region are the interest of this cumulative effects analysis. The specific human actions incorporated in this analysis are identified and described in Table 5-1. The geographic scope of the cumulative effects analysis varies in accordance with the characteristics of the resource being assessed. For example, the actions that influence air quality, biological resources, and socioeconomics operate through different processes and pathways that often involve different geographic scales. For most terrestrial resources and environments, however, and particularly for considerations of ecological relationships at the landscape scale, the area generally between Interstates 8 and 10 and between the Colorado River and the western side of the Imperial Valley represents the region of influence for assessing most cumulative effects. From a topographic perspective, these reference points place the CMAGR about in the middle of a broader and interconnected physiographic unit that encompasses the adjacent mountain ranges and valley basins. The area also includes the originating and receiving watersheds that affect the CMAGR. The CMAGR itself almost fully contains a discrete subunit of the Sonoran Basin and Range ecoregion and within the referenced area is well embedded among the representative subunits of his ecoregion (EPA 2011). For the purposes of assessing cumulative effects on airspace and airspace operations, the greater CMAGR region is generally considered to include the extent of airspace required for support of operations at the CMAGR, which generally includes R-2507N/S/E, MOAs and ATCAAs contiguous to the CMAGR, Niland and Bombay CFAs, and MTRs that enter the CMAGR. The additive and interactive effects of past and present actions on terrestrial resources and environments in the CMAGR Region are summarized first, followed by a summary of the additive and interactive effects on airspace and airspace operations.

5.2.1.1 Additive and Interactive Effects of Past and Present Actions on Terrestrial Resources and Environments

The current conditions of individual resources and the indigenous ecosystem within the greater CMAGR region have been influenced and, in some locations, determined by the cumulative effects of human activities since the first Spanish missionaries and prospectors arrived in the 1780s. Modern human communities in the region were established, built, and changed by the influx of successive groups and waves of people and their activities. The early Spanish miners prospected in the Cargo Muchacho and southeastern Chocolate Mountains, but their activities ended after only a few years. Mexican prospectors reentered the area in the 1860s, to be followed a few years later by American miners, which began something of a regional mining boom and bust cycle that would continue in the CMAGR region until about the mid-1940s, when most of these operations would play out (Vredenburgh, Shumway, and Hartill 1981). The effects of historic-period mining on shaping the future trajectory of the region's resources and ecosystem have been scattered and localized. Adverse impacts have been dramatic at certain historic-period mine sites; but, on an overall regional basis, the aggregate resource and ecosystem effects of this activity have been relatively modest. In its heyday, historic-period mining was the basis for the most prosperous community growth in the region; however, in the end it developed no settlements of lasting consequence. The most likely contribution of early mining to shaping the future natural and cultural landscapes of the region was to help attract attention to economic potentials in the area other than mineral wealth.

Early transportation developments in the CMAGR region included the Bradshaw Trail and the Southern Pacific Railroad. The Bradshaw Trail was developed in the early 1860s as a mining supply road and later served as a stagecoach route, but it historically functioned only as a means of traversing the CMAGR region and had little influence on the development of the local area. A surviving 70-mile segment of the trail, which crosses the northern boundary of the CMAGR in several places, was designated as a National Backcountry Byway in 1992. This segment is currently regionally prominent both as a recreational travel route and for access to designated wildernesses and other public land areas.

The SPRR was constructed in the 1870s and, like the Bradshaw Trail, its traverse of the CMAGR region was subordinate to another purpose; in this case, building a transcontinental railway across the southern part of the country. Still, the SPRR helped to drive the mining boom in the CMAGR region from about 1880 to 1917. The most important historic benefit of the SPRR to the region's economy, however, was yet to come. The rich soils in the Imperial Valley were recognized as early as 1859, but the lack of water prevented agricultural development. The position of the Imperial Valley at an elevation below that of the Colorado River, which would allow irrigation water to flow by gravity through a canal from the river to the valley, provided a solution. By 1900, the stage was set for the construction of a canal and a series of subsequent events and outcomes that would not only open a rich economic future for the Imperial Valley but would also dramatically transform its natural landscape and ecology. The SPRR figured into the equation by conveying labor, settlers, and industrial support to the canal works and ensuing agricultural developments and agricultural products to markets both on the West Coast and to the east. The canal opened in 1901, and the results were dramatic. By 1905, the extent of irrigated land had increased from about 1,500 acres to 67,000 acres, and the SPRR had built a spur line south from Niland to connect the new agricultural industry with its suppliers and national markets (see Figure 5-1). The advent of production agriculture in a formerly waterless desert was the first transformative event with regional significance. By 1907, the area in agricultural production had swelled to about 175,000 acres. By 1929, almost 425,000 acres of irrigated crop land had been developed in the Imperial Valley. A vibrant new industry had been created in a few years that would dominate all manner of decisions concerning the regional and local economies, land use and the environment, settlement and social patterns, road and highway systems, governance, and other socioeconomic issues for decades. More than a century after it began, the influence of agriculture on issues both inside and beyond the region remains strong.

The second transformative event of regional significance occurred only four years after the pioneering canal system that triggered the agricultural boom became operational. In 1905, Colorado River flooding overwhelmed the control structures of the canal, allowing nearly the entire volume of the river to flow into the Salton Sink. Almost 18 months passed before efforts to restore the Colorado River to its natural channel and rebuild the canal control system were successful. By that time, the contemporary Salton Sea, with an initial surface area of about 333,000 acres (about 520 square miles), had been created. The surface area of the Salton Sea is currently about 241,000 acres (about 376 square miles), making it the largest lake in California. The current size of the lake has been relatively stable in recent years, as losses from evaporation are roughly balanced by inflows from irrigation return water, municipal and industrial effluent, and storm water runoff. Formation of the Salton Sea in 1905-1907 converted 520 square miles of an ephemeral desert playa into an internally drained lake and wetland system. Although the health of the lake and wetlands systems have declined markedly over recent decades (for example, salinity in the Salton Sea and surrounding wetlands have increased to levels that exceed that of ocean water), the wetlands have become a vital component of the Pacific migratory bird flyway, and the lake is valued as fish habitat and for recreational purposes. Federal, state, and local actions are planned to restore and sustain the Salton Sea and its wetlands; however, these plans may be undermined by recent court decisions that would allow Imperial Valley farmers to transfer water to San Diego County and possibly cause the lake to dry up. Loss of the lake would greatly impact the migratory bird flyway, eliminate fish habitat, and expose heavily polluted lakebed sediments to drying and accelerated wind erosion.

From the perspective of the regional ecology, the formation, longevity, and possible decline of the Salton Sea have greater significance when considered in aggregate with the expansive areas of the Imperial and Coachella Valleys that have been converted to agricultural, municipal, or industrial uses. The CMAGR is situated in the Sonoran Desert and a basin and range physiographic province that generally can be characterized as composed of upland plant and wildlife communities that occupy rocky mountain slopes, ridges, and canyons and lowland plant and wildlife communities that occupy bajada slopes, washes, and basins between mountain ranges. Patches of various types of wildlife habitats within this setting are separated from each other in many locations by the discontinuous character of the mountain ranges, bajada slopes, washes, and basins. Periodic or seasonal movements of terrestrial wildlife across gaps between favorable habitat patches are an important short- or long-term survival strategy for some wildlife species. For example, periodic long-distance movements of big horn sheep, burro mule deer, or mountain lion between habitats in mountains, upper bajada slopes, or desert wash woodlands occur as animals seek more favorable cover, forage, prey, or breeding conditions. These movements may enhance the survival of individual animals but also benefit the distribution and genetic diversity of their species. Actions that disrupt or curtail wildlife movements between habitat patches may be adverse for affected species. In this regard, the Salton Sea combined with the agricultural, municipal, industrial, transportation, and utility developments of the Imperial and Coachella Valleys created a barrier of over 100 miles in length that has fully curtailed the movements of most wildlife between the upland Sonoran Desert habitats on the eastern and western sides of the Salton Sink. This effect essentially places the CMAGR at the western limit of a relatively large block of Sonoran Desert—that includes the range and the areas north to Interstate 10 and east of the Coachella Canal, east to the Colorado River, and south to the Coachella Canal, the All American Canal, and Interstate 8—that remains relatively unfragmented and ecologically interconnected. The block is not entirely free of activities that may affect some wildlife or their movements—SR 78, Ogilby Road, and the UPRR being among the most prominent—but there is no indication that the populations of any species have been seriously curtailed or otherwise diminished by these activities.

In addition to being relatively unfragmented, natural ecological resources and functions in the Sonoran Desert block that contains the CMAGR are generally benefited by a number of existing management designations that exclude, limit, or otherwise regulate land uses that would be more likely to diminish ecological resources and functions. Included are eight designated wilderness areas that encompass almost 330,000 acres of BLM land in aggregate, over 860,000 acres within ACECs that are managed to protect/conserve certain resource values, about 1,020,600 acres of critical habitat for the Mojave population of the desert tortoise (a minor portion of the habitat unit extends north of Interstate 10), about 12,105 acres of critical habitat for Peirson's milk-vetch, and about 227,000 acres that is encompassed in the ISDRA (see Figures 3-5, 3-12, and 5-1). There is considerable overlap among some of these management designations, and they collectively represent a wide range of applicable management latitude and prescriptions. In aggregate, however, these designations generally serve to protect or conserve natural processes and functions as the predominant forces shaping the overall vitality of the ecological landscape. The CMAGR may be added to the mix of management and land use designations that generally contributes to a regional conservation benefit. The principal conservation effect of the military range is that it excludes land uses such as human settlement, mining, OHV recreation, and others that would be consumptive of land and resources to provide an area where military training can occur without either jeopardizing public safety or encumbering the performance and effectiveness of training. To be sure, 70 years of military training at the CMAGR has impacted the land surface and terrestrial resources but, as demonstrated in Section 3.2.4, over the long-term, military surface uses—such as core or secondary weapons impact areas or developed training sites that cause moderate to complete levels of physical disturbance to the ground surface, vegetative communities, surface drainages, and other resources in these locations—affect less than 5 percent of the range. By far, most of the range serves as WDZs, SDZs, or other types of safety areas and receives little or no use that impacts either its land surface or other natural or cultural resources (see Figures 3-2, 3-3, and 3-4). Thus, on overall balance, long-term exclusion of consumptive non-military land uses since the CMAGR was established in 1942, coupled with the

relatively limited extent to which military use has impacted the range surface, has resulted in effective conservation of most of the terrestrial resources and environments of the range.

In summary, the additive and interactive effects of past and present actions on terrestrial resources and environments in the greater CMAGR region have created two landscapes that contrast sharply from each other in terms of land development, economic activity, and conservation of the natural environment. The two landscapes roughly occupy the eastern and western sides of this region and are separated along a line roughly marked by the Coachella Canal. In general, the past and present land uses to the east of the canal have allowed most natural features and processes to persist and natural processes continue to be the predominant overall influence shaping terrestrial resources and environments. Land use designations, such as wilderness and critical habitat, and management prescriptions, such as ACECs, have contributed to the protection and conservation of resources within the region. Although the CMAGR was established to support military training rather than to protect or conserve natural or cultural resources, the range has nevertheless contributed a strong resource conservation effect that has thus far integrated well with the overall trajectory of land and resource conservation that characterizes the landscape to the east of the Coachella Canal in which the range is embedded.

The additive and interactive effects of past and present actions west of the Coachella Canal contrast sharply from the effects realized east of the canal. The western region has been highly developed to support agricultural, municipal, and industrial purposes. The area is highly productive economically but has been highly modified from the environment that was in place as little as 112 years ago.

5.2.1.2 Additive and Interactive Effects of Past and Present Actions on Airspace and Airspace Operations

The development of the National Airspace System in the CMAGR operating region is tracked in some detail in Section 3.2.1. To summarize, development began in the 1920s and until the outbreak of World War II was driven principally by the needs of civil aviation. The era was marked by a rapid expansion in the numbers and distribution of both civil airfields and airways, which improved air navigation and enhanced the reliability and safety of flight. By the beginning of 1942, civil airfields and east-west airway service had expanded across southeastern California, but military airfields were still found only along the coast and special use airspace for military training existed in only a few places in the vicinity of San Diego. A few months later, however, national defense needs had become paramount and special use airspace had been established across many thousands of square miles of southern California and southern Arizona. Before the close of the war, several tens of military airfields had been constructed throughout the region and the CMAGR and other ranges in the BSTRC had been established (see Figure 1-4). The close of the war prompted a sharp reversal in military aviation priorities as most military airfields and ranges in the region were closed and most special use airspace was cancelled. Among the few military airfields in the CMAGR operating area to avoid post-war deactivation and that remain active today were those that became MCAS Miramar, MCAS Yuma, NAF El Centro, and Laguna Army Airfield.

Civil aviation priorities in the immediate post-war years regained prominence in the development and use of the regional airspace system as military infrastructure and activities declined. The advent of the Korean and Cold wars, however, soon prompted a reappraisal of the importance of the CMAGR region for military training and, beginning in 1951, special use airspace at the CMAGR, ECR, and BMGR was re-established and these ranges were reactivated. Special use airspace and ranges in the region have remained in effect ever since. Although the importance of the CMAGR region to military aviation had re-emerged, military aviation was not to resume the regional dominance that it had assumed during World War II. The regional airspace system continued to evolve, but was developed in response to the legitimate needs of both military and civil airspace users. Although requirements to modify the airspace system continue to emerge—R-2507E, for example, was designated in 2006 within airspace that was already

encompassed in the Abel North MOA/ATCAA—by the beginning of the 1980s, the overall structure of civil and special use airspace in the CMAGR operating area closely approximated the structure that is currently in effect.

5.2.2 Summary of the Additive and Interactive Effects of Reasonably Foreseeable Future Actions when Considered Together with Past and Present Actions

Most prevalent among being reasonably foreseeable future actions listed in Table 5-1 are renewable energy projects. Solar, wind, and, possibly geothermal energy projects are proposed to the east and west of the CMAGR. Five wind and one solar project that would affect 38,000 acres in aggregate are proposed for BLM land near the junction of SR 78 and Ogilby Road, and two wind projects that would encompass an additional 17,000 acres are proposed for BLM land adjacent to the eastern side of the CMAGR along the Niland-Blythe Road (see Figure 5-1). These proposed projects, which would all be near existing transmission lines, are all in the early application stage of development and no impact assessments have yet been completed on their potential environmental consequences. If implemented as currently proposed, however, they would represent a substantial increase in industrial activity in the SR 78/Ogilby Road area, which is near the existing Mesquite Gold Mine and soon to be constructed Mesquite Valley Regional Landfill. Industrial-scale power generation would also be introduced near the CMAGR and Niland-Blythe Road where none has previously existed and where paved road access is nonexistent. The West Chocolate Mountains REEA would amend the 1980 CDCA Plan to authorize solar, wind, and geothermal energy ROWs between the Coachella Canal and the CMAGR north of the ISDRA (see Figure 5-1).

Development of the energy projects currently proposed to the east of the Coachella Canal would be a break with the area's prevailing pattern of land use that has generally supported protection or conservation of terrestrial resources and environments. The California Desert Protection Act of 1994 designated a substantial proportion of this area as wilderness, which is unavailable for renewable energy or other types of developments. The land within the CMAGR is also generally unavailable for renewable energy development, with the possible exception of some peripheral CMAGR areas that cannot currently be used for live-fire activities (see Figure 3-2). Much of the rest of the area is designated either as critical habitat and/or as an ACEC. Most of the locations currently proposed for renewable energy developments are within designated critical habitat and/or ACECs. The critical habitat and ACEC designations would likely either impose constraints on how the proposed projects might be developed to protect desert tortoise and certain other resources, or may curtail the viability of either the current or future energy project proposals altogether. The potential for additional energy projects or other developments to be proposed for the area of the CMAGR region east of the Coachella Canal would be further curtailed if the proposed California Desert Protection Act of 2011 becomes law. This proposed Act would designate an additional 75,000 acres of BLM land as a special management area, in which almost 65 percent of the area would be further designated first as potential wilderness and then wilderness (see Figure 5-1). The potential for this Act to become law is not known and cannot be assessed. The proposed energy projects in the area east of the Coachella Canal, when considered together with the other past, present, and reasonably foreseeable future projects, would not be likely to change the overall levels of protection and conservation that are currently afforded to terrestrial resources and environments in the area.

Solar and geothermal energy projects that are proposed to the west of both the CMAGR and the Coachella Canal are joined by other proposals for transmission line construction, planned community and resort developments, an airport expansion, and a highway bypass (see Table 5-1). All of these projects would generally be constructed in locations that have been previously developed for agriculture, municipal, or industrial activities or are adjacent to such activities (see Figure 5-1). Although each of these projects may or may not have impacts that are locally important when they are considered apart, when considered together with the other past and present projects, these reasonably foreseeable future projects are consistent with the highly developed conglomerate of agricultural, industrial, urban,

transportation, and energy development that already exists in the Imperial and Coachella valleys and would not likely change the overall land use patterns of the area west of the Coachella Canal or notably affect the overarching conditions of terrestrial resources and environments in the area.

Assuming that the CMAGR land withdrawal is renewed and the range remains open, three reasonably foreseeable projects are proposed to enhance NSWG-1 training at the range. The proposed NSWG-1 projects would reconfigure and update facilities at Camp Billy Machen and within the training ranges at SWATs 4 and 5. The proposed restricted airspace would replace the Niland and Bombay CFAs to support additional special warfare training capabilities and increased tempos, which would exceed the capacity of CFAs to provide adequate margins of safety to non-participating aircraft. As these three projects are currently projected, they would not appear to be likely to change the basic character of NSWG-1 training at the CMAGR or to be likely to alter the overall effects of the CMAGR on terrestrial resources.

Training with the F-35 aircraft at the CMAGR has been approved but has not yet been initiated (DoN 2010c). Squadrons slated to convert from legacy AV-8B and F/A-18 aircraft will begin receiving F-35s as early as 2012. Training at the CMAGR with this aircraft will begin once pilots have completed transition training in the F-35 and squadrons have received enough aircraft to support training operations. The EIS prepared for the West Coast basing of this aircraft did not identify any significant impacts associated with F-35 training at the CMAGR (DoN 2010b).

5.3 EFFECTS ON INDIVIDUAL RESOURCES

5.3.1 Airspace and Ranges

When considered together with other past and present actions, Alternative 1, 2, 3, or 4 would have no cumulative effects on airspace or military ranges as compared to current conditions. The current airspace and range conditions of the CMAGR region are an outcome of past and present actions as reported in Table 5-1 and Section 5.2.1.2. Alternatives 1 through 4 would each renew the CMAGR land withdrawal and keep the range open. Keeping the range open would preserve both the authority and restricted land area necessary to conduct live-fire training activities, which, in turn, would provide prime justification for keeping the R-2507N/S/E restricted airspace in effect. Keeping the range open also would continue the training range resources that serve, at least in part, as the basis for maintaining other military airspace in the CMAGR operating area. Alternative 2 proposes to realign the southwestern CMAGR boundary to abut the UPRR, which would add about 11,903 acres of BLM land to the range and provide the possibility of adding about 658 acres of state-owned land to the range through a later acquisition (see Figure 2-3). About 52 percent of the additional land would underlie R-2507S. The range expansion area potentially would be able to support certain training activities, but the new capabilities would be a small addition to the overall capacities of the CMAGR. The proposed range realignment area is part of the West Chocolate Mountains REEA that is being considered by the BLM as a site for wind, solar, and geothermal energy projects. The proposed REEA and CMAGR boundary realignment actions would be mutually exclusive and could not create a coexisting conflict for military airspace or range use. Alternative 1, 2, 3, or 4, when considered together with other past and present actions, would also leave existing access to airspace by civil and military users alike unchanged.

Some of reasonably foreseeable actions may affect airspace or range operations. Proposed projects for wind and solar energy facilities, transmission lines, and urban developments have the potential to affect flights on MTRs, the alignments of the MTRs, or low-level helicopter flights to or from the CMAGR. Potential effects would result from the development of structures, such as wind turbines, of sufficient height to present hazardous obstructions to low flying aircraft or the development of communities or facilities, such as housing, that would be sensitive to low-level overflights. Other effects may include disruptions of ground and airborne radar signals by moving wind turbine blades or interference by project lighting with night-vision goggle flight training. Training program managers must track and address land

use proposals on a regular basis by identifying development proposals that may interfere with MTR use, helicopter flight routes, radar or night-vision goggle performance, or other training activities through appropriate federal, state, or local planning offices and by periodically checking areas near the CMAGR or below flight routes for new obstacles or other incompatible developments. Although FAA regulations may restrict some project tower heights, range and training program managers may lack direct authority to restrict or modify proposed projects as needed to protect military training capabilities. They must often request planning office or development proponent cooperation in avoiding, minimizing, or mitigating the potential conflicts of proposed projects with military operations.

As explained in Section 5.2.2, the proposed NSWG-1 range and restricted airspace projects at SWATs 4 and 5, when considered together with Alternatives 1 through 4, would not be likely to cause adverse cumulative effects for military airspace or range use at the CMAGR. Civil airspace users could be affected by the proposed restricted airspace because non-participating aircraft would be barred from entering active restricted airspace in contrast to the existing CFAs, which have no affect on non-participating aircraft movements. The reality of this potential affect cannot be determined at this time as the restricted airspace proposal is still in a conceptual planning stage. Still, when considered together with Alternative 1, 2, 3, or 4, the restricted airspace proposal for SWATs 4 and 5 would not be likely to cause adverse cumulative effects for other military airspace or range use at the CMAGR.

No-action Alternative 5 would result in the closure of the CMAGR and end military training at that installation. Alternative 5 would also likely lead to modification or cancellation of R-2507N/S/E and possibly other contiguous special use airspace and MTRs. These events would in turn trigger a series of responses to the need to compensate for the loss of the training capabilities and capacities at the CMAGR that would impact other ranges and airspace in the BSTRC, MCASs, and other air installations in the BSTRC operating area, and probably ranges, airspace, and air installations outside of the CMAGR operating area. The planning information that would be needed to specifically project the magnitudes and extent to which these rippling effects would impact military airspace and ranges outside of the CMAGR cannot be collected in advance of a Congressional decision to close the CMAGR. At this time, meaningful projections of how closure of the CMAGR would affect civil airspace structures or use in the CMAGR area cannot be determined. However, the other past, present, and reasonably foreseeable actions listed in Table 5-1 would not have additive or interactive effects that would have a meaningful cumulative bearing on the outcome of Alternative 5 for airspace and ranges.

5.3.2 Non-Military Land Use

Renewal of the CMAGR in accordance with Alternative 1, 2, 3, or 4, when considered together with other past, present, and reasonably foreseeable future actions would:

- Not be likely to result in adverse cumulative effects on non-military land use in most areas that are external to the existing boundaries of the range
- Continue to exclude non-military land uses from the range interior, which when added to land use exclusions imposed by past, present, and possibly future wilderness, critical habitat, ACEC, and special management area designations in the nearby region would affect regional opportunities for non-military land use

At the time that the CMAGR was established during World War II, the principal non-military land uses and economic interests in the region were external to its boundaries in the agricultural areas of the adjacent Imperial and Coachella valleys. An IID 161kV transmission line that generally follows the Niland-Blythe Road predated the range and was granted a ROW by the DoN through the range so that it could continue to provide power to its service areas. Similar arrangements were developed in about 1954 for the IID “Gasline” 161kV distribution line and the Southern California Gas Company pipeline, which

share a ROW that crosses the range. Some existing and possibly future mining interests were excluded from the new range but creation of the range had no effects on off-range land use. In the 70 years since the CMAGR was established, the range and off-range land use have generally developed and coexisted without interference. Some concerns about noise from aircraft and ordnance have been registered by off-range residents but the range and range activities have not restricted off-range land use or land use opportunities. Renewal of the CMAGR under Alternative 1, 2, 3, or 4 would continue that relationship.

Renewal of the CMAGR in accordance with Alternative 2 would realign the CMAGR boundary in the southwest to abut the UPRR and in the north along the Bradshaw Trail and Niland-Blythe Road (see Figures 2-1 and 2-2). The proposed boundary realignment along the UPRR would incorporate about 11,903 acres of BLM land and the possibility of about 658 acres of state owned land in the range for the first time, which would conflict with the potential development of wind, solar, or geothermal energy projects in the portion of the West Chocolate Mountains REEA that overlaps the realignment area. The proposed boundary realignment would also preclude other types of non-military land use, such as OHV and dispersed recreation, from the realignment area. The proposed Bradshaw Trail realignment would incorporate about 530 acres of BLM land and possibly about 455 acres of private land and 10 acres of state land in the range for the first time, which would similarly preclude renewable energy projects or other types of non-military land use, none of which are currently proposed, from these realignment area. The Bradshaw Trail and Niland-Blythe Road realignments prescribed by Alternative 2 would also release about 647 acres of DoN land and about 1,924 acres of currently withdrawn BLM land from the range. Released land would be managed by the BLM and it is likely it eventually would be available for non-military land use, although the nature of such use cannot be predicted. The Alternative 2 boundary realignments would affect non-military land use opportunities in the areas acquired for or released from the CMAGR but would not affect the use of other off-range areas.

A substantial area of primarily BLM land east of the Coachella Canal is currently affected by land use designations that exclude or may limit many types of non-military land use that ordinarily may be permitted in multiple use public land areas. These land use designations include wilderness, critical habitat, ACECs, and the CMAGR (see Figure 5-1). Access to additional areas of BLM land for non-military land use may be affected in the future by proposals for a special management area, two new wilderness areas, and additions to two existing wilderness areas. When considered together with the existing wilderness areas, critical habitat, and ACECs and the potential future special management area and additional wilderness, renewal of the CMAGR would represent a continuing additive cumulative effect that would exclude non-military land use from over 458,000 acres.

No-action Alternative 5 would result in the expiration of the CMAGR land withdrawal, closure of the range, and termination of military training at that installation. These consequences likely would lead to the eventual opening of currently withdrawn BLM land for non-military land use in accordance with FLPMA and consistent with range decontamination requirements and actions. Some former target areas or other range locations may be too contaminated with UXO to be opened but substantial areas of the formerly withdrawn BLM land likely would become eligible for opening. It is also likely that substantial areas of DoN land would become available for non-military land use following necessary decontamination and disposal. However, in addition to restrictions on land use that may be required because of residual UXO contamination, land use on about 40 percent of the former range land would continue to be subject to critical habitat designation for desert tortoise. When considered together with the existing wilderness areas, critical habitat, and ACECs and the potential future special management area and additional wilderness, closure of the CMAGR would represent an additive cumulative effect that would likely eventually increase the area in the region available for non-military land use.

5.3.3 Geological Resources

As indicated in Section 5.2.1.1, the CMAGR is a key component in a large block of Sonoran Desert to the east of the Coachella Canal that exhibits the following conditions:

- Developed land uses are generally scattered and affect minimal proportion of the overall landscape
- Natural soils and plant communities are relatively undisturbed and accelerated erosion is not identified as a widespread problem
- OHV use is prohibited from the land unit or restricted to designated routes
- Extraction of minerals and geothermal energy is prohibited from the land unit or is generally limited in scope

These conditions currently exist as a result of several major land units designations that provide for long-term protection or conservation—either as a direct or indirect effect—of natural resources and landscapes. The designated land units, which overlap in some locations, include almost 330,000 acres of wilderness in aggregate, more than 860,000 acres of ACECs, about 1,032,705 acres of critical habitat, and about 458,530 acres as the CMAGR. The collective result of these designated land units is an expansive, interconnected, and relatively intact landscape in which natural resources and processes generally remain predominant. This is not to say that geological resources would not be subject to impacts in some locations. The effects of military training use on soils in the CMAGR have been described. Significant soil disturbance impacts, particularly in target impact areas or intensively used ground troop training sites, render soils susceptible to locally increased naturally-occurring wind and water erosion and changed water infiltrations and holding capacities. Still, significant disturbance of soils is estimated to occur on only about 5 percent of the CMAGR. Outside of the CMAGR, other sizable areas east of the Coachella Canal are proposed for renewable energy development actions that would likely cause similar soil disturbance impacts. These areas include about 35,000 acres of BLM land near the junction of SR 78 and Ogilby Road and 17,000 acres of BLM land near the eastern boundary of the CMAGR and the Niland-Bythe Road (see Figure 5-1). Although it would not affect these renewable energy development proposals, the proposed California Desert Protection Act of 2011 would limit the extent to which other development proposals could affect this region by designating an additional almost 75,000 acres of BLM land as a special management area, in which almost 65 percent of the area would be further designated as potential wilderness and then wilderness (see Figure 5-1). The potential for this Act to become law is not known and cannot be assessed.

In addition to providing protection or conservation benefits to soil resources, existing wilderness designations and the CMAGR have precluded development of mineral or geothermal resources that may occur within these areas. The proposed California Desert Protection Act of 2011 would similarly preclude extraction of mineral and geothermal resources in the special management area and wilderness areas that would be designated by that Act. Development of minerals or geothermal energy is not prohibited by existing critical habitat and ACEC designations, but resource protection priorities for these areas provide additional constraints on how these resources are developed and how impacts resulting from such developments must be mitigated.

On sum total, when considered together with other past, present, and reasonably foreseeable future actions, renewal of the CMAGR in accordance with Alternative 1, 2, 3, or 4 would continue to contribute to the cumulative extent to which soil resources in the area east of the Coachella Canal are generally protected and conserved. Renewal of the CMAGR in accordance with Alternative 1, 2, 3, or 4 would also contribute to the cumulative extent to which development of mineral or geothermal resources in the area east of the Coachella Canal generally continues to be prohibited. Proposed realignments of the CMAGR

boundary in accordance with Alternative 2, 3, or 4 would add various areas of BLM and possibly private or state land to the range as identified in Table 2-2 and shown in Figures 2-1, 2-2, and 2-3. Each of these three alternatives would also release DoN and BLM land from the range as a result of the proposed boundary realignments in quantities shown in Table 2-1. Land incorporated into the CMAGR under any of these alternatives would potentially receive soil conservation benefits and be closed to mineral and renewable energy developments. Land released from the CMAGR under any of these alternatives may become eligible for mineral or renewable energy development and subject to activities that would cause soil disturbance.

No-action Alternative 5, which would close the CMAGR, likely would lead to the opening of substantial portions of the former range to activities that potentially would cause soil disturbance and associated effects and may subject areas with economically viable mineral or geothermal resources to development and extraction. Critical habitat designation that overlays about 40 percent of the range area would not be affected by a range closure and likely would moderate the extent to which proposals that would disturb soils or would develop minerals or geothermal energy are approved and implemented. The closure of the CMAGR would not affect how soils continue to be protected or conserved or how extraction of mineral or geothermal resources is prohibited or managed within other land units east of the Coachella Canal, but closure likely would eliminate at least portions of the former range from the aggregate total of land in the region with priority soil protection/conservation mandates and prohibitions/limitations on mineral or geothermal resource development.

