

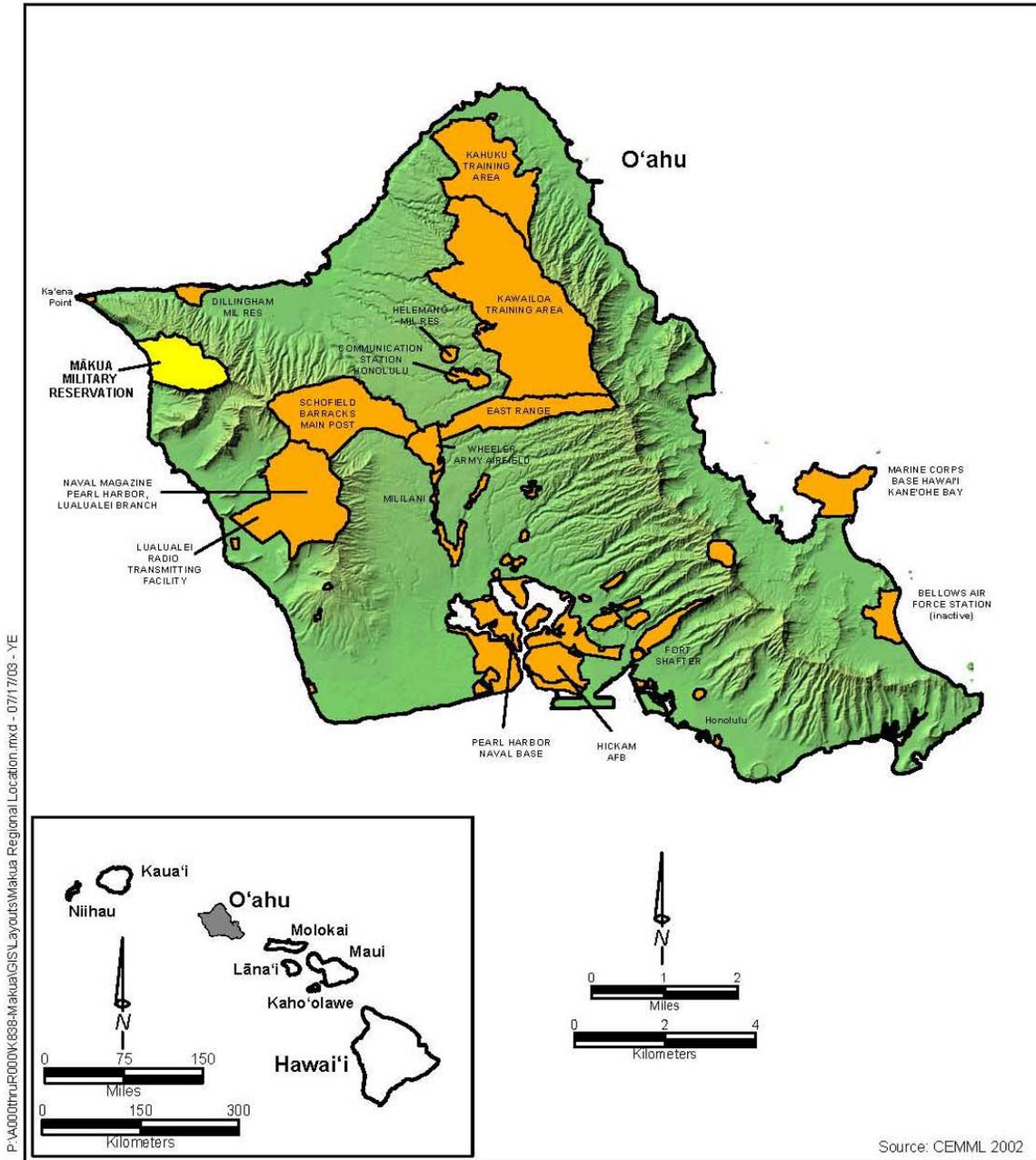
CHAPTER 1

PURPOSE, NEED, AND SCOPE

1.1 INTRODUCTION AND BACKGROUND

Pursuant to the National Environmental Policy Act (NEPA), (42 United States Code [USC] Sections 4321 to 4370e), Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations [CFR] Sections 1500 to 1508), and the United States (US) Army (hereafter referred to as Army) NEPA regulation (*Environmental Analysis of Army Actions*, 32 CFR Part 651), the Army has prepared this Environmental Impact Statement (EIS) to address the potential direct, indirect, and cumulative environmental impacts associated with the proposed use of Mākua Military Reservation (MMR) and alternatives for live-fire military training, in particular company-level, combined-arms, live-fire exercises (CALFEXs), and convoy live-fire exercises (LFXs).

