Draft

Environmental Impact Statement / Overseas Environmental Impact Statement

GUAM AND CNMI MILITARY RELOCATION

Relocating Marines from Okinawa, Visiting Aircraft Carrier Berthing, and Army Air and Missile Defense Task Force

Executive Summary

November 2009

Comments may be submitted to:

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DRAFT
ENVIRONMENTAL IMPACT STATEMENT/
OVERSEAS ENVIRONMENTAL IMPACT STATEMENT (EIS/OEIS)

Lead Agency:	Department of the Navy
Title of Proposed Action:	Guam and Commonwealth of the Northern Mariana Islands (CNMI) Military Relocation
Affected Jurisdictions:	Guam, CNMI
Designation:	EIS/OEIS

Abstract

The National Environmental Policy Act of 1969 requires federal agencies to examine the environmental effects of their proposed actions. On behalf of the Department of Defense, the Department of the Navy is preparing this Draft EIS/OEIS to assess the potential environmental effects associated with the proposed military activities. The Navy is the lead agency for preparation of this Draft EIS/OEIS. The Office of the Secretary of Defense directed the Navy to establish a Joint Guam Program Office that serves as the NEPA proponent of the proposed actions. A number of federal agencies were invited to be cooperating agencies in the preparation of this Draft EIS/OEIS. These agencies have either jurisdiction or technical expertise for certain components of the proposed actions or a potentially affected resource. The agencies that have accepted the invitation to participate as cooperating agencies are United States (U.S.) Fish and Wildlife Service, Department of Transportation Federal Highways Administration, Federal Aviation Administration, U.S. Environmental Protection Agency Region 9, U.S. Office of Insular Affairs, U.S. Department of Agriculture, U.S. Army Corps of Engineers, and U.S. Air Force.

The proposed actions are complex, multi-service projects involving components of the U.S. Marine Corps, Navy, and Army. Each volume evaluates a discrete portion of the proposed actions. Volume 1 presents an overview of the proposed actions and alternatives. The analyses presented in Volumes 2 through 6 each include the details of alternatives and a no-action alternative. The no-action alternative represents status quo. The proposed actions would not occur and there would be no changes to military facilities, training or operations, in Guam and on Tinian. Volume 2 analyzes the effects of the proposed facilities and infrastructure to accommodate the Marine Corps relocation to Guam, including the associated training and operations on Guam. Volume 3 analyzes the effects of the proposed facilities and infrastructure for the Marine Corps, including operations and training on Tinian in the CNMI. Volume 4 analyzes the effects of the Navy's proposed deep-draft port with shoreside improvements creating a new capability in Apra Harbor, Guam, to support a transient nuclear-powered aircraft carrier. Volume 5 analyzes the proposed site of the Army's Air and Missile Defense Task Force. Volume 6 evaluates related actions such as utilities and roadway projects on Guam. Volume 7 summarizes the best management practices, potential mitigation measures, and preferred alternatives' impacts from Volumes 2 through 6. In addition, Volume 7 includes an assessment of cumulative impacts. Volume 8 presents other environmental and regulatory considerations that were evaluated and addressed.

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Guam and CNMI Military Relocation Draft EIS/OEIS

Executive Summary

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EXECUTIVE SUMMARY

ES-1 INTRODUCTION

As a result of reviews of the United States (U.S.) defense posture in the Pacific region and the U.S. alliance with Japan, a portion of U.S. Marine Corps (Marine Corps) forces currently located in Okinawa, Japan would be relocated to Guam. This relocation is proposed to occur during the same timeframe as a proposed wharf construction in Guam's Apra Harbor to support U.S. Navy (Navy) transiting nuclear aircraft carriers. A U.S. Army (Army) Air and Missile Defense Task Force (AMDTF) is also proposed for Guam to protect against the threat of harm from ballistic missile attacks. For the purposes of this Draft Environmental Impact Statement/Overseas Environmental Impact Statement (EIS/OEIS), these three proposed actions are referred to as the Guam and the Commonwealth of the Northern Mariana Islands (CNMI) military relocation.

This Draft EIS/OEIS was prepared in compliance with the National Environmental Policy Act (NEPA) (42 United States Code § 4321, as amended); the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (Title 40 Code of Federal Regulations [CFR] § 1500-1508, July 1, 1986); and the Navy Procedures for Implementing NEPA (32 CFR § 775). It was prepared to inform decisions based on an understanding of the environmental consequences of the proposed Guam and CNMI military relocation and take measures to protect, restore, and enhance the environment. The decisions to be made are whether and how to implement the proposed actions.

Actions with the potential to significantly harm the environment beyond U.S. territorial waters (i.e., beyond 12 nautical miles (nm) (22.2 kilometers [km]) must be analyzed using the procedures set forth in Executive Order (EO) 12114 and associated implementing regulations. An impact statement prepared under EO12114 is identified as an Overseas Environmental Impact Statement (OEIS). Although this document was also initiated as an OEIS, EO 12114 is not applicable to the actions as now proposed. The document, through this draft, remains labeled as a Draft EIS/OEIS. It will, however, be re-titled as an EIS and developed solely under NEPA, subject to information received during the public comment process.

The three main components of the proposed actions are briefly stated as follows:

1. *Marine Corps*. (a) Develop and construct facilities and infrastructure to support approximately 8,600 Marines and their 9,000 dependents relocated from Okinawa to Guam. (b) Develop and construct facilities and infrastructure to support training and operations on Guam and Tinian (CNMI) for the relocated Marines.
2. *Navy*. Construct a new deep-draft wharf with shoreside infrastructure improvements creating the capability in Apra Harbor, Guam to support a transient nuclear powered aircraft carrier.
3. *Army*. (a) Develop facilities and infrastructure on Guam to support relocating approximately 600 military personnel and their 900 dependents to establish and operate an Army AMDTF.

The proposed action for the Marine Corps includes personnel from the units being relocated and the associated base support personnel that must also be present at an installation to support the military mission.

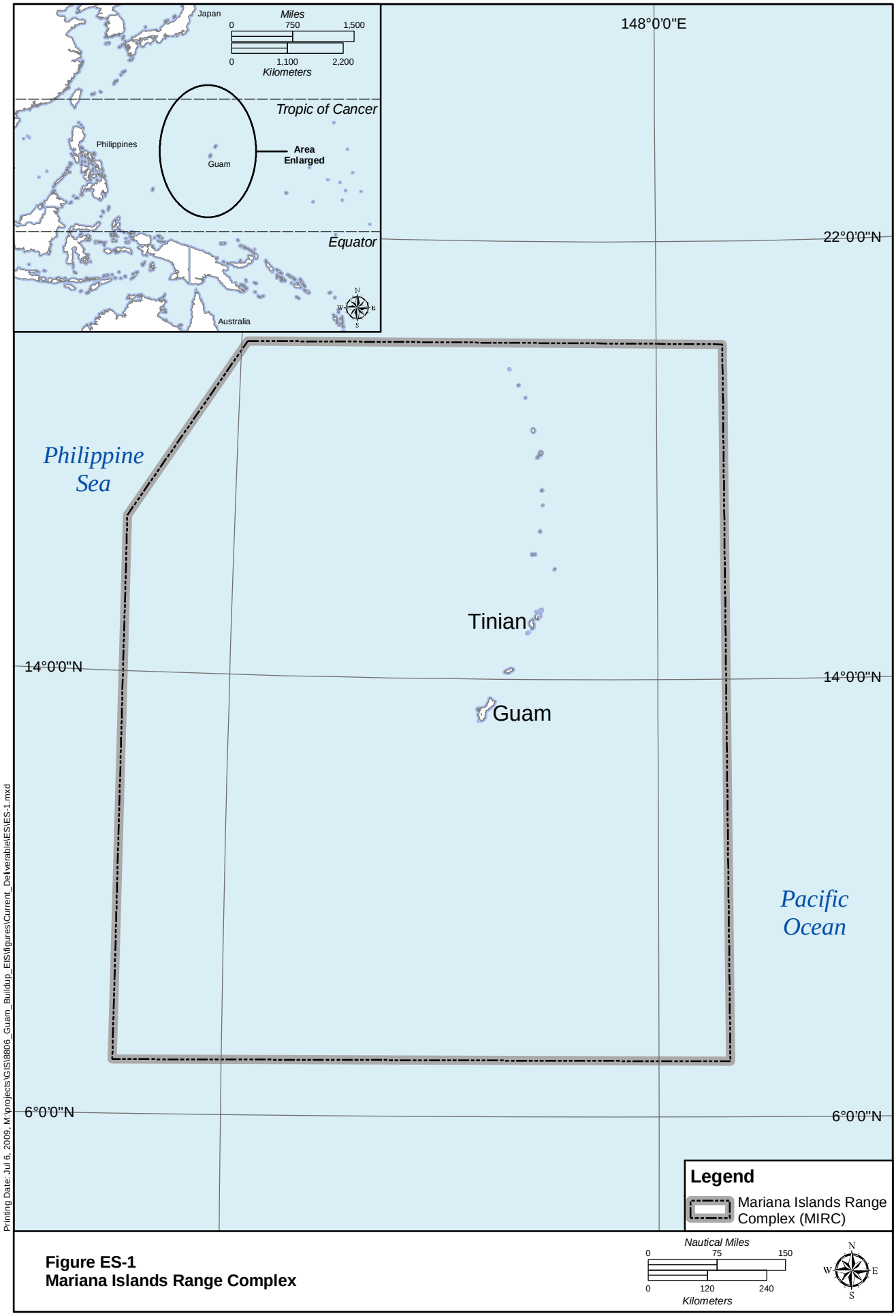


Figure ES-1
Mariana Islands Range Complex

The project locations addressed in this Draft EIS/OEIS are Guam and Tinian. Guam and Tinian are part of the Mariana Islands archipelago. They are located within the Mariana Islands Range Complex (MIRC), an area used by the Department of Defense (DoD) for readiness training. Figure ES-1 depicts the region for the proposed actions.

ES-2 OVERARCHING PURPOSE AND NEED

The overarching purpose of the proposed actions is to locate U.S. military forces to meet international agreement and treaty requirements and to fulfill U.S. national security policy requirements to provide mutual defense, deter aggression, and dissuade coercion in the Western Pacific Region. The need for the proposed actions is to meet the following criteria based on U.S. policy, international agreements, and treaties:

- Position U.S. forces to defend the homeland including the U.S. Pacific territories
- Location within a timely response range
- Maintain regional stability, peace and security
- Maintain flexibility to respond to regional threats
- Provide powerful U.S. presence in the Pacific region
- Increase aircraft carrier presence in the Western Pacific
- Defend U.S., Japan, and other allies' interests
- Provide capabilities that enhance global mobility to meet contingencies around the world
- Have a strong local command and control structure

ES-3 GLOBAL STRATEGIC PERSPECTIVE

The U.S. maintains military capabilities in the Western Pacific to support U.S. and regional security; economic and political interests; and to fulfill treaty and alliance agreements.

Relocation of Marines to Guam

In response to the evolving security environment in the Pacific region, the Integrated Global Presence and Basing Strategy (IGPBS) and Quadrennial Defense Review (QDR) initiatives began to focus on posture changes in the Pacific region. These initiatives included reduction of overseas forces while striving to base forces in locations that support flexibility and speed of response to anywhere in an unpredictable environment. Based on the QDR recommendations for global repositioning and operational realignments in the Pacific Region, the Department of Defense began to identify suitable locations to relocate the Marine Corps from Okinawa that met: (1) treaty and alliance requirements; (2) response times to potential areas of conflict; and (3) freedom of action (use of base without restrictions).

In a parallel initiative with the IGPBS that began in December 2002, the U.S. engaged the Government of Japan in discussions to coordinate changes in U.S. force posture in Japan and the options on how best to coordinate those changes with other force realignments in the Pacific. Over a three and one-half-year period, the U.S. engaged with the Government of Japan in a series of sustained security consultations under the auspices of the U.S.-Japan Security Consultative Committee (SCC), the pre-eminent treaty oversight body, composed of the U.S. Secretary of State and Secretary of Defense and the Japanese Minister of Foreign Affairs and Minister of Defense. These talks, which came to be known as the Defense Policy Review Initiative (DPRI), were aimed at evolving the U.S.-Japan Security Alliance to reflect today's rapidly changing global security environment. The DPRI, which served as the primary venue for accomplishing IGPBS objectives regarding Japan, focused on alliance transformation at the strategic and

operational levels, with particular attention to the posture of U.S. and Japanese forces in Japan, as well as transforming capabilities in the Western Pacific around the U.S. and Japanese alliance.

Ultimately, these discussions and negotiations resulted in an agreement known as the Alliance Transformation and Realignment Agreement (ATARA). In development of the ATARA, the U.S. and Japan confirmed several basic concepts relevant to bilateral defense cooperation, the defense of Japan and responses to situations in areas surrounding Japan. These concepts include the following: (1) bilateral defense cooperation remains vital to the security of Japan as well as to peace and stability of the region; (2) the U.S. will maintain forward-deployed forces, and augment them as needed, for the defense of Japan and to deter and respond to situations in areas surrounding Japan; (3) the U.S. will provide all necessary support for the defense of Japan; (4) U.S. and Japanese operations in the defense of Japan, and responses to situations in areas surrounding Japan, must be consistent to ensure appropriate responses when situations in areas surrounding Japan threaten to develop into armed attacks against Japan, or when an armed attack against Japan may occur; and (5) U.S. strike capabilities and the nuclear deterrence provided by the U.S. remain an essential complement to Japan's defense capabilities and preparedness in ensuring the defense of Japan and contribute to peace and security in the region.