5.3.4 Water Resources

Cumulative effects on water resources, either at the range or the greater region, would occur as a result of past, present, or reasonably foreseeable future actions that would affect the quality or quantity of either surface runoff or ground water. No ground-water aquifers of importance in off-range locations are connected to the CMAGR as an important recharge area, and off-range activities are not impacting on-range ground water. As a result, ground water can be discarded as a cumulative effects concern. Storm water runoff from off-range drainages into the CMAGR is not a significant factor and can also be discarded as a potential cumulative effects pathway. Other than the wildlife waters program, nearly all non-military land uses/activities that potentially could affect surface water have been excluded from the interior of the CMAGR for 70 years, which eliminates concerns for cumulative effects on surface water resources inside of the range. As already indicated, storm water runoff from the CMAGR into off-range drainages is infrequent and likely is produced only in small quantities, except in response to very rare extreme precipitation events. In general, runoff quantities and quality from natural watersheds are closely related to the conditions of both soil surfaces and plant communities; at the CMAGR, surface water is typically of poor quality, and is not used as a water supply source. However, undisturbed soils and plant communities maximize rain water infiltration into soils, retard surface runoff, resist erosion, reduce sediment loads in runoff, and reduce runoff volumes, minimizing off-range runoff and mitigating the potential for worse water quality. Target impact areas, roads, ground troop training sites, and some other areas on the CMAGR are locations where disturbances of soils and plant communities may be intense and concentrated, but these locations are widely dispersed within the range and only affect about 5 percent of the range surface area in aggregate. Disturbances of soils and plant communities within the other 95 percent of the CMAGR are minimal, suggesting that the runoff that does emerge from the range likely is of a quality that would be expected from a Sonoran Desert watershed in a well-conserved natural area. Renewal of the CMAGR in accordance with Alternative 1, 2, 3, or 4 would continue to conserve watersheds and water resources at the range in a generally high quality condition. Thus, the overall cumulative effect of renewing the CMAGR on water resources likely would be minimal when considered together with other past, present, or reasonably foreseeable future actions.

Closure of the CMAGR in accordance with no-action Alternative 5 would end further disturbances of the range watershed from military activities but also potentially would result in substantial portions of the range being opened to non-military reuse. Thus, the extent to which closure of the CMAGR in accordance with Alternative 5 would result in cumulative effects on water resources, when considered together with other past, present, or reasonably foreseeable future actions, is too speculative to determine with any specificity. Among others, recreational vehicle use, transmission or pipe line construction, mining, and renewable energy developments would be candidate reuse activities, but no specifics on the extent to which these activities may occur or how they may be managed to control impacts on resources can be determined. Concentrated reuse activities, such as mining or renewable energy development, may alter local watershed areas in a manner that increases runoff volumes and lowers water quality. Dispersed and lower intensity activities, such as recreation, would be less likely to produce such effects on a meaningful scale. Regardless of the types and distribution of reuse that may occur at a former CMAGR, however, rainfall events that would generate surface water flows that may affect off-range waters would continue to be infrequent, which would reduce the potential for significant cumulative effects on water resources to occur.

5.3.5 Air Quality

The CMAGR is located in portions of the SSAB that are classified as marginal to severe-15 nonattainment areas for the 8-hour O_3 NAAQS and a serious nonattainment area for PM_{10}. The CMAGR attains all other NAAQS. The CMAGR is also considered to be in a nonattainment area for the CAAQS for O_3 and PM_{10}, and attains all other CAAQS (DoN 2010b). The air quality status of the SSAB results from existing additive emissions of many sources including aircraft operations, ordnance delivery, vehicle use, and other activities that occur at the CMAGR. The preponderance of the emissions in the SSAB, however, likely arise from agricultural, industrial, municipal, civil transportation, and other regional non-military sources. A number of reasonably foreseeable actions in the CMAGR region—including numerous renewable energy projects, power transmission line projects, a gold mine, a landfill, transportation improvements, and urban development—may increase air emissions, at least in the short term during project construction. However, increased vehicle travel and emissions from development would most likely be captured in emission inventories and modeling conducted for air quality planning efforts (for example, for preparation of state implementation plans [SIPs], in the case of nonattainment pollutants/areas). Most of the foreseeable proposed actions would be subject to federal, state, or local laws and regulations that would require mitigation measures to limit the amount of air pollutants emitted. In any event, renewal of the CMAGR land withdrawal in accordance with Alternative 1, 2, 3, or 4 and continuation of military operations at the range would cause no net change in the emissions from the range. Thus, renewal of the CMAGR would be anticipated to result in negligible emission increases when considered together with other past, present and reasonably foreseeable actions.

No-action Alternative 5 would close the CMAGR and eliminate ground-based military training operations and air-to-ground ordnance delivery as emission sources. Closure of the range likely would lead to activities to clear UXO, munitions constituents, target scrap, and other possible contaminants from the range. The extent and nature of the decontamination response that would follow closure of the CMAGR cannot be specified at this time, but decontamination activities would be emission sources. Emissions from decontamination activities, however, would not be likely to exceed those of ongoing training activities. Military flight training would possibly continue in airspace overlying the CMAGR, but these operations would no longer be associated with the range and would likely be diminished in numbers from current training rates or may eventually be discontinued. Either way, emissions in the SSAB from military aircraft would likely be reduced as a result of Alternative 5. Non-military land uses would eventually be introduced to at least a portion of the former CMAGR but the extent and nature of these uses cannot be determined at this time. In any event, termination of the CMAGR land withdrawal in accordance with Alternative 5 and closure of the range when considered together with other past, present, and reasonably

foreseeable future actions would not be likely to cause adverse cumulative impacts to the air quality status of the SSAB.

5.3.5.1 Greenhouse Gases

The potential effects of proposed greenhouse gas (GHG) emissions are by nature global and cumulative impacts, as individual sources of GHG emissions are not large enough to have an appreciable effect on climate change. Therefore, an appreciable impact on global climate change would only occur when proposed GHG emissions combine with GHG emissions from other man-made activities on a global scale. For Alternative 1, 2, 3 and 4, no change in range operations are proposed. CMAGR management responsibilities, boundary alignment, and duration of range renewal are also not expected to result in any change in GHG emissions. However, for Alternative 5, range operations would cease and training activities would be moved to other unknown locations. Alternative 5 might result in increased GHG emissions due to higher fuel use due to the need to travel further distances to train. The details of future training are speculative at this time and would be evaluated further if Alternative 5 is selected.

5.3.5.2 Climate Change Adaptation

In addition to assessing potential GHG emissions, it is also important to assess how climate change might impact the Proposed Action and what adaptation strategies could be developed in response. This is a global issue for DoD. As is clearly outlined in the Quadrennial Defense Review Report of February 2010 (U.S. Department of Defense 2010), the DoD would need to adjust to the impacts of climate change on our facilities and military capabilities should such change occur. DoD already provides environmental stewardship at hundreds of installations throughout the United States and around the world, working diligently to meet resource efficiency and sustainability goals as set by relevant laws and executive orders. Although the United States has significant capacity to adapt to potential climate change, it would pose challenges for civil society and DoD alike. DoD's operational readiness hinges on continued access to land, air, and sea training and test space. Consequently, the DoD must complete a comprehensive assessment of all installations to assess the potential impacts of predicted climate change on its missions and adapt as required. The Quadrennial Defense Review Report goes on to illustrate that DoD would work to foster efforts to assess, adapt to, and mitigate the impacts of climate change. Within the United States, the DoD would leverage the Strategic Environmental Research and Development Program, a joint effort among DoD, the Department of Energy, and the USEPA, to develop climate change assessment tools.

For the CMAGR, adaptation issues requiring evaluation and consideration could revolve around aridity associated with the Southwest. The U.S. Global Climate Research Program report, Global Climate Change Impacts in the U.S. (2009), predicts that the Southwest could face droughts, scarcity of water supplies, increased temperature, drought, and wildfire. As climate science advances, the DoN would regularly reevaluate climate change risks and opportunities at the bases to develop policies and plans to manage its effects on the operating environment, missions, and facilities. Managing the national security effects of climate change would require DoN to work collaboratively, through a whole-of-government approach, with local, state, and federal agencies.

5.3.6 <u>Biological Resources</u>

As summarized in Section 5.2.1.1, the effects of past and present actions on biological and ecological resources in the eastern and western parts of the CMAGR region are sharply differentiated. Past and present actions have left the area to the east of the Coachella Canal, which includes the CMAGR, generally as an expansive, interconnected, and predominantly natural landscape that retains significant and widespread biological resource values. The area is comprised of a large mostly contiguous tract of BLM and DoN land interspersed with some private and state parcels. Conservation of biological resources in this area has greatly benefited from land use designations, including the CMAGR, that

provide for long-term protection or conservation—either as a direct objective or indirect effect—of natural resources and landscapes. The area is affected by SR 78, a few county roads, dispersed recreation including OHV use, the UPRR, and the Mesquite Gold Mine, but natural processes generally predominate in sustaining and shaping the biological environment. Reasonably foreseeable actions include solar and wind energy projects, comprising 54,000 acres of BLM land in aggregate, that have been proposed for areas to the east of the CMAGR. These projects likely would result in habitat loss, may present movement barriers to some species populations, would introduce wind farms that have been found to cause direct mortality of birds, and likely would have other adverse consequences for biological resources. A countervailing proposal for the same general area is the proposed California Desert Protection Act of 2011, which would exclude renewable energy and other development proposals from almost 75,000 acres of BLM land by designating it as a special management area, in which almost 65 percent of the area may later be designated as wilderness.

In sharp contrast to the status of biological resources in the eastern portion of the CMAGR region, native plant communities and wildlife habitats throughout most of the western area have been highly modified, eliminated, and/or replaced by the formation of the Salton Sea and development of the area for agriculture, settlement, and other economic activities. Highways, canals, large contiguous tracts of agricultural land, the Salton Sea, and urban development provide little or no habitat value for many native species and form a significant barrier to the movements of other native terrestrial species. The ecological relationships of the CMAGR to the western area have been significantly diminished. Proposed renewable energy and power transmission projects, urban development, and other development activities in the western area would do nothing to improve the biological resource condition of the area. As discussed in Section 2.7.1, climate change might result in the Southwest enduring hotter average temperatures and decreasing average rainfall over the next several decades. However, these trends cannot be forecasted at this time with the precision necessary to assess potential impacts to biological resources. Under Alternatives 2, 3, and 4, the Marine Corps would prepare an INRMP that would adopt an adaptive management strategy to respond to potential impacts from climate change.

Renewal of the CMAGR in accordance with Alternative 1, 2, 3, or 4, together with other past, present, and reasonably foreseeable future actions, would also renew the range area as a vital ecological component in the largest tract of relatively intact Sonoran Desert in California. Closure of the CMAGR in accordance with no-action Alternative 5 would present the risk of having an adverse rather than positive cumulative effect on biological resources. That risk would stem from the fact that substantial portions of the former range potentially would be opened to non-military reuse, such as OHV use, transmission or pipe line construction, mining, and renewable energy developments. These activities, especially industrial scale mining and renewable energy development, could result in habitat loss curtailment of wildlife movements, and other negative biological effects. On the other hand, management planning for post-range use may assign priority to conserving or protecting the ecological resource values.

5.3.7 Cultural Resources

Prehistoric sites and historic-period built environment resources both individually and when evaluated together provide an important window into the past, particularly when these resources are found in the same setting and context in which they originated. These resources and their original settings also represent places of traditional importance to Native Americans. As indicated in Sections 5.2.11 and 5.3.6, the CMAGR is a major land unit in a greater area east of the Coachella Canal that comprises the largest relatively undisturbed tract of the Sonoran Desert in California. Military training activities that directly affect the surface of the CMAGR are clearly defined and localized to specific areas. After 70 years of military use, about 95 percent of the range retains its original natural desert setting and exhibits ground surfaces that are largely undisturbed. Further, the need to protect public safety from hazards associated with live-fire training, UXO, laser use, and other military activities, and to prevent interruption of training

schedules, has required that the CMAGR be closed to public access. These conditions, which are incidental consequences of the range and range operations, do not guarantee protection of cultural resources; but, nevertheless, they benefit the preservation of prehistoric sites, historic-period built environment resources, and the context and settings in which they originated. Land use and management conditions that are generally protective of prehistoric sites and historic-period built environment resources also are found at other land units within the block of Sonoran Desert in which the CMAGR is located, particularly within the eight wilderness areas that encompass almost 330,000 acres in aggregate and the over 860,000 acres of ACECs. At the same time, the list of reasonably foreseeable future actions that are proposed to occur in the same block of Sonoran Desert includes wind and solar energy projects that likely would not be favorable to the long-term preservation of cultural resources in place and in context. These proposed renewable energy projects would comprise 54,000 acres of BLM land, in aggregate, to the east of the CMAGR. A countervailing proposal for the same general area is the proposed California Desert Protection Act of 2011, which would exclude renewable energy and other development proposals from almost 75,000 acres of BLM land by designating it as a special management area, in which almost 65 percent of the area would be later designated as potential wilderness and then wilderness.

When considered together with other past, present, and reasonably foreseeable future actions, renewal of the CMAGR, in accordance with Alternative 1, 2, 3, or 4, would contribute to the cumulative extent to which prehistoric sites, historic-period built environment resources, and the context and settings in which they originated would continue to be protected in the area east of the Coachella Canal. Closure of the CMAGR in accordance with no-action Alternative 5 would present the risk of having an adverse rather than positive cumulative effect on cultural resources. That risk would stem from the fact that a substantial portion of the presently preserved-in-place desert landscape of the greater area east of the Coachella Canal potentially would be opened to development or alteration. On the other hand, management planning for post-range use may assign priority to protecting cultural and other resource values of the area.

5.3.8 Noise

Aggregate off-range noise exposure from military flight and ordnance use operations at the CMAGR currently averages less than 65 dB. Noise exposure levels on this order are within those normally acceptable for all types of land use. Among the reasonably foreseeable future actions is initiation of training with the F-35 aircraft. Notably, the on- and off-range noise exposure levels that would occur after the F-35 replaces legacy AV-8B and F/A-18 aircraft are forecasted to decrease from current levels (DoN 2010b). A number of the past and present actions and other reasonably foreseeable future actions, such as highway or construction activities, currently generate or would generate noise in the CMAGR region. Setting aside the aforementioned F-35 training at the CMAGR, current and future non-military noise sources in the region are not or would not be loud enough or close enough to the range to generate noise effects when added to the ambient sound environment of the range to produce a significant cumulative increase in noise either at the range or in the surrounding areas. This conclusion would hold true whether the CMAGR was renewed in accordance with Alternative 1, 2, 3, or 4. Closure of the CMAGR in accordance with no-action Alternative 5 would, at a minimum, reduce aircraft overflight noise and eliminate ordnance detonations at the former range. A reduction in the noise generated from military activities would not produce a significant cumulative effect when added together with other past, present, and reasonably foreseeable future actions.

5.3.9 Visual Resources

Visual resources within the CMAGR viewshed have been affected by past and present actions. Noticeable off-range negative impacts to scenic quality within the viewshed include gravel pits and landfills, a surface mine, transmission lines, occupied and abandoned residential areas, the Coachella Canal and associated berms, and three railroads and associated berms. In contrast to these off-range visual quality conditions, on-range visual quality is generally unimpaired by existing military activities and

infrastructure as seen from the most critical viewpoints. In fact, scenic quality is positively affected at some KOPs where the viewshed includes vistas of designated wilderness and unencumbered military range land. Visual resources likely would be negatively impacted by some reasonably foreseeable future projects in the CMAGR viewshed, such as wind energy projects in the West Chocolate Mountains REEA, where proposed visually prominent structures may be observed by many viewers. Renewal of the CMAGR in accordance with Alternative 1, 2, 3, or 4 would have a positive effect on visual resources in the greater region by keeping the range portion of the common viewshed generally free of land uses that would impair scenic quality.

Closure of the CMAGR in accordance with no-action Alternative 5 likely would lead to non-military reuse of the former range. Some types of reuse may negatively affect scenic quality in the greater regional viewshed when considered together with other past, present, and reasonably foreseeable future actions in the areas of the common viewshed that are outside of the current range. Future reuse of the former CMAGR cannot be reliably predicted, but a number of possibilities can be suggested. For example, recreational use, especially involving off-highway vehicles, could create visually prominent roads or trails in currently roadless or lightly used areas. Projects such as mines or renewable energy developments could also create visually prominent structures or earthworks. Development of these types of projects would diminish the generally positive contribution that the CMAGR provides to the cumulative scenic quality when on- and off-range areas share the same viewshed.

5.3.10 Public Health and Safety

Military training often involves activities that are inherently hazardous to non-participating personnel, vehicles, or aircraft. Military ranges, including the CMAGR, and restricted airspace are designed to protect the safety of the public and military personnel alike by restricting non-participants from training areas and airspace where hazardous activities are occurring and by conducting live-fire weapons use in accordance with DoD standards that there be a 99.9999 percent probability of containing all munitions or munitions fragments within the range and airspace boundaries. Equivalent standards are in place to govern the safe conduct of other potentially hazardous activities, such as the use of lasers for designating targets. Renewal of the CMAGR in accordance with Alternative 1, 2, 3, or 4 would result in continuing military training at the range and in R-2507N/S/E restricted airspace. Range and flight safety planning and standard operating procedures would remain in effect, be updated as required, and be strictly implemented. Past, present, and reasonably foreseeable future actions relevant to renewal of the CMAGR would not directly cause additive or interactive effects that would expose either non-participating or military personnel to increased risks associated with military activities. The public may be exposed to increased risk at the CMAGR, however, as an indirect effect of future development projects that displace recreation users and prompt them to enter the range as an alternative recreation travel route or site. A number of renewable energy projects that are proposed close to the range are examples. Development of these or other projects may make affected public land areas either unavailable or unsuitable for recreation use or travel. A development project near the CMAGR may also create vehicle access that conveys the public to remote areas of the range boundary that do not currently experience much trespass with the unintended effect of increasing the vulnerability of the range to intrusion. Conversely, a development could potentially curtail public access to an area of the range boundary, which would have the effect of improving range security and protecting public safety. These issues would have to be addressed on the individual merits of proposed projects.

Non-participating persons periodically enter the CMAGR, either intentionally or unintentionally, without authorization and expose themselves to increased risks from on-range hazards. Training activities are suspended immediately whenever trespassers are detected and are not resumed until the security of the range can be reestablished. None of the identified past, present, and reasonably foreseeable future actions would have an additive effect that would somehow increase the frequency of unauthorized entry to the

range. In fact, the realignments of the range boundary proposed by Alternatives 2, 3, and 4 are designed in large part to reduce the risk of unauthorized and unintentional trespass by establishing well defined and visually prominent boundary alignments along the Bradshaw Trail and UPRR, to reduce public misunderstanding as to the presence or location of the CMAGR.

Closure of the CMAGR in accordance with no-action Alternative 5 would begin processes for assessing UXO or other hazards on the former range, identifying appropriate decontamination strategies, determining appropriate civil reuse of the closed range, implementing range decontamination, and implementing range reuse. UXO would present critical security and public safety issues; but, none of the other identified past, present, and reasonably foreseeable future actions likely would have an additive or interactive effect that would somehow influence these issues.

5.3.11 Hazardous Materials and Waste

Renewal of the CMAGR in accordance with Alternative 1, 2, 3, or 4 would result in continuing military activities at the range, which would include the continuing need to handle, use, process, dispose of, and/or contain and cleanup hazardous materials and wastes in accordance with well defined lines of responsibility and procedures for addressing these requirements. Identified past, present, and reasonably foreseeable future actions would not be likely to cause any additive or interactive effects that either would trigger a need to alter the lines of responsibilities or procedures for hazardous materials and waste issues at the range, or would change the probability or risk of a hazardous materials or waste spill. Similarly, when considered together with other past, present, and reasonably foreseeable future actions, closure of the CMAGR in accordance with Alternative 5 likely would not cause additive or interactive effects that either would trigger a need to alter the lines of responsibilities or procedures for hazardous materials and waste issues at the range, or would exacerbate or diminish a hazardous materials or waste spill.

5.3.12 Socioeconomics

Although agriculture spurred economic and community development in the CMAGR region for four decades before military training needs prompted the establishment of the CMAGR, NAF El Centro, and the ECR, the economies and communities of the region and military training both enjoyed success over the subsequent 70 years without notable interference or conflict from each other or from the cumulative effects of other past and present actions. The associations between the CMAGR and the economies and communities in its vicinity that have emerged over this long period are both well established and well known. Past, present, and future land uses—such as agriculture, recreation, mining, residential and commercial developments, transportation and other infrastructure improvements, construction projects, utility lines, wildlife and wilderness protection, and renewable energy projects—are socioeconomic activities and/or assets that have benefited or will benefit the region's economies and communities. Renewal of the range in accordance with Alternative 1, 2, 3, or 4 would continue the use of the range to the benefit of military preparedness, but also when considered together with other past, present, and reasonably foreseeable future actions would not be anticipated to have adverse effects on the region's economies and communities.

Most of the socioeconomic benefits associated with the operation of the CMAGR are experienced at the air stations or other installations where aircraft, aircrews, or other military personnel that train at the range are based. Renewal of the land withdrawal and the corresponding continuation of military operations would not change the socioeconomic effects experienced at those installations, so there would be no influence on cumulative effects at those communities.

Alternative 5 would result in the closure and decommissioning of the CMAGR and the likely decontamination and eventual non-military reuse of at least substantial areas of the range. Closure of the range may generate local economic activity associated with expenditures for range decommissioning and

cleanup and eventual range reuse. When considered together with other past, present, and reasonably foreseeable futures actions, the cumulative socioeconomic effects of closure may well be positive for the local region. On the other hand, range closure would also likely result in the cancellation of expected projects, such as improvements at Camp Billy Machen and SWATs 4 and 5 to support NSWG training. Cancellation of these projects may preclude possible economic benefits to nearby communities as a result of construction related expenditures.

Closure and decommissioning of the CMAGR would likely have adverse socioeconomic impacts at the air stations or other installations where aircraft, aircrews, or other military personnel that train at the range are based. These effects may be severe should the loss of training capabilities at the range lead to base realignment or closure actions. The extent to which range closure effects may impact air stations or other installations when considered together with other past, present, and reasonably foreseeable actions is beyond the scope of this LEIS.

6.0 CMAGR CONSULTATION AND COORDINATION

6.1 HISTORY OF PUBLIC INVOLVEMENT

Preparation of this Draft LEIS represents the efforts and involvement of a broad range of participants, including federal, state, and local agencies; American Indian tribes; private organizations; and individuals. The DoN is preparing the Draft LEIS in accordance with NEPA of 1969, to evaluate potential environmental effects of the proposed renewal of the CMAGR land withdrawal. Interested parties were invited to participate through various formal and informal methods, including meetings with public agencies and tribes, scoping meetings, letters of invitation to potential cooperating agencies, e-mail correspondence, website, and distribution of newsletters. This section summarizes these activities.

6.2 SUMMARY OF PUBLIC OUTREACH METHODS

Methods used to involve the public and facilitate exchange of updated project information throughout the planning process have included various types of announcements, agency and tribal coordination, and public scoping meetings.

6.2.1 Government Leader Briefing

In September 2010, selected Congressional leaders were notified by letter that the Marine Corps planned to file an NOI to prepare an LEIS for renewal of the CMAGR land withdrawal. Government leaders in Sacramento, California were briefed by Marine Corps Installations West (MCI WEST) on military activities within the region and were provided with a short fact sheet about the proposed renewal action at the CMAGR.

6.2.2 Notice of Intent

The public was notified of the intent to prepare a Draft LEIS and the dates and locations of scoping meetings through the NOI published in the *Federal Register* on 24 September 2010 (Appendix B). The NOI also provided project information including a description of the purpose and need, the preliminary alternatives, environmental issues and resources to be examined, information on how to submit comments, DoN contact information, and highlights about other opportunities for public input in the LEIS process.

6.2.3 Newsletters

On 18 November 2010, Newsletter #1 was distributed to approximately 281 people to notify government agencies, non-governmental organizations, and other interested parties of the intent to prepare an LEIS and of the scoping process. The newsletter mailing list included private property owners whose land could be affected by the boundary realignments proposed by Alternative 2, 3, or 4; local elected or municipal officials; Federal and State agencies; potentially interested American Indian tribes; and other interested parties.

A second newsletter was released in October 2011 to update the public and other interested parties about the status of the CMAGR land withdrawal and the renewal process. This newsletter documented the results of the scoping meetings and presented an updated timeline for the project.

6.2.4 Website

The public website for the project, located at: www.chocolatemountainrenewal.com, offers interested parties online information pertaining to the project background, preliminary alternatives, published documents, maps, and the LEIS schedule. Materials available at the public scoping meetings are available

on the "Documents and Maps" page. This website is designed to encourage participation by offering online comment submissions and the option to be added to the mailing list; both located under the "Get Involved" page.

6.3 AGENCY AND TRIBAL COORDINATION

6.3.1 Cooperating Agencies

The DoN is required by law to prepare NEPA analysis and documentation in cooperation with any other Federal agency that has jurisdiction by law (40 CFR 1501.6). Additionally, qualified Federal agencies, tribes, or other governments can enter into formal cooperation under this provision and are called cooperating agencies.

Cooperating agency letters of invitation were sent at the initiation of scoping to those agencies and tribal governments identified by the DoN, as having a jurisdictional, regulatory, or special expertise that would contribute to the preparation of the LEIS. Cooperating agencies are allowed opportunities for participation through interagency meetings and active engagement in the preparation of the LEIS, in addition to other opportunities throughout the NEPA process. Specific roles of the lead and cooperating agencies, as well as coordination opportunities and the issue resolution process, are defined in coordination with the cooperating agencies for the Project. The BLM and Reclamation are serving as cooperating agencies.

6.3.2 Other Agency and Tribal Consultation

In addition to sending Newsletter #1 to agency and tribal representatives, notification letters were mailed to 49 agencies and 36 tribes expected to have an interest in the land withdrawal renewal or a regulatory review responsibility. In some cases, multiple persons within an agency or tribe received the letter, so more than 100 notification letters were sent. The letter invited scoping comments and provided information as to who to contact to request additional information or arrange for a meeting with project team representatives.

Follow-up telephone calls were made to the American Indian tribes on 22 December 2010 in an effort to ensure that tribes were aware of the LEIS activities and their opportunity to offer scoping comments, and to inquire if they needed additional information.

The Marine Corps has initiated consultation with the California SHPO on the proposed undertaking associated with the disposal of DoN land for the realignment of the CMAGR boundary.

6.4 SUMMARY OF PUBLIC SCOPING MEETINGS, ISSUES AND COMMENTS

6.4.1 Formal Notification of Public Scoping Meetings

In addition to the other notification opportunities, the public was formally notified of the scoping meetings through paid advertisements. These advertisements were published in newspapers local to the scoping meeting locations or the communities near military installations that use the CMAGR for training. Table 6-1 lists the newspapers, publication area, and dates of publication for the scoping meetings.

Table 6-1 Newspaper Publication of Paid Display Advertisement

Newspaper	Publication Area	Dates of Publication
Yuma Sun	Arizona areas: Yuma, Somerton, San Luis, Gadsden, Roll, Dateland, Wellton, and Tacna California areas: Winterhaven	14-16 November 2010 28-30 November 2010
Baja Del Sol	Yuma County, Arizona Spanish Language Newspaper	19 November 2010 26 November 2010 03 December 2010
Desert Warrior	Marine Corps Air Station Yuma	18 November 2010 24 November 2010 02 December 2010
Imperial Valley Press	Imperial Valley California – specifically: Mexicali, Baja, San Diego County; and Yuma, Arizona	16-18 November 2010 30 November 2010 01-02 December 2010
Palo Verde Valley Times	Blythe, California and Quartzsite, Arizona	17 November 2010 19 November 2010 01 December 2010 03 December 2010
Desert Sun	Palm Springs, California	16-18 November 2010 30 November 2010 01-02 December 2010
Union Tribune	San Diego County, California	15-17 November 2010 29-30 November 2010 01 December 2010

In early December, 2010, four public scoping meetings were held in the cities of Yuma, Arizona, and El Centro, Palm Springs, and San Diego, California. The meetings were held in an open house format to provide information to the public and request public input. Each open house began at 5:30 p.m. and continued until 8:00 p.m. Attendees were invited to register their attendance, and each person was given a handout of Frequently Asked Questions and a comment form. Eight display boards were used to illustrate information, including the vicinity of the CMAGR, Federal land withdrawal and NEPA processes, military ranges in the operating region and how they are used, military features of the CMAGR, current land jurisdiction, proposed CMAGR boundary realignments, summary of preliminary alternatives, and LEIS study topics. Attendees could browse the information on the boards and speak informally to representatives from the project team.

Questions and comments were discussed through one-on-one conversations between attendees and project team representatives during the open house. Attendees were invited to offer oral comments to a court reporter who recorded them verbatim. Transcripts of these comments were reviewed in conjunction with written comments to ensure that all issues were identified. Comment forms were available at each meeting for attendees to provide written comments at the time of the meeting, or to return by mail. Locations, dates, and attendance of each public meeting are shown in Table 6-2.

Table 6-2 Public Scoping Meeting Attendance

Location	Date	Attendance
Yuma, Arizona – Yuma County Library 2951 S 21st Drive; Rooms B-C Yuma, AZ 85364	06 December 2010	7
El Centro, CA – Holiday Inn Express 350 Smoketree Drive El Centro, CA 92243	07 December 2010	15
Palm Springs, CA – Holiday Inn 1800 E Palm Canyon Palm Springs, CA 92264	08 December 2010	2
San Diego, CA – San Diego Planning Commission Hearing Room 5201 Ruffin Road, Suite B San Diego, CA 92123	09 December 2010	11
Total attendance at scoping meetings		35

Comments regarding the proposed action alternatives were considered by the DoN in refining the project description and alternatives that serve as the basis for the impact assessment. The CEQ regulations implementing NEPA require agencies to identify alternative ways of meeting their need for the action as well as performing an analysis of the impacts of a proposed action on the environment. These impacts include effects on natural, human, and cultural resources. Discussions with affected public or agencies helped to define and evaluate effects of the different alternatives on the environment. Comments relating to environmental impacts were considered by the DoN in developing the scope of LEIS technical studies.

The Final Summary Scoping Report containing further details of the scoping process is available for review on the project website at www.ChocolateMountainRenewal.com.

6.4.2 Comment Organization

Mailed letters, electronic (e-) mail messages, project website submittals through 23 December 2010, and comment forms received at each scoping meeting, were reviewed, documented, and entered into a database to facilitate organization, sorting, analytical review, and management of the comments in several different ways. The database is structured to organize comments into separate issue categories, identify the type (e.g., letter, e-mail, comment form), and source of submittal (e.g., agency, special interest group, citizen), and tally the number of comments using various combinations of identifiers.

Using the experience and professional judgment of the study team, the comments were organized into 17 major issue categories; on a broad scale, the categories pertain to process, purpose and need, alternatives, and environmental impacts. Table 6-3 summarizes the volume of comments received on each of the main issue categories.

Table 6-3 Summary of Total Issues Identified

Main Issue	Number of Comments	Percent Based on Total Number of Comments
Agency Coordination	2	2.6%
Airspace	1	1.3%
Alternatives	30	39.0%
Biological Resources	2	2.6%
Cultural Resources	2	2.6%
Cumulative Effects	1	1.3%
Hazardous Materials	3	3.9%
Land Use	7	9..1%
Military Use	2	2.6%
Miscellaneous	1	1.3%
Process (including NEPA and Segregation)	4	5.2%
Purpose & Need	1	1.3%
Public Use (including Recreation and Access)	12	15.6%
Resource Management	2	2.6%
Safety	4	5.2%
Socioeconomics	1	1.3%
Water	2	2.6%
Total Comments	**77**	**100%**

As noted in Table 6-3, the subject of "Alternatives" was the most frequently mentioned main issue, accounting for 39 percent of all comments received. Within this category, more than half of the comments identified suggestions for other alternatives to consider or variations on the preliminary alternatives. The second most frequently mentioned issue was "Public Use," which included comments regarding recreation and access.