MMR occupies 4,190 acres (1,696 hectares), 38 miles (61 kilometers) northwest of Honolulu, on the west shore of O‘ahu, near Ka‘ena Point (Figure 1-1) and is within the adjoining Mākua and Kahanahāiki Valleys. It is roughly bordered on the west by Farrington Highway and the Pacific Ocean and is surrounded on its north, south, and east sides by the Wai‘anae Mountains. Mākaha, the nearest township, is approximately 3 miles (5 kilometers) south. Regional features discussed in the EIS are shown in Figure 1-2.



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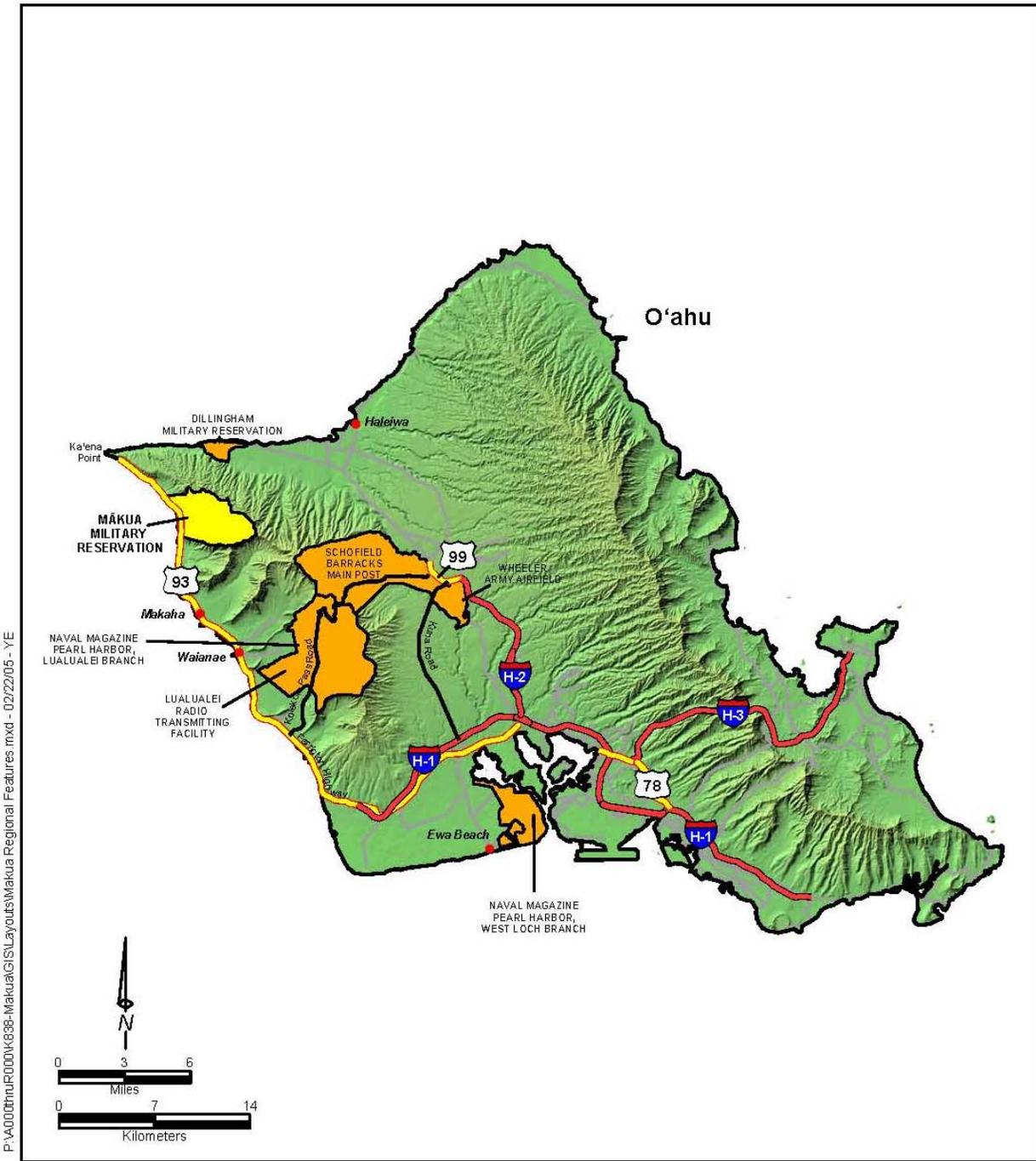
The Mākuā Military Reservation is approximately 38 miles northwest of Honolulu.