At the May 1, 2006, SCC meeting, the two nations recognized that the realignment initiatives described in the SCC document *U.S.-Japan Roadmap for Realignment Implementation* (the "Roadmap") would lead to a new phase in alliance cooperation. The Roadmap outlined details of different realignment initiatives, including the relocation of the Marines and associated cost sharing arrangements with the Japanese government. The Mutual Security Treaty and follow-on U.S.-Japan agreements require the U.S. to respond quickly to areas of potential conflict in the Asia-Pacific region. Consistent with these obligations, the ATARA and Roadmap initiatives require relocating approximately 8,000 III Marine Expeditionary Force personnel and 9,000 dependents from Okinawa to Guam with a target completion date of 2014. Moving these forces to Guam would place them on the furthest forward element of sovereign U.S. territory in the Pacific capable of supporting such a presence, thereby maximizing their freedom of action while minimizing the increase in their response time relative to their previous stationing in Okinawa.

Under the ATARA and Roadmap, Japan has agreed to a cost-sharing arrangement with the U.S. that would assist in funding up to $6.09 billion of the facilities construction costs for the relocation of the Marines from Okinawa to Guam. This cost-sharing agreement acknowledges that the Marine Corps forces on Guam would continue to support U.S. commitments to provide for the defense and security of Japan. These international commitments for funding, and locations of the repositioned forces were re-affirmed on February 17, 2009 in the document titled: *Agreement Between the Government of the U.S. and the Government of Japan Concerning the Implementation of the Relocation of the III Marine Expeditionary Force Personnel and Their Dependents from Okinawa to Guam* (Guam International Agreement), signed by the U.S. Secretary of State and the Japanese Foreign Minister. The Agreement was approved by the Japanese Diet on May 13, 2009 and transmitted to the U.S. Congress in accordance with each party's respective legal procedures.

Training on Tinian

Guam cannot accommodate all training for the relocating Marines. Tinian is approximately 100 mi (160 km) away and provides the best opportunities for training groups of 200 Marines or larger due to greater land availability. It provides reliable access and maximum opportunity to realistically train with their weapons and equipment while minimizing "down time" lost when travelling to training locations. The northern two-thirds of Tinian are leased to the DoD. Company and battalion level non-live fire training

areas already exist and are utilized on these lease parcels. The land, however, could be developed to accommodate live fire ranges.

Development of a Navy Transient Aircraft Capability in Guam

The 2006 QDR states that the U.S. realignment strategy included the need for greater availability of aircraft carriers in the Pacific to support engagement, presence, and deterrence, supplementing current ship deployments, port visits in the region, and the aircraft carrier base (homeport) in Japan. Port visits are generally of short duration with limited availability for maintenance support. In contrast, a transient capable port has greater support for vessel maintenance and crew quality of life enabling longer stays in a region to meet the QDR strategy. Based upon the QDR and treaty and alliance requirements, DoD began to identify suitable locations for a new transient carrier capability in the Pacific that met: (1) treaty and alliance requirements; (2) response times to potential areas of conflict; and (3) freedom of action (use of a base without restrictions, including implementation of force protection measures to deter/avoid terrorist attacks). The QDR concept is that the U.S. should strive to position forces in locations that support flexibility and speed of response to anywhere in an unpredictable environment. The proposed action to create a transient carrier capability on Guam meets all of these requirements.

Development of an Army AMDTF

The proposed Army AMDTF would be placed on Guam to defend U.S. interests on Guam. Its defensive umbrella would ensure that local military assets are protected and remain available to meet their military missions.

ES-4 PROPOSED ACTIONS

The main components of the proposed actions are as follows:

1. *Marine Corps*. (a) Develop and construct facilities and infrastructure to support approximately 8,600 Marines and their 9,000 dependents relocated from Okinawa (Japan) to Guam,
   (b) Develop and construct facilities and infrastructure to support training and operations on Guam and Tinian for the relocated Marines.
2. *Navy*. Construct a new deep-draft wharf with shoreside infrastructure improvements creating the capability in Apra Harbor, Guam to support a transient nuclear powered aircraft carrier.
3. *Army*. Develop facilities and infrastructure on Guam to support relocating approximately 600 military personnel and their 900 dependents to establish and operate an AMDTF.

The proposed actions are a complex, multi-service proposal involving components of the Marine Corps, Navy, and Army, as well as existing Air Force assets on Guam. Facilities construction and improvements would be necessary to accommodate the three major elements of the proposed actions. The proposed actions would entail increased operational activities associated with Marine Corps and Army basing, more frequent ship berthing, and the establishment of aviation maintenance operations and facilities. There would also be increased opportunities for additional military personnel to meet critical training requirements. Training could take the form of communications/control, combat skills, aviation, amphibious vehicle maneuvers, and weapons firing activities. Thus, required construction would include the facilities and infrastructure for maintaining a permanent presence on Guam, and the creation of new training ranges to accommodate training a larger population of military personnel. These training facilities would be located on Guam and on Tinian. In summary, implementation of the proposed actions would result in the following:

- Temporary increase in population related to the construction-related work force
- Permanent increase in number of military and civilian personnel and dependents on Guam
- Increase in transient presence on Guam and Tinian
- Increase in number and type of major equipment assets to support military personnel and operations (e.g., aircraft, ships, amphibious watercraft)
- Increase in number and type of training activities
- Construction of new facilities
- Improvements to existing facilities
- Improvements to infrastructure (including roads and utilities)
- Acquisition or long-term leasing of additional land (required for three of the Marine Corps Relocation – Guam action alternatives)

Proposed Population Changes

Even though Guam currently hosts a significant permanent Navy and Air Force population, the proposed actions would increase the direct military population on Guam as summarized in Table ES-1. The proposed action for the Marine Corps relocation include personnel from the units being relocated and the associated base support personnel that must also be present at an installation to support the military mission. The transient population would increase due to the Navy's transient berthing of an aircraft carrier that is usually accompanied by supply and combatant escort ships. Collectively, the aircraft carrier and accompanying ships are referred to as a carrier strike group (CSG). Table ES-1 portrays the maximum potential loading of permanent and transient personnel. Given the transient cycle of both the Navy and the Marine Corps, however, the projected average daily loading is 2,178, much less than the potential 9,222 transient loading for both services.

Table ES-1. Summary of Direct Military Population Changes on Guam

Service	Permanent Military Personnel	Dependents	Transient Military Personnel	DoD Civilian Workforce (from off island)	Subtotals by Service
Marines	8,552	9,000	2,000	1,710	21,262
Navy*	0	0	7,222*	0	7,222*
Army	630	950	0	126	1,706
Subtotals by Population Type	**9,182**	**9,950**	**9,222***	**1,836**	**Total Proposed Actions Population = 30,190***

**Note*: Up to 7,222 personnel on the aircraft carrier and CSG could be in port at a given time, currently planned for a cumulative total of up to 63 visit days per year with an anticipated length of 21 days or less per visit. Marine Corps vessels would be berthed at Apra Harbor when in port. These vessels could include up to 6,213 personnel. However, this group would not be in port at the same time as the Carrier Strike Group, so the larger of the two personnel numbers is used in this table for conservative analysis purposes.

Uniformed military personnel would be supported by civilian personnel some of whom would likely be newly relocated to Guam and some would be current Guam residents. For purposes of this analysis it was assumed that of the DoD civilian workforce: 75% would be coming from off island and 25% would be current Guam residents. It is also assumed that 25% will live on base (because they are military dependents) and 75% will live off base.

Table ES-2 presents the estimated total population increase on Guam from off-island that would result from the proposed actions. The population numbers in Table ES-2 are larger than the numbers presented in ES-1 because they additionally include: (1) the dependents of off-island DoD Civilian workforce and; (2) the off-island population increase related to indirect and induced jobs. Project-related construction work is expected to begin in 2010 and reach its peak in 2014. It is also assumed in this analysis that most of the Marines and their families would arrive on Guam in 2014. Since the peak in construction activities and expenditures would coincide with the arrival of Marines and their families, 2014 represents the peak year for population increase. At this peak, the total increase in Guam residents from off-island would be an estimated 79,178 people.

After the 2014 peak, project-related construction expenditures and the associated influx of construction workers would decline rapidly because 2014 is the last year that any new construction would begin. By the time construction is completed and military operational spending reaches a steady state, the off-island population increase is projected to level off to an estimated 33,608 persons, approximately 58% below the peak level.

Table ES-2. Estimated Total Population Increase on Guam from Off-Island (Direct, Indirect, and Induced)

	2010	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*
Direct DoD Population[1]											
Active Duty Marine Corps	510	1,570	1,570	1,570	10,552	10,552	10,552	10,552	10,552	10,552	10,552
Marine Corps Dependents	537	1,231	1,231	1,231	9,000	9,000	9,000	9,000	9,000	9,000	9,000
Active Duty Navy[2]	0	0	0	0	0	0	0	0	0	0	0
Navy Dependents	0	0	0	0	0	0	0	0	0	0	0
Active Duty Army	0	50	50	50	50	630	630	630	630	630	630
Army Dependents	0	0	0	0	0	950	950	950	950	950	950
Civilian Military Workers	102	244	244	244	1,720	1,836	1,836	1,836	1,836	1,836	1,836
Civilian Military Worker Dependents	97	232	232	232	1,634	1,745	1,745	1,745	1,745	1,745	1,745
Off-Island Construction Workers (DoD Projects)[3]	3,238	8,202	14,217	17,834	18,374	12,140	3,785	0	0	0	0
Dependents of Off-Island Construction Workers (DoD Projects)	1,162	2,583	3,800	3,964	4,721	2,832	1,047	0	0	0	0
Direct DoD Subtotal	**5,646**	**14,112**	**21,344**	**25,125**	**46,052**	**39,685**	**29,545**	**24,713**	**24,713**	**24,713**	**24,713**
Indirect and Induced Population											
Off-Island Workers for Indirect/Induced Jobs[3]	2,766	7,038	11,773	14,077	16,988	12,940	6,346	4,346	4,346	4,482	4,482
Dependents of Off-Island Workers for Indirect/Induced Jobs	2,627	6,685	11,184	13,373	16,138	12,293	6,028	4,372	4,372	4,413	4,413
Indirect/Induced Subtotal	**5,393**	**13,723**	**22,957**	**27,450**	**33,126**	**25,233**	**12,374**	**8,718**	**8,718**	**8,895**	**8,895**
Total Population	**11,038**	**27,835**	**44,301**	**52,575**	**79,178**	**64,918**	**41,919**	**33,431**	**33,431**	**33,608**	**33,608**

Note:[1] DoD population includes military personnel, DoD civilian workers and dependents from off-island.
[2]The Navy rows do not include increases from the transient presence of aircraft carrier crew with its carrier strike group (CSG).
[3] Population figures do not include Guam residents who obtain employment as a result of the proposed actions.

ES-5 ALTERNATIVES DEVELOPMENT

To accomplish the Guam and CNMI proposed actions, the DoD has considered many development and operational alternatives. Analysis of alternative actions is a key aspect of the NEPA process. This analysis begins with establishing a set of possible alternatives and then separating those into the ones that were considered but dismissed from further analysis and the ones that were considered and brought forward for analysis. The no action alternative represents the baseline and is addressed throughout the NEPA process. This section summarizes the alternatives that have been considered to accomplish the proposed actions.

Alternatives Considered but Dismissed

The Navy identified criteria to generate potential alternatives for consideration. After a thorough review, the Navy eliminated several alternatives from further consideration. These alternatives were not considered reasonable due to factors such as significant constraints on land use, time frame for land acquisition, geographic constraints, or presence of protected species or cultural resources. A description of the alternatives considered but dismissed from further analysis is presented in Chapter 2 of Volumes 2-6 of this Draft EIS/OEIS.

Alternatives Considered

Several action alternatives for each of the proposed actions were carried forward for evaluation. The no action alternative was also carried forward. Presented below are summaries of the action alternatives for each volume.

Marine Corps Relocation – Guam (Volume 2)

The proposed action for the Marine Corps relocation involves constructing and utilizing all required facilities, infrastructure, and training assets necessary to establish a Marine Corps base of operations on Guam. Under the proposed action, the relocated Marines would also conduct training operations in support of mission objectives and sustainment.

The facilities and operational and training requirements of the military elements associated with the relocation to Guam were analyzed. The requirements could be grouped into four functional components:

1. *Main Cantonment Area functions*. Main cantonment military support functions (also known as base operations and support) include headquarters and administrative support, bachelor housing, family housing, supply, maintenance, open storage, community support (e.g., retail, education, recreation, medical, day care, etc.), some site-specific training functions, and open space (e.g. parade grounds, open training areas, open green space in communities, etc), as well as the utilities and infrastructure required to support the cantonment area.

2. *Training functions.* There are three subclasses of training support functions required by Marine Corps units that would be stationed on Guam:

    - *Firing ranges* are required for live and inert munitions practice, which generates the need for safety buffers called Surface Danger Zones (SDZs), and special use airspace (SUA) for certain weapons.
    - *Non-fire maneuver ranges* are required for vehicle and foot maneuver training, including urban warfare training. Urban warfare training is conducted in buildings that simulate an urban environment. There could be multi-story buildings arranged close together where Marines can practice entering and maneuvering in tight spaces.

- *Aviation training ranges* are either improved (paved runway) or unimproved (unpaved landing sites) used to practice landing/takeoff and air field support (including loading/unloading of fuel, munitions, cargo, and personnel).

3. *Airfield functions*. The proposed relocation would include aviation units and aviation support units that require runway and hangar space, and maintenance, supply and administrative facilities. The capability to conduct air embarkation operations would also be required. This capability refers to loading and unloading cargo and passengers to and from aircraft, comparable to a civilian airport terminal.
4. *Waterfront functions*. Transient vessels support Marine Corps operations and the transient forces that presently train on Guam and on Tinian. The proposed Marine Corps relocation would increase the need for ships and amphibious assault craft due to the increase in personnel being trained in the region. The waterfront capabilities must be upgraded to accommodate this increased traffic. Although the requirements are indirectly related to training, planning criteria for harbors are unique. Therefore, the proposed waterfront requirements are being discussed separately from other training actions.