6.5 DISTRIBUTION AND REVIEW OF THE DRAFT LEIS

A summary of the scoping process, data collection efforts, and the findings of the impact assessment and mitigation planning is documented in this Draft LEIS. This Draft LEIS was sent to regulatory agencies, Native American Tribes, elected officials, and to individuals who requested copies during scoping. Concurrently, a Notice of Availability (NOA) for the Draft LEIS was announced in the *Federal Register*, on the project website, and local newspapers with information on locations where hard copies of the document are available for review. The document is available for viewing on the project website at: www.ChocolateMountainRenewal.com. In addition, electronic copies are available on compact disk (CD) upon request. The NOA also indicates the duration of the public review and comment period, the address where comments can be sent, and the time and location of the public meetings. Public meetings on the Draft LEIS are planned for Yuma, Arizona, and Palm Springs, El Centro, and San Diego, California. Public meetings provide an opportunity for interested parties to comment on the content of the Draft LEIS and form the basis for making subsequent changes in the Final LEIS.

The following lists the entities that were provided a copy of the Draft LEIS:

FEDERAL

Army National Guard Readiness Center
Federal Highway Administration
Natural Resources Conservation Service, San Diego Office
Natural Resources Conservation Service, Yuma Field Office
U.S. Bureau of Land Management
U.S. Bureau of Reclamation
U.S. Department of Agriculture, Forest Service
U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service
U.S. National Park Service

TRIBAL

Agua Caliente Band of Cahuilla Indians
Ak-Chin Indian Community
Augustine Band of (Cahuilla) Mission Indians
Barona Band of Mission Indians
Cabazon Band of Mission Indians
Cahuilla Band of Mission Indians
Campo Kumeyaay Nation
Chemehuevi Indian Tribe
Cocopah Indian Tribe
Colorado River Indian Tribe
Ewiiaapaayp Tribal Office
Fort McDowell Yavapai Nation
Fort Mojave Indian Tribe
Fort Yuma Indian Reservation, Quechan Tribe
Gila River Indian Community
Inaja Band of Mission Indians
Jamul Band of Mission Indians
Kumeyaay Cultural Committee
Kwaaymii Laguna Band of Mission Indians
La Posta Band of Mission Indians
Los Coyotes Band of Cahuilla and Cupeno Indians
Manzanita Band of Mission Indians
Mesa Grande Band of Mission Indians
Morongo Band of Mission Indians
Ramona Band of Cahuilla Mission Indians
Salt River Pima-Maricopa Indian Community
San Luis Rey Band of Mission Indians
San Manuel Band of Mission Indians
San Pasqual Band of Mission Indians
Santa Rosa Band of Cahuilla Mission Indians
Santa Ysabel Band of Diegueno Indians
Sycuan Band of Mission Indians
Tohono O'odham Nation
Torres-Martinez Desert Cahuilla Indians
Twenty-Nine Palms Band of Mission Indians
Viejas Band of Mission Indians

STATE OF ARIZONA

Arizona Department of Environmental Quality
Arizona Game and Fish Department

STATE OF CALIFORNIA

California Air Resources Board
California Department of Fish and Game
California Department of Parks and Recreation
California Department of Transportation
Office of the Attorney General
State Department of Health Services
State Department of Water Resources Control Board
State Historic Preservation Office

LEGISLATIVE REPRESENTATIVES

Barbara Boxer, U.S. Senator, California
Dianne Feinstein, U.S. Senator, California
John Kyl, U.S. Senator, Arizona
John McCain, U.S. Senator, Arizona
Members of the U.S. House of Representatives from California (53)
Members of the U.S. House of Representatives from Arizona (8)
Jerry Brown, Governor of California
Jan Brewer, Governor of Arizona

Public comments will be accepted for 90 days from the date of the NOA, during which time public meetings will be held to receive comments on the adequacy of the Draft LEIS. Following the close of the comment period, written and verbal comments on the Draft LEIS will be reviewed and responses to comments developed. A Final LEIS will then be prepared, incorporating responses to comments and any additional evaluation that may be warranted. The Final LEIS will be circulated in the same manner as the Draft LEIS. Because this is an LEIS, no ROD will be issued by the DoN. As discussed in Section 1.1.2, Congress will decide whether to renew the land withdrawal for the CMAGR or to allow the current withdrawal to expire.

The Final LEIS will be sent to entities listed above that received the Draft EIS, those who request a copy of the Final LEIS, and persons who provide comments on the Draft LEIS.

7. LIST OF PREPARERS, CONTRIBUTORS, AND REVIEWERS

This LEIS was prepared by the individuals listed in Table 7-1, which includes the preparers' role, educational background, and years of experience. Persons who contributed to the preparation of the LEIS by providing information and/or contributing to the review of preliminary drafts are listed in Table 7-2.

Table 7-1 List of Preparers

Name	EIS Responsibility	Education/Experience
URS Corporation		
Lynn Bowdidge	Non-military Land Use and Visual Resources Technical Review	MS, Environmental Science BA, Communications 13 years of experience in environmental planning and NEPA compliance
Sunny Bush	Public Health and Safety/Hazardous Materials, Public Involvement Task Leader	BA, English BS, Hazardous Materials Management International Association of Public Participation Certification 12 years of experience in environmental planning, environmental due diligence, and public involvement
Eric Carlson	Air Resources	BS, Environmental Engineering 18 years of experience in air quality permitting/compliance, including 4+ years NEPA/CEQA permitting experience
Brian Colson	GIS Analysis and Mapping	BS, Geography 6 years of experience in GIS
Robert DeBaca	Biological Resources	PhD, MS, BA, Biology BA, Environmental Conservation 24 years of experience in biology; 6 in NEPA compliance.
Beth Defend	Project Manager	BA, Technical Journalism 27 years of experience in environmental planning and NEPA compliance
Farshad Farhang	Noise Analysis Technical Review	MBA, Business Administration BS, Electrical Engineering 23 years of experience in acoustical studies and design and noise analyses for environmental documents under NEPA/CEQA
Arlene Garcia-Herbst	Cultural Resources Task Leader	PhD, Anthropology (In progress) C.Phil., Anthropology MA, BA, Anthropology More than 13 years of experience in archaeological research, fieldwork, and publication in the American Southwest (California, Arizona, Colorado and Nevada), and Argentina (Patagonia). Areas of expertise include NEPA, NHPA Section 106, and CEQA Compliance
Rima Ghannam	Socioeconomics and Environmental Justice Technical Review	MS, Environmental Management 11 years of experience in environmental planning and socioeconomic analysis
Jon Goin	Biological Resources	MS, Fisheries Biology BS, Environmental Studies More than 12 years of experience in biological research, fieldwork, and environmental compliance

Name	EIS Responsibility	Education/Experience
Richard Henry	Earth Resources Water Resources	MS, BS, Geology 33 years of experience in earth and water resources planning and evaluation
Massoud Karimi	Environmental Site Evaluation	BS, Geological Sciences/Geophysics 26 years of experience in geological and environmental consulting
David Konopka	Visual Resources	Grad. Studies, Landscape Architecture BS, Natural Resource Conservation 5 years of experience in visual resource management and NEPA compliance
Carolyn Laurie	Non-military Land Use	BS, Regional Development and Urban Planning 7 years of experience in land use planning
Peter Martinez	Administrative Record Management	MA, Geography BS, Geography 18 years of experience implementing GIS and IT solutions
David Marx	Quality Control	MPH, Public Health BS, Biology 29 years of experience in environmental planning and NEPA compliance
Kimberly Maeyama	Cultural Resources	PhD, Archaeology MA, Eastern Mediterranean Archaeology BA Interdisciplinary Humanities 7 years of professional experience as a Cultural Resource Management Archaeologist
Mitch Meek	Graphics	BFA, Graphic Design 28 years of experience in graphics and illustrations for NEPA documents and presentation materials
Julie Mitchell	Air Resources Impacts Technical Reviewer	BS, Atmospheric Sciences BS, Mathematics and Computer Science 18 years of experience in air quality, including 15+ years NEPA/CEQA/similar permitting experience
Patrick Mock	Biological Resources Task Leader	PhD, Biology BS, Wildlife Biology CSE, CWB®, 30+ years of experience in biological assessment and environmental compliance
Elizabeth Nedeff-Perales	Project Management Assistance	BA, Urban Planning 19+ years of experience in environmental planning, military and facility planning, and NEPA compliance
Darin Neufeld	Socioeconomics Environmental Justice	MA, Urban History BA, History 5 years of experience in environmental planning, socioeconomic analysis, and NEPA permitting/compliance

Name	EIS Responsibility	Education/Experience
Kamalesh Pinnisetti	Principal-In-Charge	MS, Civil/Environmental Engineering BS, Civil Engineering Over 18 years of experience in managing multi-disciplinary projects ranging from planning, construction management, information technology, air quality, wastewater compliance, hazardous waste compliance, to groundwater quality data management
Keith Pohs	Technical Editing	MS, Earth Science BA, Geology 13 years of experience in natural resource studies, technical writing, NEPA compliance, and project management
Meg Quarrie	Word Processing	BA, Liberal Arts Over 30 years in Word Processing and Document Management
Anne Runnalls	Air Resources Background Technical Reviewer; Air Quality Conformity: Record of Non-Applicability (RONA)	BS, Chemical Engineering 23 years of experience in engineering design, application and research, including 5+ years NEPA/CEQA/similar permitting experience
Joe Stewart	Paleontological Resources	PhD, Systematics and Ecology MA, Systematics and Ecology BA, Biology 36 years of experience in paleontology; 9 years of experience in paleontological resource management and NEPA compliance
Mark Storm	Noise Analysis	BS, Aeronautics & Astronautics 18 years of experience in acoustics and noise control engineering; 6 years of experience in noise resource assessment relating to NEPA compliance
Julie Stout	Biological Resources	BS, Biology 6 years of experience in wildlife biology and environmental planning, including NEPA compliance
Rachel Wagner	Project Coordination Website Comment Analysis System	BS, Applied Computing 11 years of experience in computer-aided drafting, graphic design, and website development
Jen Wennerlund	Quality Control	BS, Geography 23 years of experience in geography, cartography, remote sensing, and land use planning
Lowell Woodbury	Environmental Site Evaluation	BA, Geological Sciences 22 years of experience in Phase I and Phase II Environmental Site Assessments
Resource Perspectives Inc.		
Brock Tunnicliff	Purpose and Need/Project Description Military Land Use and Range Operations Technical Advisor	PhD, Natural Resources MS, Watershed Hydrology BS, Forest Ecology 37 years of experience in natural resource assessment and management; 25 years of experience in NEPA compliance and military range land withdrawal renewals

Table 7-2 List of Contributors and Reviewers

Name	Organizational Department	Role
U.S. Department of the Navy		
Kelly Finn, CEP	NAVFAC Southwest	NEPA Project Manager
Greg Magnuson	NAVFAC Southwest	Real Estate and BLM Withdrawal Application
Chuck Colwell	NAVFAC Southwest	GIS Mapping and Real Estate
Lonie Cyr	NAVFAC Southwest	Cadastral and Real Estate
Chris Haskett	NAVFAC Southwest	Real Estate Contracting Officer
U.S. Marine Corps		
Ron Pearce	MCAS Yuma	Range Manager
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Department of the Interior, Bureau of Reclamation		
Cindy Flores	Water and Lands Contracts Group	Manager
Anna Pinnell	Resource Management Office	Lands Team Lead

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APPENDIX A

CALIFORNIA MILITARY LANDS WITHDRAWAL AND OVERFLIGHTS ACT OF 1994

TITLE VIII—MILITARY LANDS AND OVERFLIGHTS

SEC. 801. SHORT TITLE AND FINDINGS.

(a) SHORT TITLE.—This title may be cited as the "California Military Lands Withdrawal and Overflights Act of 1994".

(b) FINDINGS.—The Congress finds that—

(1) military aircraft testing and training activities as well as demilitarization activities in California are an important part of the national defense system of the United States, and are essential in order to secure for the American people of this and future generations an enduring and viable national defense system;

(2) the National Park System units and wilderness areas designated by this Act lie within a region critical to providing training, research, and development for the Armed Forces of the United States and its allies;

(3) there is a lack of alternative sites available for these military training, testing, and research activities;

(4) continued use of the lands and airspace in the California desert region is essential for military purposes; and

(5) continuation of these military activities, under appropriate terms and conditions, is not incompatible with the protection and proper management of the natural, environmental, cultural, and other resources and values of the Federal lands in the California desert area.

SEC. 802. MILITARY OVERFLIGHTS.

(a) OVERFLIGHTS.—Nothing in this Act, the Wilderness Act, or other land management laws generally applicable to the new units of the National Park or Wilderness Preservation Systems (or any additions to existing units) designated by this Act, shall restrict or preclude low-level overflights of military aircraft over such units, including military overflights that can be seen or heard within such units.

(b) SPECIAL AIRSPACE.—Nothing in this Act, the Wilderness Act, or other land management laws generally applicable to the new units of the National Park or Wilderness Preservation Systems (or any additions to existing units) designated by this Act, shall restrict or preclude the designation of new units of special airspace or the use or establishment of military flight training routes over such new park system or wilderness units.

(c) NO EFFECT ON OTHER LAWS.—Nothing in this section shall be construed to modify, expand, or diminish any authority under other Federal law.

SEC. 803. WITHDRAWALS.

(a) CHINA LAKE.—(1) Subject to valid existing rights and except as otherwise provided in this title, the Federal lands referred to in paragraph (2), and all other areas within the boundary of such lands as depicted on the map specified in such paragraph which may become subject to the operation of the public land laws, are hereby withdrawn from all forms of appropriation under the public land laws (including the mining laws and the mineral leasing laws). Such lands are reserved for use by the Secretary of the Navy for—

(A) use as a research, development, test, and evaluation laboratory;

(B) use as a range for air warfare weapons and weapon systems;

(C) use as a high hazard training area for aerial gunnery, rocketry, electronic warfare and countermeasures, tactical maneuvering and air support;

(D) geothermal leasing and development and related power production activities; and

(E) subject to the requirements of section 804(f) of this title, other defense-related purposes consistent with the purposes specified in this paragraph.

(2) The lands referred to in paragraph (1) are the Federal lands located within the boundaries of the China Lake Naval Weapons Center, comprising approximately one million one hundred thousand acres in Inyo, Kern, and San Bernardino Counties, California, as generally depicted on a map entitled "China Lake Naval Weapons Center Withdrawal—Proposed", dated January 1985.

(b) CHOCOLATE MOUNTAIN.—(1) Subject to valid existing rights and except as otherwise provided in this title, the Federal lands referred to in paragraph (2), and all other areas within the boundary of such lands as depicted on the map specified in such paragraph which may become subject to the operation of the public land laws, are hereby withdrawn from all forms of appropriation under the public land laws (including the mining laws and the mineral leasing and the geothermal leasing laws). Such lands are reserved for use by the Secretary of the Navy for—

(A) testing and training for aerial bombing, missile firing, tactical maneuvering and air support; and

(B) subject to the provisions of section 804(f) of this title, other defense-related purposes consistent with the purposes specified in this paragraph.

(2) The lands referred to in paragraph (1) are the Federal lands comprising approximately two hundred twenty-six thousand seven hundred and eleven acres in Imperial County, California, as generally depicted on a map entitled "Chocolate Mountain Aerial Gunnery Range Proposed—Withdrawal" dated July 1993.

SEC. 804. MAPS AND LEGAL DESCRIPTIONS.

(a) PUBLICATION AND FILING REQUIREMENT.—As soon as practicable after the date of enactment of this title, the Secretary shall—

(1) publish in the Federal Register a notice containing the legal description of the lands withdrawn and reserved by this title; and

(2) file maps and the legal description of the lands withdrawn and reserved by this title with the Committee on Energy

and Natural Resources of the United States Senate and the Committee on Natural Resources of the United States House of Representatives.

(b) TECHNICAL CORRECTIONS.—Such maps and legal descriptions shall have the same force and effect as if they were included in this title except that the Secretary may correct clerical and typographical errors in such maps and legal descriptions.

(c) AVAILABILITY FOR PUBLIC INSPECTION.—Copies of such maps and legal descriptions shall be available for public inspection in the appropriate offices of the Bureau of Land Management; the office of the commander of the Naval Weapons Center, China Lake, California; the office of the commanding officer, Marine Corps Air Station, Yuma, Arizona; and the Office of the Secretary of Defense, Washington, District of Columbia.

(d) REIMBURSEMENT.—The Secretary of Defense shall reimburse the Secretary for the cost of implementing this section.

SEC. 805. MANAGEMENT OF WITHDRAWN LANDS.

(a) MANAGEMENT BY THE SECRETARY OF THE INTERIOR.—(1) Except as provided in subsection (g), during the period of the withdrawal the Secretary shall manage the lands withdrawn under section 802 of this title pursuant to the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq.) and other applicable law, including this title.

(2) To the extent consistent with applicable law and Executive orders, the lands withdrawn under section 802 of this title may be managed in a manner permitting—

(A) the continuation of grazing pursuant to applicable law and Executive orders were permitted on the date of enactment of this title;

(B) protection of wildlife and wildlife habitat;

(C) control of predatory and other animals;

(D) recreation (but only on lands withdrawn by section 802(a) of this title (relating to China Lake));

(E) the prevention and appropriate suppression of brush and range fires resulting from nonmilitary activities; and

(F) geothermal leasing and development and related power production activities on the lands withdrawn under section 802(a) of this title (relating to China Lake).

(3)(A) All nonmilitary use of such lands, including the uses described in paragraph (2), shall be subject to such conditions and restrictions as may be necessary to permit the military use of such lands for the purposes specified in or authorized pursuant to this title.

(B) The Secretary may issue any lease, easement, right-of-way, or other authorization with respect to the nonmilitary use of such lands only with the concurrence of the Secretary of the Navy.

(b) CLOSURE TO PUBLIC.—(1) If the Secretary of the Navy determines that military operations, public safety, or national security require the closure to public use of any road, trail, or other portion of the lands withdrawn by this title, the Secretary may take such action as the Secretary determines necessary or desirable to effect and maintain such closure.

(2) Any such closure shall be limited to the minimum areas and periods which the Secretary of the Navy determines are required to carry out this subsection.

(3) Before and during any closure under this subsection, the Secretary of the Navy shall—

(A) keep appropriate warning notices posted; and

(B) take appropriate steps to notify the public concerning such closures.

(c) MANAGEMENT PLAN.—The Secretary (after consultation with the Secretary of the Navy) shall develop a plan for the management of each area withdrawn under section 802 of this title during the period of such withdrawal. Each plan shall—

(1) be consistent with applicable law;

(2) be subject to conditions and restrictions specified in subsection (a)(3);

(3) include such provisions as may be necessary for proper management and protection of the resources and values of such area; and

(4) be developed not later than three years after the date of enactment of this title.

(d) BRUSH AND RANGE FIRES.—The Secretary of the Navy shall take necessary precautions to prevent and suppress brush and range fires occurring within and outside the lands withdrawn under section 802 of this title as a result of military activities and may seek assistance from the Bureau of Land Management in the suppression of such fires. The memorandum of understanding required by subsection (e) shall provide for Bureau of Land Management assistance in the suppression of such fires, and for a transfer of funds from the Department of the Navy to the Bureau of Land Management as compensation for such assistance.

(e) MEMORANDUM OF UNDERSTANDING.—(1) The Secretary and the Secretary of the Navy shall (with respect to each land withdrawal under section 802 of this title) enter into a memorandum of understanding to implement the management plan developed under subsection (c). Any such memorandum of understanding shall provide that the Director of the Bureau of Land Management shall provide assistance in the suppression of fires resulting from the military use of lands withdrawn under section 802 if requested by the Secretary of the Navy.

(2) The duration of any such memorandum shall be the same as the period of the withdrawal of the lands under section 802.

(f) ADDITIONAL MILITARY USES.—Lands withdrawn under section 802 of this title may be used for defense-related uses other than those specified in such section. The Secretary of Defense shall promptly notify the Secretary in the event that the lands withdrawn by this title will be used for defense-related purposes other than those specified in section 802. Such notification shall indicate the additional use or uses involved, the proposed duration of such uses, and the extent to which such additional military uses of the withdrawn lands will require that additional or more stringent conditions or restrictions be imposed on otherwise-permitted nonmilitary uses of the withdrawn land or portions thereof.

(g) MANAGEMENT OF CHINA LAKE.—(1) The Secretary may assign the management responsibility for the lands withdrawn under section 802(a) of this title to the Secretary of the Navy who shall manage such lands, and issue leases, easements, rights-of-way, and other authorizations, in accordance with this title and cooperative management arrangements between the Secretary and the Secretary of the Navy: *Provided*, That nothing in this subsection shall affect geothermal leases issued by the Secretary prior to

the date of enactment of this title, or the responsibility of the Secretary to administer and manage such leases, consistent with the provisions of this section. In the case that the Secretary assigns such management responsibility to the Secretary of the Navy before the development of the management plan under subsection (c), the Secretary of the Navy (after consultation with the Secretary) shall develop such management plan.

(2) The Secretary shall be responsible for the issuance of any lease, easement, right-of-way, and other authorization with respect to any activity which involves both the lands withdrawn under section 802(a) of this title and any other lands. Any such authorization shall be issued only with the consent of the Secretary of the Navy and, to the extent that such activity involves lands withdrawn under section 802(a), shall be subject to such conditions as the Secretary of the Navy may prescribe.

(3) The Secretary of the Navy shall prepare and submit to the Secretary an annual report on the status of the natural and cultural resources and values of the lands withdrawn under section 802(a). The Secretary shall transmit such report to the Committee on Energy and Natural Resources of the United States Senate and the Committee on Natural Resources of the United States House of Representatives.

(4) The Secretary of the Navy shall be responsible for the management of wild horses and burros located on the lands withdrawn under section 802(a) of this title and may utilize helicopters and motorized vehicles for such purposes. Such management shall be in accordance with laws applicable to such management on public lands and with an appropriate memorandum of understanding between the Secretary and the Secretary of the Navy.

(5) Neither this title nor any other provision of law shall be construed to prohibit the Secretary from issuing and administering any lease for the development and utilization of geothermal steam and associated geothermal resources on the lands withdrawn under section 802(a) of this title pursuant to the Geothermal Steam Act of 1970 (30 U.S.C. 1001 et seq.) and other applicable law, but no such lease shall be issued without the concurrence of the Secretary of the Navy.

(6) This title shall not affect the geothermal exploration and development authority of the Secretary of the Navy under section 2689 of title 10, United States Code, except that the Secretary of the Navy shall obtain the concurrence of the Secretary before taking action under that section with respect to the lands withdrawn under section 802(a).

(7) Upon the expiration of the withdrawal or relinquishment of China Lake, Navy contracts for the development of geothermal resources at China Lake then in effect (as amended or renewed by the Navy after the date of enactment of this title) shall remain in effect: *Provided*, That the Secretary, with the consent of the Secretary of the Navy, may offer to substitute a standard geothermal lease for any such contract.

SEC. 806. DURATION OF WITHDRAWALS.

(a) DURATION.—The withdrawals and reservations established by this title shall terminate twenty years after the date of enactment of this title.

(b) DRAFT ENVIRONMENTAL IMPACT STATEMENT.—No later than eighteen years after the date of enactment of this title, the Secretary

of the Navy shall publish a draft environmental impact statement concerning continued or renewed withdrawal of any portion of the lands withdrawn by this title for which that Secretary intends to seek such continued or renewed withdrawal. Such draft environmental impact statement shall be consistent with the requirements of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) applicable to such a draft environmental impact statement. Prior to the termination date specified in subsection (a), the Secretary of the Navy shall hold a public hearing on any draft environmental impact statement published pursuant to this section. Such hearing shall be held in the State of California in order to receive public comments on the alternatives and other matters included in such draft environmental impact statement.

(c) EXTENSIONS OR RENEWALS.—The withdrawals established by this title may not be extended or renewed except by an Act or joint resolution of Congress.

SEC. 807. ONGOING DECONTAMINATION.

(a) PROGRAM.—Throughout the duration of the withdrawals made by this title, the Secretary of the Navy, to the extent funds are made available, shall maintain a program of decontamination of lands withdrawn by this title at least at the level of decontamination activities performed on such lands in fiscal year 1986.

(b) REPORTS.—At the same time as the President transmits to the Congress the President's proposed budget for the first fiscal year beginning after the date of enactment of this title and for each subsequent fiscal year, the Secretary of the Navy shall transmit to the Committees on Appropriations, Armed Services, and Energy and Natural Resources of the United States Senate and to the Committees on Appropriations, Armed Services, and Natural Resources of the United States House of Representatives a description of the decontamination efforts undertaken during the previous fiscal year on such lands and the decontamination activities proposed for such lands during the next fiscal year including—

(1) amounts appropriated and obligated or expended for decontamination of such lands;

(2) the methods used to decontaminate such lands;

(3) amount and types of contaminants removed from such lands;

(4) estimated types and amounts of residual contamination on such lands; and

(5) an estimate of the costs for full contamination of such lands and the estimate of the time to complete such decontamination.

SEC. 808. REQUIREMENTS FOR RENEWAL.

(a) NOTICE AND FILING.—(1) No later than three years prior to the termination of the withdrawal and reservation established by this title, the Secretary of the Navy shall advise the Secretary as to whether or not the Secretary of the Navy will have a continuing military need for any of the lands withdrawn under section 802 after the termination date of such withdrawal and reservation.

(2) If the Secretary of the Navy concludes that there will be a continuing military need for any of such lands after the termination date, the Secretary of the Navy shall file an application for extension of the withdrawal and reservation of such needed lands in accordance with the regulations and procedures of the

Department of the Interior applicable to the extension of withdrawals of lands for military uses.

(3) If, during the period of withdrawal and reservation, the Secretary of the Navy decides to relinquish all or any of the lands withdrawn and reserved by this title, the Secretary of the Navy shall file a notice of intention to relinquish with the Secretary.

(b) CONTAMINATION.—(1) Before transmitting a notice of intention to relinquish pursuant to subsection (a), the Secretary of Defense, acting through the Department of the Navy, shall prepare a written determination concerning whether and to what extent the lands that are to be relinquished are contaminated with explosive, toxic, or other hazardous materials.

(2) A copy of such determination shall be transmitted with the notice of intention to relinquish.

(3) Copies of both the notice of intention to relinquish and the determination concerning the contaminated state of the lands shall be published in the Federal Register by the Secretary of the Interior.

(c) DECONTAMINATION.—If any land which is the subject of a notice of intention to relinquish pursuant to subsection (a) is contaminated, and the Secretary, in consultation with the Secretary of the Navy, determines that decontamination is practicable and economically feasible (taking into consideration the potential future use and value of the land) and that upon decontamination, the land could be opened to operation of some or all of the public land laws, including the mining laws, the Secretary of the Navy shall decontaminate the land to the extent that funds are appropriated for such purpose.

(d) ALTERNATIVES.—If the Secretary, after consultation with the Secretary of the Navy, concludes that decontamination of any land which is the subject of a notice of intention to relinquish pursuant to subsection (a) is not practicable or economically feasible, or that the land cannot be decontaminated sufficiently to be opened to operation of some or all of the public land laws, or if Congress does not appropriate a sufficient amount of funds for the decontamination of such land, the Secretary shall not be required to accept the land proposed for relinquishment.

(e) STATUS OF CONTAMINATED LANDS.—If, because of their contaminated state, the Secretary declines to accept jurisdiction over lands withdrawn by this title which have been proposed for relinquishment, or if at the expiration of the withdrawal made by this title the Secretary determines that some of the lands withdrawn by this title are contaminated to an extent which prevents opening such contaminated lands to operation of the public land laws—

(1) the Secretary of the Navy shall take appropriate steps to warn the public of the contaminated state of such lands and any risks associated with entry onto such lands;

(2) after the expiration of the withdrawal, the Secretary of the Navy shall undertake no activities on such lands except in connection with decontamination of such lands; and

(3) the Secretary of the Navy shall report to the Secretary and to the Congress concerning the status of such lands and all actions taken in furtherance of this subsection.

(f) REVOCATION AUTHORITY.—Notwithstanding any other provision of law, the Secretary, upon deciding that it is in the public interest to accept jurisdiction over lands proposed for relinquish-

ment pursuant to subsection (a), is authorized to revoke the withdrawal and reservation established by this title as it applies to such lands. Should the decision be made to revoke the withdrawal and reservation, the Secretary shall publish in the Federal Register an appropriate order which shall—

(1) terminate the withdrawal and reservation;

(2) constitute official acceptance of full jurisdiction over the lands by the Secretary; and

(3) state the date upon which the lands will be opened to the operation of some or all of the public lands law, including the mining laws.

SEC. 809. DELEGABILITY.

(a) DEPARTMENT OF DEFENSE.—The functions of the Secretary of Defense or the Secretary of the Navy under this title may be delegated.

(b) DEPARTMENT OF THE INTERIOR.—The functions of the Secretary under this title may be delegated, except that an order described in section 807(f) may be approved and signed only by the Secretary, the Under Secretary of the Interior, or an Assistant Secretary of the Department of the Interior.

SEC. 810. HUNTING, FISHING, AND TRAPPING.

All hunting, fishing, and trapping on the lands withdrawn by this title shall be conducted in accordance with the provisions of section 2671 of title 10, United States Code.

SEC. 811. IMMUNITY OF UNITED STATES.

The United States and all departments or agencies thereof shall be held harmless and shall not be liable for any injury or damage to persons or property suffered in the course of any geothermal leasing or other authorized nonmilitary activity conducted on lands described in section 802 of this title.

SEC. 812. EL CENTRO RANGES.

The Secretary is authorized to permit the Secretary of the Navy to use until January 1, 1997, the approximately forty-four thousand eight hundred and seventy acres of public lands in Imperial County, California, known as the East Mesa and West Mesa ranges, in accordance with the Memorandum of Understanding dated June 29, 1987, between the Bureau of Land Management, the Bureau of Reclamation, and the Department of the Navy. All military uses of such lands shall cease on January 1, 1997, unless authorized by a subsequent Act of Congress.

APPENDIX B

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properties. USACE Detroit District, and Wayne County, MI acting as the non-federal sponsor, have formed a partnership to reevaluate the flooding issues along the NBEC. The GRR/EIS, will update a feasibility study and EIS completed by USACE in 1988. The purpose of this GRR/EIS is reanalysis of the federal interest in developing flood risk management measures on the NBEC. The analysis will include reformulation of the authorized plan from the 1988 study for applicability. The GRR/EIS will incorporate a review of developments in the floodplain during the last 22 years, consideration of changing needs of the local communities, and current environmental conditions. When complete, the GRR/EIS will recommend if flood mitigation measures should occur with federal assistance. Federal funding for the GRR/EIS phase originates from American Recovery and Reinvestment Act funds, which requires the GRR/EIS to be developed on an accelerated schedule.