- Legend**
- Mākuā Military Reservation
 - Other Military Bases

Regional Location

Mākuā Military Reservation
O'ahu, Hawai'i

Figure 1-1



Mākua Military Reservation is accessed from Farrington Highway (State Route 93).

Legend

- Mākua Military Reservation
- Other Military Bases

Regional Features

Mākua Military Reservation
O'ahu, Hawai'i

Figure 1-2

Use of Mākua Valley, by the Army and other US Armed Forces, dates back to the 1920s, when three parcels on the upper Mākua Valley floor were purchased for howitzer emplacements. After the December 7, 1941, bombing of Pearl Harbor, the Army used its authority under martial law to take over the entire Mākua-Ka'ena Point area for security and training operations. In December 1942, the Army issued a real estate directive for 6,600 acres (2,671 hectares) of land at MMR that were already being used. Private parcels within that property were purchased from their owners or obtained by condemnation, whereas territorial lands were conferred by the territorial governor's consent.

In May 1943, the territorial government granted a revocable permit for the military to use 6,600 acres (2,761 hectares) "to assist in the present war effort extending for the duration of the present war and six months thereafter". The site was used extensively for bombing and infantry training, but there are no historic records of ordnance expended on MMR. It has remained under Army control ever since. After Hawai'i was granted statehood, the federal government exercised its option to set aside lands for its continued use. Most of MMR's 4,190 acres (1,696 hectares) are ceded land owned by the federal government (3,236 acres [1,310 hectares]) and land leased by the State of Hawai'i to the Army (782 acres [317 hectares]) (State of Hawai'i 1964). The Army also owns 170 acres (69 hectares) in fee simple and holds 1.64 acres (0.66 hectares) by license (Figure 3-1).

In 1985, the Army prepared an Environmental Assessment (EA) for the construction and operation of a company combined-arms assault course (CCAAC) at MMR. The Army completed construction of the CCAAC in May 1988 and used it for the next 10 years. In September 1998, the Army temporarily suspended training at MMR due to several wildfires that burned outside the south and north firebreak roads. There are over 50 occurring or potentially occurring endangered plant and animal species in the in the MMR region of influence (ROI). The proximity of these species to a fire hazard presents significant challenges. In an attempt to mitigate this risk, the Army conducted an extensive investigation into the potential effects of wildfires on the environment and reevaluated its fire management plan and training procedures.

The Army consulted with the US Fish and Wildlife Service (USFWS) pursuant to Section 7 of the Endangered Species Act (ESA). The Army and USFWS discussed ways to identify, evaluate, and reduce the impact of Army activities on threatened and endangered species and developed modified live-fire training procedures. The training was modified by limiting the use of weapon systems, realigning targets, and limiting the number of Soldiers training at one time to a company rather than a

battalion. Following consultation in 1999, the USFWS issued an opinion finding that the Army's modified live-fire training at MMR would not likely jeopardize the continued existence of the species covered by that opinion. In 2001, the Army temporarily eliminated tracer ammunition from use in training. The Army again consulted with the USFWS after discovery of additional endangered species at MMR. Additional measures for protection were proposed and the USFWS again issued a no jeopardy opinion. Subsequently, the Army and a team of experts from the conservation community proceeded to create a comprehensive implementation plan to ensure the stabilization of those endangered species recommended by USFWS. The Army transmitted the plan to USFWS for approval; however, after a July 2003 wildfire that resulted from a prescribed burn, the Army again reinitiated consultation with USFWS.