The distinct facility and operational requirements of the above functions were used to develop the alternatives below.

Main Cantonment Alternatives

Eight Main Cantonment alternatives were developed and evaluated. Alternatives 4 through 7 were dismissed from further consideration. Alternatives 1, 2, 3, and 8 were retained for further analysis and are being evaluated for the Main Cantonment and training areas. Figure ES-2a shows the proposed action and the alternatives carried forward for the Marine Corps relocation on Guam.

Table ES-3 provides a summary of information on the needed land for each of the candidate alternatives to meet the requirements of the Main Cantonment. As depicted, the total area needed would be approximately 2,500 acres (ac) (1.012 hectares [ha]). Alternatives 1, 2 and 8 would need both DoD and non-DoD controlled lands. Alternative 3 would be accommodated solely on DoD lands. Each alternative would need DoD lands that are currently designated as Overlay Refuge. The Overlay Refuge is land established by DoD, US Fish and Wildlife Service and Government of Guam (GovGuam) for the protection of endangered and threatened species and other native flora and fauna, maintenance of native ecosystems, and the conservation of native biological diversity. As noted in Table ES-3, the alternatives under consideration would take from approximately 600 ac (243 ha) to 1,100 ac (445 ha) of Overlay Refuge in the Finegayan area.

Table ES-3. Summary of Parcels for Each Main Cantonment Alternative

Alternative	*Total Land (ac/ha)*	*DoD Lands*				*Private Lands*		*Finegayan Overlay Refuge[1] (ac/ha)*
		NCTS Finegayan[1, 2] (ac/ha)	*South Finegayan[3] (ac/ha)*	*Navy Barrigada[2] (ac/ha)*	*Air Force Barrigada[4] (ac/ha)*	*Former FAA[5] (ac/ha)*	*Harmon Land[6] (ac/ha)*	
1	2,386/966	1,090/441	290/117			680/275	326/132	599/242
2	2,580/1,044	1,610/652	290/117			680/275		1,106/448
3	2,707/1,096	1,610/652	290/117	377/153	430/174			1,106/448
8	2,490/1,008	1,090/441	290/117		430/174	680/275		599/242

Notes: [1]Based on calculations for vegetation cover in Volume 2 Chapter 10.
[2] Proposed developed area only.
[3] Assumes entire parcel is developed.
[4] Excludes NEXRAD (weather radar system).
[5] Total acquisition area, including planned open space.
[6] Total acquisition area.

The following provides additional detail about each of the Main Cantonment alternatives.

Alternative 1. Alternative 1 would require land parcels from the Naval Computer Telecommunications Station (NCTS) Finegayan and DoD parcels in South Finegayan as well as acquisition or long-term leasing of Federal Aviation Administration (FAA) land, and acquisition or long-term leasing Harmon Annex, for a total of 2,386 ac [966 ha]. Of the total Overlay Refuge (2,095 ac [848 ha]) in the Finegayan area, this alternative would develop approximately 29% (599 ac [242 ha]). The Overlay Refuge that is managed pursuant to a Memorandum of Agreement with the U.S. Fish and Wildlife Service (DoD 1994). "Overlay Refuge" refers to designated areas on Guam, consistent with the national defense mission of the Navy and Air Force, to be managed for the protection of endangered and threatened species and other native flora and fauna, maintenance of native ecosystems, and the conservation of native biological diversity. The areas were established in cooperation with Guam Department of Agriculture Division of Aquatic and Wildlife Resources.

This alternative is bounded to the north by Andersen Air Force Base (AFB) Northwest Field (NWF) and Route 3; on the west by a cliff line (within DoD property) and the Philippine Sea; on the east by limited residential development; and to the south by the Harmon Village residential area (non-DoD property). Although DoD property goes down to the waterline, the Main Cantonment area would be situated on the upper area of NCTS Finegayan and would not encroach on the cliff line leading to the ocean.

Alternative 2 (Preferred). Alternative 2 would include land parcels from NCTS Finegayan, South Finegayan, and acquisition or long-term leasing of FAA land, for a total of 2,580 ac [1,044 ha]. Of the total Overlay Refuge (2,095 ac [848 ha] in the Finegayan area, this alternative would develop approximately 53% (1,106 ac [448 ha]). Under Alternative 2, the Main Cantonment area would also be configured such that all facilities would be on one contiguous parcel of land, including the family housing area.

The site of Alternative 2 is bounded on the north by Andersen AFB NWF, and by Route 3; on the west by a cliff line (within DoD property) and the Philippine Sea; on the east by a limited residential development; and to the south by the Harmon Village residential area (non-DoD property).

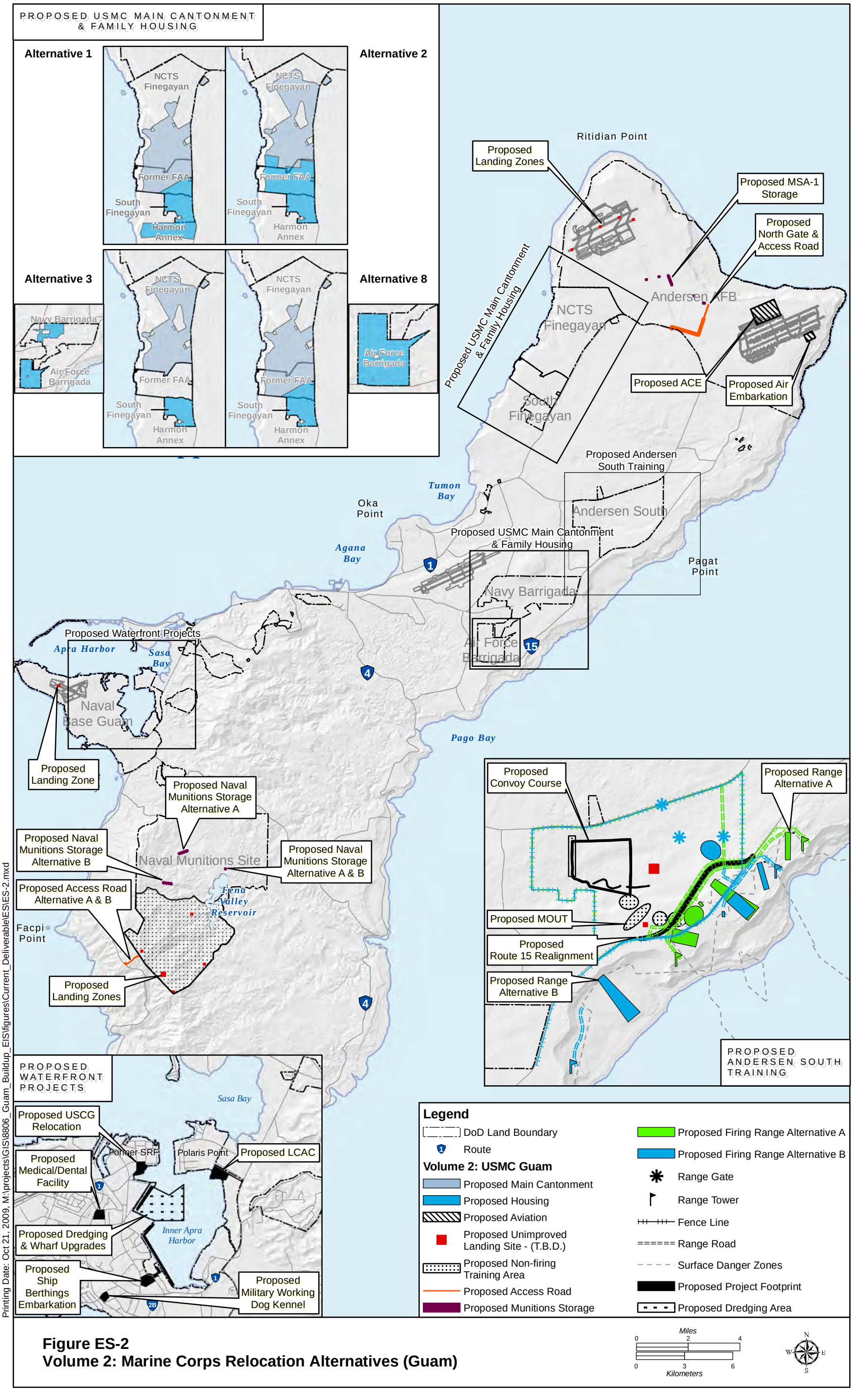


Figure ES-2
Volume 2: Marine Corps Relocation Alternatives (Guam)

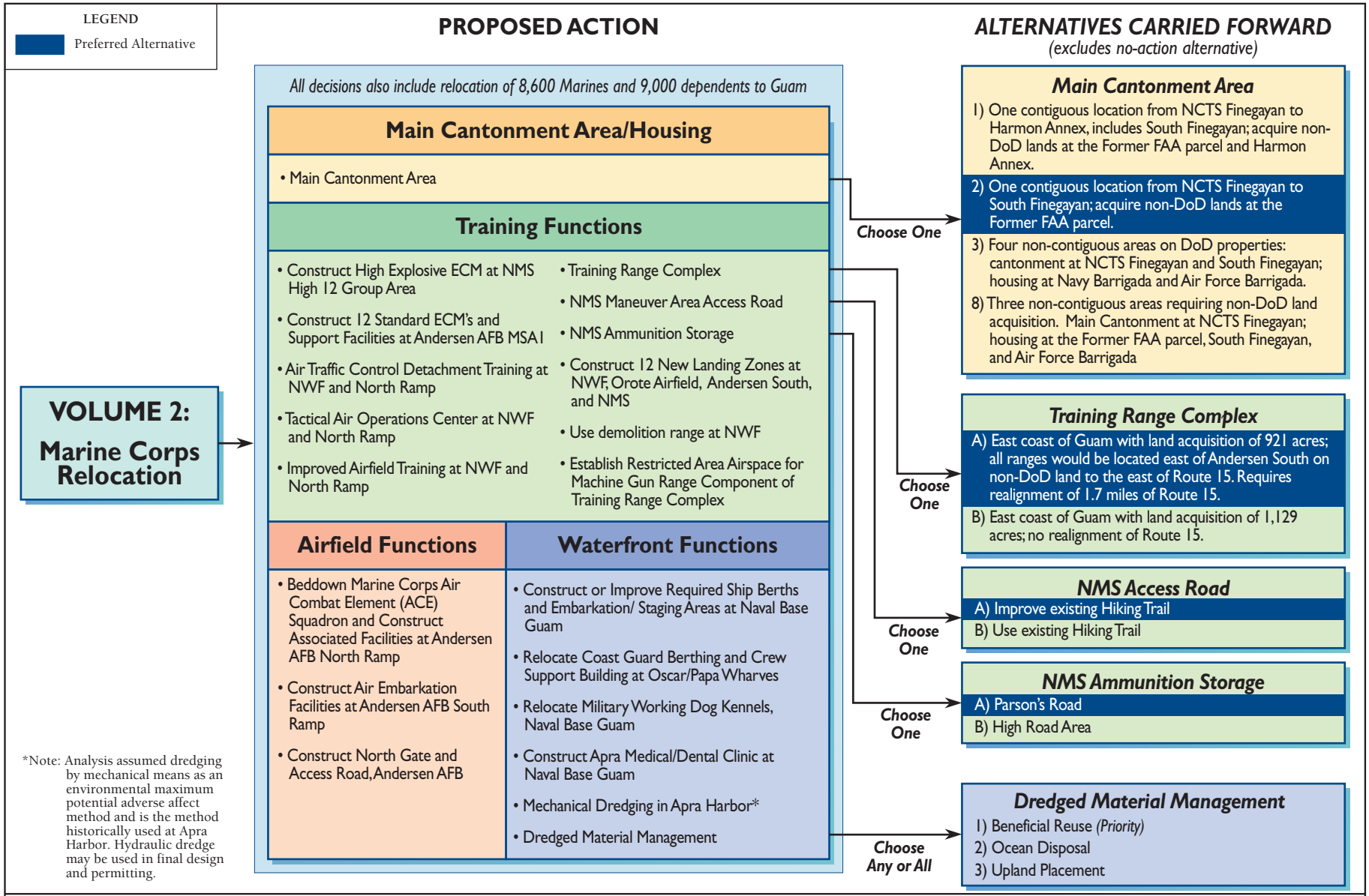


Figure ES-2a
Summary of Proposed Action and Alternatives Carried Forward for the Marine Corps Relocation, Guam