Project Authority: The GRR/EIS is being completed based on authorization by Section 102 of the River and Harbor Act of 1966 (Pub. L. 89–789). The original study *Feasibility Report and Environmental Impact Statement for Flood Protection in the Ecorse Creek Drainage Basin, Wayne County, Michigan, 1987 (Revised 1988)* recommended the development of a retention basin as the selected plan. Construction of the selected plan from the 1988 feasibility study was further authorized by Section 101(a) (14) of the Water Resources Development Act (WRDA) of 1990. Construction never occurred. Project authorization was extended in Section 3179 of the WRDA of 2007 to conduct the GRR.

Project Alternatives: A number of flood risk management alternatives will be evaluated as part of the GRR/EIS including retention basins, stream widening and restoration, flood walls and levees, along with non-structural measures such as management plans, warning systems and property acquisition.

Draft EIS Scoping Process: The scoping process for public input will involve Federal, State, and local agencies, along with affected Indian tribes, other interested parties and entities. Coordination with natural resources and environmental agencies will be conducted under the Fish and Wildlife Coordination Act, Endangered Species Act, Clean Water Act, Clean Air Act, and the National Historic Preservation Act. A public meeting will be held (*see* **DATES**) to include discussion of environmental issues associated with potential flood risk management alternatives.

Issues to be considered during the development of the Draft EIS and public review and input process include: aesthetics, dredged material disposal, water quality, air and noise quality, hazardous, toxic and radiological waste, threatened and endangered species, environmental justice, wetlands, historic properties, recreation, cumulative impacts, natural resource mitigation and other issues that may affect public health and welfare. It is estimated the Draft EIS will be available for public review and comment in late 2011.

John M. Niemiec,

Project Manager.

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BILLING CODE 3720–58–P

DEPARTMENT OF DEFENSE

Department of the Navy

Notice of Intent To Prepare a Legislative Environmental Impact Statement for the Proposed Extension of the Chocolate Mountain Aerial Gunnery Range Land Withdrawal

Lead Agency: Department of the Navy, DoD.

Cooperating Agency: Bureau of Land Management, Department of the Interior.

ACTION: Notice.

SUMMARY: Pursuant to Section 102(2)(c) of the National Environmental Policy Act (NEPA) of 1969 and regulations implemented by the Council on Environmental Quality (40 Code of Federal Regulations [CFR] Parts 1500–1508), the Department of the Navy (DoN) and the United States Marine Corps (USMC), with the cooperation of the Bureau of Land Management (BLM), intends to prepare a Legislative Environmental Impact Statement (L–EIS) and conduct public scoping meetings for the proposed extension of the withdrawal of approximately 226,711 acres of public land in Imperial and Riverside counties, California, for continued military use of the Chocolate Mountain Aerial Gunnery Range (CMAGR).

The California Military Lands Withdrawal and Overflights Act of 1994 (Pub. L. 103–433) withdrew 226,711 acres of public land to DoN, reserving these lands for defense-related purposes for a period of 20 years (until October 31, 2014). The Act provides that the DoN may seek extension of the CMAGR withdrawal. As part of the withdrawal process, the Secretary of the Navy is required to publish a Draft L–EIS addressing legislative alternatives and the effects of continued withdrawal. The CMAGR Draft L–EIS will evaluate the environmental effects of the proposal to extend the land withdrawal for an additional 25 years (through 2039) and will evaluate alternative actions to restructure the existing range boundary for improved efficiency in the management of the CMAGR and adjacent lands.

DATES AND ADDRESSES: DoN is initiating a 90-day public scoping process to identify community interests and specific issues to be addressed in the L–EIS, which starts with the publication of this Notice of Intent (NOI). Four public scoping meetings have been scheduled to enlist written and oral comments regarding the scope of the Draft L–EIS analysis:

1. Monday, December 6, 2010, 5:30 p.m. to 8 p.m., Yuma County Library, Rooms B–C, 2951 S. 21st Drive, Yuma, Arizona 85364;
2. Tuesday, December 7, 2010, 5:30 p.m. to 8 p.m., Holiday Inn Express—El Centro, Conference Room B, 350 Smoketree Drive, El Centro, California 92243;
3. Wednesday, December 8, 2010, 5:30 p.m. to 8 p.m., Holiday Inn, 1800 E. Palm Canyon, Palm Springs, California 92264; and
4. Thursday, December 9, 2010, 5:30 p.m. to 8 p.m., San Diego Planning Commission Hearing Room, 5201 Ruffin Road, Suite B, San Diego, California 92123.

FOR FURTHER INFORMATION CONTACT: CMAGR L–EIS Project Manager (*Attn:* Kelly Finn), NAVFAC Southwest, 1220 Pacific Highway, San Diego, CA 92132–5190; phone 619–532–4452. Additional supplementary information regarding the CMAGR Draft L–EIS is available at *http://www.chocolatemountainrenewal.com.* Please submit requests for special assistance, sign language interpretation for the hearing impaired, or other auxiliary aids needed at the scoping meeting to the L–EIS Project Manager by November 26, 2010.

SUPPLEMENTARY INFORMATION: Public scoping meeting schedules and locations will also be published in local newspapers. The public is invited to attend these meetings to view project-related displays, speak with DoN and USMC representatives, and submit public comment forms at information stations. A court reporter will be available at the meetings to accept oral comments. The scoping meetings will be conducted in an informal, open

house style meeting format. All comments regarding the scope of issues that should be considered in the Draft L–EIS must be received within 90 days of the publication date of this notice to ensure full consideration in the Draft L–EIS analysis.

Submitting Comments: Federal, state, and local agencies and interested parties are encouraged to provide oral and/or written comments regarding the scope of the L–EIS, reasonable alternatives and/or specific issues or topics of interest to the public. Comments may be submitted by: (1) Attending one of the public scoping open houses and providing oral or written comments, (2) submitting a comment form on the project's public website at *http://www.chocolatemountainrenewal.com,* or (3) mail. Written comments should be submitted to the L–EIS Project Manager listed below under **FOR FURTHER INFORMATION CONTACT.** All written comments on the scope of the L–EIS should be submitted and/or postmarked no later than December 23, 2010.

The USMC will consider all comments received during the scoping period. A mailing list has been assembled to facilitate preparation of the L–EIS. Those on this list will receive notices and information related to L–EIS preparation. This list includes local, state, and federal agencies with jurisdiction or other interests in the alternatives. In addition, the mailing list includes affected municipalities and other interested parties. Anyone wishing to be added to the mailing list may request to be added by contacting the L–EIS project manager at the address provided below.

Before including your address, telephone number, email address, or other personal identifying information in your comment, please be aware that your entire comment—including any personal identifying information—may be made publicly available at any time. Although requests can be made to withhold personal identifying information from public review, it may not be possible to keep this information from disclosure.

The CMAGR has served as an aerial bombing and gunnery training range since the 1940s. The CMAGR currently provides more than 700 square miles (459,000 acres) of land, and overlying and adjacent special-use airspace that extends laterally for several thousands of square miles that, among other activities, supports training in air combat maneuvering and tactics; close air support (where air-to-ground ordnance is fired to directly support friendly forces engaged in ground combat); airborne laser system operations; air-to-air gunnery; and air-to-ground bombing, rocketry, and strafing. Artillery, demolitions, small arms, and Navy Special Warfare training are also conducted within the range. The CMAGR is a centerpiece in a much larger training complex that incorporates adjacent and nearby special use airspaces and ranges to support full-spectrum combat operations so that Marines can realistically train as they will fight.

Purpose and Need: The purpose of and need for the proposed CMAGR renewal is for the DoN to retain a military aircrew training range for near- and long-term preparedness of United States tactical air forces. Extending the land withdrawal will provide for the continued effective implementation of ongoing aircrew training while maintaining the flexibility to adapt to the training needs of new technologies as they develop. The performance of air operations in combat is directly related to the quality and depth of training. The CMAGR provides a unique combination of attributes that serve this training requirement, including the favorable location and flying weather; sufficient land and airspace; diverse terrain; and developed training support facilities.

The CMAGR consists of approximately 459,000 acres of desert mountain terrain in Imperial and Riverside counties, California. The land jurisdiction map of the CMAGR closely resembles a checkerboard where every other section (640 acres or 1 square mile) is managed by either the DoN or the Bureau of Land Management (BLM). The DoN owns 232,116 acres of the checkerboard, while the alternate sections of the range (226,711 acres) are made up of withdrawn lands managed by the BLM.

Since the CMAGR comprises DoN-owned and BLM-managed public lands, environmental stewardship for the CMAGR is implemented through the Sikes Act for DoN land and the Federal Land Policy and Management Act for BLM land. Because the management goals and procedures of these acts differ, two separate regulatory schemes are required to administer the checkerboard land jurisdiction pattern of the range. Currently, DoN has full administrative jurisdiction to manage military training and resource management on DoN-owned lands within the CMAGR, and the BLM is responsible for resource management on the alternating sections of public lands withdrawn and reserved for DoN use.

Preliminary Alternatives: A range of alternatives, including the no-action alternative required by NEPA, will be considered. The L–EIS will also consider other reasonable alternatives that are identified during scoping or the preparation of the L–EIS. Four preliminary action alternatives have been identified. Alternatives 2, 3 and 4 would include restructuring the CMAGR boundaries to more closely follow certain prominent geographic features, such as aligning part of the CMAGR boundary to closely parallel but no longer cross features such as the Bradshaw Trail and Coachella Canal.

1. Alternative 1 would extend the current withdrawal with no boundary or jurisdictional changes, for a period of 25 years.

2. Alternative 2 would extend the land withdrawal for a period of 25 years with restructured boundaries and would allocate full administrative jurisdiction for resource management to DoN, in addition to the military activities.

3. Alternative 3 would extend the land withdrawal for a period of 25 years and transfer all custody and accountability for the real property within both the current withdrawal and the restructured boundaries from BLM to DoN. All responsibility for resource management and use of the lands would then reside with DoN.

4. Alternative 4 would extend the land withdrawal for a period of 25 years with the restructured boundaries; management of the military activities would remain with DoN and the resource management would remain with BLM.

5. Under Alternative 5, the No Action Alternative, the existing land withdrawal for the CMAGR, provided by the California Military Lands Withdrawal and Overflights Act of 1994, would expire. The capability to support existing and future training activities at the CMAGR that rely on these lands would cease. No alternative range is located in the operational region that has the weapons training capacity of the CMAGR. Consequently, aircrew and other training terminated at the CMAGR by the No Action Alternative would have to be relocated to ranges elsewhere in the country or curtailed. Range clean-up operations at CMAGR would be required.

Environmental Issues and Resources To Be Examined: The Draft L–EIS will evaluate the potential environmental effects associated with each of the above alternatives and any additional alternatives developed during the scoping period. Issues to be addressed include, but are not limited to, biological resources, cultural resources, geology and soils, hydrology, noise, air quality, safety, hazardous materials and waste, socioeconomics and environmental justice. Relevant and

reasonable measures that would avoid or mitigate environmental effects will also be analyzed. Additionally, the USMC will undertake any consultations required by the Endangered Species Act, Clean Water Act, National Historic Preservation Act, and any other applicable law or regulation.

In accordance with the Engle Act of 1958, and the Federal Lands Policy and Management Act of 1976, the DoN is required to file an application with the BLM requesting the Secretary of the Interior process a proposed legislative withdrawal and reservation of public land to continue military training exercises at the CMAGR. The proposed alternatives would withdraw at least 222,041 but not more than 242,058 acres of public land. As a result of the proposed boundary restructuring, approximately 15,347 acres of public land not in the existing 226,711 acre withdrawal would be withdrawn. The restructured boundary would offer the best opportunities to define and manage a secure boundary for the CMAGR, safeguard public use of adjacent public land, and consolidate holdings for more efficient environmental stewardship. The public land would be withdrawn from all forms of appropriation under the public land laws, including surface entry, mining, mineral leasing, and the Materials Act of 1947.

L–EIS Schedule: This notice is the first phase of the L–EIS process and announces the 90-day public comment period and public scoping meetings to identify community concerns and local issues that should be addressed in the L–EIS. The next phase occurs when a Notice of Availability (NOA) is published in the **Federal Register** and local media to publicly announce the release of the Draft L–EIS. A minimum 45-day public comment period for the Draft L–EIS will commence upon publication of the NOA in the **Federal Register**. The USMC will consider and respond to all comments received on the Draft L–EIS when preparing the Final L–EIS. After publication of the Draft L–EIS, one or more public hearings will be held, and public notice will be given regarding the time and place of the hearing(s). The Draft L–EIS will be available for public and agency review and comment before the public hearing(s).

Dated: September 17, 2010.

D.J. Werner,

Lieutenant Commander, Office of the Judge Advocate General, U.S. Navy, Federal Register Liaison Officer.

[FR Doc. 2010–23984 Filed 9–23–10; 8:45 am]

BILLING CODE 3810–FF–P

DEPARTMENT OF DEFENSE

Department of the Army; Corps of Engineers

Notice of Intent To Prepare an Environmental Impact Statement for Skokomish General Investigation Study, Mason County, WA

AGENCY: Department of the Army, U.S. Army Corps of Engineers, DoD.

ACTION: Notice of intent.

SUMMARY: Pursuant to Section 102(2)(C) of the National Environmental Policy Act (NEPA) of 1969, as amended, the U.S. Army Corps of Engineers (USACE) will prepare an Integrated Feasibility Report/Environmental Impact Statement (FR/EIS) for proposed ecosystem restoration and flood risk management in the Skokomish River Basin which empties into Hood Canal, near Shelton, Washington. The Skokomish Indian Tribe and Mason County are the non-Federal sponsors for the project.

The Skokomish River General Investigation (GI) Feasibility Study for the Skokomish River Basin is being conducted under the authority of Section 209 of the Flood Control Act of 1962 (Pub. L. 87–874).

The Skokomish River channel has been filling with sediment for several decades, resulting in frequent flooding and decreasing natural ecosystem structures, functions, and processes necessary to support critical fish and wildlife habitat throughout the Skokomish River Basin. Increased sediment load, reduced flows, and encroachment of the floodplain by man-made structures are leading to continued degradation of natural ecosystem functions and habitat. The degraded riverine and estuarine aquatic habitat has caused a decline in the population of critical fish and wildlife species, including multiple ESA listed species. Additionally, the channel capacity of the Skokomish River varies significantly. Limited channel capacity causes floodwater to leave the banks at various locations, ultimately causing frequent flooding of local roads, two state highways, agricultural fields, residences, and other structures.

The Skokomish River GI is a basin-wide study; however, work by others, constrain the limit of Corps' involvement to actions primarily in the lower Skokomish River Valley. Problems, opportunities, and objectives will be examined within the context of the entire watershed. Recognizing the relationships between the upper and lower watershed will ensure a comprehensive study overview.

The purpose of the FR/EIS and feasibility study is to evaluate if there is a federal interest in aquatic ecosystem restoration and flood risk management in the Skokomish River Basin.

DATES: Submit comments by October 25, 2010 on the scope of issues to be addressed in the draft FR/EIS.

ADDRESSES: Address all comments concerning this notice to Mr. Patrick Cagney, Environmental Resources Section, U.S. Army Corps of Engineers, Seattle District, P.O. Box 3755, Seattle, WA 98124–3755. Submit electronic comments and supporting data to *patrick.t.cagney@usace.army.mil*

FOR FURTHER INFORMATION CONTACT: Questions regarding the scoping process or preparation of the draft EIS may be directed to Mr. Patrick Cagney, telephone (206) 764–3654, e-mail *patrick.t.cagney@usace.army.mil*

SUPPLEMENTARY INFORMATION:

1. *Study Area:* The Skokomish River Basin (Basin) is located in northwest Washington, predominantly in Mason County. The project study area is comprised of the entire drainage basin, including the estuary at Annas Bay. The river collects drainage from an approximate 240 square mile drainage basin, and eventually flows into southern Hood Canal, an arm of Puget Sound. The river flows out of three sub-basins (South Fork, North Fork, and Vance Creek) into a broad, flat alluvial plain known as the Skokomish River Valley. The Skokomish Indian Reservation is located within the lower valley and extends along the southeast portion of the Olympic Peninsula. The Basin is defined by the Water Resource Inventory Area (WRIA) 16 and is located within U.S. Congressional District #6 of Washington State.

2. *Alternatives:* The EIS will separately evaluate alternatives for aquatic ecosystem restoration and flood risk management. Alternatives that will be evaluated under aquatic ecosystem restoration will include an alternative that uses physical actions to restore the Basin's habitat-forming processes and/or create habitats that have been lost as a result of historic alterations. Example of actions that could occur under this alternative include: increasing floodplain habitat and connectivity, restoring off-channel habitat for juvenile fish, improving estuarine functions and processes, and increasing emergent and riparian vegetation. Another alternative that will be considered will focus on benefits to the several aquatic species listed under the Endangered Species Act. Actions under this alternative could include creation of spawning and

APPENDIX C

METHODOLOGY FOR CHARACTERIZING THE MILITARY-SURFACE-USE FOOTPRINT AT THE CHOCOLATE MOUNTAIN AERIAL GUNNERY RANGE

INTRODUCTION

An inventory of military surface use at the CMAGR was prepared to identify how the various portions of the range are used to support training operations and to quantify the area of the range committed to each use. Surface use was categorized in the inventory by activity and by the levels of physical disturbance that the various categories of activities have on the ground surface, vegetative communities, and surface drainages.

RANGE USE CATEGORIES

The inventory of military surface use at the CMAGR began with MCAS Yuma, Range and Training Area Standard Operating Procedures, Station Order 3710.6I, which identifies specific areas of the range that have been designated to support various training activities and provides the locations and standard operating procedures for each training area or site. A base map depicting the training areas/sites identified in Station Order 3710.6I and the range road network was prepared using the GIS database maintained by MCAS Yuma (see Figure 1-5). In aggregate, the features depicted in Figure 1-5 represent developed capabilities at the CMAGR to support training and show how these capabilities are distributed within the range, but, by themselves, these depictions do not reveal how most of the range is used to support training. In fact, nearly the entire surface of the CMAGR currently is used in some capacity to support military training. To capture the full spectrum of use at the range in the inventory, training areas or sites were classified as belonging to either one or both of two broad categories of use and to either one or two of nine use subcategories. The two broad categories of use include (1) tactical training weapons ranges and (2) other training areas. The weapons ranges category, which includes tactical weapons ranges used for aviation and ground combat training, is subdivided into five subcategories:

- Target Simulations and Other Earthwork Features. Features that result from grading, excavating, filling, or otherwise reshaping the ground surface. The subcategory includes all runways, aircraft parking revetments, surface-to-air missile sites, and other earthwork features that were prepared to appear as battlefield features from the air. These features are generally located within, but are smaller than, the Target or Target Complex polygons shown in Figure 1-5. Some features, particularly earthwork at currently inactive targets, were found by the surface use inventory to be located outside of the current inventory of Target or Target Complex polygons (see Figure 3-2).

- Core Weapons Impact Areas. The areas at and close to target features in which the greatest concentrations of ordnance impacts the ground. Vegetative community, ground surfaces, and surface drainage patterns are substantially or completely disrupted from the natural norm by the aggregate volume of ordnance that has impacted core weapons impact areas over time. Most core weapons impact areas were found to be located inside Target or Target Complex polygons, but often do not assume the shape or full dimensions of those polygons and include areas outside of those polygons in some instances (see Figure 3-2).

- Secondary Weapons Impact Areas. The ordnance impact area that extends outward from the outer limit of the core weapons impact area to the farthest extent of ordnance impacts that can be readily attributed to deliveries on that target is identified as the secondary weapons impact area. The secondary weapons impact area generally forms a roughly concentric band around the core weapons impact area and is typically larger than the inner impact area. Ordnance impacts at the inner perimeter of a secondary weapons impact area are relatively concentrated but the surface disturbance effects of impacts in this area are less pronounced than those in the core weapons impact area. On the average, ordnance impact effects diminish sharply in secondary weapons impact areas with distance from the target to the point beyond which ordnance impacts

attributable to that target cease to be detectable. Most of the Target or Target Complex polygons were found to encompass at least some of the secondary weapons impact areas for those targets or complexes, but the secondary weapons impact areas for many targets extend outside of these polygons (see Figure 3-2).

- Weapons Delivery Containment Areas. The weapons delivery containment area extends from the outer limits of the secondary weapons impact areas to the lateral limits of R-2507N/S/E or the land boundary of the CMAGR, whichever is nearest to the range interior. Ordnance impacts in this area are infrequent and widely disbursed and generally cannot be attributed to ordnance deliveries on any specific target. The aggregate effects of ordnance impacts have not disrupted natural vegetative communities, ground surfaces, or surface drainage patterns in any cumulatively apparent manner. The weapons delivery containment area is essential to the capability of the CMAGR to support live-fire training as the area is necessary for containing the weapon danger zones (WDZs) and surface danger zones (SDZs) associated with ordnance deliveries on targets at the range (see Figure 3-3). A WDZ defines the ground and airspace needed to laterally and vertically contain 99.9999 percent of all projectiles, fragments, debris, and components resulting from the firing, launching, and/or detonation of aircraft-delivered ordnance. The SDZs provide an equivalent scale of containment for the use of ground-to-ground or ground-to-air ordnance. The weapons delivery containment area is not depicted on Figure 1-5 and is generally located outside of the Target or Target Complex polygons (see Figure 3-2).

- SWATs 4 and 5. The special warfare, ground-combat ranges used for training Navy SEALs or Marine ground units. The two SWATs host 30 designated firing ranges for training with small arms and various other types of man-portable infantry weapons. SWATs 4 and 5 are fully depicted in Figure 1-5.

The other training areas category, which includes all other areas of the CMAGR that support training, is subdivided into four subcategories:

- Ground Support Areas. Specific range surface locations that have been designated to support training activities by ground forces. Individual ground support areas are designated for use as observation posts, artillery firing areas, FARPs, landing zones, a UAS operating area, a Field ASP, and a bivouac and work area (see Figure 1-5). The ground support areas that appear in the military-surface-use inventory are those that exhibit levels of surface disturbance from the activities that they support that distinguish them from surrounding unused areas. Certain ground support areas do not appear in the inventory as ground support areas as they are not physically distinguishable from the surrounding use areas. Areas not included in the ground support area category include the 13 observation posts, 9 of the 10 artillery firing areas, 2 of the 6 FARPs, and the 11 landing zones that are located outside of the 4 FARPs that are included. The observation posts, artillery firing areas, and most of the landing zones are located in either the secondary weapons impact areas or ordnance delivery containment areas. Designated ground support areas are depicted in Figure 1-5, but the surface use inventory found that the full area of surface use associated with some of these sites extends beyond the designated site (see Figure 3-2).

- Additional Training, Support, and Range Access Control Areas. These areas include those portions of the CMAGR that are external to either its restricted airspace or CFAs and therefore cannot support live-fire training (see Figure 3-2). These areas can be used, however, for any of a number of ground-based training or range management activities such as offsite helicopter or MV-22 landings, cross-country navigation for foot troops, or staging sites for target maintenance or EOD clearances.

- Camp Billy Machen. This unique area includes Camp Billy Machen and adjacent small arms ranges, and other training or support areas. Camp Billy Machen is depicted in Figure 1-5; however, the larger area encompassing adjacent rifle and pistol ranges and operating areas was defined through the surface use inventory.

- Range Roads. The range road network includes the roads that provide access for constructing and maintaining its infrastructure, conducting range operational clearances, training, and managing natural and cultural resources. The currently active network of range roads is depicted in Figure 1-5. Road corridors vary in width throughout the CMAGR, but typically the width of these corridors is 15 feet or less as determined from sampling observable corridor widths in the GIS registered aerial imagery of the range. A corridor width of 15 feet was used as a standard for calculating the aggregate surface area of the range road network for this inventory of military surface use.

- Inactive Railroad Corridor. The inactive railroad corridor includes the Eagle Mountain Railroad on the north side of the CMAGR. A corridor width of 40 feet was found to be typical for the railroad and was used to calculate the surface area of the railroad in the range.

- Canal Dike Road Corridor. A corridor width of 15 feet was found to be typical for the canal dike roads and was used to calculate the aggregate surface area of these road corridors in the range.

METHODOLOGY

Following from the baseline inventory of designated training areas and sites provided by Station Order 3710.6I, assessing the size, distribution, and intensity of the military surface use footprint at the CMAGR involved the use of an ArcGIS 10™ and geographically referenced, aerial imagery with one-foot resolution. The high-resolution imagery was provided by MCAS Yuma and was generated in 2009. The assessment of the military surface use footprint was accomplished using the following five steps:

- Verify and Add Earthwork Features. The CMAGR features shown in Figure 1-5—which include the boundaries of the range, special use airspace, SWATs, roads, target/target complex polygons, and ground support areas and other ground use training sites—were projected over the imagery of the range. The locations of physically apparent features such as roads were verified. Earthwork features that were defined in the imagery, such as target simulations and roads, but that were not in the existing database were delineated as polygons in a GIS layer.

- Delineate Core and Secondary Weapons Impact Areas. Air-to-ground ordnance deliveries have caused distinct patterns of physical ground disturbance concentrated around CMAGR targets. These effects are readily identifiable in the 2009 range imagery and were used to determine the distributions of core and secondary weapons impact areas at these targets. Craters caused by live HE bombs of between 500 and 2,000 pounds net explosive weight are particularly prominent and the distribution of these craters represent the cumulative pattern of ordnance delivery effects at each target over years of use. The pattern of bomb impacts craters at each target was delineated by depicting individual craters as points in a GIS data layer (Figure C-1). This process was completed for each active designated target at mapping scales between 1:1,000 and 1:2,500 that were selected as needed to distinguish craters. Determining the distributions of the core and secondary weapons impact areas did not require that every bomb crater be located and depicted, but, rather, that only the craters needed to define the patterns of these distributions be identified. Core and secondary weapons impact areas were differentiated from each other based on the densities of craters observed and the effects of ordnance impacts on the ground surface,

vegetative cover, and surface drainage patterns. Disturbance of ground surface at or near some individual targets was extensive to complete where HE ordnance detonations over time resulted in concentrated, overlapping, and/or coalescing cratering effects. Vegetative cover had been eliminated in the core weapons impact areas and natural surface drainage patterns were often substantially altered. In core weapons impact areas where craters densities were lower and did not overlap, ground surfaces and vegetation between craters were still subject to blast and shrapnel effects and ejecta from craters. Cumulative use over time subjected nearly all ground locations in the core weapons impact areas to ordnance delivery effects.

The division between core and secondary weapons impact areas was delineated where the un-impacted space between HE craters began to become more prominent and where vegetative cover and natural surface drainage patterns remained visible (Figure C-2). Within the locations delineated as secondary weapons impact areas, impact craters numbers and densities generally decreased sharply with increasing distance from targets. Physical disturbance of the ground surface also decreased sharply with distance from individual targets. At the outer limits of the secondary weapons impact area, impact craters were no longer detectable and the patterns of vegetative cover and natural surface drainage patterns were indistinguishable from those occurring in similar natural settings that were remote from all target impact areas. A near analysis was performed in GIS to associate the impact craters to the nearest target, and defined the farthest extent of the secondary weapons impact areas.

Core and secondary weapons impact areas were initially delineated for active targets designated in Station Order 3710.6I. The entire range was then scanned at a scale of 1:8,000 to detect impact crater clusters at inactive targets. Core and secondary weapons impact areas were also delineated as polygons in a GIS layer using the same method for each inactive target located.

- Delineate Ground Support Areas. Concentrated vehicle use, bivouacs, FARP operations, and other activities have caused recognizable physical ground disturbance at designated ground support areas that distinguish the areas that receive repeated use from other locations (Figure C-2). Use areas were delineated as polygons in a GIS layer based on the aerial imagery and GIS data provided by MCAS Yuma for ground support areas and other locations. Camp Billy Machen is a built-up cantonment area that was delineated as a polygon in a GIS layer in the same manner.

- Describe Levels of Surface Disturbance Associated with each Range Use Subcategory. The levels of surface disturbance that has typically occurred within the areas allocated for each subcategory of military use were described based on the degree of disturbance apparent in the aerial imagery. Descriptions of the levels of disturbance that are characteristic of each range use subcategory are provided in Table 3-6.

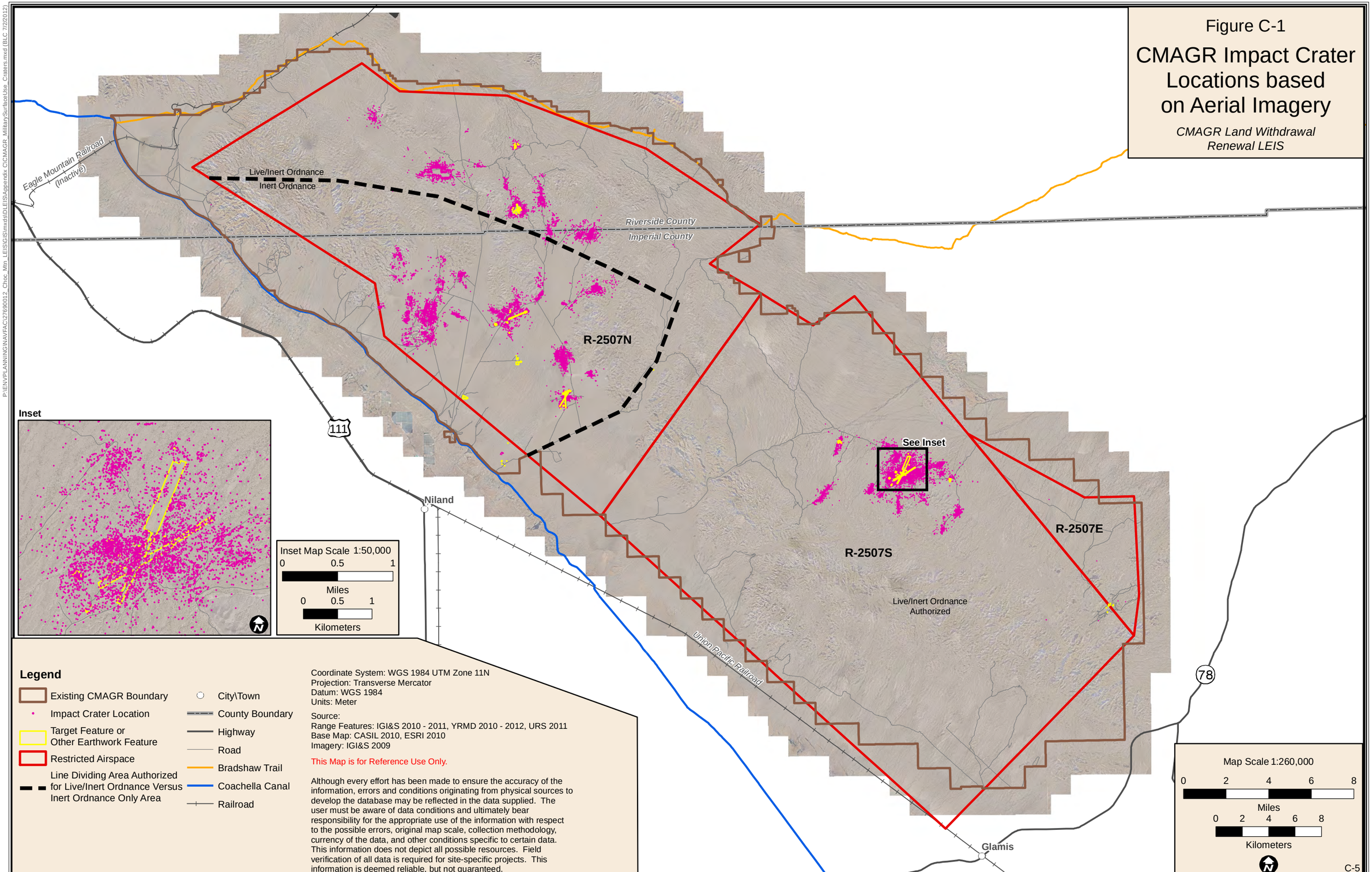
- Calculate Area of each Range Use Subcategory. Target and other earthwork features, core and secondary weapons impact areas, ground support areas, and Camp Billy Machen were represented as polygons in a GIS layer. The GIS was used to calculate the area of the CMAGR affected by each subcategory of military use based on the polygonal data. The aggregate areas of road, railroad, and canal dike road corridors were calculated using the designated standard width of each type of corridor and the aggregate length of each corridor type in the range. The results of these calculations are provided in Table 3-6.