The 2003 consultation addressed newly designated critical habitat within the MMR action area and the requirement from the 1999 Biological Opinion (BO) to consult in the event of a fire escaping the firebreak road. The Army established fire minimization and suppression procedures, and the USFWS issued an opinion that the action was not likely to destroy or adversely modify designated critical habitat.

In July 2005, the Army again reinitiated consultation due to proposed changes to training actions at MMR. The USFWS issued a final BO on June 22, 2007 (referred to herein as the 2007 BO) (USFWS 2007). This reinitiation focused on assessing the fire risk of certain munitions with high potential to ignite fires and the probable risk of such fires on listed species and/or critical habitat. Through development and implementation of revised Integrated Wildland Fire Management Plan (IWFMP) Standard Operating Procedures (SOPs) to minimize the risk of resource damage due to training-related wildland fires, conservation and stabilization efforts contained within the Mākua Implementation Plan (MIP), and the avoidance and minimization measures contained within the BO, the USFWS concluded that implementation of the Proposed Action would not be likely to jeopardize the continued existence of any species or adversely modify or destroy designated critical habitat covered in the BO. The Army also agreed to not use C-Ridge (the ridge between the north and south lobes of the training area) and Ka'ena Point, which posed an impact to endangered species. However, due to the potential need to use Ka'ena Point, C-Ridge, and illumination munitions in the future, the Army assessed the environmental impacts associated with these actions. The Army would initiate and fulfill separate ESA Section 7 consultation prior to using illumination munitions, Ka'ena Point, or C-Ridge.

In August 2007, a fire ignited on private land within the Waialua area and burned a significant number of the endangered *Hibiscus brackenridgei* (ma‘o hau hele), resulting in a very large change to the status of the species. The Army reinitiated consultation with the USFWS in January 2008 due to the increase in potential impacts the military training at MMR could have on the species. The resulting June 2008 amendment to the August 2007 BO identifies the conservation measures to be implemented on private land within Waialua to minimize the overall impacts on the hibiscus.

The primary use of MMR has been for company-level CALFEXs by the Army’s 25th Infantry Division (25th ID), which is based at Schofield Barracks Military Reservation (SBMR), approximately 10 miles (16 kilometers) southeast of MMR. A company-level CALFEX is a combat training exercise through which the Army unit synchronizes or orchestrates the application of several military units, such as infantry, aviation, artillery, engineers, and others, to achieve a combined effect on the enemy greater than if each weapon system were used individually. CALFEXs can be offensive or defensive; an example of an offensive company CALFEX at MMR is described in Section 2.5.3. In addition to CALFEX training, convoy LFXs have also become an important pre-deployment training requirement for MMR as a result of lessons learned in Iraq and Afghanistan.

The 25th ID in Hawai‘i includes one Infantry Brigade Combat Team (IBCT) (with approximately 3,500 Soldiers) and a Stryker Brigade Combat Team (SBCT)¹ (with approximately 4,105 Soldiers). Also included in the 25th ID is an aviation brigade and various support units. All are stationed at SBMR.

The Army is now engaged in the multi-year, phased, and synchronized program of transformation, which will occur in three phases over three decades. As part of this initiative, the 2nd Brigade in Hawai‘i transformed into an SBCT. This transformation was addressed in a separate EIS that was completed in 2004. The Record of Decision (ROD) for this Final EIS was signed in 2004 and selected the Proposed Action to transform the 2/25th in Hawai‘i. This EIS was supplemented in February 2008, and the ROD was signed in April 2008. As mentioned above, the focus of the present EIS is conducting live-fire military training at MMR. This EIS examines training at MMR.

¹SBCT is a new concept that uses technology and information to improve the abilities of Army units. The SBCT uses lighter, more-efficient Stryker vehicles to transport Soldiers more quickly to areas of conflict.

The SBCT units would primarily train with Stryker vehicles (mounted exercises) at either the Schofield Barracks or Pohakuloa Training Area (PTA) to meet their tactical live-fire operational requirement. While use of the range at MMR by the 2/25th SBCT is not required, the SBCT could conduct dismounted live-fire training at MMR. SBCT training may also include squad and platoon dismounted maneuver live-fire and nonlive-fire training, under Alternatives 2 and 3. SBCT use of MMR is further discussed in Section 2.2.