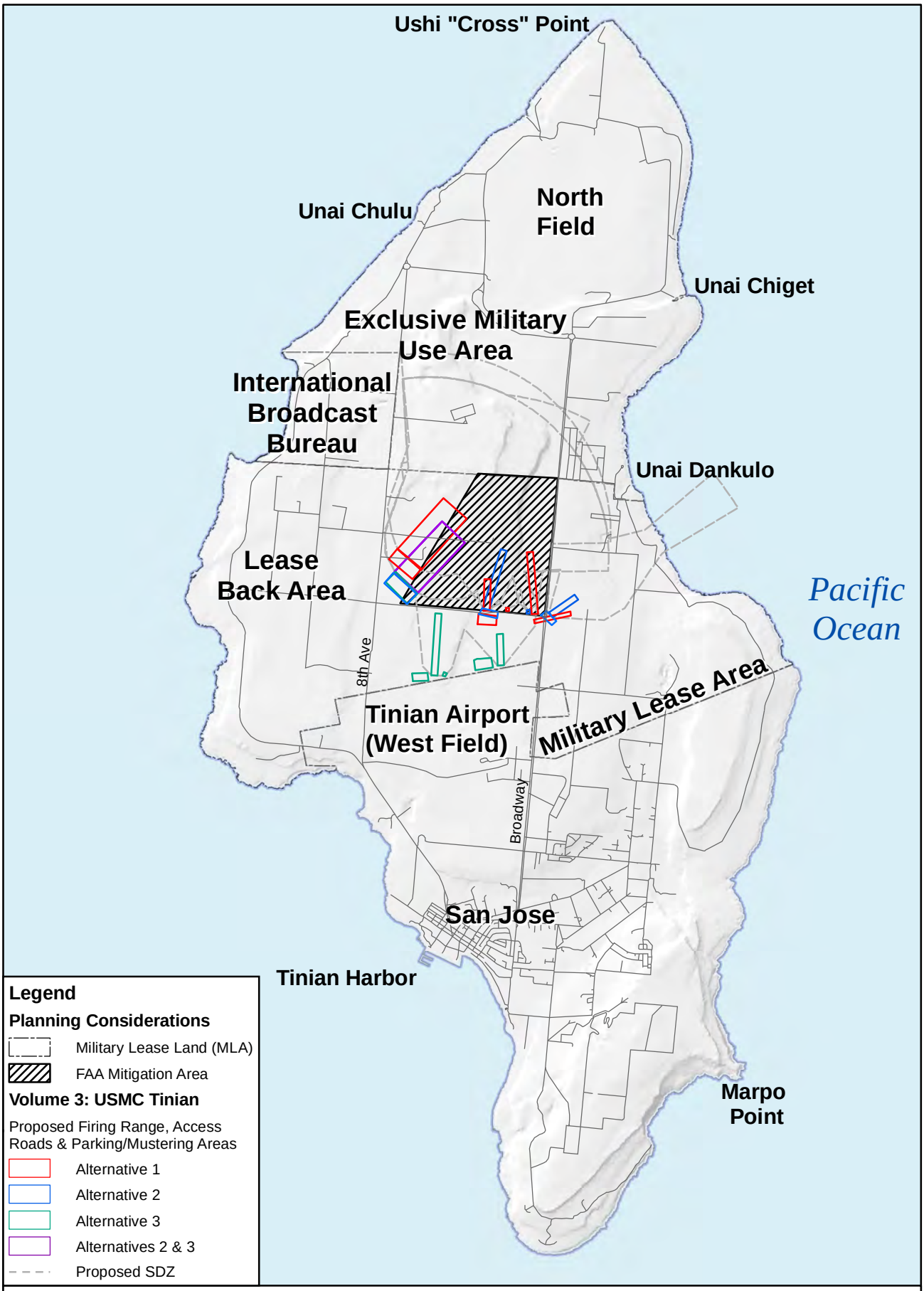


Figure ES-3
Volume 3: Marine Corps Relocation Alternatives (Tinian)

Alternative 3. Alternative 3 would include land parcels from NCTS Finegayan, South Finegayan, and portions of the military housing and quality of life (QOL) services at Air Force and Navy Barrigada, for a total of 2,707 ac (1,096 ha). Of the total Overlay Refuge (2,095 ac [848 ha] in the Finegayan area, this alternative would develop approximately 53% (1,106 ac [448 ha]). Under this alternative, the Main Cantonment area would be configured such that the housing would be located non-contiguous to the Main Cantonment.

This configuration of the Main Cantonment area is bounded on the north by Andersen AFB, on the west by a cliff line and the Philippine Sea, by Route 3 and limited residential development to the east, and by the former FAA area to the south. South Finegayan would be used for housing; it is located south of the former FAA area. Navy and Air Force Barrigada are located on the eastern side of Guam, approximately 9 miles (mi) (14 km) from the Main Cantonment under this alternative. Navy and Air Force Barrigada have Route 15 bordering the site to the east, and Routes 10 and 16 bordering the site to the west. Navy Barrigada is largely used to support DoD communication high frequency transmitting activities. Headquarter facilities for the Guam Army National Guard are located adjacent to Navy land at Barrigada. Navy Barrigada is 1,418 ac (574 ha), and of that 250 ac (101 ha) are available for development. The Air Force Barrigada property is a 433-ac (175-ha) parcel that is used by the Air Force to accommodate the NEXRAD weather satellite receiver. It has been estimated that 400 ac (162 ha) of this parcel is available for development. Navy Barrigada and Air Force Barrigada are currently connected by the existing Navy Golf Course. The golf courses would need to be removed if it was determined that the two parcels should be connected.

Alternative 8. Alternative 8 would include parcels from NCTS Finegayan, acquisition or long-term leasing of FAA land (680 ac [275 ha]), South Finegayan, and portions of military housing and QOL services at Air Force Barrigada, for a total of 2,490 ac (1,008 ha). Of the total Overlay Refuge (2,095 ac [848 ha] in the Finegayan area, this alternative would develop approximately 29% (599 ac [242 ha]). In Alternative 8, as with Alternative 3, a portion of the housing would be located non-contiguous to the Main Cantonment.

Airfield Alternatives. Four sites on Guam were analyzed for the Marine Corps airfield functions: North Ramp Andersen AFB, Won Pat International Airport, Orote Airfield at Naval Base Guam, and NWF at Andersen AFB. Suitability criteria included: land availability, operational capability, training capability, encroachment, anti-terrorism/force protection, and compliance with military vision. Feasibility was a qualitative assessment of compatibility with future missions, environmental considerations (including cultural and historical significance), and anticipated public concerns.

Based on existing land availability and Air Force operations, the only reasonable alternative for the air combat element airfield functions was North Ramp at Andersen AFB. An area on South Ramp is the only reasonable alternative for an air embarkation facility. It would be co-located with the Air Force air embarkation facility.

Waterfront Alternatives. The only reasonable alternative for the waterfront functions was Apra Harbor. Inner Apra Harbor has existing wharf infrastructure that would be improved to support the Marine Corps waterfront functions. Administrative and operational facilities would be constructed in addition to the wharf upgrades. Based on existing land availability and Navy operations, there was only one alternative within Apra Harbor for these Marine Corps facilities. An embarkation and staging area, including a port support buildings and an area for equipment cleaning and inspections related to bio-hazard and customs requirements, would be created.

Other projects proposed for the Apra Harbor Navy Base to support the Marine Corps include a new medical/dental clinic to replace the existing clinic, and relocation of the Military Working Dog Kennel and a portion of the U.S. Coast Guard facilities (ship berthing and crew support building). These proposed projects are depicted in Figure ES-2.

Training Range Complex Alternatives. There was an extensive screening analysis for firing ranges and non-firing training ranges that examined various geographic alternatives on Guam. Based on the analysis, the only geographic alternative that met the purpose and need was a combined firing and non-firing range complex located on the east coast of Guam. Andersen South would continue to be the non-firing training location and adjacent land east of Andersen South would be acquired to site new firing ranges. The SDZs would extend over the ocean.

There are two alternatives for the training ranges on the east coast. Range Alternative A would require the realignment of approximately 1.7 mi (2.8 km) of Route 15 to the interior of the existing Andersen South parcel. The total land area, not including submerged lands, is estimated at 921 ac (373 ha).

Range Alternative B would not require realignment of Route 15 and would require more land (1,129 ac [426 ha]) than Alternative A. These alternatives are depicted in Figure ES-2.

Land acquisition or long-term leases would be required for control of lands associated with the SDZs east of Route 15. SUA would also be required above the SDZs in the vicinity of Route 15.

The training ranges represent the largest development projects for the training function; however, there are other smaller projects not described in this Executive Summary, e.g., ammunition storage and an access road for the Naval Munitions Site.

Development of Future Training Ranges. All Marine units, to include those relocating from Okinawa to Guam, are required to complete core competency Marine Air-Ground Task Force (MAGTF) training to ensure that forward deployed Marines sustain operational readiness in core competencies to meet all readiness requirements and are able to support operational requirements assigned by the Combatant Commander. This level of training involves integration of ground, aviation, and logistics elements under a common command element in preparation for large scale combat operations, which is beyond individual live fire qualification and requalification training which would be conducted on training ranges being constructed in Guam and Tinian. The training ranges currently planned for Guam and Tinian only replicate existing individual-skills training capabilities on Okinawa and do not provide for all requisite collective, combined arms, live and maneuver training the Marine Corps forces must meet to sustain core competencies. As with Marine Corps forces currently in Okinawa who must now travel to mainland Japan, other partner nations and the U.S. to accomplish this requisite core competency training, the Marine Corps forces relocating from Okinawa to Guam would also have to use alternate locations to accomplish requisite core competency training.

The Marine Corps ultimately desires to conduct core competency training in areas that limit the time Marines must travel to train and thereby reduce operational non-availability. There is an ongoing need to reassess current training locations and to develop additional training capacity for higher level integrated core competency training in the Western Pacific. As part of the DoD continuing efforts to address these existing training issues as well as the training needs of other services in the Western Pacific, the DoD is evaluating all DoD training needs in the Western Pacific as part of 2010 Quadrennial Defense Review (QDR). As part this effort, the QDR will specifically evaluate the need for additional Marine Corps training facilities in the CNMI to address the higher level combined arms, live fire and maneuver training needs of Marine Corps forces in the area.

It is anticipated that the QDR will result in recommendations to address the Marine Corps' need for in-theatre training and provide the Combatant Commander with operational ready forces with minimum down time by limiting the amount of time Marines need to travel to accomplish their core competency training. To the extent that these recommendations result in proposals subject to NEPA or EO 12114, the DoD will conduct additional NEPA/EO 12114 analysis as necessary prior to implementation. Such proposals, and any associated NEPA/EO 12114 analysis, are separate and distinct from the ongoing proposed relocation of Marine Corps forces from Okinawa to Guam and have independent utility from the proposed relocation. Further, such actions that may develop out of the QDR review process are not connected to the relocation of Marine Corps forces from Okinawa to Guam.

Marine Corps Relocation – Training on Tinian (Volume 3)

Training operations proposed on Tinian would support individual up to company level sustainment training for the relocated Marines. Sustainment training is training that enables Marine Corps forces to maintain combat readiness. The training that would take place on Tinian is essential to sustaining combat readiness of Guam-based Marines. The proposed Tinian ranges would provide a training capability not available on Guam. They would enable tactical scenarios training in combination with the battalion landing and maneuver exercises, and other larger unit training.

Tinian was considered for maximum utilization because Guam and Tinian possess the most available DoD properties for exclusive military use within the Marianas. The DoD leases the Military Lease Area (MLA) from the CNMI. The MLA 15,353 ac (6,213 ha) covers the northern portion of Tinian. Training on Tinian is conducted on two parcels within the MLA: the Exclusive Military Use Area (EMUA) encompassing 7,574 ac (3,065 ha) on the northern third of Tinian, and the Leaseback Area (LBA) encompassing 7,779 ac (3,848 ha) and the middle third of Tinian. Company and battalion level non-live fire training areas already exist on these lease parcels; however, the land could be developed to accommodate live fire ranges. The training requirements analysis resulted in the alternatives graphically depicted in Figure ES-3. Figure ES-3a shows the proposed action and alternatives carried forward for Marine Corps training on Tinian.

Alternative 1 (Preferred)

This alternative includes construction of four ranges within the leaseback area on the island of Tinian. The analysis for range locations would be based upon lands identified as "preferred for development" or "less preferred for development" by virtue of the potential presence of archaeological, historical, or ecologically important resources. The Rifle Known Distance (KD) Range, the Automated Combat Pistol/Multipurpose Firearms Qualification Course, and Field Firing Range are located along 90th Street and west of Broadway. All three are generally aligned to the north. The Platoon Battle Course is located northwest of the other ranges and is generally aligned toward the northeast. All four range footprints partially overlay the FAA Mitigation Area. The associated notional SDZs for these ranges would overlap to a large extent. They would extend over the FAA Mitigation Area, DoD "No Wildlife Disturbance" Mount Lasso escarpment area, and a segment of Broadway. No SDZs would extend beyond land and into the ocean.