A final GIS layer was assembled to incorporate all categories of range surface use. This layer provides the composite military surface-use footprint at the CMAGR (Figure C-3).

Figure C-1

CMAGR Impact Crater Locations based on Aerial Imagery

CMAGR Land Withdrawal Renewal LEIS



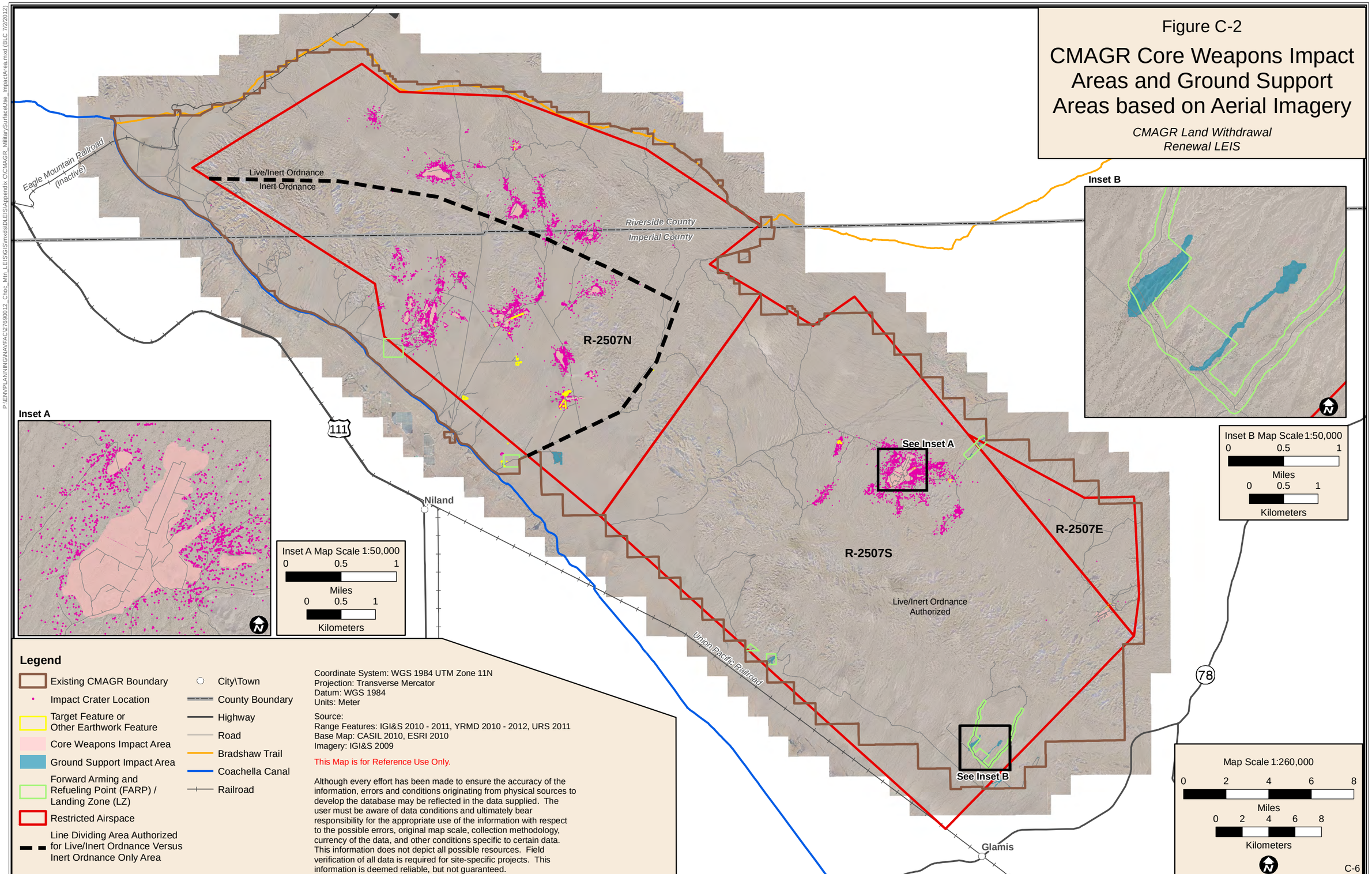
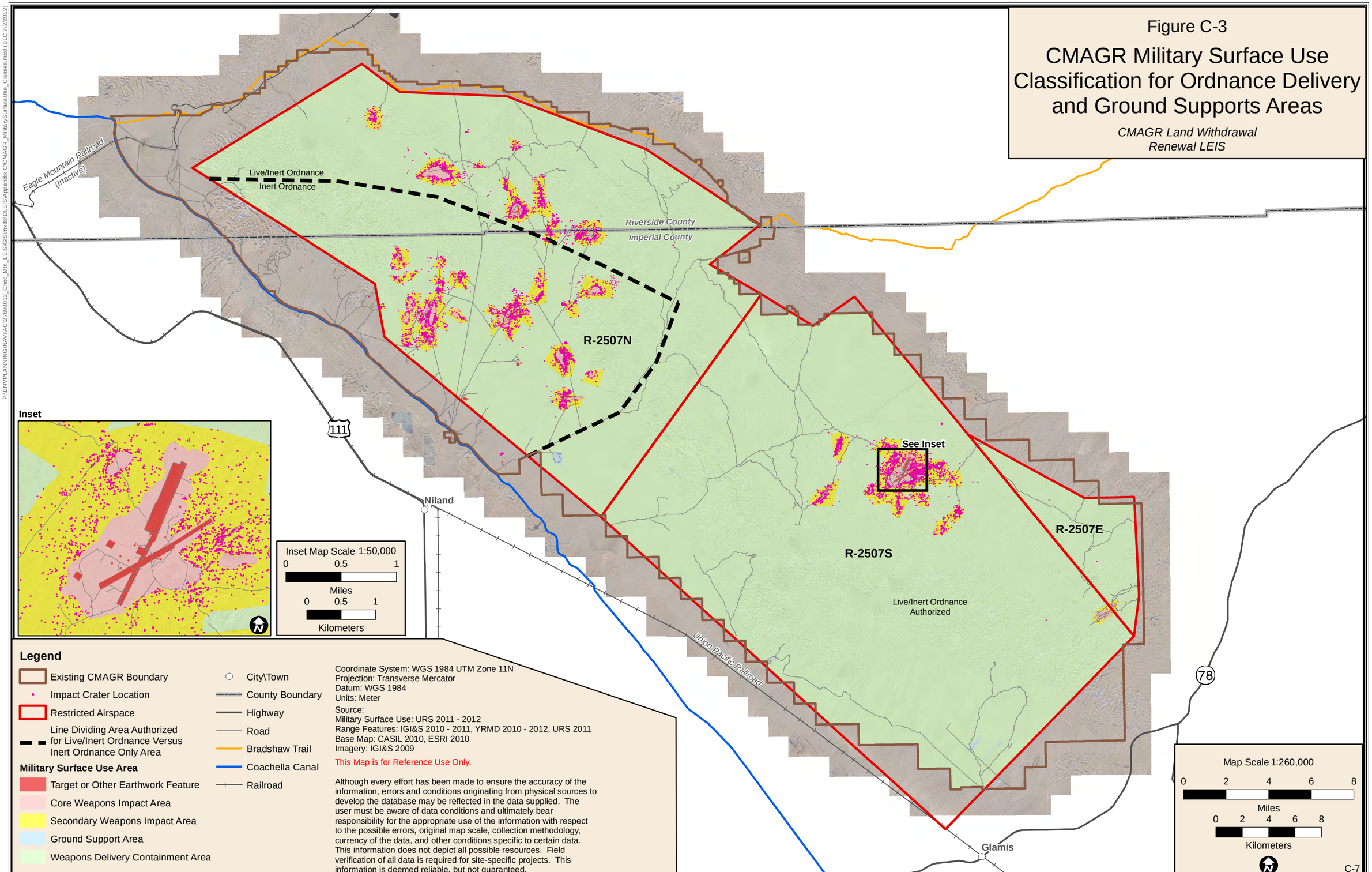


Figure C-2
CMAGR Core Weapons Impact Areas and Ground Support Areas based on Aerial Imagery
CMAGR Land Withdrawal Renewal LEIS
Eagle Mountain Railroad (Inactive)
Live/Inert Ordnance
Inert Ordnance
Riverside County
Imperial County
R-2507N
R-2507S
R-2507E
See Inset A
See Inset B
Live/Inert Ordnance Authorized
Niland
Glamis
Union Pacific Railroad
111
78
Inset A
Inset B
Inset A Map Scale 1:50,000
0 0.5 1 Miles
0 0.5 1 Kilometers
Inset B Map Scale 1:50,000
0 0.5 1 Miles
0 0.5 1 Kilometers
Map Scale 1:260,000
0 2 4 6 8 Miles
0 2 4 6 8 Kilometers
Legend
Existing CMAGR Boundary
Impact Crater Location
Target Feature or Other Earthwork Feature
Core Weapons Impact Area
Ground Support Impact Area
Forward Arming and Refueling Point (FARP) / Landing Zone (LZ)
Restricted Airspace
Line Dividing Area Authorized for Live/Inert Ordnance Versus Inert Ordnance Only Area
City\Town
County Boundary
Highway
Road
Bradshaw Trail
Coachella Canal
Railroad
Coordinate System: WGS 1984 UTM Zone 11N
Projection: Transverse Mercator
Datum: WGS 1984
Units: Meter
Source:
Range Features: IGI&S 2010 - 2011, YRMD 2010 - 2012, URS 2011
Base Map: CASIL 2010, ESRI 2010
Imagery: IGI&S 2009
This Map is for Reference Use Only.
Although every effort has been made to ensure the accuracy of the information, errors and conditions originating from physical sources to develop the database may be reflected in the data supplied. The user must be aware of data conditions and ultimately bear responsibility for the appropriate use of the information with respect to the possible errors, original map scale, collection methodology, currency of the data, and other conditions specific to certain data. This information does not depict all possible resources. Field verification of all data is required for site-specific projects. This information is deemed reliable, but not guaranteed.
P:\ENVPLANNING\NAVFAC\27690012_Choc_Mtn_LEIS\GIS\mxd\DLEIS\Appendix C\CMAGR_MilitarySurfaceUse_ImpactArea.mxd (BLC 7/2/2012)

Figure C-3

CMAGR Military Surface Use Classification for Ordnance Delivery and Ground Supports Areas

CMAGR Land Withdrawal Renewal LEIS



APPENDIX D

DESCRIPTION OF ORDNANCE LISTED IN TABLE 3-8

Appendix D

Description of Ordnance Listed in Table 3-8

Ordnance	Description
2.75-inch Rocket HE (high explosive)	Unguided 2.75-inch air-to-ground rocket with a solid propellant motor and a HE warhead.
2.75-inch Rocket Inert	Unguided 2.75-inch air-to-ground rocket with a solid propellant motor and an inert training warhead.
5-inch Rocket HE	Unguided 5-inch air-to-ground rocket with solid propellant motor and a HE warhead.
20mm Cannon Ammunition	20mm cannon round fired from an aircraft gun with inert training or HE projectiles.
25mm Cannon Ammunition	25mm cannon round fired from an aircraft gun with inert training or HE projectiles.
30mm Cannon Ammunition	30mm cannon round fired from an aircraft gun with inert training or HE projectiles.
MK-20 Inert	Inert training version of the MK-20 RockeyeII—an unguided, anti-armor cluster bomb with 247 bomblets.
MK-20 HE	HE version of the MK-20 RockeyeII—an unguided, anti-armor cluster bomb with 247 bomblets.
MK-76	Inert, 25-pound, subcaliber training bomb with smoke producing spotting charge—simulates delivery trajectory of full-sized service bombs.
MK-77 Incendiary	500-lb, air-dropped incendiary bomb.
MK-82 HE	HE version of the 500-pound general purpose bomb, which is a free-fall, unguided bomb.
MK-82 Inert	Inert training version of the 500-pound general purpose bomb filled with sand or concrete with an optional smoke-producing spotting charge.
MK-83 HE	HE version of the MK-83, 1,000-pound general purpose bomb, which is a free-fall, unguided bomb.
MK-83 Inert	Inert training version of the MK-83, 1,000-pound general purpose bomb filled with sand or concrete with an optional smoke-producing spotting charge.
MK-84 HE	HE version of the MK-84, 2,000-pound general purpose bomb, which is a free-fall, unguided bomb.
MK-84 Inert	Inert training version of the MK-84, 2,000-pound general purpose bomb filled with sand or concrete with an optional smoke-producing spotting charge.
CBU-16 (cluster bomb unit)	Inert training version of a non-lethal chemical warfare cluster bomb with 40 bomblets.
CBU-20	Same as MK-20.
CBU-58	HE version of an unguided, anti-personnel/anti-material cluster bomb with 650 bomblets.
CBU-87	HE version of an unguided, light anti-armor/anti-personnel/anti-material cluster bomb with 202 bomblets.
CBU-99	Same as MK-20.
CBU-100	Same as MK-20.
BDU-13 (bomb dummy unit)	Inert practice bomb used for nuclear bomb delivery training.
BDU-16	Inert practice bomb used for nuclear bomb delivery training.
BDU-20	Inert practice bomb used for nuclear bomb delivery training.
BDU-24	Inert practice bomb used for nuclear bomb delivery training.
BDU-33	Inert 25 lb practice bomb used for general-purpose bomb delivery training.
BDU-45	Inert 500 lb practice bomb used for MK 82 bomb delivery training.
BDU-48	Inert 10 lb practice bomb used to simulate MK82 & MK 84 in a high drag configuration
BDU-87	Inert practice bomb used for CBU-87 cluster bomb training.
BDU-99	Inert practice bomb used for CBU-99 cluster bomb training.
GBU-10 (guided bomb unit)	Laser-guided, 2,000 lb bomb with MK-84 warhead, Paveway I/II guidance kit, and airfoil steering kit.
GBU-12	Laser-guided, 500 lb bomb with MK-82 warhead, Paveway I/II guidance kit, and airfoil steering kit.
GBU-16	Laser-guided, 1,000 lb bomb with MK-83 warhead, Paveway II guidance kit, and airfoil steering kit.
GBU-23	Laser-guided, 1,000 lb bomb with MK-83 warhead, Paveway III guidance kit, and airfoil steering kit.

Ordnance	Description
GBU-24	Low-level laser-guided, 2,000 lb bomb with MK-84/BLU-109/BLU-116 warhead, Paveway III guidance kit, and airfoil steering kit.
GBU-31	Joint Direct Attack Munition (JDAM), 2,000 lb bomb with MK-84/BLU-109 warhead, and GPS guidance kit.
GBU-40	285 lb Small Diameter Bomb with GPS guidance kit.
GBU-42	285 lb Small Diameter Bomb with GPS guidance kit.
GDU (guidance dummy unit)	Inert training missile for AIM-9 training; AIM-9 is a supersonic, short-range, IR guided air-to-air missile with a high-explosive warhead.
TOW Missile (tube-launched, optically tracked, wire-guided)	TOW is an anti-armor weapon that is employed by helicopters and ground troops.
AGM-114 Hellfire Missile (air-to-ground missile)	AGM-114 (air-to-ground missile) is a missile employed by attack helicopters against heavy armored targets.
AGM-122 Sidearm Missile (AIM-9)	A small anti-radar missile, carried by attack helicopters for self defense against anti-aircraft gun and surface-to-air missile radars.
AGM-88 HARM (high speed anti-radiation missile)	An air-to-ground tactical missile designed to seek and destroy radar-equipped air defense sites.
LGTR (laser-guided training round)	LGTR is an inert training device that replicates employment of Paveway GBU.
LUU-2 (illuminating unit)	LUU-2 is an aircraft-dropped, ground-illumination, parachute flare.
LUU-19	LUU-19 is an aircraft-dropped, infrared, ground-illumination, parachute flare.
CHAFF	Chaff is a radar countermeasure to hide aircraft from detection and/or attack by air defense systems. Chaff consists of small fibers that reflect and cloud radar signals.
Flares	Self-defense flare ejected by aircraft to lure heat (infrared) seeking missiles away from the aircraft.
60mm WP/RP/SMK/ILL	60mm mortar projectile with a phosphorous (WP), red phosphorus (RP), smoke (SMK), or illumination (ILL) warhead.
60mm HE	60mm mortar projectile with a HE warhead.
81mm WP/RP/SMK/ILL	81mm mortar projectile with a WP, RP, SMK, or ILL warhead.
81mm HE	81mm mortar projectile with a HE warhead.
155mm WP/RP/SMK/ILL	155mm artillery projectile with a WP, RP, SMK, or ILL warhead.
155mm HE	155mm artillery projectile with a HE warhead.
M72A2 66mm HE LAW	Lightweight, self-contained, anti-armor weapon consisting of a rocket packed in a shoulder-fired launcher.
40mm HE	Low- or high-velocity 40mm HE projectile fired from an infantry portable grenade launcher.
40mm Inert	Low- or high-velocity 40mm inert training projectile fired from an infantry portable grenade launcher.
84mm HE	84mm HE projectile fired by the M3 shoulder-fired, recoilless rifle that serves as a multi-role, anti-armor, and anti-tank weapon.
84mm Inert	84mm inert training projectile fired by the M3 shoulder-fired, recoilless rifle that serves as a multi-role, anti-armor, and anti-tank weapon.
Demolition Charge	Explosives, dynamite, and other training devices of varying weights and effects.

APPENDIX E

NAVY RECORD OF NON-APPLICABILITY FOR CLEAN AIR ACT CONFORMITY

NAVY RECORD OF NON-APPLICABILITY FOR CLEAN AIR ACT CONFORMITY

The proposed action falls under the Record of Non-Applicability (RONA) category and is documented with this RONA.

Proposed Action:

Action Proponent: Department of the Navy

Location: Chocolate Mountain Aerial Gunnery Range (CMAGR), Imperial and Riverside Counties, California

Proposed Action Name: Chocolate Mountain Aerial Gunnery Range Renewal

Proposed Action & Emissions Summary: The CMAGR is a live-fire aviation training range that was initially established during World War II and has supported tactical military aviation training ever since. It is located to the east of the Salton Sea in Imperial and Riverside counties, California. The CMAGR provides more than 700 square miles of land and several thousands of square miles of overlying and adjacent Special Use Airspace (SUA) that continues to support training that is essential to the readiness of the nation's Marine Corps and Naval air forces.

The current withdrawal of Department of the Interior (DoI) public lands for the CMAGR, established through the California Military Lands Withdrawal and Overflight Act of 1994 (CMLWOA), is scheduled to expire in October 2014. There continues to be a military need for the CMAGR so the Proposed Action is the Department of the Navy's (DoN's) request that Congress renew the land withdrawal and military reservation. The DoN filed a land withdrawal application with the DOI Bureau of Land Management (BLM) for public lands currently within the CMAGR as well as for some adjacent lands being considered to establish a more effective and identifiable range boundary. Land jurisdiction at the CMAGR resembles a checkerboard where roughly every other section (640 acres or approximately 1 square mile) falls under either DoN or DoI jurisdiction. About 232,116 acres of the checkerboard are Navy lands while the alternate sections (approximately 226,711 acres) are withdrawn DoI public lands managed by the BLM. Congressional approval is required for land withdrawals for national defense purposes that total more than 5,000 acres in aggregate.

The Proposed Action is a legislative proceeding and will not affect the current operations of the CMAGR, thus there will be no new air pollutant emissions as a result of the Proposed Action.

Affected Air Basin(s): Salton Sea Air Basin (SSAB)

Date RONA prepared: 03 October 2011

RONA prepared by: DoN

Proposed Action Exemption(s): Per 40 CFR 93.153, the conformity requirements do not apply to judicial and legislative proceedings that would result in no emissions increase.

Attainment Area Status and Emissions Evaluation Conclusion: The Imperial County portion of the SSAB is classified as a marginal nonattainment area for the 8-hour ozone (O_3) National Ambient Air Quality Standard (NAAQS), and the western two-thirds of Imperial County is classified as a serious nonattainment area for particulate matter (PM_{10}). The SSAB portion of Riverside County is classified as a severe nonattainment area for the 8-hour O_3 NAAQS, and also is classified as a serious nonattainment area for PM_{10}. The CMAGR attains all other NAAQS.

As discussed above, a portion of the CMAGR lies within Imperial County and a portion lies within Riverside County. The Proposed Action emissions are presented with the conformity *de minimis* thresholds for Imperial County and Riverside County in Table 1.

Table 1 – Net Emissions and De Minimis Thresholds

Criteria Pollutant	Net Emissions from Proposed Action (tons/year)	De Minimis Threshold (tons/year)	Net Emissions above/below Threshold?
Riverside County			
PM_{10}	0	70	below
NO_X	0	25	below
ROG	0	25	below
Imperial County			
PM_{10}	0	70	below
NO_X	0	100	below
ROG	0	100	below

PM_{10} – particulate matter of 10 microns or less
NO_X – nitrogen oxides
ROG – reactive organic gases

The proposed renewal of the CMAGR land withdrawal results in no emissions increase as presented in the Legislative Environmental Impact Statement for the Proposed Action. Therefore, the DoN concludes that the general conformity rule does not apply to the Proposed Action and a Conformity Analysis is not required, resulting in this documented RONA.

RONA Approval:

To the best of my knowledge, the information presented in this RONA is correct and accurate, and I concur in the finding that the Proposed Action does not trigger the General Conformity Rule.

Signature: _____

Name/Rank: _____ Date: _____

Position: _____ Commanding Officer: _____ Activity: _____

Draft

APPENDIX F

PROGRAMMATIC AGREEMENT

PROGRAMMATIC AGREEMENT

AMONG THE
UNITED STATES MARINE CORPS,
THE ARIZONA AND CALIFORNIA STATE HISTORIC PRESERVATION OFFICERS, AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE PROCESS FOR COMPLIANCE WITH
SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT FOR THE WEST COAST BASING AND OPERATION OF THE MV-22 OSPREY

WHEREAS, the United States Marine Corps (Marine Corps), through Marine Corps Installations West (MCIWEST), proposes to base up to ten (10) MV-22 squadrons (120 aircraft) at two Marine Corps installations on the West Coast (MCAS Miramar and MCAS Camp Pendleton), including basing up to eight (8) MV-22 squadrons for employment by the Third (3rd) Marine Air Wing (MAW) to provide medium lift capability to the First (1st) Marine Expeditionary Force (I MEF) and basing of up to two (2) Fourth (4th) MAW MV-22 squadrons to provide a West Coast reserve component medium lift capability; and conduct training operations for those squadrons at existing Marine Corps training ranges, installations, and along selected Military Training Routes (MTRs) in Arizona and California, as shown in Figure 1 (Regional Map) and Figure 2 (Military Training Route Map); and

WHEREAS, the proposed basing of the MV-22 Osprey will require construction of new facilities and infrastructure and renovation of existing facilities and infrastructure at MCAS Miramar and MCAS Camp Pendleton in California, and will not require construction or renovation at Marine Corps Base Camp Pendleton (MCB Camp Pendleton), Marine Corps Air Ground Combat Center (MCAGCC), and the Chocolate Mountain Aerial Gunnery Range (CMAGR) in California, and the Barry M. Goldwater West (BMGR-West) in Arizona; and

WHEREAS, MCIWEST has determined that the proposed activities listed above, hereinafter referred to collectively as the Undertaking, are subject to review under Section 106 of the National Historic Preservation Act (NHPA), 16 United States Code (U.S.C.) Part (§)470f, and its implementing regulations, 36 Code of Federal Regulations (CFR) §800; and

WHEREAS, MCIWEST has determined that the effects on historic properties cannot be fully determined before approval of the Undertaking, as provided in 36 CFR §800.146(b)(l)(ii); and

WHEREAS, the Undertaking involves no new roads or access routes, and no change to the footprint of existing roads or access routes; and

WHEREAS, MCIWEST has notified and consulted with the Advisory Council on Historic Preservation (ACHP) per 36 CFR §800.6(a)(1)(i)(C) and the Arizona and California State Historic Preservation Officers (SHPOs) pursuant to 36 CFR §800.6(a), regulations implementing Section 106 of the National Historic Preservation Act (NHPA), as amended, 16 U.S.C. §470f, and pursuant to such consultation, has developed this Programmatic Agreement (PA) in accordance with 36 CFR §800.14(b) to establish an efficient program alternative to comply with Section 106 that constitutes a departure from the normal Section 106 process (36 CFR §800.14(b)(1)(v)), and will execute this PA with ACHP's participation per 36 CFR §800.14(b)(2)(ii); and

WHEREAS, forty-four (44) federally recognized tribes, as well as two (2) non-recognized tribes identified herein as "Concurring Parties" (see pgs. 23-29 of the PA) have been consulted on the Undertaking, including development of the PA, and have been invited to concur with the PA, per 36 CFR §800.2(c)(2)(ii), 36 CFR §800.2(d), 36 CFR 800.14(b)(2), and 36 CFR §800.14(f), and

WHEREAS, MCIWEST has allowed for comments from the general public and other interested parties through a series of phone calls, emails and face-to-face meetings in both a group setting and/or on an individual basis and has taken into account additional comments via the National Environmental Policy Act (NEPA) process of public scoping meetings, an open public comment period and public hearings, as described in Stipulations XI, Public Participation; and

WHEREAS, both Arizona and California SHPOs have and will continue to participate in the implementation of this PA, and stipulations have been provided to address each state's regulations and concerns; and

WHEREAS, execution of this PA by MCIWEST obligates them, as well as Base Commands, to comply with the stipulations contained herein; and

NOW, THEREFORE, MCIWEST, the Arizona and California SHPOs and the ACHP agree that MV-22 Osprey operation, maintenance, training, and related demolition, and construction activities (the Undertaking) shall be implemented in accordance with the following stipulations to satisfy the Marine Corps' NHPA Section 106 responsibilities for all individual actions included in the Undertaking, or portion thereof.

STIPULATIONS

MCIWEST shall ensure that the following measures are carried out as indicated:

I. APPLICABILITY/SCOPE AND OBJECTIVES

A. This PA applies to all activities associated with training, readiness, and special exercise operations of the West Coast Basing of the MV-22 Osprey, collectively referred to as "the Undertaking" and as noted in Attachment D for Arizona and Attachments A-C and E for California.

B. Unless otherwise noted, this PA will utilize the definitions found at 36 CFR §800.16.

C. All Signatory Parties to this PA will be responsible for complying with the general provisions of the PA. When the Undertaking, or portion thereof, is located on a specific Marine Corps installation (e.g., MCAS Miramar or MCAS Camp Pendleton) or results in training activities being conducted on an installation (i.e., training, readiness and special exercise operations), then that installation's Cultural Resource Manager (CRM) and/or appropriate Lands Manager and the Project Proponent (Aviation) and/or Action Sponsor (MCIWEST) will be responsible for complying with applicable project-specific stipulations of this PA, or as noted in Stipulation III. The installation's CRM and/or Lands Manager shall ensure that the Project Proponent carries out the agreed upon stipulations for

the Undertaking, or portion thereof, on property under their jurisdiction. The Project Proponent shall be responsible for funding and complying with the agreed upon stipulations and mitigations, if any.

II. PROFESSIONAL QUALIFICATIONS

A. All surveying, testing, and mitigation relating to archaeological resources will be carried out by, or under the direct supervision of, a person or persons meeting the professional qualification for Archaeology as found in "The Secretary of the Interior (SOI) Historic Preservation Professional Qualification Standards" (SOI Qualification Standards), per 36 CFR §61, Appendix A (Volume 48, No 190 dtd. September 29, 1983).

B. All surveys and eligibility determinations for buildings, districts, sites, structures, and objects will be carried out by or under the direct supervision of a person or persons meeting the professional qualifications for History, Architectural History, Architecture, and/or Historic Architecture, as defined in the SOI Qualification Standards per 36 CFR §61, Appendix A, as noted above.

C. Where MCIWEST utilizes contracts (and contractors/consultants) involving work governed by this PA that may affect historic properties (and archaeological resources), MCIWEST will use appropriate contract performance requirements, and/or appropriate source selection criteria that shall include minimum qualifications for historic preservation experience and satisfactory prior performance, as appropriate to the nature of the work and the type of procurement, developed with the participation of Marine Corps professionals and contractors/consultants meeting the standards in Stipulation II.B for the Undertaking, or portion thereof, involving buildings, districts, sites, structures, and objects, and/or as in Stipulation II.A, for those portions of the Undertaking involving archaeological resources.

III. OTHER AGREEMENTS

When the Undertaking occurs on an installation with an approved Integrated Cultural Resources Management Plan (ICRMP) <u>and</u> a signed and executed PA for that installation (installation PA), the installation ICRMP and associated PA shall be used for the purposes of complying with 36 CFR §800, including annual reporting, as appropriate. In those instances where the Undertaking, or portion thereof, occurs on an installation with an approved ICRMP but not a signed and executed PA, the installation ICRMP will be used to guide the identification and evaluation requirement of the project per 36 CFR §800, and those applicable portion of this PA (MV-22 project PA) shall be used for the purposes of identifying effects, as well as the means for taking those effects into account. Where the Undertaking, or portion thereof, occurs on an installation where neither an ICRMP nor a signed and executed installation PA is in effect, the stipulations of this PA (MV-22 project PA) shall apply.

IV. IDENTIFICATION OF THE AREA OF POTENTIAL EFFECTS

Defining the APE. MCIWEST has established the area of potential effect (APE) for the Undertaking, or portion thereof, based on the project footprint, and as depicted in Attachments A-E. The APE

encompasses the project area and outlines the recorded archaeological site limits.

Amending the APE. Any consulting party to this PA may propose that the APE be modified. MCIWEST shall notify all the consulting parties of the proposal and consult with the Signatory Parties for no more than 30 days to reach agreement on the proposal. If MCIWEST and the Signatory Parties agree to the proposal, then MCIWEST will prepare a description and a map of the modification and provide them to all the consulting parties no later than 30 days following such an agreement. Mutual agreement to amend the APE according to these conditions will not require an amendment to the PA.

If MCIWEST and the Signatory Parties cannot agree to a proposal for the modification of the APE, then they will resolve the dispute in accordance with Stipulation XIII, Dispute Resolution.