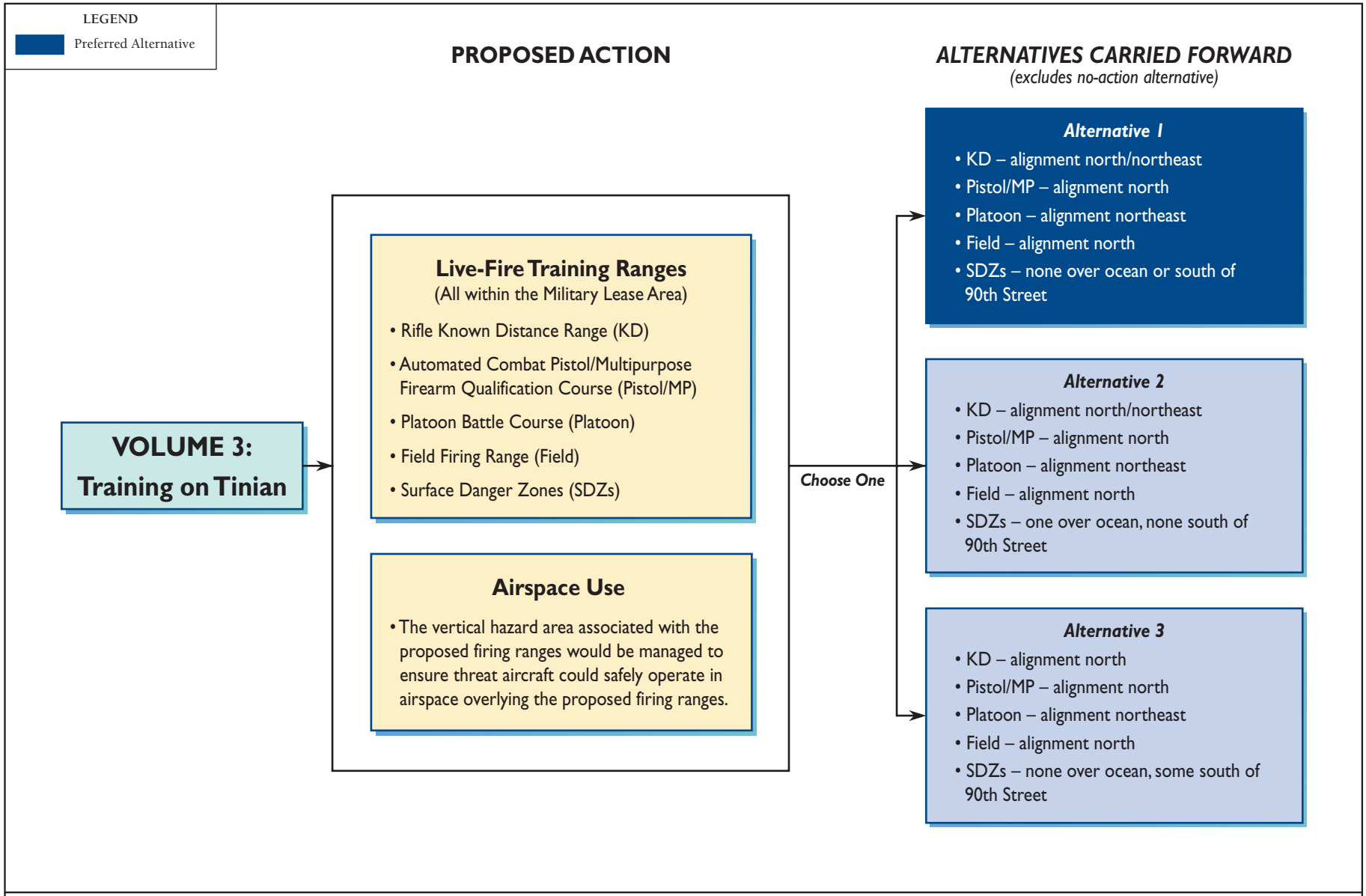


Figure ES-3a
Summary of Proposed Action and Alternatives Carried Forward for the Marine Corps Relocation – Training, Tinian

Alternative 2

Under the Range Training Area Alternative 2, no ranges would be located south of 90th Avenue. Compared to Alternative 1, there would be more range footprint encroachment on the FAA Mitigation Area. Portions of the existing designated FAA Mitigation Area are under consideration for relocation. The Platoon Battle Course would be located south of its Alternative 1 location. The orientation would be aligned toward the northeast, similar to Alternative 1. The Field Firing Range SDZ would extend over the ocean.

Alternative 3

Alternative 3 configuration is notably different from Alternatives 1 and 2 due to three of the ranges being sited south of 90th Avenue and north of West Field. These three ranges are the Field Firing Range, Combat Pistol/Multipurpose Firearms Qualification Course and the Rifle KD Range. All three ranges are sited along the southern MLA boundary and aligned generally to the north. None of these range footprints is within the FAA Mitigation Area. None of the SDZs under Alternative 3 extend into the ocean.

Aircraft Carrier Berthing (Volume 4)

The analysis and selection of reasonable alternatives for a new deep-draft wharf for transient carrier visits were based on consideration of the following criteria:

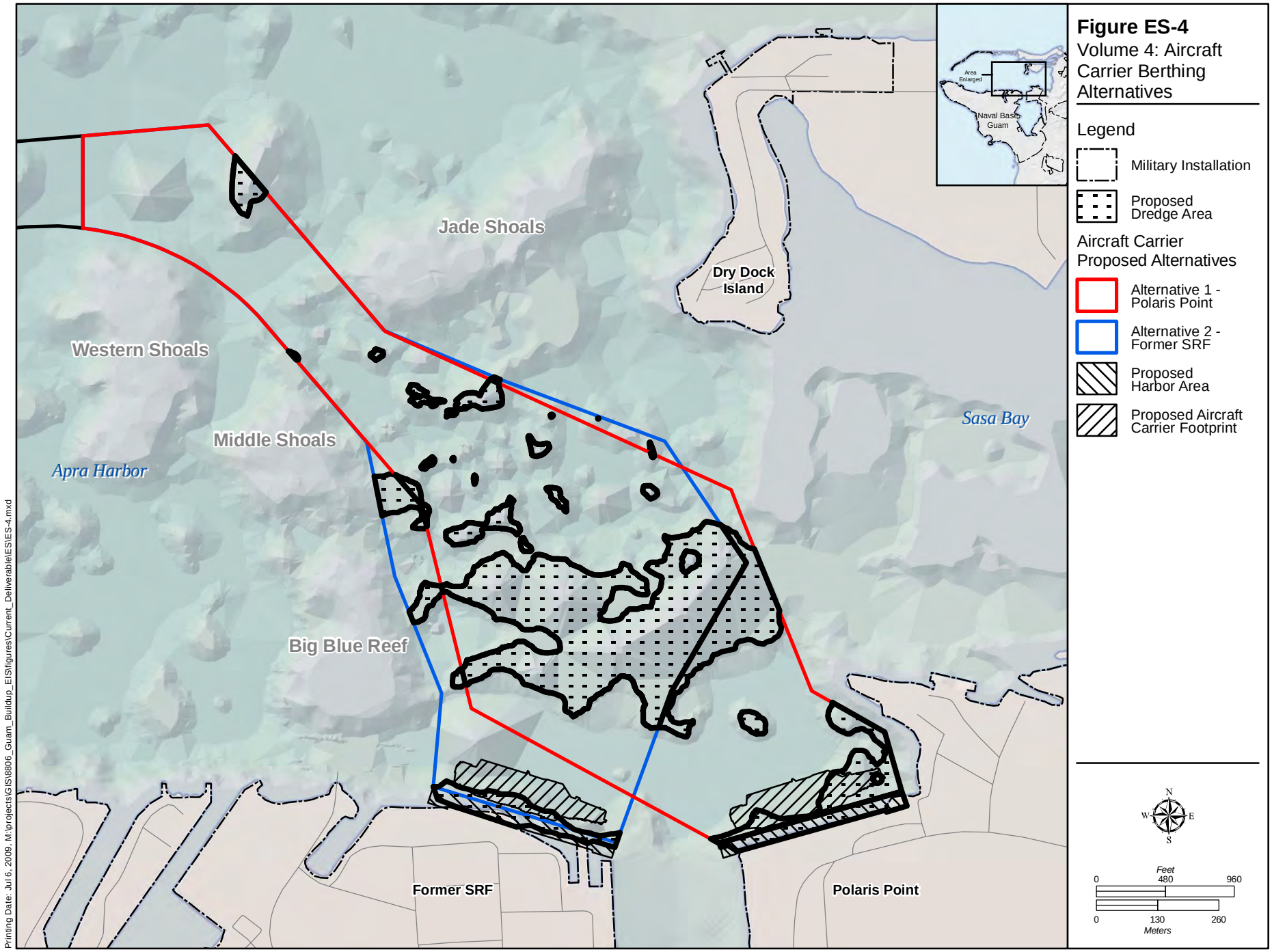
- Practicability (with subcriteria)
  - Meets security/force protection requirements
  - Meets operational/navigational characteristics
  - Available and capable of being implemented after taking into consideration cost, existing technology, and logistics in light of the overall project purpose
- Avoids environmental impacts to the extent practicable
- Minimizes unavoidable environmental impacts

The two alternatives being evaluated for the deep draft aircraft carrier wharf with shoreside infrastructure improvements are depicted in Figure ES-4: Polaris Point (Alternative 1) (Preferred) and Former Ship Repair Facility (SRF) (Alternative 2). Figure ES-4a shows the proposed action and alternatives carried forward for the Navy aircraft carrier berthing.

The wharf alternatives are located on either side of the entrance to the Inner Apra Harbor channel. Each shares the same navigational approach through Outer Apra Harbor. The aircraft carrier would come through Outer Apra Harbor using the minimum power required to achieve forward motion and assisted by tugboats to provide lateral guidance. Ship navigation into the new berth would require a turning basin in front of the wharf. The turning basin for either alternative are similarly aligned.

Alternative 1 (Polaris Point) (Preferred)

This alternative would construct a new deep-draft wharf at Polaris Point with shoreside infrastructure improvements. For both alternatives, the existing Outer Apra Harbor Channel would be widened to 600 feet (ft) (183 meters [m]) with minor adjustments to centerline and navigational aids. No dredging would be required to widen the Outer Apra Harbor east-west portion of the navigation channel. There is a sharp southward bend in the existing channel toward Inner Apra Harbor that would require widening to 600 ft (183 m) and dredging to meet aircraft carrier requirements. A new ship turning basin would be established and would require dredging to -49.5 ft (-15 m) Mean Lower Low Water plus 2 ft (0.6 m) overdraft. The turning basin would be located near the wharf and north of the Inner Apra Harbor entrance channel.


Jade Shoals
Dry Dock Island
Western Shoals
Middle Shoals
Apra Harbor
Sasa Bay
Big Blue Reef
Former SRF
Polaris Point
Area Enlarged
Naval Base Guam
Figure ES-4
Volume 4: Aircraft Carrier Berthing Alternatives
Legend
Military Installation
Proposed Dredge Area
Aircraft Carrier Proposed Alternatives
Alternative 1 - Polaris Point
Alternative 2 - Former SRF
Proposed Harbor Area
Proposed Aircraft Carrier Footprint
N
W
E
S
Feet
0
480
960
0
130
260
Meters
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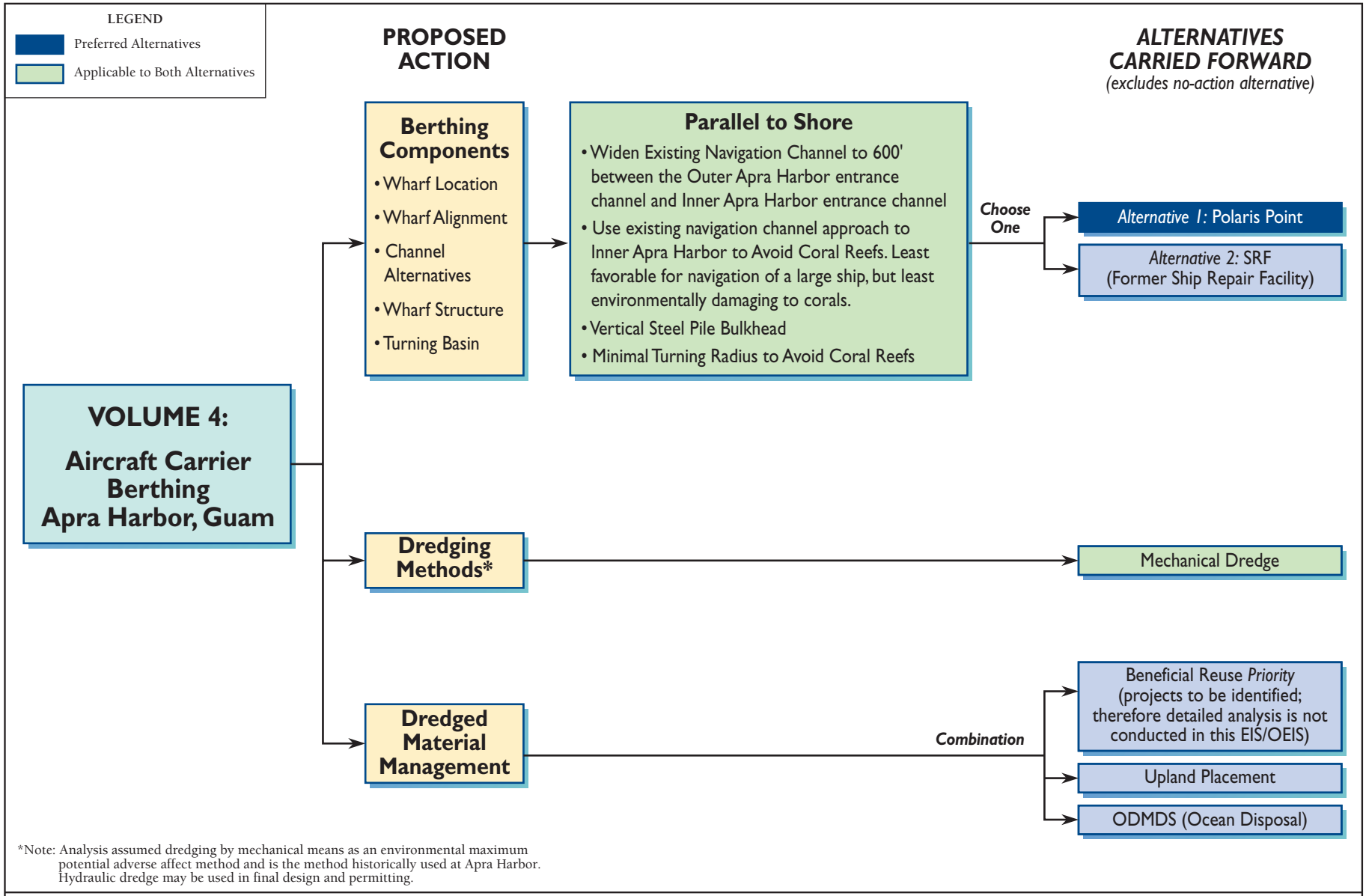


Figure ES-4a
Summary of Proposed Action and Alternatives Carried Forward for the Navy Aircraft Carrier Berthing, Guam

The shoreside utility and operational support requirements would be the same. Shoreside facilities include utilities to meet 100% of aircraft carrier requirements. A new Port Operations support building and various utility buildings would be constructed on a staging area at the wharf. There would be an area established for Morale, Welfare, and Recreation (MWR) activities and vehicle parking. The aircraft carrier would be assisted by tug boats, pivoted within the minimum radius turning basin to be aligned starboard (i.e., right side when facing the front or "bow" of the ship) to the wharf and the bow would be facing east. On departure, the aircraft carrier would follow the same route.