V. IDENTIFICATION AND EVALUATION, DETERMINATION OF EFFECT, AND IMPLEMENTATION FOR ARCHAEOLOGICAL RESOURCES

MCIWEST will ensure that identification of recorded archaeological resource sites within the APE for this Undertaking is completed before initiation of any part of the Undertaking with the potential to affect historic properties.

MCIWEST shall assess any previously unevaluated properties within the APE for National Register of Historic Places (NRHP) eligibility, by or under the direct supervision of a CRM (or contractor / consultant, where appropriate) meeting the applicable qualification standards noted under Stipulation II. The management of any such properties determined to meet NRHP eligibility will be incorporated into existing ICRMPs, as appropriate, as they are revised or updated, or when a new ICRMP is developed in consultation with the appropriate SHPO.

Any updates to the existing Geographical Information System cultural resource layers for the APE, such as shape files showing the locations of known archaeological sites and historic buildings and structures, will be shared with the appropriate SHPO. As addressed in 36 CFR §800.11(c), both SHPOs recognize that these layers may contain sensitive information and agree not to disseminate or make such sensitive information available to the public without obtaining permission of the Marine Corps official (appropriate CRM, installation Commanding Officer, and/or MCIWEST) who has jurisdiction over the historic property. MCIWEST and/or the installation CRM will be notified in advance in all instances where such information is to be made available to the public by the Arizona or California SHPO.

A. IDENTIFICATION AND EVALUATION

1. Each part of the Undertaking's APE shall be inventoried in accordance with the stipulations for identification enumerated below.

2. Installation CRM offices, acting on behalf of MCIWEST and the Marine Corps, in general, shall ensure that all identification activities conform to the Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation, Standards for Identification (48 FR §44716 at §44720-44723). The scope of identification efforts will depend on: existing knowledge about historic properties, including the age of previous

surveys, if any; any identified goals for survey activities developed in the planning process; and current management needs. Critical steps in the identification process are: a literature review; Tribal Government consultation; field survey (as necessary); documentation of results; record keeping; and determinations of eligibility.

3. Where the Marine Corps proposes to carry out, or cause to be carried out, an intensive or sample survey of the Undertaking, or portion thereof, and its APE, regardless of the land ownership, the Marine Corps will consult with the appropriate SHPOs before any sample inventory is undertaken, and shall document the results of the inventory and any sample survey efforts approved by the SHPO and provide this documentation to the appropriate SHPO and all appropriate Tribal Governments for review and comment in accordance with Stipulation VIII, Reporting Requirements. An intensive and/or sample survey may be carried out by:

a) Professional archaeologists or historians, including those under contract, who meet the professional standards, as identified in Stipulation II; and

b) Tribal representatives, historians and archaeological technicians may participate in surveys so long as they are under the direct supervision of the professional archaeologist assigned to the survey team. Tribal representatives may also participate in such surveys in an advisory capacity, at the discretion of the Marine Corps.

4. All identified cultural resources shall be properly recorded on appropriate state historic resource inventory forms (i.e., AZSite form in Arizona and DPR 523 form in California). Completion of these forms will follow the standards outlined in instructions provided by the respective state in which the survey is conducted. For example, in Arizona, guidance is provided by the State Museum's "Procedures Manual for Arizona Antiquities Act Permits, Records Management / Repository Requirements, and Archaeological Records Access (2009)". Completed AZSite forms will be submitted to the Arizona State Museum (ASM) for site number assignment. In California, guidance is provided by "Instructions for Recording Historic Resources (1995)". Completed forms will be submitted to the South Coastal Information Center for trinomial assignment.

a) ASM site number and CA trinomial designations will be incorporated into the documentation submitted for review by the appropriate SHPO (note Stipulation V.A.5.d. below regarding ASM site cards).

b) If ASM site numbers or CA trinomial designations have been requested, but not received by the time the Marine Corps needs to submit documentation to the SHPO, the Marine Corps will provide copies of the transmittal letters to the respective state information centers (e.g., Arizona State Museum and South Coastal Information Center in California) with its documentation as a temporary fulfillment of the requirement.

c) Archaeological site records and map information will be housed by installation CRM offices in a controlled access facility.

5. A Survey Report (SR), and/or Archaeological Survey Reconnaissance Report (ASRR) shall be prepared for each part of the Undertaking or group of related parts of the Undertaking, before implementing the Undertaking's activities. The standards to be followed include:

a) In Arizona, the CRM shall ensure that SRs conform to Arizona's guidelines as described in:

i. AZ SHPO's Policy for Standardized Survey Reports (1999);

ii. Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation, Reporting Identification Results (48 FR §44716 at §44723);

b) In California, the CRM shall ensure that SRs conform to California's guidelines as described in:

i. State of California (CA) Department of Parks and Recreation guidelines "Archaeological Resource Management Reports (ARMR): Recommended Contents and Format (1989);

ii. Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation, Reporting Identification Results (48 FR §44716 at §44723).

c) Other standards as may be mutually agreed to by the Marine Corps, the Arizona and California SHPOs, the ACHP and appropriate Tribal Governments.

d) SRs should include (within the text) individual site description summaries and site sketch maps, along with integrity assessments, evaluation of potential effects from MV-22 rotorwash, if any, and recommendations of site eligibility. In Arizona, ASM site cards shall not to be included within survey reports. In California, copies of the site record forms for sites identified within and/or immediately adjacent to the APE shall be included in the survey reports.

e) SRs shall include references to previous reports and property records if portion of the Undertaking have been subject to earlier survey and these reports have been previously submitted to the appropriate SHPO for review. Previously identified historic properties within an APE shall be updated to meet the documentation standards specified in this PA, and according to state standards, as appropriate.

f) SRs shall be completed before implementing the Undertaking or portions thereof.

g) Unless survey findings are negative for sites, copies of the SRs will be submitted to the appropriate SHPO, ACHP and Concurring Parties (e.g., Tribal Governments), as appropriate, within each state for review and comment for a period of 30 calendar days. MCIWEST shall ensure that comments received

within 30 calendar days of distribution of the reports are given ample consideration when revising and finalizing the SRs. Upon receipt of SHPO or ACHP comments, MCIWEST or the respective installation CRM will work with the SHPO to address and incorporate all appropriate comments within 30 calendar days thereafter and provide the appropriate SHPO and/or the ACHP with a revised, finalized SR. If no comments are received within this period, MCIWEST may proceed with finalization of the SRs. This 30 calendar day review process will include determinations of eligibility, as well as findings of effect determinations.

6. No additional identification efforts are required before implementation of the proposed Undertaking, or portion thereof, if that part of the APE is entirely within an area that has been previously inventoried, and no historic properties and/or archaeological resources are present, and /or any evaluated sites have been previously determined not eligible pursuant to criteria outlined in 36 CFR §60.4 and the CRM, or qualified person(s) delegated by the CRM, determines that no additional inventory or consultation with the SHPO and Tribal Governments is required before implementation, provided the following conditions are met:

a) The installation CRM, or person delegated by the installation CRM, confirms that previous identification efforts meet current standards; and

b) The Undertaking, or portions thereof, is documented in a manner agreed upon in advance by the appropriate SHPO and the Marine Corps, and this documentation is included in the Annual Report.

7. In Arizona, no surface collection will be conducted during survey efforts without prior written authorization from the SHPO. In California, surface collection may be permitted during survey efforts on an installation-by-installation basis so long as such activity will be carried out by, or under the direct supervision of, a person or persons meeting the professional qualifications identified in Stipulation II of this PA, or is covered (and authorized) under an existing PA (per Stipulation III), consistent with an approved ICRMP.

B. DETERMINATION OF EFFECTS

1. If the Undertaking, or any portion thereof, has the potential to affect a historic property, then MCIWEST will follow the provisions of 36 CFR §800 regarding evaluation and determination of effects, except as provided in Stipulation V.B.2.

2. If the CRM or a person designated by the CRM (e.g., contractor), determines that the nature and scope of the proposed Undertaking, or portion thereof is such that its effects cannot be reasonably predicted, but appropriate measures can be undertaken to ensure that the values of historic properties are not affected in any way, then these historic properties will be managed and maintained in a manner that ensures that their value(s) is/are preserved by using the proposed Standard Resource Protection Measures listed in Attachment F. Under these circumstances, no NRHP evaluation is required before

implementing the Undertaking, or any portion thereof, with appropriate SHPO concurrence.

3. An Annual Report on the Undertaking, or portions thereof, subject to this PA will be delivered to the appropriate SHPO and Tribal Governments by December 1st of each calendar year, pursuant to Stipulation VIII.

C. IMPLEMENTATION

1. The Undertaking, or Portions Thereof, Resulting in a Finding of No Historic Properties Affected:

When no sites are identified following an intensive inventory or an approved sample inventory pursuant to Stipulation V.A.3, no consultation with the SHPOs or the ACHP is required before implementing that portion of the Undertaking. That portion of the Undertaking will be listed in the Annual Report (per Stipulation VIII) and copies of redacted SRs will be available for review by the public excluding information about the nature and location of archaeological and historic resources which is prohibited under Section 304 of the NHPA (16 U.S.C. §470w-3) and Section 9 of the ARPA (16 U.S.C. §470hh).

2. The Undertaking, or Portions Thereof, Resulting in a Finding of No Adverse Effect and Where Management Measures Are Not Necessary for the Protection of Historic Properties:

When an intensive inventory or an approved sample inventory pursuant to Stipulation V.A.3 determines that historic properties will not be affected and the Undertaking, or portions thereof, can be implemented without the adoption of management measures to protect historic properties, then the Undertaking, or portions thereof, may be implemented without further review or consultation with the appropriate SHPOs and/or the ACHP. The Undertaking, or portions thereof, will be listed in the Annual Report (per Stipulation VIII) and copies of the SRs will be available for review by the appropriate SHPO in accordance with Stipulation VIII. Copies of redacted SRs will also be available for public review, excluding information about the nature and location of archaeological and historic resources which is prohibited under Section 304 of the NHPA (16 U.S.C. §470w-3) and Section 9 of the ARPA (16 U.S.C. §470hh).

3. The Undertaking, or Portions Thereof, Resulting in a Finding of No Adverse Effect and Where Implementation of Standard Resource Protection Measures Are Necessary for the Protection of Historic Properties:

a) When historic properties are identified following an intensive inventory or an approved sample recovery pursuant to Stipulation V, and Standard Resource Protection Measures (Attachment F) will be employed, review or consultation with the appropriate SHPO and/or the ACHP is required before implementing the Undertaking, or portion thereof.

i. The CRM of the installation where the Undertaking, or portions thereof, will occur, or MCIWEST acting on its behalf, will consult with the appropriate SHPO and Tribal Governments, pursuant to 36 CFR §800 on any part of the Undertaking covered by this PA where the use of the Standard Resource Protection Measures is proposed.

ii. At its discretion, and with the cooperation of MCIWEST, the appropriate SHPO may participate with MCIWEST or the CRM of an installation in review and/or consultation on a specific part or parts of the Undertaking where proposed Standard Resource Protection Measures are being used.

b) A list of the parts of the Undertaking where Standard Resource Protection Measures are being implemented shall be submitted with the Annual Report for review pursuant to Stipulation VIII.

c) SRs prepared to document newly surveyed or resurveyed parts of the APEs where management measures for the protection of historic properties are necessary must be reviewed by the appropriate SHPO before implementing the Undertaking, or any portion thereof.

i. SRs for the Undertaking, or portion thereof, shall be submitted to the appropriate SHPO in accordance with Stipulation VIII.

ii. Copies of these SRs shall be submitted to the Arizona State Museum (ASM) and/or the Southern California Information Center (SCIC) for inclusion in the appropriate statewide inventory or inventories.

iii. Copies of these SRs shall also be submitted to appropriate Tribal Governments.

iv. Copies of SRs will be available for public review, excluding information about the nature and location of archaeological and historic resources, which is prohibited by Section 304 of the NHPA and Section 9 of the Archaeological Resources Protection Act (ARPA).

VI. CURATION AND PUBLIC ACCESS

Collections and associated records resulting from implementation of the Undertaking, or portion thereof, will be curated at the Arizona State Museum (ASM) in Arizona or the South Coastal Information Center (SCIC) in California (for artifacts found within their respective state), as appropriate. Before submitting any collections, MCIWEST will contact ASM or SCIC regarding the transport of the collections and any special handling requirements by those organizations, unless such items are being properly curated at another approved facility meeting state requirements (e.g., on installation) pursuant to an approved ICRMP. Collections will be handled, packaged, and reported in a manner consistent with 36 CFR §79, "Curation of Federally-owned and Administered

Archaeological Collections" (Federal Curation Regulations).

VII. IDENTIFICATION AND EVALUATION, ASSESSMENT OF EFFECT, AND IMPLEMENTATION FOR ARCHITECTURAL RESOURCES

A. IDENTIFICATION AND EVALUATION

1. Where architectural resources within the APE have been previously surveyed and have received SHPO concurrence, no further identification and evaluation efforts will be required and MCIWEST may proceed to the Determination of Effect step (Stipulation VII.B).

2. Where architectural resources within the APE have NOT been previously surveyed or have been surveyed but have NOT received SHPO concurrence, before the Undertaking may proceed in these specific portions of the APE:

a) MCIWEST will consult with the appropriate SHPO to receive concurrence on the determination(s) of eligibility for the architectural resources present in the APE by submitting survey documentation.

b) The appropriate SHPO will respond within 30 calendar days of receipt of the determination(s) of eligibility. If the SHPO does not respond within that period, MCIWEST may assume that the SHPO has no comment on the eligibility of those resources and proceed to the Determination of Effect step (Stipulation VII.B).

c) If the SHPO concurs with MCIWEST's determination(s) of eligibility, MCIWEST may proceed to the Determination of Effect step (Stipulation VII.B).

d) If the SHPO does not concur with MCIWEST's determination(s) of eligibility, the process outlined in Stipulation XIII will be followed to resolve the dispute.

3. Identification and evaluation efforts for architectural resources must be conducted by a person who meets the qualifications outlined in Stipulation II.B or under the direct supervision of someone who meets the qualifications outlined in Stipulation II.B.

B. DETERMINATION OF EFFECTS

1. Where architectural resources within the APE have NOT been previously surveyed or have been surveyed but have NOT received SHPO concurrence, before the Undertaking may proceed in these specific Following SHPO concurrence on the determination of eligibility for architectural resources, MCIWEST will apply the criteria of adverse effect found at 36 CFR § 800.5(a)(1) and submit its assessment of effect to the appropriate SHPO for concurrence.

2. The appropriate SHPO will respond within 30 calendar days of receipt of the

assessment of effect. If the SHPO does not respond within that period, MCIWEST may assume that the SHPO has no comment and may proceed with implementation of the Undertaking, or parts thereof, within the APE that contains the architectural resources under consideration.

3. If the SHPO concurs that the Undertaking will result in one of the following findings of effect, MCIWEST may proceed with implementation of the Undertaking, or parts thereof, within the APE that contains the architectural resources under consideration:

a) A Finding of No Historic Properties Affected will apply when the architectural resources have been determined to be not listed or not eligible for listing on the NRHP.

b) A Finding of No Adverse Effects to Historic Properties will apply when the architectural resources are listed or are eligible for listing on the NRHP and where the Undertaking, or portion thereof, consists of the alteration of that resource (or those resources) consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR §68) and applicable guidelines, and it is determined by a qualified cultural resource professional (one that meets the criteria specified in Stipulation II) that such alteration would not have an adverse effect on the historic property.

4. If the SHPO does not concur with MCIWEST's Finding of No Historic Properties Affected or Finding of No Adverse Effect, the process outlined in Stipulation XIII will be followed to resolve the dispute.

5. Where the assessment of effect results in a Finding of Adverse Effect, MCIWEST will NOT implement the Undertaking, or parts thereof, within that portion of the APE that contains the architectural resources under consideration.

C. IMPLEMENTATION

All Identification and Evaluation and Assessments of Effect made for the Undertaking, or any portion thereof, in accordance with Stipulation VII.A and VII.B will be completed before implementation of the Undertaking, or any portion thereof.

VIII. REVIEW OF THE UNDERTAKING, OR PORTIONS THEREOF, FOR POTENTIAL EFFECTS TO HISTORIC PROPERTIES

Where a proposed project within the Undertaking, or any portion thereof, is evaluated by or under the direct supervision of a person that meets Stipulation II, as applicable, and the project meets one or more of the following criteria, typically no further Section 106 review is required:

A. NO HISTORIC PROPERTIES AFFECTED

Where the Undertaking, or portions thereof, would not affect any historic properties.

B. NO ADVERSE EFFECTS TO HISTORIC PROPERTIES

Where the Undertaking, or portion thereof, consists of the alteration of a historic property consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR §68) and applicable guidelines, and it is determined by a qualified cultural resource professional (one that meets the criteria specified in Stipulation II) that such alteration would not have an adverse effect on the historic property.

However, all determinations of potential effect made for the Undertaking, or any portion thereof, including both Stipulations VII.A and VII.B, will be documented and reported to the appropriate SHPO before implementation of the Undertaking, or any portion thereof, except for those instances noted in Stipulation V.C.3. The appropriate SHPO will provide their comments on all findings of effect made for the Undertaking, or portion thereof, within 30 calendar days of receipt of the report documenting the determination. If the appropriate SHPO does not respond within this period, MCIWEST may move forward with implementation per the guidelines established in this PA.

IX. REPORTING REQUIREMENTS

A. MCIWEST shall submit Annual Reports for review to the appropriate SHPO for all work conducted, including but not limited to, all survey efforts currently underway, and any findings and/or determinations made with respect to archaeological resources and/or historic properties identified as part of the Undertaking. At a minimum, each report will contain the following information:

1. A summary of all studies conducted for the Undertaking, or portion thereof, covered by the PA, including information regarding:

a) The types of projects for which studies occurred;

b) Results of all survey and identification efforts (e.g., acres surveyed, newly recorded and updated historic properties), including those where no historic properties were identified within the project's APE;

c) All projects within the Undertaking where part of the APE was adequately covered by previous survey, if any;

d) Management measures employed to protect any identified historic properties;

e) Findings from monitoring efforts;

f) Consultation with interested persons or any pertinent results obtained from public notification and participation processes described under Stipulation XI, Public Participation; and

g) Submission of the SRs to the ASM or SCIC or a proposed schedule for submission to these organizations.

2. A description of all instances where proposed Standard Resource Protection Measures were prescribed but either not implemented or not fully implemented, and the mitigation measures taken to ensure protection of historic properties.

B. All reports that include identification or evaluation efforts will be provided to the appropriate SHPO and to the ASM or SCIC for integration into appropriate statewide databases. These reports may request concurrence from the appropriate SHPO regarding evaluations and subsequent findings of the studies. Within 30 days of receipt of the report(s), the appropriate SHPO will review and provide their assessment of the findings (i.e., concur vs. not concur) associated with the report(s). If no comments are received within this period, MCIWEST may proceed with finalizing said report. All unresolved issues will be addressed according to the guidelines established in Stipulation XIII, Dispute Resolution.

C. Where Tribal Governments, Native American tribes, traditional leaders, or individuals specifically request that information about their cultural sites, if any, remain confidential, such records shall be maintained as confidential files at the respective installation CRM offices thereafter, following consultation with the appropriate SHPO.

D. The CRM of the installation where the Undertaking, or portion thereof, will occur, or MCIWEST acting on its behalf, shall submit Annual Reports to the appropriate SHPO, Tribal Governments, and the ACHP (should the ACHP request it) each year on or before December 1st throughout the life of the PA. The Annual Report shall describe all the Undertaking, and any portion thereof, implemented pursuant to this PA during the preceding federal fiscal year (1 October through 30 September). If MCIWEST is unable to submit the Annual Report by this date, it shall notify the appropriate SHPO and negotiate a mutually acceptable delivery date. Failure to meet the negotiated date can result in termination of this PA. Copies of the Annual Reports will be available for public review, excluding information about the location and nature of historic properties, which is prohibited by Section 304 of the NHPA and Section 9 of the ARPA. The Annual Reports will be submitted to the appropriate SHPO and other consulting parties, as appropriate, within each state for review and comment for a period not to exceed 90 calendar days. MCIWEST shall ensure that comments received within 90 calendar days of distribution of the reports are given ample consideration when revising and finalizing the Annual Report. If no comments are received within this period, MCIWEST may proceed with finalization of the report. All unresolved issues will be addressed according to the guidelines established in Stipulation XIII, Dispute Resolution.

E. If Post-Review Discoveries of historic properties are made, MCIWEST will record these instances in the Annual Report, including a description of how MCIWEST complied with Stipulation X. The Annual Report shall also describe instances where proposed Standard Resource Protection Measures were prescribed but either not implemented or not fully implemented, and the measures taken to ensure protection of such historic properties.

X. MANAGEMENT MEASURES

A. Monitoring Requirements

Where no known historic properties have been identified in the APE following an intensive inventory, but uncertainty remains about the possible presence of historic properties because of observation limitations, information from the literature review or other sources, monitoring may be employed during the implementation of an Undertaking, or portion thereof, if recommended by the CRM. The purpose would be to ensure that unidentified historic properties, if present, are not affected, damaged or destroyed. If any historic properties are identified, the provisions of Stipulation X shall be followed.

1. When proposed Standard Resource Protection Measures (Attachment F) have not been implemented and activities have occurred that may have affected an identified historic property, then mitigation of those effects is required during and/or after implementation of the Undertaking.

a) If the Undertaking, or portion thereof, has not been completed when the CRM receives notification that said protection measures have not been followed, then all activities in the immediate vicinity of the historic property shall be suspended until a qualified cultural resource professional (one that meets the criteria specified in Stipulation II) and the CRM recommend appropriate measures that will protect it. The need for additional consultation will also be determined by the CRM before resumption of any suspended activities. If the property has not been affected, and proposed Standard Resource Protection Measures can be effectively employed for the remaining implementation period, then the CRM may decide that the Undertaking, or portions thereof, may resume without further consultation.

b) If that portion of the Undertaking has been completed when the CRM receives notification that proposed Standard Resource Protection Measures have not been followed, then a field inspection of the respective historic properties will be initiated as soon as possible and the provisions of Stipulation X shall be followed, including but not limited to, notifying the appropriate SHPO immediately (within 24 hours or one business day of conducting a field inspection). The circumstances surrounding the installation's failure to use the proposed protection measures will be described in a damage assessment report provided to the appropriate SHPO and then later discussed in the Annual Report.

2. If the CRM determines that use of the proposed protection measures might not provide adequate protection to the historic property because of the nature, scope, frequency, and/or duration of certain types of recurrent actions within the Undertaking, or portions thereof (e.g., landings, take-offs, training operations), mitigation in a manner prescribed by the CRM will be carried out to verify that said protection measures are adequate, after consultation with the appropriate SHPO.

3. A long term monitoring program shall be developed, as part of an approved ICRMP, in consultation with the appropriate SHPO, and shall be implemented by the installation CRM to ensure that any unforeseen effects to historic properties are identified and appropriately mitigated.

B. Management Measures Required for the Protection of Historic Properties

All protection measures implemented within the boundaries of historic properties shall be reviewed in consultation with the appropriate SHPO and then discussed in the Annual Report to assess continuation of and/or the need for changes in the protection measures.

C. Review of Projects

Although no construction or related projects are anticipated at any of the landing areas (e.g., LZs, GSAs, PRTSSs, etc), should any future portion of the Undertaking involve unforeseen ground disturbing activities in previously unsurveyed areas, the procedures outlined below shall be followed:

1. Upon completion of survey(s) and advance notification to the appropriate SHPO, subsurface archaeological testing and monitoring to identify and evaluate the presence and character of an archaeological resource to determine eligibility shall be conducted, if necessary, in the area before construction commences. In some instances, subsurface archaeological testing may not be feasible due to a variety of factors (e.g., the area to be tested is located below an existing building/structure, or for proposed projects with long linear-shaped excavations such as utility replacements). In such cases, a Memorandum of Agreement (MOA) shall be jointly developed between the Marine Corps and the appropriate SHPO before commencement of construction in order to guide the archaeological monitoring and data recovery process, as necessary, in lieu of subsurface testing. In all such instances, the appropriate SHPO shall review relevant work plans (i.e., research design and data recovery plan) and provide comments within the timeframe indicated in Stipulation IX.C.

2. Before conducting subsurface archaeological testing or monitoring, the CRM shall submit a research design and data recovery plan to the appropriate SHPO. The SHPO shall have 30 calendar days from receipt of the plan to review and approve this plan. If the SHPO does not respond within this period, MCIWEST may proceed with the proposed plan. If the SHPO disagrees with the plan, the SHPO shall advise the CRM of the reasons for the disagreement in writing within 30 calendar days from receipt of the plan. The CRM shall consult with the appropriate SHPO to try and resolve the disagreement. If such consultation fails, the CRM shall request the ACHP to review the dispute in accordance with Stipulation XIII, Dispute Resolution**.**

3. If the CRM determines that high probability areas cannot be avoided, then data recovery shall be required before construction for areas that contain historic properties.

4. Before conducting any archaeological data recovery efforts, the CRM shall submit a research design and data recovery plan to the appropriate SHPO. The SHPO shall have 30 calendar days from receipt of the plan to review and approve this plan. If the

SHPO does not respond within this period, MCIWEST may proceed with the proposed plan. If the SHPO disagrees with the plan within 30 calendar days from receipt of the plan, the SHPO shall advise the CRM of the reasons for the disagreement in writing. The CRM shall consult with the appropriate SHPO to try and resolve the disagreement. If such consultation fails and no agreement can be reached, then the CRM shall request the ACHP to review the dispute in accordance with Stipulation XIII.

5. If a research design and data recovery plan has already been approved by the SHPO for a prior project and the project is comparable in scope, involving similar resources affected in a similar way, the previously approved research design and data recovery plan can be cited with 30-day advanced notification to the appropriate SHPO. If the SHPO does not respond within this period, MCIWEST may proceed with the proposed plan. If the SHPO disagrees with the research design and data recovery plan within 30 calendar days from receipt of the plan, the SHPO shall advise the CRM of the reasons for the disagreement in writing. Thereafter, the research design and data recovery plan will be considered valid and the CRM may proceed in accordance with the approved research design and data recovery plan.

XI. POST-REVIEW DISCOVERIES

The SHPOs, Tribal Governments, and the ACHP shall be notified by the installation CRM or MCIWEST within 24 hours of discovery that a historic property has been affected by the Undertaking, or portion thereof, implemented under this PA.

A. If the Undertaking, or portions thereof, has/have not been completed at the time the effect is discovered, all activities in the vicinity of the historic property shall cease and efforts shall be taken to avoid or minimize harm to the property until the following consultations are completed. MCIWEST or the installation CRM shall initiate consultation with the appropriate SHPO and appropriate Tribal Governments for not more than fifteen (15) calendar days after the discovery is reported to reach agreement on a mutually acceptable course of action (e.g., develop and implement a mitigation plan) regarding the historic property affected. If agreement cannot be reached within this time frame, the appropriate SHPO shall be afforded fifteen (15) calendar days thereafter to provide written comments to MCIWEST or the installation CRM. Thereafter, MCIWEST or the installation CRM shall consult with the ACHP for not more than fifteen (15) calendar days. If agreement cannot be reached within this timeframe, then MCIWEST or the installation CRM shall provide ACHP with summary documentation on the issues and feasible steps (recommendations) that might be taken to mitigate for the inadvertent effect and to avoid further effects to the historic property, and request comments from the ACHP before making a decision on whether and how to proceed with the Undertaking, or portion thereof. The ACHP shall have fifteen (15) calendar days following receipt of the request to provide MCIWEST or the installation CRM with comments, which MCIWEST or the installation CRM shall take into account in reaching its decision regarding mitigation, avoiding further effect to the site and proceeding ahead with the Undertaking, or portion thereof. MCIWEST or the installation CRM shall notify the ACHP, the appropriate SHPO, and any interested parties of its final decision within fifteen (15) calendar days thereafter.

B. If the Undertaking, or portion thereof, has already been concluded when an effect to an historic property has been discovered, MCIWEST or the installation CRM shall consult with the appropriate SHPO, Tribal Governments, and with the ACHP, if it chooses to participate, to agree on mutually acceptable mitigation measures that the installation CRM shall implement within a specified time period. This consultation shall not exceed 30 calendar days. If agreement on mitigation measures is not reached within this timeframe, the installation CRM shall take all comments received into account. The installation CRM shall notify and submit appropriate documentation of its decision within fifteen (15) calendar days to the appropriate SHPO, the ACHP, appropriate Tribal Governments and any other consulting parties.

C. Within six (6) months, but no later than the initiation of consultation under Stipulations X.A and X.B, the installation CRM or MCIWEST shall provide the appropriate SHPO, ACHP, Tribal Governments and other consulting parties with a report describing the Undertaking, or portion thereof, and the circumstances surrounding the effect(s). This report must include information regarding: the type of property affected; the property's NRHP status; the nature of the effect(s); the date the effect(s) was identified; the location of the property; the condition of the property; and the actions taken to mitigate for the effect, if any, along with other pertinent information. If data recovery was implemented with SHPO approval, then a data recovery report shall also be prepared and submitted to the appropriate SHPO, ACHP, Tribal Governments and other consulting parties, as necessary.

D. If the Undertaking, or portion thereof, has been completed when the CRM receives notification that proposed Standard Resource Protection Measures have not been followed, then a field inspection of the respective historic properties will be initiated as soon as possible and the provisions of Stipulation X shall be followed, including but not limited to, notifying the appropriate SHPO immediately (within 24 hours or one business day of conducting a field inspection). The circumstances surrounding the installation's failure to use the proposed protection measures will be described in a damage assessment report provided to the appropriate SHPO and then later discussed in the Annual Report.

XII. PUBLIC PARTICIPATION

A. MCIWEST has previously conducted public notification and participation for this Undertaking under the provisions of NEPA, and continues to do so, as indicated in the Attachment G (Tribal Consultation and Public Participation). However, for all future cultural resource survey and data recovery efforts for the MV-22 West Coast Basing project, installation CRMs shall continue to use the public notification process embodied in NEPA (40 CFR §1506.6) to comply with provisions for public notification, identification of interested persons, and public participation found in 36 CFR §800. This provision does not negate government-to-government consultation requirements between MCIWEST or the installation CRM and federally recognized Tribal Governments. Interested persons shall be afforded an opportunity to comment on the manner in which the effects of the Undertaking, or portion thereof,, implemented under the provisions of this PA are taken into account. Ann and Mark, pls check this entire section as there were conflicting opinion on edits suggested, as with the two items below.

1. The NEPA process allows individuals, organizations, or groups an opportunity to comment on MCIWEST and/or the installation's Undertaking, or portion thereof, including those measures used for the identification, protection and management of historic properties, and the effects of the proposed Undertaking, or portion thereof, on historic values.

2. The NEPA scoping process shall be used to help fulfill 36 CFR §800 responsibilities to involve Native Americans, Tribal Governments, and other interested persons, to solicit information about identification of properties important for historic and cultural values, and to determine potential effects to these properties from the proposed Undertaking, or portion thereof.