Alternative 2 (Former SRF)

This alternative would have the aircraft carrier berthing at the former SRF. The Outer Apra Harbor channel improvements would be as described in Alternative 1. The turning basin location would be similar to Alternative 1, with a slight shift to the west. Unlike Alternative 1, the full 600-ft (183-m) approach distance in front of the wharf would be accommodated. The aircraft carrier would be pivoted within the minimum radius turning basin to be aligned starboard to the wharf and the bow would be facing east. On departure, the aircraft carrier would follow the same route with assistance by tugs. Both alternatives are on Navy submerged lands and affect manmade coastlines. They have the same security/force protection requirements and satisfactorily meet those requirements.

Army Air and Missile Defense Task Force (AMDTF) (Volume 5)

The Navy and Army identified three action alternatives for the proposed AMDTF facilities and operations on Guam and three action alternatives for munitions storage. All action alternatives have been evaluated to ensure they satisfy the stated purpose and need for the proposed AMDTF action. Alternatives being evaluated for the Army AMDTF are graphically shown in Figure ES-5. Figure ES-5a shows proposed action and alternatives forward for the AMDTF. Weapons platform siting is classified and is assessed in Classified Appendix L to this public Draft EIS/OEIS.

Headquarters/Housing Alternative 1 (Preferred)

This alternative would co-locate Army AMDTF support facilities with the proposed Marine Corps units at Finegayan. The Administration/headquarters (HQ) and Maintenance operations would be co-located in the eastern portion of NCTS Finegayan and would be compatible with adjacent proposed Marine Corps land uses. Housing facilities for unaccompanied personnel would be located within NCTS Finegayan. Accompanied personnel housing facilities would be co-located with the Main Cantonment housing areas in South Finegayan, while recreational and QOL facilities would be co-located within and adjacent to the housing areas. The administrative/HQ, maintenance, housing, and QOL portions of this alternative are included in U.S. Marine Corps Alternative 2.

Headquarters/Housing Alternative 2

This alternative has the Army AMDTF support facilities located at Navy Barrigada. The Administration/HQ and Maintenance element would be located within Navy Barrigada adjacent to NCTS antenna farms. Accompanied and unaccompanied housing facilities would be located within Navy Barrigada. The administrative/HQ, maintenance, housing, and QOL portions of this alternative are included in U.S. Marine Corps Cantonment Alternatives 1, 2 and 8 (refer to Volume 2). Munitions storage magazines would be consolidated at one site that is located north of B Avenue.

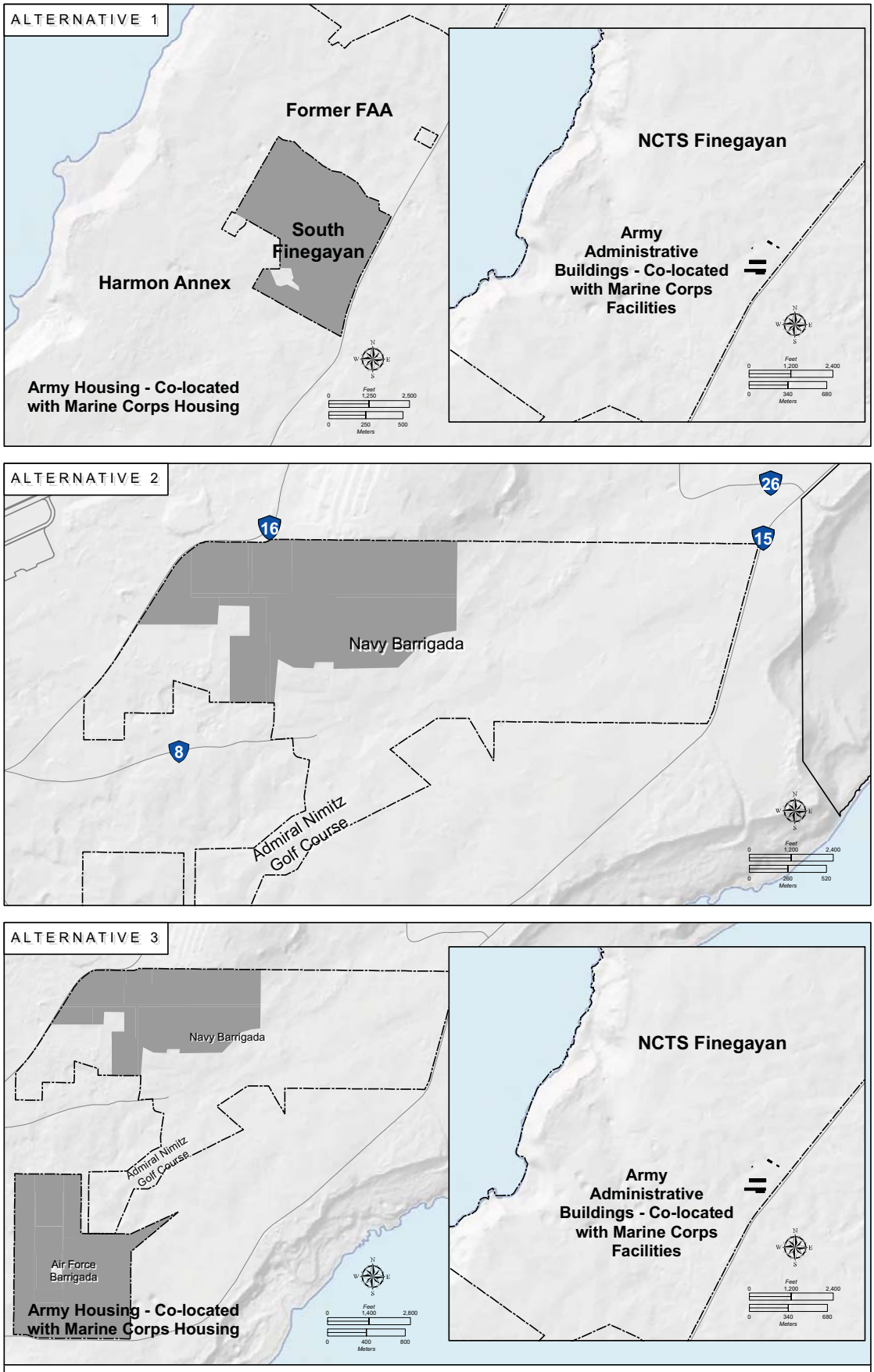


Figure ES-5
Volume 5: Army AMDTF Alternatives

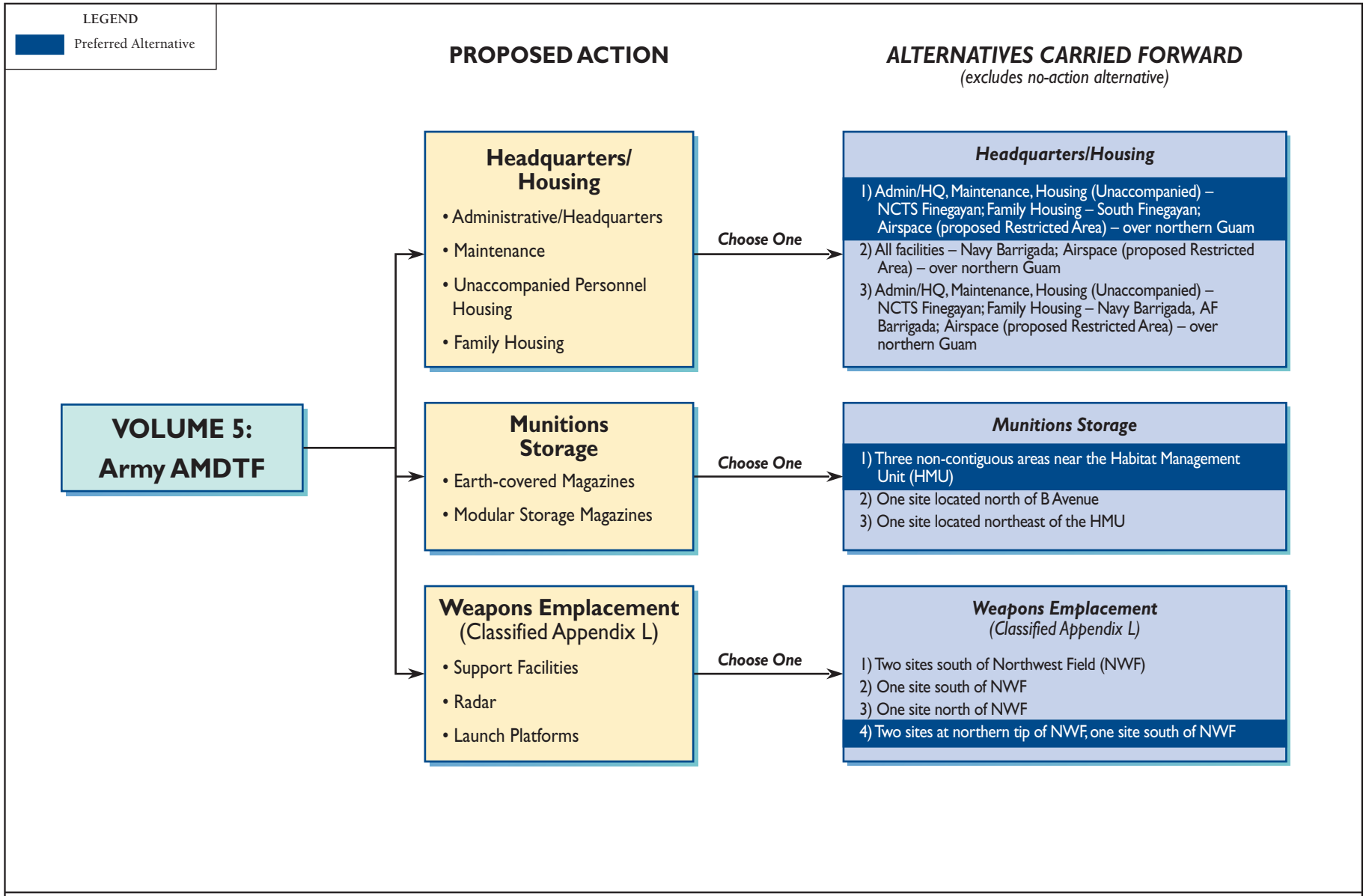


Figure ES-5a
Summary of Proposed Action and Alternatives Carried Forward for the Army Air and Missile Defense Task Force, Guam

Headquarters/Housing Alternative 3

This alternative would co-locate Army AMDTF with the proposed Marine Corps units at Finegayan. The Administration/HQ, Maintenance, and unaccompanied housing would be co-located in the eastern portion of NCTS Finegayan and would be compatible with adjacent proposed Marine Corps land uses. Accompanied housing facilities would be co-located with Marine Corps housing within Navy Barrigada and Air Force Barrigada. Recreational and QOL facilities would be included in the housing areas. The administrative/HQ, maintenance, housing, and QOL portions of this alternative are included in U.S. Marine Corps Alternative 3 (refer to Volume 2). Munitions storage magazines would be consolidated at a site located northeast of the Habitat Management Unit (HMU) and an unnamed road.

Munitions Storage Alternatives

Munitions Storage Alternative 1 (Preferred Alternative). Munitions storage would be in three non-contiguous areas near the HMU at Munitions Storage Area (MSA) 1 at Andersen AFB. The proposed magazines would be constructed at these two sites (requiring demolition) and at a third site located east of the HMU across an unnamed roadway. The area of ground disturbance including a buffer (and excluding the existing munitions storage facilities) is estimated 6.6 ac (2.7 ha).

Munitions Storage Alternative 2. Munitions storage magazines would be consolidated at one site that is located north of B Avenue at MSA 1. The area of ground disturbance including a buffer is estimated 2.7 ac (1.1 ha).

Munitions Storage Alternative 3. Munitions storage magazines would be consolidated at a site located northeast of the HMU and an unnamed road at MSA 1. The area of ground disturbance including a buffer is estimated 2.7 ac (1.1 ha).

Weapons Emplacement Alternatives (Analysis in Classified Appendix)

Four alternatives exist near NWF at Andersen AFB for the weapons emplacement sites. The general areas of the proposed weapons emplacement sites are not classified, but the proposed configurations within the areas are classified. Detailed information on the weapons emplacements is contained in a Classified Appendix (Appendix L).

Airspace

During Terminal High Altitude Area Defense radar operations, there is a potential hazard to military and civilian aircraft. Therefore, proposed SUA would be located along and off the northwest coast of Guam. The SUA would consist of a proposed restricted area (to be called R-7205) to accommodate hazards associated with THAAD radar operations. R-7205 would be from the surface up to 22,000 ft (6,700 m) above mean sea level (Flight Level 220) and would be activated based on FAA approved airspace periods required for system maintenance, training, certification, and contingency operations. Planned preventive maintenance would require a minimum continuous period of 45 minutes daily Monday-Friday. Training and certification periods would be processed to the FAA for approval to use the R-7205 airspace. The FAA would issue a Notice to Airmen prior to scheduled use of the airspace.

<u>Utilities and Roadway Projects – Guam (Volume 6)</u>

The activities related to the Marine Corps relocation to Guam increase demand on existing utilities and roadway infrastructure. In addition to Marine Corps personnel there will be a temporary surge in construction personnel and construction activities. This Draft EIS/OEIS analyzes the related actions and presents alternatives to reduce the effects of the increased population.

The alternatives presented may be either interim alternatives to meet immediate needs; basic alternatives to meet both immediate and long-term needs; or long-term alternatives that would meet needs beyond the temporary surge of the proposed relocation. In addition, while interim and basic alternatives are addressed with known or project-specific information, long-term alternatives are dealt with more generally. The proposed interim utility alternatives bridge the gap between existing conditions and final long-term utility solutions. The interim alternatives provide a solution until future implementation of the long-term solution. This approach anticipates that long-term alternatives may not be implemented in time to accommodate the Marine Corps relocation schedule. However, interim alternatives and basic alternatives would be initiated after signature of the Record of Decision and completed soon enough to support the DoD build up.

Some long-term solutions have not been finalized since it is anticipated that implementation would be through Special Purpose Entities (SPE). Pursuant to the Realignment Roadmap Agreement the Government of Japan has agreed to provide up to $740M in loans for a SPE to provide utilities support for the III MEF forces that will be realigning from Okinawa to Guam. The Utility SPE(s) will be private ventures that provide long-term solutions to the underlying utility needs for the realignment efforts. For example, private entities might develop, construct, and manage a power plant or a wastewater treatment plant. The U.S. government would then agree to purchase utilities from that plant as a fee that provides payback to the SPE on its investment. Given that these SPEs have yet to be formed, these long-term solutions are not currently defined in detail. Therefore, they are presented as "conceptual" alternatives and are addressed as long-term alternatives. Long-term utility alternatives would require further NEPA tiered and/or supplemental documentation.

Alternatives being evaluated for the related actions are listed below and shown in Figure ES-6. Figure ES-6a shows the proposed action and alternatives carried forward for utilities on Guam.

Power

Interim Alternative 1 (Preferred). Interim Alternative 1 would recondition existing combustion turbines and upgrade transmission and distribution (T&D) systems and would not require new construction or enlargement of the existing footprint of the facility. This work would be undertaken by the Guam Power Authority (GPA) on its existing permitted facilities. Reconditioning would be made to existing permitted facilities at the Marbo, Yigo, Dededo No. 1, and Macheche combustion turbines. These combustion turbines are not currently being used up to permit limits. T&D system upgrades would be on existing above ground and underground transmission lines. This alternative supports Main Cantonment Alternatives 1 and 2. Main Cantonment Alternatives 3 and 8 would require additional upgrades to the T&D system.

Interim Alternative 2. Interim Alternative 2 is a combination of reconditioning existing permitted GPA facilities, increasing in operational hours for existing combustion turbines, and upgrading existing T&D systems. Interim Alternative 2 would not require new construction or enlargement of the existing footprint of the facility. Reconditioning would be performed on the existing permitted GPA facilities at the Marbo, Yigo, and Dededo combustion turbines. This alternative supports Main Cantonment Alternatives 1 and 2. Main Cantonment Alternatives 3 and 8 would require additional upgrades to the T&D system.

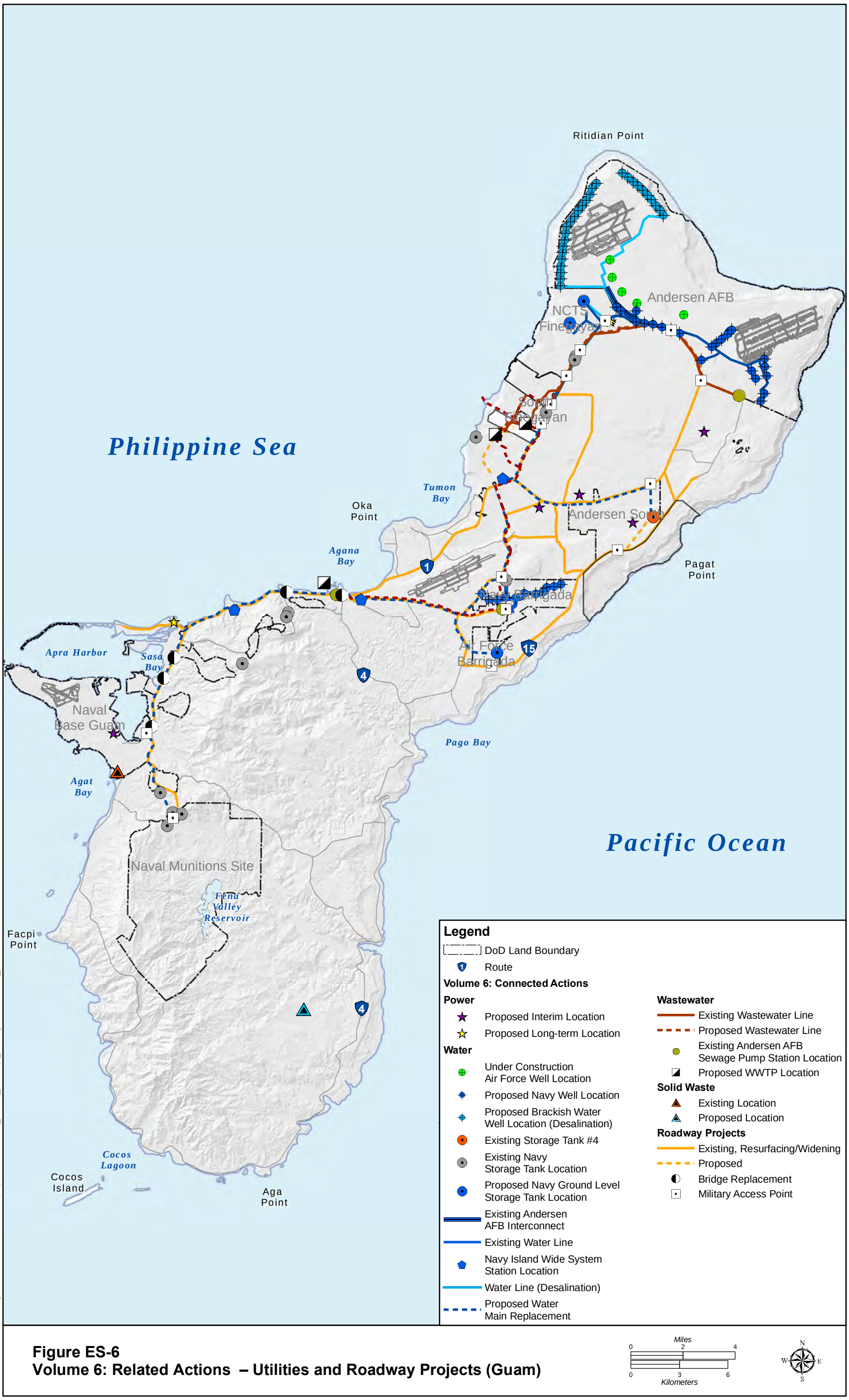


Figure ES-6
Volume 6: Related Actions – Utilities and Roadway Projects (Guam)

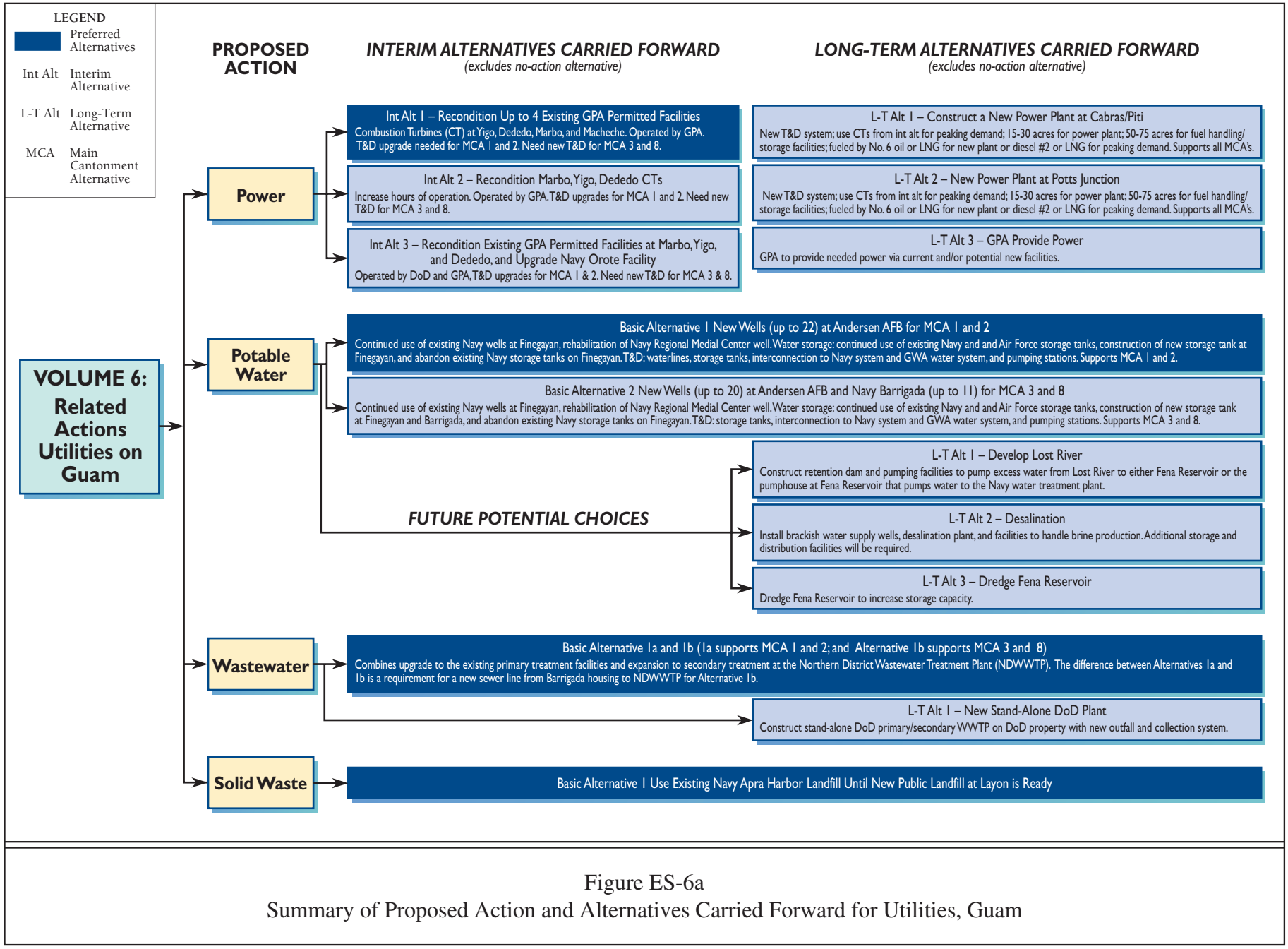


Figure ES-6a
Summary of Proposed Action and Alternatives Carried Forward for Utilities, Guam

Interim Alternative 3. Interim Alternative 3 is a combination of reconditioning existing GPA permitted facilities at Marbo, Yigo, and Dededo and upgrades to the DoD power plant at Orote. Upgrades would be made to existing T&D. The proposed reconditioning to the existing power generation facilities at Marbo, Yigo, and Dededo would not require new construction or enlargement of the existing footprint of the facility. For the Orote power plant, upgrades would include a new fuel storage facility to facilitate longer run times between refueling. This would disturb approximately one acre (4,047 square meters). This alternative supports Main Cantonment Alternatives 1 and 2. Main Cantonment Alternatives 3 and 8 would require additional upgrades to the T&D system.

Long-Term Alternative 1. Long-Term Alternative 1 would be to build a new power plant at Cabras/Piti. This new plant would combine re-powering existing generation units for peaking power, a new power plant for base load power, and new/upgraded distribution system. The base load generation would be fueled by No. 6 oil or Liquefied Natural Gas (LNG) and peaking generation would be fueled by diesel oil No. 2 or LNG.

Long-Term Alternative 2. Long-Term Alternative 2 would be to build a new power plant at Potts Junction. This alternative would combine re-powering existing generation units for peaking power, a new power plant for base load power, and a new/upgraded distribution system. The base load generation would be fueled by No. 6 oil or LNG and peaking generation would be fueled by diesel oil No. 2 or LNG.

Long-Term Alternative 3. Long-Term Alternative 3 would be for the GPA to provide needed power via current and/or potential new facilities.

Potable Water

Basic Alternative 1 (Preferred). Basic Alternative 1 would consist of installing up to 22 new potable water supply wells at Andersen AFB, rehabilitating existing wells, and interconnecting with the Guam Water Authority (GWA) water system, and associated water line transmission and distribution systems. A new 5 million gallons (MG) (19 million liters [ML]) water storage tank would be constructed at ground level at Finegayan.

Basic Alternative 2. Basic Alternative 2 would consist of installing up to 20 new potable water supply wells at AFB, up to 11 new potable water supply wells at Barrigada, rehabilitating existing wells, interconnecting with the GWA water system, and associated T&D systems upgrades. Additionally, new 3.6 MG (13.6 ML) and 1 MG (3.8 ML) water storage tanks would be constructed at ground level at Finegayan and Barrigada, respectively.

Long-Term Alternative 1. Develop Lost River by constructing a retention dam and pumping facilities to pump excess water from Lost River to either Fena Reservoir or the pumphouse at the Reservoir that pumps water to the Navy water treatment plant.

Long-Term Alternative 2. Install brackish water supply wells, a desalination plant, and facilities to handle brine production. Additional storage and distribution facilities would be required.

Long-Term Alternative 3. Dredge Fena Reservoir to increase storage capacity.

Wastewater

Basic Alternative 1a (Preferred) and 1b. Basic Alternative 1 (Basic Alternative 1a supports Main Cantonment Alternatives 1 and 2; and Basic Alternative 1b supports Main Cantonment Alternatives 3 and 8) combines upgrade to the existing primary treatment facilities and expansion to secondary treatment at the Northern District Wastewater Treatment Plant (NDWWTP). The difference between Basic

Alternatives 1a & 1b is a requirement for a new sewer line from Barrigada housing to NDWWTP for Basic Alternative 1b.