B. If the installation CRM or person(s) delegated by the installation CRM determine that certain aspects of the proposed Undertaking would likely have significant, controversial, or unforeseen effect on historic properties or Traditional Cultural Properties (TCP), if any, based on known information or when requested by appropriate Tribal Governments, those aspects of the Undertaking shall be excluded from implementation under the provisions of this PA. MCIWEST or the installation CRM shall ensure that Tribal Governments are provided opportunities to comment on the effects of the Undertaking, or portion thereof, that meet Stipulation V.A.5, and the guidelines established in Attachment G (Tribal Consultation and Public Participation). Compliance with Section 106 of the NHPA for this Undertaking, or portion thereof, will follow 36 CFR §800.

XIII. REVIEW OF THE PROGRAMMATIC AGREEMENT

Any of the Parties to this PA may elect to review activities carried out pursuant to this PA. MCIWEST, as well as installation CRMs, will cooperate with the Party or Parties in carrying out their review responsibilities.

XIV. DISPUTE RESOLUTION

A. Should any Signatory Party to this PA object at any time to the manner in which the terms of this PA are implemented, or to any documentation prepared per and subject to the terms of this PA, MCIWEST and/or the installation CRM will immediately notify the other Signatory Parties of the objection, request their comments on the objection within fifteen (15) days following receipt of notification, and then proceed to consult with the objecting party for no more than 30 days thereafter to resolve the objection. MCIWEST and/or the installation CRM will honor the request of any other Signatory Parties to participate in the consultation and will take any comments provided by the other Signatory Parties into account.

If at the end of the 30-day consultation period, MCIWEST or the installation CRM determines that the objection cannot be resolved through such consultation, MCIWEST and/or the installation CRM will forward all documentation relevant to the objection to the ACHP per 36 CFR §800.2(b)(2). Any comments provided by the ACHP within 30 calendar days after its receipt of all relevant documentation, and all other comments received, will

be taken into account by MCIWEST and/or the installation CRM in reaching a final decision regarding the objection. MCIWEST and/or the installation CRM will notify all Signatory Parties and federally recognized and non-federally recognized tribal Concurring Parties in writing of its final decision within fifteen (15) calendar days after it is rendered. MCIWEST and/or the installation CRM shall have the authority to make the final decision resolving the objection.

B. MCIWEST and/or the installation CRM's responsibility to carry out all actions under this PA that are not the subject of the objection will remain unchanged. The installation CRM may implement the Undertaking subject to objection under this stipulation after complying with Stipulation XIII.A and XIII. C.

C. At any time during implementation of the terms of this PA, should a member of the public raise an objection pertaining to the PA, MCIWEST and/or the installation CRM shall immediately notify the other Signatory Parties in writing of the objection and take the objection into account. The installation CRM shall consult with the objecting party and, if the objecting party so requests, with any or all of the other Signatory Parties, for no more than 30 calendar days. Within fifteen (15) calendar days following closure of the consultation period, MCIWEST and/or the installation CRM will render a decision regarding the objection and notify all parties of its decision in writing. In reaching its final decision, MCIWEST and/or the installation CRM will take into account all comments from the Signatory Parties regarding the objection. The installation CRM shall have the authority to make the final decision resolving the objection. Any dispute pertaining to the NRHP eligibility of cultural resources covered by the PA will be addressed by MCIWEST and/or the installation CRM per 36 CFR §800.4(c)(2).

XV. AMENDMENTS, NON-COMPLIANCE AND TERMINATION

A. If any Signatory Party believes that the terms of this PA are not being honored or cannot be carried out, or that an amendment to its terms should be made, that Signatory Party will immediately consult with the other Signatory Parties to consider and develop amendments to the PA per 36 CFR §800.6(c)(7) and §800.6(c)(8).

B. If this PA is not amended as provided for in this stipulation, MCIWEST and/or the installation CRM or the appropriate SHPO or ACHP may terminate this PA. The Signatory Party terminating this PA will provide all other Signatory Parties with a written explanation of the reasons for termination.

C. If this PA is terminated and the installation CRM determines that the Undertaking, or portion thereof, will proceed, the installation CRM shall comply with 36 CFR §800.14(b)(2)(v).

XVI. DURATION OF THE PROGRAMMATIC AGREEMENT

A. The Signatory Parties shall consult to reconsider the terms of this PA within two (2) years of the date this PA is executed, and subsequently within five (5) years after each date of

reconsideration of this PA. Reconsideration may include continuation of the PA as originally executed, as amended, or termination. If this PA is terminated because the Undertaking carried out under this PA has been completed or the project no longer meets the definition of an "Undertaking, or portion thereof" as set forth in 36 CFR §800.16(Y), Stipulation V shall not apply. If this PA is not renewed within the reconsideration period (either the initial two (2) years or the subsequent five (5) year period), it is terminated and will have no further force or effect. If MCIWEST determines that the Undertaking, or portions thereof, will proceed, MCIWEST shall comply with 36 CFR §800.14(b)(2)(v).

B. This PA will be in effect through the installation's implementation of the Undertaking, portions thereof, and will terminate and have no further force or effect when the installation CRM, in consultation with the other Signatory Parties, determines that the terms of the PA have been fulfilled in a satisfactory manner. MCIWEST and/or the installation CRM will provide the other Signatory Parties with written notice of its determination and of termination of this PA.

C. If the administration of all or part of the involved installation(s) is/are transferred to another branch of the military or another government agency, or if the property is disposed of by the United States, this PA shall be considered null and void and shall have no other force or effect. In this case, MCIWEST will be responsible for compliance with Section 106 in accordance with 36 CFR 800 §B.

D. This PA shall become effective upon execution by all Signatory Parties (i.e., Marine Corps, Arizona and California SHPOs and the ACHP) and shall remain in effect until all projects associated with the Undertaking, and portions thereof, are completed, unless the PA is terminated in accordance with Stipulation XIV.B or XV.

XVII. ANTI-DEFICIENCY ACT

All requirements set forth in the PA requiring expenditure of Marine Corps funds are expressly subject to the availability of appropriations and the requirements of the Anti-Deficiency Act (31 U.S.C. §1341). No obligation undertaken by the Marine Corps, MCIWEST or its installations under the terms of this PA shall require or be interpreted to require a commitment to expend funds not appropriated for a particular purpose. If the Marine Corps, MCIWEST or its installations cannot perform any obligation set forth in this PA because of unavailability of funds, that obligation must be renegotiated among MCIWEST and the Arizona and/or California SHPOs, and the ACHP.

EXECUTION of this PA by MCIWEST, the Arizona and California SHPOs, and ACHP, and subsequent implementation of its terms, provides evidence that MCIWEST has afforded the ACHP a reasonable opportunity to comment on the basing, construction, maintenance, operations and training of the MV-22 Osprey (Undertaking) and its effect(s) on historic properties, that MCIWEST has taken into account the effects of the Undertaking on historic properties, and that MCIWEST has satisfied its responsibilities under Section 106 of the NHPA and applicable implementing regulations for all aspects of the Undertaking.

SIGNATORY PARTIES

MARINE CORPS INSTALLATIONS WEST

Anthony L. Jackson, Maj Gen USMC DATE: 24 Feb '10

Anthony L. Jackson, Commanding General

ARIZONA STATE HISTORIC PRESERVATION OFFICE

James W. Garrison DATE: 12 March 2010

James W. Garrison, State Historic Preservation Officer

CALIFORNIA STATE HISTORIC PRESERVATION OFFICE

M. Wayne Donaldson DATE: 11 MAR 2010

M. Wayne Donaldson, FAIA, State Historic Preservation Officer

ADVISORY COUNCIL ON HISTORIC PRESERVATION

John M. Fowler DATE: 3/17/10

John M. Fowler, Executive Director

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CONCURRING PARTIES

ARIZONA TRIBAL GOVERNMENTS

1. **Ak-Chin Indian Community**

   _____DATE:_____
   Louis J. Manuel, Jr., Chairman

2. **Chemehuevi Indian Tribe**

   _____DATE:_____
   Charles Wood, Chairman

3. **Cocopah Indian Tribe**

   _____DATE:_____
   Sherry Cordova, Chairwoman

4. **Colorado River Indian Tribes**

   _____DATE:_____
   Eldred Enas, Chairman

5. **Fort McDowell Yavapai Nation**

   _____DATE:_____
   Dr. Clinton M. Pattea, President

6. **Fort Mojave Indian Tribe**

   _____DATE:_____
   Timothy Williams, Chairman

7. **Gila River Pima-Maricopa Indian Community**

   _____DATE:_____
   William R. Rhodes, Governor

8. **The Hopi Tribe**

_____DATE:_____
Benjamin Nuvamsa, Chairman

9. **Navajo Nation**

_____DATE:_____
Joe Shirley, President

10. **Quechan Indian Tribe (Ft. Yuma Indian Tribe)**

_____DATE:_____
Mike Jackson, Sr., President

11. **Salt River Pima-Maricopa Indian Community**

_____DATE:_____
Diane Enos, President

12. **Tohono O'odham Nation**

_____DATE:_____
Ned Norris, Chairman

CALIFORNIA TRIBAL GOVERNMENTS

1. **Agua Caliente Band of Cahuilla Indians**

_____DATE:_____
Richard Milanovich, Chairman

2. **Augustine Band of Cahuilla Mission Indians**

_____DATE:_____
Mary Ann Green, Chairwoman

3. **Barona Band of Mission Indians**

_____DATE:_____
Rhonda Welch-Scalco, Chairman

4. **Cabazon Band of Mission Indians**

_____DATE:_____
John A. James, Chairman

5. **Cahuilla Band of Mission Indians**

_____DATE:_____
Anthony Madrigal, Jr., Chairman

6. **Campo Band of Kumeyaay Indians**

_____DATE:_____
Monique La Chappa, Chairwoman

7. **Ewiiaapaayp Band of Kumeyaay Indians**

_____DATE:_____
Robert Pinto, Sr., Chairman

8. **Inaja-Cosmit Band of Mission Indians**

_____DATE:_____
Rebecca Maxcy-Osuna, Chairwoman

9. **Jamul Indian Village – A Kumeyaay Nation (aka - Jamul Band of Kumeyaay Indians)**

_____DATE:_____
Kenneth A. Meza, Chairman

10. **La Jolla Band of Mission Indians**

_____DATE:_____
Larriann Musick, Chairwoman

11. La Posta Band of Mission Indians

_____DATE:_____
Gwendolyn Parada, Chairwoman

12. Los Coyotes Band of Cahuilla and Cupeño Indians

_____DATE:_____
Francine Kupsch, Chairwoman

13. Manzanita Band of Mission Indians

_____DATE:_____
Leroy J. Elliott, Chairman

14. Mesa Grande Band of Mission Indians

_____DATE:_____
Mark Romero, Chairman

15. Morongo Band of Mission Indians

_____DATE:_____
Robert Martin, Chairman

16. Pala Band of Mission Indians

_____DATE:_____
Robert Smith, Chairman

17. Pauma Band of Mission Indians

_____DATE:_____
Chris C. Devers, Chairman

18. Pechanga Band of Mission Indians

_____DATE:_____
Mark MaCarro, Chairman

19. Ramona Band of Cahuilla Mission Indians

_____DATE:_____
Joseph Hamilton, Chairman

20. Rincon Band of Mission Indians

_____DATE:_____
Bo Mazzetti, Chairman

21. San Manuel Band of Serrano Mission Indians

_____DATE:_____
James Ramos, Chairman

22. San Pasqual Band of Mission Indians

_____DATE:_____
Allen E. Lawson, Chairman

23. Santa Rosa Band of Cahuilla Mission Indians

_____DATE:_____
Anthony Largo, Chairman

24. Santa Ysabel Band of Diegueño Indians

_____DATE:_____
Johnny Hernandez, Chairman

25. Soboba Band of Mission Indians

_____DATE:_____
Robert Salgado, Sr., Chairman

26. Sycuan Band of the Kumeyaay Nation

_____DATE:_____
Daniel Tucker, Chairman

27. Torres-Martinez Desert Cahuilla Indians

_____DATE:_____
Mary L. Resvaloso, Chairwoman

28. Twentynine Palms Band of Mission Indians

_____DATE:_____
Darrell Mike, Chairman

29. Viejas Band of Kumeyaay Indians

_____DATE:_____
Bobby L. Barrett, Chairman

30. Juaneño Band of Mission Indians - Acjachemen Nation

_____DATE:_____
Anthony Rivera, Jr., Chairman

31. Kumeyaay Cultural Historical Committee

_____DATE:_____
Ron Christman

32. Kumeyaay Cultural Repatriation Committee

_____DATE:_____
Steve Benegas

33. Kwaaymii Laguna Band of Mission Indians

_____DATE:_____
Carmen Lucas, Chairwoman

34. San Luis Rey Band of Mission Indians

_____DATE:_____
Mel Vernon, Chairman

APPENDIX G

KEY OBSERVATION POINTS (KOP)

Osborne Overlook

Watchable Wildlife Site

Ted Kief Road

Coachella Canal Road

Slab City

Cuff (Gas Line) Road

Fountain of Youth Spa

Bradshaw Trail North

Bradshaw Trail Kiosk

Dietz Drive

APPENDIX H

TRIBAL CONSULTATION

APPENDIX H
TRIBAL CONSULTATION

This appendix summarizes tribal consultation and coordination.

The consultation process began with a notification letter to 36 tribes advising them of the intent to prepare an LEIS and an invitation to participate in the scoping process. The invitation letter and list of addressees is included as Attachment 1. As the scoping process was drawing to a close, the tribes were contacted by telephone to (1) verify that the tribe had received the notification letter, (2) remind them that the formal public scoping period was ending on 23 December 2010 and request that any comments be provided promptly, (3) inform them that additional information, including the public scoping meeting materials, was available on the website (chocolatemountainrenewal.com), and (4) provide them with points of contact at MCAS Yuma if additional information was needed. These points were made in voice mail messages when the tribal contact did not answer the call directly. A tracking sheet of these comments is included as Attachment 2.

Tribal coordination also occurred between the U.S. Marine Corps and the Native American Heritage Commission (NAHC), as well as with individuals listed by the NAHC as having an interest or otherwise possessing information pertaining to cultural resources and traditional cultural areas or properties. Letters were prepared to the individuals identified by the NAHC and sent by email or fax on 17 August 2011, and later by certified priority mail on 18 August 2011. Follow-up phone calls to all individuals listed by the NAHC, for whom telephone numbers were provided, were made on 30 August 2011. Messages were left for those individuals who were unavailable and comments received in response to letters and follow-up telephone calls were documented, including date of response, method of contact, and a description of comments received. This tracking log has been included as Attachment 3.

Follow-up calls resulted in the notification that Mr. Paul Cuero (Kumeyaay Cultural Heritage Preservation) no longer works at that location. Furthermore, some attempts to contact individuals listed by the NAHC resulted in the referral or transfer of calls to others within the various organizations. The follow-up call to Ms. Diana L. Chihuahua with the Torres-Martinez Desert Cahuilla Indians was transferred to Mr. Roland Ferrer, just as calls to Ms. Ginger Scott and Mr. George Ray with the Colorado River Indian Tribe were transferred to Ms. Lisa Swick; Ms. Swick is currently the Cultural Compliance Officer/Acting Director for the Colorado River Indian Tribe.

At the time follow-up calls were made, three individuals were available or otherwise provided comment: Mr. Ferrer, Ms. Carmen Lucas (Kwaaymii Laguna Band of Mission Indians), and Ms. Swick. Mr. Ferrer requested that a copy of the letter be sent to him and that, upon review, he would initiate contact should there be comments or questions. Ms. Swick indicated that she has not yet reviewed the letter but would send any comments or questions by 7 September 2011. Further response from Ms. Swick and Mr. Ferrer has not been received. On 30 August 2011, a return message was received by Ms. Lucas stating that her only comment is that the CMAGR is a remote area where prehistoric sites are more likely to occur and that she wants to encourage and ensure there is honest dialogue with the Coachella and Cocopah.

Multiple responses were received by traditional mail and email from representatives of the Agua Caliente Band of Cahuilla Indians (ACBCI). On 20 September 2011 an email response was received from Ms. Rosalina Nava with the ACBCI Tribal Historic Preservation Office (THPO), asking for acreage estimates for the CMAGR project and a response was sent on 27 September 2011. On 30 September 2011, another email was received from the ACBCI Environmental Officer indicating that the Band “has no direct knowledge of cultural resources in the project vicinity; however, we are concerned about chance findings of materials.” The message also states that the project is outside the ACBCI Reservation but is

within the Traditional Use Area. A request was made that the Tribe continue to be informed as the project progresses and that they receive project updates, as well as reports or any documentation regarding cultural resources generated as a result of the project. In addition to these emails, a response letter dated 26 September 2011 was received from S. Milanovich with the ACBCI THPO, noting that a check of ACBCI THPO cultural resources records did not identify Native American archaeological sites within the project area; however, this search did indicate that known trails and traditional cultural places exist in the vicinity. Generally the Tribe has concerns and would like to comment once additional information is available. The Tribe requested copies of survey and cultural reports once the project is complete.

Attachment 1

UNITED STATES MARINE CORPS
MARINE CORPS AIR STATION
BOX 99100
YUMA, ARIZONA 85369-9100

In Reply Refer To

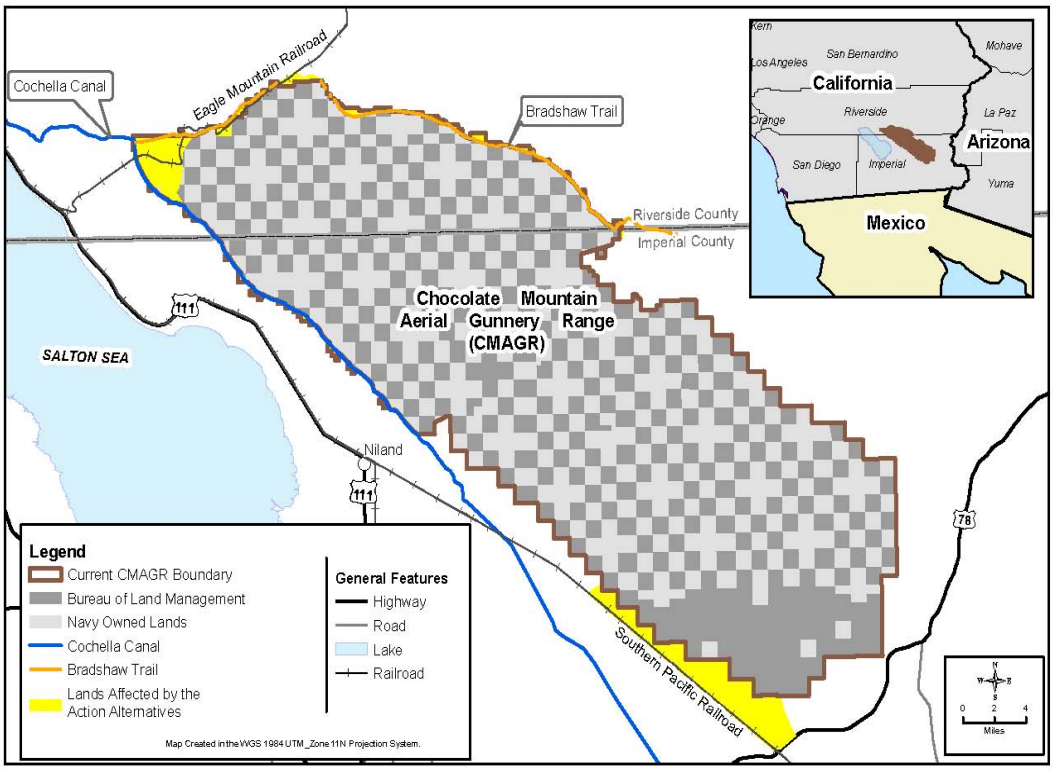
November 4, 2010

Mr. Richard M. Milanovich
Chairman
Agua Caliente Band of Cahuilla Indians
600 East Tahquitz Canyon Way
Palm Springs, CA 92262

RE: Renewal of the Chocolate Mountain Aerial Gunnery Range Land Withdrawal

On September 24, 2010, the Department of the Navy (DoN) published in the Federal Register a Notice of Intent (NOI) to prepare a legislative environmental impact statement (LEIS) for the renewal of the Chocolate Mountain Aerial Gunnery Range (CMAGR) land withdrawal. A copy of the NOI is enclosed for your information.

The CMAGR comprises approximately 459,000 acres in California's Imperial and Riverside counties (see map below). Land jurisdiction at the CMAGR currently resembles a "checkerboard" pattern, where every other section (640 acres or approximately 1 square mile) falls under either DoN ownership (232,116 acres) or Bureau of Land Management (BLM) jurisdiction (226,711 acres of withdrawn public lands). The public lands administered by the BLM are reserved for military uses for 20 years under the terms of the California Military Lands Withdrawal and Overflight Act of 1994. The DoN and BLM lands are used in common to support the defense activities that occur at the range. Because the current withdrawal of public lands is scheduled to expire in October 2014 and there continues to be a military need for the CMAGR, the DoN is initiating the process to request that Congress renew the land withdrawal and military reservation for another 25 years (through 2039).



The DoN has filed a land withdrawal application with BLM for public lands currently within the CMAGR as well as for some adjacent lands that may be considered for withdrawal to establish a more effective range boundary. The DoN also is preparing a Draft LEIS to address the potential environmental effects of extending the CMAGR land withdrawal. The BLM is serving as a cooperating agency for preparing the Draft LEIS.

The LEIS will evaluate several alternatives that would modify the existing range boundary to follow prominent geographic features such as the Bradshaw Trail and Coachella Canal, enhancing safety through an improved boundary demarcation and efficiency in land management. The Draft LEIS also will explore land management alternatives to resolve challenges associated with the current pattern of split jurisdiction between the DoN and BLM; some of these challenges include unclear responsibilities that contribute to the duplication of efforts and other inefficiencies. There are four preliminary action alternatives and a no-action alternative that will be shared with the public for review and comment, as summarized in the table below. Additional alternatives may be considered as a result of scoping comments.

Preliminary Alternatives

Alternative	Description of Alternative
Alternative 1	*Renewal of Status Quo* – Renew the current withdrawal, with no boundary or jurisdictional changes, for a period of 25 years.
Alternative 2	*Full Administrative Jurisdiction to DoN* – Renew the land withdrawal for another 25 years with restructured boundaries and allocate full administrative jurisdiction for resource management to DoN, in addition to the military activities.
Alternative 3	*Transfer of Title to DoN* – Renew the withdrawal for another 25 years and transfer all custody and accountability for the real property within both the current withdrawal and the restructured boundaries to DoN. The DoN would assume all responsibility for resource management and use of the lands.
Alternative 4	*Shared Administrative Jurisdiction* – Renew the land withdrawal for another 25 years with the restructured boundaries; management of the military activities would remain with DoN and the resource management would remain with BLM.
No-Action	*No Renewal of Withdrawal* – The existing land withdrawal for the CMAGR would expire. The capability to support existing and future training activities at the CMAGR that rely on these lands would cease and these training activities would have to be relocated to ranges elsewhere in the country or curtailed. Range clean-up operations at CMAGR would be required.

Publication of the NOI initiates a 90-day public comment period, during which time agencies and the public are encouraged to identify issues and concerns that should be considered in the Draft LEIS. ***Please submit comments by December 23, 2010, to ensure full consideration in the Draft LEIS***. Comments may be provided at one of the following public scoping meetings. All meetings will be held in an open house format between 5:30 p.m. and 8:00 p.m.

Yuma, AZ El
Monday, December 6, 2010
Yuma County Library
2951 S. 21st Drive

Centro, CA
Tuesday, December 7, 2010
Holiday Inn Express
350 Smoketree Drive

Palm Springs, CA
Wednesday, December 8, 2010
Holiday Inn San
1800 E. Palm Canyon

San Diego, CA
Thursday, December 9, 2010
Diego Planning Commission
5201 Ruffin Road, Suite B

Written comments may be submitted to:

Mr. Ronald Pearce
MCAS Yuma
Box 99134
Yuma, AZ 85369-9134
Or online at: ChocolateMountainRenewal.com

We invite you to comment on the proposed land withdrawal renewal, in accordance with provisions of the National Environmental Policy Act, National Historic Preservation Act, and American Indian Religious Freedom Act, to ensure that any concerns you may have about the project are fully considered and incorporated into the environmental analysis.

We request your assistance in identifying places and/or practices that have traditional, religious, or cultural importance which you would consider to be affected by the proposed withdrawal renewal and any of the preliminary alternatives.

Tribal representatives are welcome to attend any and all of the public scoping meetings. The Navy and Marine Corps are also willing to schedule a separate government-to-government tribal consultation meeting with you and other Tribal representatives at your request.

Should you have questions, comments, or would like to request a meeting, please contact Mr. Roger Wardlow, MCAS Yuma Cultural Resources Program Manager, at 928-269-2288 or roger.wardlow@usmc.mil.

Sincerely,

R. L. Pearce
By direction of the
Commanding Officer

This letter sent to:

Mr. Richard M. Milanovich
Chairman
Agua Caliente Band of Cahuilla Indians
600 East Tahquitz Canyon Way
Palm Springs, CA 92262

Mr. Richard Begay
THPO
Agua Caliente Band of Cahuilla Indians
650 Tahquitz Canyon Way
Palm Springs, CA 92262

Ms. Delia M. Carlyle
Chairwoman
Ak-Chin Indian Community
42507 West Peters & Nall Rd.
Maricopa, AZ 85239-3940

Ms. Maryann Martin
Chairwoman
Augustine Band of (Cahuilla) Mission Indians
P.O. Box 846
Coachella, CA 92236

Ms. Karen Kupcha
Tribal Administrator
Augustine Band of Cahuilla Mission Indians
P.O. Box 846
Coachella, CA 92236

Ms. Rhonda Welch-Scalco
Chairwoman
Barona Band of Mission Indians
1095 Barona Road
Lakeside, CA 92040

Mr. John A. James
Chairman
Cabazon Band of Mission Indians
84-245 Indio Springs Parkway
Indio, CA 92203-3499

Ms. Judy Stapp
Director of Cultural Affairs
Cabazon Band of Mission Indians
84-245 Indio Springs Parkway
Indio, CA 92203-3499

Mr. Anthony Madrigal, Jr.
Interim Chairman
Cahuilla Band of Mission Indians
P.O. Box 391760
Anza, CA 92539-1760

Mr. H. Paul Cuero, Jr.
Chairman
Campo Kumeyaay Nation
36190 Church Road, Suite 1
Campo, CA 91906

Mr. Charles Wood
Chairman
Chemehuevi Indian Tribe
P.O. Box 1976
Havasu Lake, CA 92363-1976

Ms. Sherry Cordova
Chairwoman
Cocopah Indian Tribe
Avenue G and County 15
Somerton, AZ 85350

Ms. Jill McCormick
Historic Preservation Officer
Cocopah Indian Tribe
Avenue G and County 15
Somerton, AZ 85350

Mr. Daniel Eddy, Jr.
Chairman
Colorado River Indian Tribe
Route 1, Box 23-B
Parker, AZ 85344-9704

Ms. Betty Cornelius
Cultural Contact
Colorado River Reservation
Route 1, Box 23-B
Parker, AZ 85344-9704

Mr. Harlan Pinto, Sr.
Chairman
Ewiiaapaayp Tribal Office
P.O. Box 2250
Alpine, CA 91903-2250

Michael Garcia
Vice-Chairman/EPA Director
Ewiiaapaayp Tribal Office
P.O. Box 2250
Alpine, CA 91903-2250

Mr. Raphael Bear
President
Fort McDowell Yavapai Nation
P.O. Box 17779
Fountain Hills, AZ 85269-7779

Ms. Nora McDowell
Chairwoman
Fort Mojave Indian Tribe
500 Merriman Avenue
Needles, CA 92363-2229

Ms. Linda Otero
Director
Fort Mojave Indian Tribe
AhaMaKav Cultural Society
P.O. Box 5990
Mohave Valley, AZ 86440

Ms. Bridget Nash-Chrabascz
Historic Preservation Officer
Fort Yuma Indian Reservation – Quechan Tribe
P.O. Box 1899
Yuma, AZ 85366-1899

Mr. Mike Jackson, Sr.
President
Fort Yuma Indian Reservation – Quechan Tribe
P.O. Box 1899
Yuma, AZ 85366-1899

Ms. Pauline Jose
Quechan Cultural Committee
P.O. Box 72
Winterhaven, CA 92283

Mr. William R. Rhodes
Governor
Gila River Indian Community
P.O. Box 97
Sacaton, AZ 85247-0097

Ms. Rebecca Osuna
Spokesperson
Inaja Band of Mission Indians
309 S. Maple Street
Escondido, CA 92025

Mr. Leon Acevedo
Chairman
Jamul Band of Mission Indians
P.O. Box 612
Jamul, CA 91935

Mr. Paul Cuero
Kumeyaay Cultural Heritage Preservation
36190 Church Road, Suite 5
Campo, CA 91906

Mr. Ron Christman
Kumeyaay Cultural Historic Committee
56 Viejas Grande Road
Alpine, CA 92001

Mr. Steve Banegas
Spokesperson
Kumeyaay Cultural Repatriation Committee
1095 Barona Road
Lakeside, CA 92040-1541

Ms. Carmen Lucas
Kwaaymii Laguna Band of Mission Indians
P.O. Box 775
Pine Valley, CA 91962

Ms. Gwendolyn Parada
Chairwoman
La Posta Band of Mission Indians
P.O. Box 1120
Bouelvard, CA 91905

Ms. Catherine Siva Saubel
Chairperson
Los Coyotes Band of Cahuilla and Cupeño Indians
P.O. Box 100
Warner Springs, CA 92086

Mr. Leroy J. Elliott
Chairman
Manzanita Band of Mission Indians
P.O. Box 1302
Bouelvard, CA 91905-0402

Mr. Mike Linton
Chairman
Mesa Grande Band of Mission Indians
P.O. Box 270
Santa Ysabel, CA 92070-0270

Mr. Robert Martin
Chairman
Morongo Band of Mission Indians
11581 Potrero Road
Banning, CA 92220

Mr. Joseph Hamilton
Representative
Ramona Band of Cahuilla Mission Indians
P.O. Box 39137
Anza, 92539

Ms. Joni Ramos
President
Salt River Pima-Maricopa Indian Community
10005 East Osborn Road
Scottsdale, AZ 85256-4019

Mr. Russell Romo
Chairman
San Luis Rey Band of Mission Indians
12064 Old Pomerado Road
Poway, CA 92064

Mr. Deron Marquez
Chairman
San Manuel Band of Mission Indians
26569 Community Center Drive
Highland, CA 92346

Mr. Allen E. Lawson
Chairman
San Pasqual Band of Mission Indians
P.O. Box 365
Valley Center, CA 92080

Mr. Anthony Largo
Chairman
Santa Rosa Band of Cahuilla Mission Indians
325 N. Western Avenue
Hemet, CA 92543

Mr. Johnny Hernandez
Spokesman
Santa Ysabel Band of Diegueno Indians
P.O. Box 130
Santa Ysabel, CA 92070

Mr. Danny Tucker
Chairman
Sycuan Band of Mission Indians
5459 Dehesa Road
El Cajon, CA 92021

Mr. Ned Norris
Chairman
Tohono O'odham Nation
P.O. Box 837
Sells, AZ 85634-0837

Mr. Peter Steere
Tohono O'odham Nation
P.O. Box 837
Sells, AZ 85634-0837

Mr. William J. Contreras
Cultural Resources Coordinator
Torres-Martinez Desert Cahuilla Indians
P.O. Box 1160
Thermal, CA 92274-1160

Mr. Alberto Ramirez
Environmental Coordinator
Torres-Martinez Desert Cahuilla Indians
P.O. Box 1160
Thermal, CA 92274-1160

Mr. Raymond Torres
Torres-Martinez Desert Cahuilla Indians
P.O. Box 1160
Thermal, CA 92274-1160

Mr. Joseph R. Benitez
Torres-Martinez Desert Cahuilla Indians
P.O. Box 1829
Indio, CA 92201

Mr. Darrell Mike
Chairman
Twentynine Palms Band of Mission Indians
46-200 Harrison Place
Coachella, CA 92236

Mr. Anthony R. Pico
Chairperson
Viejas Band of Mission Indians
P.O. Box 908
Alpine, CA 91903

Attachment 2

Chocolate Mountain Aerial Gunnery Range - Tribal Contact at Close of LEIS Scoping Period, December 2010

Native American Tribe	Department	Tribe Contact(s)	Title	Address1	State	phone	Record of Conversation/Voicemail
Agua Caliente Band of Cahuilla Indians		Mr. Richard M. Milanovich	Chairman	600 East Tahquitz Canyon Way	CA		Patty Tuck (THPO) instructed me to not contact him because all requests go through her.
Agua Caliente Band of Cahuilla Indians		Ms. Patricia Tuck	THPO	650 Tahquitz Canyon Way	CA	760-699-6907	Spoke with her and she informed me that she did not receive the letter because it was sent to the wrong address and person. I forwarded a copy of the letter to Ms. Tuck. She will review and try to provide comment prior to the close of public scoping (12/23/10).
Ak-Chin Indian Community			Cultural Resources	42507 West Peters & Nall Rd.	AZ	520-568-1365	Left message on the voicemail- waiting for call back (12/22/10 9:15am)
Ak-Chin Indian Community		Ms.Vicky Smith	Council Secretary	42507 West Peters & Nall Rd.	AZ	520-568-1000	Ms. Smith will relate to the Chairman Louis Manuel. Please resend copy of letter to fax no.520-568-1001 (12/22/10 - 9:30am) Sent Fax on 12/22/10 -11.13
Augustine Band of (Cahuilla) Mission Indians			Chairwoman	P.O. Box 846	CA	760-391-9500	Left voicemail with information in general voicemail box- Maryann Martin no longer works there (12/22/10 10:15 am)The message included all 3 points as well as MCAS contact info.
Augustine Band of Cahuilla Mission Indians		Ms. Karen Kupcha	Tribal Administrator	P.O. Box 846	CA	760-365-1373	Left Voicemail with information (12/22/10 10:20 am)The message included all 3 points as well as MCAS contact info.
Barona Band of Mission Indians		Mr. Edwin Romero	Chairman	1095 Barona Road	CA	619-443-6612	Offices Closed due to the flooding - left message for Mr. Romero (12/22/10 10:25am) The message included all 3 points as well as MCAS contact info.
Cabazon Band of Mission Indians		Mr. John A. James	Chairman	84-245 Indio Springs Parkway	CA	760-342-2593	Left Voicemail for Mr. James with information (12/22/10 10:40 am)The message included all 3 points as well as MCAS contact info.
Cabazon Band of Mission Indians		Ms. Judy Stapp	Director of Cultural Affairs	84-245 Indio Springs Parkway	CA	760-342-2593	No comment - spoke to Ms. Stapp (12/22/10 10:36am)
Cahuilla Band of Mission Indians		Mr. Anthony Madrigal, Jr.	Interim Chairman	P.O. Box 391760	CA	951-763-2631	Left Voicemail for Mr. Madrigal with information (12/22/10 10:48 am)The message included all 3 points as well as MCAS contact info.
Campo Kumeyaay Nation		Ms. Monique LaChappa	Chairwoman	36190 Church Road, Suite 1	CA	619-478-9046	Receptionist will relate message to Ms. La Chappa to call back (12/22/10 10:52 am) Left message with receptionist went through all 3 points as well as MCAS contact info (12/22/10.
Chemehuevi Indian Tribe		Ms. Lillian Parra	Executive Secretary / Tribal Administration Office	P.O. Box 1976	CA	760-858-4219	Defer to contact below.
Chemehuevi Indian Tribe		Mr. Charles Wood	Chairman	P.O. Box 1976	CA	760-858-4219	Left Voicemail for Mr. Wood with information (12/22/10 10:56 am)The message included all 3 points as well as MCAS contact info.
Cocopah Indian Tribe		Ms. Sherry Cordova	Chairwoman	Avenue G and County 15	AZ	928-627-4849	Contact made by MCAS Yuma.
Cocopah Indian Tribe		Ms. Jill McCormick	Historic Preservation Officer	Avenue G and County 15	AZ	928-530-2291	Contact made by MCAS Yuma.
Colorado River Indian Tribe		Mr. Eldred Enas	Chairman	26600 Mohave Road	AZ	928-669-1321	Defer to contact below.
Colorado River Reservation		Mr. Rick Ench	Planning Consultant	26600 Mohave Road	AZ	928-669-1301	Call back at 12-1p.m. to discuss. Called at 1pm no one answered 12/22/10
Ewiiaapaayp Tribal Office		Will Micklin	Executive Director	P.O. Box 2250	CA	619-445-6315	Left message 10:22 am 12/22/10. Message left on on their general line requesting my message be forwarded to the appropriate individial. The message included all 3 points as well as MCAS contact info.
Ewiiaapaayp Tribal Office		Michael Garcia	Vice-Chairman/EPA Director	P.O. Box 2250	CA	619-445-6315	Left message 10:22 am 12/22/10. Message left on on their general line requesting my message be forwarded to the appropriate individial. The message included all 3 points as well as MCAS contact info.
Fort McDowell Yavapai Nation		Mr. Ruben Balderas	Council Member	P.O. Box 17779	AZ	480-789-7000	No comment - Spoke with Mr. Balderas and he informed me that he and Dr. Pattea did not deal with public comments to projects and instructed me to address these questions to the cultural manger Ms. Ray.
Fort McDowell Yavapai Nation		Ms. Karen Ray	Cultural Manager	P.O. Box 17779	AZ	480-789-7190	Left message 10:09 am 12/22/10. Message left on Ms. Ray's voicemail. The message included all 3 points as well as MCAS contact info.

Chocolate Mountain Aerial Gunnery Range - Tribal Contact at Close of LEIS Scoping Period, December 2010

Native American Tribe	Department	Tribe Contact(s)	Title	Address1	State	phone	Record of Conversation/Voicemail
Fort McDowell Yavapai Nation		Dr. Clinton M. Pattea	President	P.O. Box 17779	AZ	480-789-7000	No comment - Spoke with Mr. Balderas and he informed me that he and Dr. Pattea did not deal with public comments to projects and instructed me to address these questions to the cultural manger Ms. Ray.
Fort Mojave Indian Tribe		Ms. Pamela Morago-Pratt	Community-at-large-Representative	500 Merriman Avenue	CA	760-629-4591	Left message 10:05 am 12/22/10. Message left on general receptionist voicemail because number provided did not go directly to Ms. Morago-Pratt. The message included all 3 points as well as MCAS contact info.
Fort Mojave Indian Tribe	AhaMaKav Cultural Society	Ms. Linda Otero	Director	P.O. Box 5990	AZ	928-768-4475	Spoke with her 1:30 pm 12/22/10. She asked if the base was conducting tribal consultation on this project and I informed her that the public review and scoping period was ongoing but coming to a close tomorrow. With regards to additional govt to govt (tribal) consultation I could not speak to that and that she should contact the base cultural specialist to discuss. I forwarded a copy of the letter to her as requested and let her know if she has any comments/concerns to please let me know and I will forward them on. I notified her of all the key points and provided the website address as well, which she was going to look at after my call. She said this base rarely consults with her regarding their projects. She provided no futher information.
Fort Yuma Indian Reservation – Quechan Tribe		Ms. Bridget Nash-Chrabascz	Historic Preservation Officer	P.O. Box 1899	AZ	760-572-24-23	Contact made by MCAS Yuma.
Fort Yuma Indian Reservation – Quechan Tribe		Mr. Mike Jackson, Sr.	President	P.O. Box 1899	AZ	760-572-0213	Contact made by MCAS Yuma.
Quechan Cultural Committee		Ms. Pauline Jose		P.O. Box 72	CA		Contact made by MCAS Yuma.
Gila River Indian Community		Mr. Deron Rafael	Chairperson	P.O. Box 97	AZ	520-796-4452	Left message 11.20 am 12/22/10. The message included all 3 points as well as MCAS contact info.
Inaja Band of Mission Indians		Ms. Rebecca Osuna	Spokesperson	309 S. Maple Street	CA	760-737-7628	Left message 9:32 am 12/22/10. Message included all 3 points as well as MCAS contact info.
Jamul Band of Mission Indians		Mr. Leon Acevedo	Chairman	P.O. Box 612	CA	619-669-4785	left voicemail - David Konopka URS AZ 12/22/10
Kumeyaay Cultural Heritage Preservation		Mr. Paul Cuero?		36190 Church Road, Suite 5	CA	619-478-9046	left a voicemail after being transferred- David Konopka URS AZ 12/22/10
Kumeyaay Cultural Historic Committee		Mr. Ron Christman		56 Viejas Grande Road	CA	619-445-0385	No one is answering the phone
Kumeyaay Cultural Repatriation Committee		Ms. Gevan Miller	Tribal Administrator	1095 Barona Road	CA	619-478-2113	Left message 12:23 pm 12/22/10. Message left on Ms. Miller's voicemail. The message included all 3 points as well as MCAS contact info.
Kwaaymii Laguna Band of Mission Indians		Ms. Carmen Lucas		P.O. Box 775	CA	619-709-4207	left voicemail - David Konopka URS AZ 12/22/10
La Posta Band of Mission Indians		Ms. Gwendolyn Parada	Chairwoman	P.O. Box 1120	CA	619-478-2113	left voicemail with the tribal administrator - David Konopka URS AZ 12/22/10
Los Coyotes Band of Cahuilla and Cupeño Indians		Ms. Evelyn Duro	Tribal Administrator	P.O. Box 100	CA	760-782-0711	They are not interested because it is out of their jurisdiction- David Konopka URS AZ 12/22/10
Manzanita Band of Mission Indians		Mr. Leroy J. Elliott	Chairman	P.O. Box 1302	CA	619-766-4930	Left message 12.23 pm 12/22/10. Message left on Mr. Elliott's voicemail. The message included all 3 points as well as MCAS contact info.
Mesa Grande Band of Mission Indians		Mr. Mark Romero	Chairperson	P.O. Box 270	CA	760-782-3818	Left message 12.36 pm 12/22/10. Message for Mr. Romero on the general voicemail. The message included all 3 points as well as MCAS contact info. Tribe office will be closed from Thursday dec.23 to jan.3
Morongo Band of Mission Indians		Mr. Robert Martin	Chairman	11581 Potrero Road	CA	951-849-4697	Left message 12.46 pm 12/22/10. Left message on the voicemail of Ms. Christina Chartier - executive assitant for Mr. Martin . The message included all 3 points as well as MCAS contact info.

Chocolate Mountain Aerial Gunnery Range - Tribal Contact at Close of LEIS Scoping Period, December 2010

Native American Tribe	Department	Tribe Contact(s)	Title	Address1	State	phone	Record of Conversation/Voicemail
Ramona Band of Cahuilla Mission Indians		Mr. Joseph Hamilton	Representative	P.O. Box 39137	CA	951-763-4105	Left message 12.56 pm 12/22/10. Message for Mr. Hamilton on the general voicemail. The message included all 3 points as well as MCAS contact info.
Salt River Pima-Maricopa Indian Community		Ms. Diane Enos	President	10005 East Osborn Road	AZ	480-362-7400	Left message 12.59 pm 12/22/10. Message for Ms. Enos on the general voicemail. The message included all 3 points as well as MCAS contact info. Tribal office will be closed from Wed.22 1pm to Sunday and will re open 12/27.
San Luis Rey Band of Mission Indians		Carmen Mojado	Secretary of Government Relations	12064 Old Pomerado Road	CA		No phone number available
San Manuel Band of Mission Indians		Mr. James Ramos	Chairman	26569 Community Center Drive	CA	909-864-8933	No one is answering the phone
San Manuel Band of Mission Indians		Ms. Ann Brierty	Policy/Cultural Resource Department	26569 Community Center Drive	CA	909-864-8933 ext 3250	No one is answering the phone
San Pasqual Band of Mission Indians		Mr. Allen E. Lawson	Chairman	P.O. Box 365	CA	760-749-3200	Left message 2:17 pm 12/22/10. Message for Mr. Lawson on the general voicemail. The message included all 3 points as well as MCAS contact info.
Santa Rosa Band of Cahuilla Mission Indians		Mr. Anthony Largo	Chairman	325 N. Western Avenue	CA	951-658-5311	Left message 2:08 pm 12/22/10. Message for Mr. Largo on the general voicemail. The message included all 3 points as well as MCAS contact info.
Sycuan Band of Mission Indians		Mr. Danny Tucker	Chairman	5459 Dehesa Road	CA	619-445-2613	Office is closed until 3/1/11, could not leave message 12/22/10 2:30pm
Santa Ysabel Band of Diegueno Indians		Mr. Clint Linton		P.O. Box 130	CA	760-803-5694	Left message 2:02 pm 12/22/10. Left message Mr. Linton's voicemail. The message included all 3 points as well as MCAS contact info.
Santa Ysabel Band of Diegueno Indians		Mr. Virgil Perez	Chairman	P.O. Box 130	CA	760-765-0846	Left message 2:00 pm 12/22/10. Left message Mr. Perez' voicemail. The message included all 3 points as well as MCAS contact info.
Tohono O'odham Nation		Mr. Ned Norris	Chairman	P.O. Box 837	AZ	520-383-2028	Left message 1:54 pm 12/22/10. Left message on the voicemail of Ms. Roberta Harvey - executive assitant for Mr. Norris . The message included all 3 points as well as MCAS contact info.
Torres-Martinez Desert Cahuilla Indians		Mr. Rolland Ferrer	Cultural Resources Coordinator	P.O. Box 1160	CA	760-397-0300	Left message 1:26 pm 12/22/10. Message for Mr. Ferrer on his voicemail. The message included all 3 points as well as MCAS contact info.
Torres-Martinez Desert Cahuilla Indians		Mr. Alberto Ramirez	Environmental Coordinator	P.O. Box 1160	CA	760-397-0300	Left message 1:26 pm 12/22/10. Message for Mr. Ramirez on the general voicemail. The message included all 3 points as well as MCAS contact info.
Torres-Martinez Desert Cahuilla Indians		Mr. Raymond Torres		P.O. Box 1160	CA	760-397-0300	no longer works there
Torres-Martinez Desert Cahuilla Indians		Mr. Joseph R. Benitez		P.O. Box 1829	CA	760-397-0300	Left message 1:25 pm 12/22/10. Message for Mr. Benitez on the general voicemail. The message included all 3 points as well as MCAS contact info.
Torres-Martinez Desert Cahuilla Indians		Ms. Mary Resvaloso	Chairperson	P.O. Box 1829	CA	760-397-8144	Left message 1:23 pm 12/22/10. Message for Ms. Resvaloso on the general voicemail. The message included all 3 points as well as MCAS contact info.
Twentynine Palms Band of Mission Indians		Mr. Jeffrey Smith	EPA	46-200 Harrison Place	CA	760-775-5566	Defer to comment below. Decided to not leave message since I had already left it previously for Mr. Martin 12/22/10 1:19pm
Twentynine Palms Band of Mission Indians		Mr. Darrell Mike	Chairman	46-200 Harrison Place	CA	760-863-2444	Left message 1:16 pm 12/22/10. Left message on the voicemail of Ms. Leana Thomas - executive assitant for Mr. Martin . The message included all 3 points as well as MCAS contact info.
Viejas Band of Mission Indians		Mr. Anthony R. Pico	Chairperson	P.O. Box 908	CA	619-445-3810	Left message 1:11 pm 12/22/10. Message for Mr. Pico on the general voicemail. The message included all 3 points as well as MCAS contact info.

Attachment 3

Chocolate Mountain Aerial Gunnery Range - NAHC NA Contact Tracking Log

Contact Person	Tribe/Organization	Address/Contact Information	Date Hard Copy Letter Sent to Tribes	Date Letter Faxed or Emailed to Tribes	Delivery Confirmed? (y/n)	Date Responded/Means of Response	Date of Follow-up Call	Comments
Mr. David Singleton	Native American Heritage Commission (NAHC)	915 Capitol Mall, RM 364 Sacramento, CA 95814 (916) 653-4082 (916) 657-5390 – Fax nahc@pacbell.net	8/18/2011	8/4/2011 (Email)	Yes	August 12, 2011 (Fax)	~/~	8/4/11 (9:29 am) - D. Singleton called to request a table showing county, quadrangle map name, township, range, and section data so that they could more expeditiously complete the file search. Table provided to Mr. Singleton on 8/5/11. 8/12/11 - NAHC response received by fax; SLF search found no Native American cultural resources in the specified search area; provided recommendations and provided list of individuals/organizations to be contacted for further information.
Mr. Will Micklin, Executive Director	Ewiiaapaayp Tribal Office	4054 Willows Road, Alpine, CA 91901 (619) 445-6315 - voice (619) 445-9126 - fax wmicklin@leaningrock.net	8/18/2011	8/17/2011 (Email)	Yes		8/30/11	8/30/11 (9:56 am) - Called; left message asking for a call-back. The same number for Mr. Micklin is also listed for Mr. Garcia.
Mr. Michael Garcia, Vice Chairperson	Ewiiaapaayp Tribal Office	4054 Willows Road, Alpine, CA 91901 (619) 445-6315 - voice (619) 445-9126 - fax michaelg@leaningrock.net	8/18/2011	8/17/2011 (Email)	Yes		8/30/11	8/30/11 (9:56 am) - Called; left message asking for a call-back. The same number for Mr. Micklin is also listed for Mr. Garcia.
Mr. Charles Wood, Chairperson	Chemehuevi Reservation	PO Box 1976, Chemehuevi Valley, CA 92363 (760) 858-4301 (760) 858-5400 - Fax chair1cit@yahoo.com	8/18/2011	8/17/2011 (Email)	Yes		8/30/11	8/30/11 (10:17 am) - Called, left message for Mr. Wood.
Mr. Tim Williams, Chairperson	Fort Mojave Indian Tribe	500 Merriman Avenue, Needles, CA 92363 (760) 629-4591 (760) 629-5767 - Fax	8/18/2011	8/17/2011 (Fax)	Yes		8/30/11	8/30/11 (10:20 am) - Called, left message for Mr. Williams w/ the Chairman's secretary. Asked that he call back if he had any questions or comments regarding the CMAGR project.
Ms. Gwendolyn Parada, Chairperson	La Posta Band of Mission Indians	P.O. Box 1120, Boulevard, CA 91905 (619) 478-2113 (619) 478-2125 gparada@lapostacasino	8/18/2011	8/17/2011 (Email)	Yes		8/30/11	8/17/11 (10:27) - Email Delivery Failure; message not delivered 8/30/11 - Called office, left message for Ms. Parada inviting her to contact me if she had any questions or comments
Mr. Leroy J. Elliott, Chairperson	Manzanita Band of Kumeyaay Nation	P.O. Box 1302 Boulevard, CA 91905 (619) 766-4930 (619) 766-4957 (Fax) ljbirdsinger@aol.com	8/18/2011	8/17/2011 (Email)	Yes		8/30/11	8/30/11 (10:35 am) - Called office, left message inviting them to call back if any questions or comments
Ms. Linda Otero, Director	AhaMaKav Cultural Society, Fort Mojave Indians	PO Box 5990, Mohave Valley, AZ 86440 (928) 768-4475 (928) 768-7996 - Fax LindaOtero@fortmojave.com	8/18/2011	8/17/2011 (Email)	Yes		8/30/11	8/30/11 (10:42 am) - Called office, Ms. Otero is out of the office for next 6 days. Left message inviting them to call back if any questions or comments regarding the CMAGR project
Mr. Michael Contreras, Cultural Heritage Program	Morongo Band of Mission Indians	12700 Pumarra Road, Banning, CA 92220 (951) 201-1866 (951) 922-0105 - Fax mconteras@morongo-nsn.gov	8/18/2011 (Priority Mail)				8/30/11	8/30/11 (am) - Called office, left message inviting them to call back if any questions or comments
Ms. Monique LaChappa, Chairperson	Campo Kumeyaay Nation	36190 Church Road, Suite 1 Campo, CA 91906 (619) 478-9046 (619) 478-5818 - Fax miachappa@campo.nsn.gov	8/18/2011 (Priority Mail)	8/17/2011 (Email)	Yes		8/30/11	8/17/2011 - Email Delivery Failure; message not delivered 8/30/11 (4:04 pm) - Called office, transferred to her assistant (Mr. Hatmaker); left message inviting them to call back if any questions or comments
Mr. Paul Cuero	Kumeyaay Cultural Heritage Preservation	36190 Church Road, Suite 1 Campo, CA 91906 (619) 478-9046 (619) 478-9505 (619) 478-5818 - Fax	8/18/2011 (Priority Mail)				8/30/11	8/30/11 (4:07 pm) - Called office; same number listed as for Ms. LaChappa. Receptionist notified me that Mr. Cuero no longer works there.
Ms. Carmen Lucas	Kwaaymii Laguna Band of Mission Indians	P.O. Box 775, Pine Valley, CA 91962 (619) 709-4207	8/18/2011 (Priority Mail)				8/30/11	8/30/11 (4:08 pm) - Called number and left message asking for her to call me back with any questions or comments regarding the CMAGR project 8/30/11 (5:40 pm) - Ms. Lucas responded to the message left and stated that she doesn't have anything to say other than it is a very remote area where prehistoric sites are more likely to occur and that she wants to make sure and to encourage honest dialogue with the Coachella and Cocopah
Ms. Mary Resvaloso, Chairperson	Torres-Martinez Desert Cahuilla Indians	P.O. Box 1160, Thermal, CA 92274 (760) 397-0300 (760) 397-8146 (Fax) mresvaloso@torresmartinez.org	8/18/2011 (Priority Mail)	8/17/2011 (Email)			8/30/11	8/30/11 (4:11 pm) - Called office, left message with secretary; she said she will pass my name and number to Ms. Resvaloso who is out of the office today.

Contact Person	Tribe/Organization	Address/Contact Information	Date Hard Copy Letter Sent to Tribes	Date Letter Faxed or Emailed to Tribes	Delivery Confirmed? (y/n)	Date Responded/Means of Response	Date of Follow-up Call	Comments
Mr. Darrell Mike, Chairperson	Twenty-Nine Palms Band of Mission Indians (Chemehuevi)	46-200 Harrison Place Coachella, CA 92236 (760) 775-5566 (760) 808-0409 - cell - EPA (760) 775-4639 (Fax) tribal-epa@worldnet.att.net	8/18/2011 (Priority Mail)	8/17/2011 (Email)			8/30/11	8/30/11 - Called office, transferred to Ms. Thomas (Mr. Mike's assistant). Left message w/ Ms. Thomas' voicemail asking that Mr. Mike or herself call me back should there be any questions or comments regarding the CMAGR project or the letter sent
Mr. Joseph R. Benitez (Mike)	Chemehuevi	P.O. Box 1829 Indio, CA 92201	8/18/2011 (Priority Mail)		Yes		~/~	No Phone number provided for follow-up call
Ms. Ginger Scott, Museum Coordinator; Mr. George Ray, Coordinator	Colorado River Indian Tribe (Mojave & Chemehuevi)	26600 Mojave Road, Parker, AZ 85344 (928) 669-9211 - Tribal Office (928) 669-8970 ext 21 (928) 669-1925 (Fax) crit-museum@yahoo.com	8/18/2011 (Priority Mail)	8/17/2011 (Email)	Yes		8/30/11	8/17/2011 -Two separate emails sent to same email address; Email Delivery Failure; neither message delivered 8/30/11 (4:19 pm) - Called Tribal office, the receptionist directed me to call the museum at (928) 669-8970. Called the museum phone number and was directed by Ms. Scott to Ms. Lisa Swick (Cultural Compliance Officer/Acting Director). Ms. Swick stated that she is to travel this evening at 5pm and has not yet reviewed the letter though makes every effort to respond. She will return next Monday and should respond by next Wednesday (9/7/2011).
Mr. Michael Jackson, President	Fort Yuma Quechan Indian Nation	P.O. Box 1899, Yuma, AZ 85366 (760) 572-0213 (760) 572-2102 (Fax) qitpres@quechantribe.com	8/18/2011 (Priority Mail)	8/17/2011 (Email)	Yes		8/30/11	8/30/11 (4:28 pm) - Called office, was transferred to Martha. The acting President is currently Mr. Escalanti. Martha asked what this was in regards to, upon informing her she took my name and phone number to provide to Mr. Escalanti should he have questions or comments
Ms. Diana L. Chihuahua, Vice Chairperson, Cultural	Torres-Martinez Desert Cahuilla Indians	P.O. Box 1160, Thermal, CA 92274 (760) 397-0300, ext 1209 (760) 272-9039 - cell (Lisa) (760) 397-8146 (Fax) dianac@torresmartinez.org	8/18/2011 (Priority Mail)	8/17/2011 (Email)			8/30/11	8/30/11 (4:33 pm) - Called office, was transferred to Roland Ferrer. Mr. Ferrer asked about the project, what it entailed generally. Upon providing this general description, Mr. Ferrer stated that they probably have no comments though requested that a copy of the letter be emailed to him at rferrer@tmdci-nsn.gov. I stated that I would email a copy of the letter and invited him to contact me should there be comments or questions 8/30/2011 (5:02 pm) - Email sent to Mr. Ferrer, with copy of letter sent to Ms. Chihuahua attached.
Mr. Richard Milanovich, Chairperson	Agua Caliente Band of Cahuilla Indians	5401 Dinah Shore Drive, Palm Springs, CA 92262 (760) 325-3400 (760) 325-0593 (Fax) ltreogoz@aguacaliente-nsn.gov	8/18/2011 (Priority Mail)	8/17/2011 (Email)		9/16/11 (US Mail); 9/20/11 (Email); 9/30/11 (Email)	~/~	8/17/11 - Email Delivery Failure; message not delivered 8/30/11 - Left message with Ms. Garcia-Tuck (AC THPO) and awaited response prior to also leaving message for Mr. Milanovich 9/20/11 - Received an email request from Ms. Garcia-Tuck's assistant, Rosalina Nava asking for acreage estimates for the CMAGR project. K. Maeyama submitted request for acreage estimates from B. Colson (URS) and forwarded request to A. Garcia-Herbst. Submitted email reply to Rosalina letting her know the information was requested and that K. Maeyama would follow up once response received. 9/26/11 - Received a letter from the S. Milanovich with the ACBCI THPO office, indicating that the project area is not within the Reservation boundaries though it is in the Tribe's Traditional Use Area. The check of the ACBCI THPO cultural resources records does not indicate that Native American archaeological sites have been identified within the APE but that known trails and TCPs in the area do exist. Requests are made in the response letter, including 100% cultural resources survey by a qualified archaeologist prior to development activities, the provision of copies of ANY cultural resources documentation generated in connection with these efforts, the presence of an approved Native American Cultural Resource Monitor(s) during ground disturbing activities, and special action should human remains be discovered during construction. *Generally, the letter states that the AC do have concerns and would like to comment, but needs additional information and requests copies of survey and cultural reports once project is complete.* 9/27/11 - Sent response to Rosalina on 27 Sep 11; Copy of email saved to "Record of Conversations" directory. 9/30/11 - Received email from the ACBCI Environmental Officer indicating that the Band "has no direct knowledge of cultural resources in the project vicinity; however, we are concerned about chance findings of materials." It also states that the project is outside the ACBCI Reservation, but is within the ACBCI Traditional Use Area and they "request, as a courtesy, that [they] be kept in the information loop with regard to this area as the project progresses" and that they be on the "receiving list for project updates, reports of investigations and/or any documentation that might be generated" regarding cultural resources. They also recommend that "Approved Cultural Monitors be present on site during all survey and all ground disturbing activities, should they become necessary" and the ACBCI can work with you to find approved monitors, if one is not available.
Ms. Patricia Tuck, Tribal Historic Preservation Officer	Agua Caliente Band of Cahuilla Indians	5401 Dinah Shore Drive, Palm Springs, CA 92262 (760) 699-6907 (760) 699-6924 (Fax) ptuck@aguacaliente-nsn.gov	8/18/2011 (Priority Mail)	8/17/2011 (Email)	Yes		8/30/11	8/30/11 (4:55 pm) - Called office, left message for Ms. Garcia-Tuck.
Ms. Jill McCormick, Tribal Archaeologist	Cocopah Museum/Cultural Resources Department	County 15th & Ave. G Sommerton, AZ 85350 (928) 530-2291 - cell (928) 627-2280 - Fax	8/18/2011 (Priority Mail)	8/17/2011 (Fax)	Yes		8/30/11	8/17/11 - Fax did not connect; incorrect fax number? 8/30/11 (4: 42 pm) - Called cell, left message inviting Ms. McCormick to call back should she have any questions or comments regarding the CMAGR project or letter

Chocolate Mountain Aerial Gunnery Range - NAHC NA Contact Tracking Log

Contact Person	Tribe/Organization	Address/Contact Information	Date Hard Copy Letter Sent to Tribes	Date Letter Faxed or Emailed to Tribes	Delivery Confirmed? (y/n)	Date Responded/Means of Response	Date of Follow-up Call	Comments
Ms. Bridget Nash-Chrabascz, THPO	Quechan Indian Nation	P.O. Box 1899 Yuma, AZ 85366 (928) 920-6068 - CELL (760) 572-2423 b.nash@quechantribe.com	8/18/2011 (Priority Mail)	8/17/2011 (Email)			8/30/11	8/30/11 (4:44 pm) - Called office, tried to leave message but the message box was full. Was unable to leave message
Mr. Preston J. Arrow-weed	Ah-Mut-Pipa Foundation	P.O. Box 160 Bard, CA 92222 (928) 388-9456 ahmut@earthlink.net	8/18/2011 (Priority Mail)	8/17/2011 (Email)			8/30/11	8/17/11 - Email delivery held as spam-control measure, message from unknown sender. Must connect to website to become an approved sender. 8/30/11 (4:46 pm) - Called number; Left message inviting Mr. Arrow-weed to contact me should he have any questions or comments regarding CMAGR or the letter
Mr. Luther Salgado, Sr., Chairperson	Cahuilla Band of Indians	P.O. Box 391760 Anza, CA 92539 (915) 763-5549 tribalcouncil@cahuilla.net	8/18/2011 (Priority Mail)	8/17/2011 (Email)			8/30/11	8/30/11 (4:50 pm) - Tried to call number provided; call did not connect, but rather automatically went to busy signal.
Ms. Bernice Paipa, Vice Spokesperson	Kumeyaay Cultural Repatriation Committee	P.O. Box 1120, Boulevard, CA 91905 (619) 478-2113	8/18/2011 (Priority Mail)				8/30/11	8/30/11 (4:50 pm) - Called office, tried to connect to the Environmental Department (option 4 on auto-receptionist list for La Posta Tribe). Left message with the Environmental Department asking that someone contact me should this be the correct department.

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