Long-Term Alternative 1. Construct a stand-alone DoD primary/secondary WWTP on DoD property with a new outfall and collection system.

Solid Waste

Basic Alternative 1 (Preferred). The Preferred Alternative for solid waste would be the continued use of the Navy Landfill at Apra Harbor until the Layon Landfill is opened, which is scheduled for July 2011.

Roadway Projects

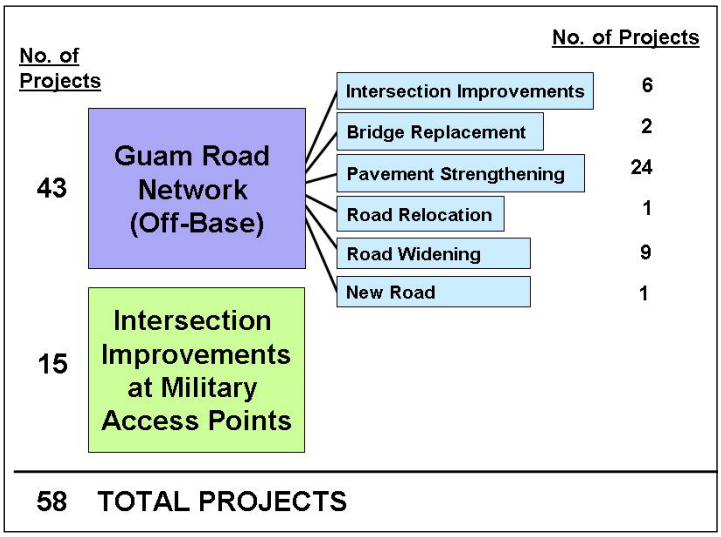
The roadway improvements sections have been prepared jointly by the Federal Highway Administration (FHWA) as a federal cooperating agency, the Navy's Joint Guam Program Office as the federal lead agency for the Guam and CNMI military relocation, and the Guam Department of Public Works (DPW) as a participating agency.

The purpose of the proposed construction of the Guam Roadway Network (GRN) is to improve the existing network through the Defense Access Road Program and provide mission-critical transportation infrastructure as part of the planned military buildup. The improvements proposed for the GRN would result in strengthened roadways, bridge replacement, increased roadway capacity, roadway realignment (Route 15), new access, and enhanced roadway safety on Guam as a response to construction for military buildup and growth.

The project may be funded by FHWA through annual allocations for calendar years 2010 through 2016 and funding requested under the Defense Access Road Program. The Defense Access Road Program provides the means for DoD to pay a fair share for public highway improvements required as a result of a sudden or unusual defense-generated traffic impact or unique defense-related public highway requirement.

Individual projects have been identified from recent transportation and traffic studies on the island of Guam. These consist of 43 GRN (off-base) projects and 15 intersection improvement projects at military access points (MAPs) (i.e., gates). The 43 GRN (off-base) projects are composed of six types of roadway improvements:

- Intersection improvement projects
- Bridge replacement projects (involving five bridges)
- Pavement strengthening (combined with roadway widening at some locations)
- Roadway relocation (Route 15)
- Roadway widening
- Construction of a new road (Finegayan Connection)



The 58 projects cover four geographic regions on Guam: North, Central, Apra Harbor, and South. Not all 58 projects would be implemented since only a specific combination of roadway projects support each cantonment alternative.

- Main Cantonment Alternative 1 — There are 49 GRN projects that would be required for Alternative 1. These projects include 29 pavement strengthening, 8 roadway widening, 14 intersection improvements (includes 8 MAPs), 5 bridge replacements, 1 road relocation, and 1 new road.
- Main Cantonment Alternative 2 (Preferred) — A different combination of 49 GRN projects would be required for Alternative 2. These projects include 29 pavement strengthening, 8 roadway widening, 14 intersection improvements (includes 8 MAPs), 5 bridge replacements, 1 road relocation, and 1 new road.
- Main Cantonment Alternative 3 — There are 51 GRN projects that would be required for Alternative 3. These projects include 29 pavement strengthening, 10 roadway widening, 17 intersection improvements (includes 11 MAPs), 5 bridge replacements, and 1 road relocation.
- Main Cantonment Alternative 8 — A different combination of 51 GRN projects would be required for Alternative 8. These projects include 28 pavement strengthening, 8 roadway widening, 15 intersection improvements (includes 9 MAPs), 5 bridge replacements, 1 road relocation, and 1 new road.

ES-6 PREFERRED ALTERNATIVES FOR THE MAJOR ACTIONS

The preferred alternatives that comprise the proposed actions and within which volume of the full Draft EIS/OEIS further details appear are:

- Volume 2, Marine Corps Guam: Alternative 2 (use of NCTS and South Finegayan with acquisition or long-term lease of former FAA lands), Range Complex Alternative A (east of Andersen South with the realignment of Route 15).
- Volume 3, Marine Corps Tinian: Alternative 1, construction of 4 ranges within the leaseback area, three oriented north and the Platoon Battle Course oriented northeast.
- Volume 4, Aircraft Carrier Berthing: Alternative 1, construction of a deep-draft wharf at Polaris Point.
- Volume 5, Army AMDTF: Alternative 1, administration, headquarters, and maintenance would be located at NCTS Finegayan with the Marine Corps. Family housing at South Finegayan. Munitions storage in three non-contiguous areas near the Habitat Management Unit. Restricted airspace over the coastal area of Guam.
- Volume 6, Related Actions:
  - Power: Interim Alternative 1: recondition up to four existing permitted GPA combustion turbines with upgrades to appropriate transmission and distribution systems to support interim loads.
  - Potable Water: Basic Alternative 1: develop up to 22 new wells at Andersen AFB, interconnection with GWA water system, rehabilitation of existing wells, and distribution upgrades.
  - Wastewater: Basic Alternative 1a: combine upgrade to existing primary treatment and expansion to secondary treatment at NDWWTP.
  - Solid Waste: Alternative 1: continue utilizing the Navy sanitary landfill at Apra Harbor until the new Layon Landfill is opened.
  - Roadway Projects: Alternative 2: implement the forty-nine individual projects that have been identified to support DoD Alternative 2.

ES-7 ENVIRONMENTAL IMPACTS FROM PROPOSED GUAM MILITARY RELOCATION

The Draft EIS/OEIS provides information on the affected environment and impacts of the proposed actions for eighteen distinct resource areas. Volumes 2 through 5 of the Draft EIS/OEIS provide details on the impacts of individual proposed Marine Corps, Navy and Army actions while Volume 6 addresses island wide impacts of utilities and roadway proposed improvement projects. Volume 7 provides a summary of the impacts of all of the proposed actions should the preferred alternative development project in each case be implemented. Table ES-4 provides a brief summary of the environmental impacts, as well as potential mitigation measures, on several key resource areas on Guam and Tinian as a result of the proposed Guam and CNMI military relocation program.

ES-8 POTENTIAL MANAGEMENT PRACTICES AND MITIGATION MEASURES

Mitigation refers to actions that would be taken to avoid, minimize, rectify, reduce/eliminate, or provide compensation for an impact that would result from an alternative. In 40 Code of Federal Regulations 1500, the Council on Environmental Quality defines mitigation as:

- Avoidance: Avoid the impact by changing the action. Do not take certain actions that would cause the environmental effect.
- Minimization: Minimize impacts by changing the intensity, timing, magnitude, or duration of the action and its implementation.
- Rectifying: Rehabilitate, repair, or restore damage that may be caused by implementing the proposed actions.
- Reducing/Eliminating: Reduce or eliminate the impact over time.
- Replacement: Compensate for an impact by replacing the damage and improving the environment elsewhere, or by providing other substitute resources such as funds to pay for the environmental impact.

For the purposes of this Draft EIS/OEIS, best management plans (BMPs) are management actions that are implemented by the Navy on an ongoing basis as part of standard operating procedures. These BMPs serve to minimize, and reduce/eliminate potentially adverse impacts. Additional detail on the BMPs is provided in Volumes 2 – 6 and a summary is in Volume 7, Chapter 2. The following is a list of BMPs that would be implemented:

- Erosion Control
- Stormwater Management under the Clean Water Act: Stormwater Management Plan and Stormwater Pollution Prevention Plan
- Water Quality Monitoring Plan
- Biosecurity Plan (*Micronesian Biosecurity Plan*)
- Leadership in Energy and Environmental Design Certification
- Low Impact Development design technology
- Energy Policy Act of 2005
- Water Conservation Plan
- Hazardous Waste Management Program
- Spill Prevention Control and Counter-measures Plans

- Facility Response Plans
- Hazardous Materials Management Plans
- Munitions and explosives of concern procedures
- Land Use Planning and Project Design measures
- Biological resource protections (Terrestrial and Marine)
- Public Outreach/Education
- Army Corps of Engineers permit conditions

In addition to the listed BMPs that DoD would implement, there are a number of potential mitigation measures that are being considered that would further minimize significant adverse impacts.

Table ES-4 presents the impacts by resource area that have been deemed significant in the context of NEPA. Potential mitigation measures that would reduce the adverse impacts of implementing the Guam and CNMI military relocation program are also listed as appropriate with each identified significant impact. With implementation of these potential mitigation measures, the environmental consequences would be reduced. Mitigation measures for the selected alternative will be identified in the Record of Decision. These measures will be funded, and efforts to ensure their successful completion or implementation will be treated as compliance requirements and tracked as part of annual data calls.

Table ES-4. Summary of Significant Impacts of the Preferred Alternatives

Potentially Impacted Resource	*Significant Impacts and Potential Mitigation of Preferred Alternatives*
Water Resources	Construction SI-M (Guam and Tinian) • Temporary water quality impacts on near shore waters and coral in Apra Harbor during dredging. Implementation of a suite of mitigation measures required by dredging permits, such as physical barriers to limit sediment dispersal, would reduce impacts to less than significant. • Potential fill of wetlands and indirect wetland impacts. Mitigation measures would include creation of replacement wetlands or preservation or improvement of existing wetlands.
Noise	Operation (Guam only) SI • Roadway noise would be a significant impact in the north and central areas of Guam. Mitigation has not been determined. Noise walls are a potential mitigation, but they have adverse impacts on views.
Land, Roadways, and Submerged Land Use	Construction (Guam only) SI-M • Roadway construction on Guam would have a significant adverse impact on roadway use during construction. Mitigation would include a Traffic Management Plan implemented by the Federal Highway Administration that would identify measures to reduce impacts during the construction period. Operation SI-M (Guam) • Federal acquisition of land for main cantonment, firing ranges, and roadway improvements on Guam. Mitigation would include long-term leases of the property instead of purchase. SI (Tinian) • Agricultural/grazing permits within the Tinian Lease Back Area would be terminated, causing significant impact on consistency with the Farmland Protection Policy Act of 1981. The permits are subject to termination at military discretion.
Terrestrial Biological Resources	Construction SI (Guam and Tinian) • Special Status Species: loss of habitat for special-status species on Guam and Tinian, including federal threatened and endangered species, from clearing of vegetation. • Invasive species introduction, mitigated through existing interdiction plans and policies, and new measures identified in the Micronesian Biosecurity Plan (being developed). Operation SI-M (Guam and Tinian) • Operational noise would result in the disturbance of special status species. • A suite of existing procedures, BMPs and mitigation measures including noise barriers would be implemented to address construction and operational impacts on terrestrial biology.
Marine Biological Resources	Construction SI-M (Guam only) • Dredging in Outer Apra Harbor would result in significant direct impacts to the coral reef ecosystem. Potential compensatory mitigation being considered includes watershed management projects and artificial reef construction.

Potentially Impacted Resource	*Significant Impacts and Potential Mitigation of Preferred Alternatives*
Cultural Resources	Construction (Guam and Tinian) SI-M • Potential significant adverse direct impacts to approximately 34 NRHP-eligible or listed archaeological resources on Guam and 10 on Tinian. Mitigation would be conducted in accordance with Programmatic Agreement with State Historic Preservation Office that would require avoidance, survey, monitoring during construction, data recovery, building documentation, public education, and training of military personnel. • Potential significant adverse impacts to four traditional cultural properties. Mitigated to less than significant through public education and implementation of a preservation plan.
Utilities	Construction and Operation (Guam only) SI-M • Impact to existing overburdened utilities infrastructure on Guam • Potable Water: The projected water demand for the Guam civilian population throughout 2010-2019, not including the effects of the military buildup, exceeds the current Guam Water Authority (GWA) water system capacity. Projected potable water demand would not exceed sustainable yield of the Northern Guam Lens Aquifer. • Higher than currently permitted wastewater flow to NDWWTP. GWA would be required to upgrade the NDWWTP to secondary treatment. • A suite of mitigation measures are under consideration to mitigate impacts to utilities on Guam, including adaptive management techniques to adjust construction tempo.
Socioeconomics and General Services	Construction and Operation (Guam and Tinian) SI-M • Beneficial impacts to economics and tourism. • Adverse impacts to population, housing, public services, crime, social order, and community. • Impacts of sudden activity (both positive and negative) that peak during the 2013-2015 timeframe. • Effects on Neighborhoods and Businesses. • Property Acquisition and Relocation. • A suite of mitigation measures under DoD and non-DoD control are under consideration to mitigate impacts to socioeconomics and services on Guam, including adaptive management techniques to adjust construction tempo.
Environmental Justice and the Protection of Children	Construction (Guam only) SI-M • Roadway traffic and noise would impact low income, Children and racial minorities. Noise mitigation for noise is proposed, but has visual impacts to consider. Operation (Guam and Tinian) SI-M (Guam) and SI (Tinian) • Access restrictions to cultural sites. • Limited health care services for under-insured. • Access restrictions on chili-pepper gathering (Tinian only). • No mitigation proposed for Tinian impacts.

Legend: SI = Significant impact, SI-M = Significant impact mitigable to less than significant.