The mission of the infantry maneuver battalion (approximately 500 Soldiers) is to capture, neutralize, or destroy the enemy with fire and maneuver. Each infantry battalion contains three infantry rifle companies and one headquarters company. The infantry rifle company is the fighting organization by which the tactical combat mission is accomplished. Each infantry company consists of three rifle platoons and one headquarters platoon. Each rifle platoon is made up of three infantry squads. The numbers of Soldiers in each of these units are provided in Chapter 2 of this EIS.

In accordance with Army Regulation (AR) 350-1, *Army Training and Leader Development*, and the 25th ID annual training guidance, each infantry company is required to conduct a minimum of one CALFEX each year. Under the current force structure, the 3/25 IBCT has nine infantry companies that require CALFEX training. The brigade also has an engineer company that requires CALFEX training. The 2/25th SBCT has 13 companies that require CALFEX training. The US Marine Corps has nine infantry companies that require CALFEX training.

The minimum CALFEX training requirements of these companies in Hawai'i would be 32 (23 Army, 9 Marine Corps). To support the minimum training needs of these companies at MMR, a training area would need to accommodate a minimum of 19 CALFEXs each year (10 Army of the 3/25th IBCT, 9 USMC).

A company commander is authorized to conduct additional live-fire training events to ensure the combat readiness of the company's Soldiers; this could include an additional two platoon or two company-level LFXs per company per year, as authorized by Department of the Army Pamphlet (DA PAM) 350-38. While MMR was used for limited training from 2001 to 2004, since the suspension of training at MMR in September 1998, the 25th ID has attempted to meet its live-fire training requirements by sending its companies to other training locations.

Company-level training that allows commanders to train adequately and assess their units while integrating and controlling combined arms assets

in a realistic training environment is critical to success on the modern battlefield. Collective live-fire training provides this critical training. Army standard collective live-fire training requirements are based on DA PAM 350-38, Standards in Weapons Training.

The Army's training program has evolved because of the requirements of the wars in Iraq and Afghanistan. Normally, the Army trains according to standard doctrine without having a specific mission focus. The tasks to be trained are called the Core Mission Essential Task List (CMETL). When a unit is given a specific deployment mission, it trains accordingly to a Directed Mission Essential Task List (DMETL). When Army units on O'ahu return from a combat deployment, they are already designated for another combat deployment, usually in about a year. The unit must conduct recovery operations, field new equipment, and integrate new Soldiers. The unit has no time to train on CMETL tasks. It must immediately begin training to DMETL tasks.

For the past few years, one of the CMETL tasks Army units have not been able to perform has been CALFEXs. These exercises train soldiers for major combat operations against conventional opponents. This sort of operation is not occurring in Iran or Afghanistan. The Army units receive DMETL requirements. For assignments to Iraq or Afghanistan, these include tasks related to irregular warfare and stability operations. Among other tasks, Soldiers must train to respond to attacks on convoys to include reaction to improvised explosive devices. This includes the need to train to respond with live fire.

The Army will ultimately have to shift its emphasis back to training for conventional warfare and major combat operations.

For MMR, these trends have decreased the Army's need for CALFEX (CMETL), while the need for convoy LFXs (DMETL) has increased. For the foreseeable future, the Army will have a need to conduct both training activities at MMR.

In May 2001, the 25th ID and US Army Garrison Hawai'i (USAG-HI) published a Final Supplemental Environmental Assessment (SEA) and FNSI (USARHAW and 25th ID[L] 2001a), which analyzed training impacts on the natural, social, and cultural environment of MMR and the surrounding area. The training proposed by the Army in the SEA was modified from previous training at MMR by limiting the use of weapon systems, realigning targets, and limiting the number of Soldiers training at one time to a company rather than a battalion. Mālama Mākua, a local group of concerned citizens, filed a lawsuit seeking to compel preparation of an EIS. In July 2001, the US District Court issued a preliminary

injunction barring the Army from returning to training until the Court could decide the outcome of the NEPA challenge.

On October 4, 2001, Mālama Mākua and the Department of Defense (DoD) entered into a Settlement Agreement and Stipulated Order (referred to herein as the Settlement Agreement). The 25th ID agreed to complete an EIS regarding the proposal to resume live-fire training at MMR. Under the terms of the Settlement Agreement, the Army could conduct a limited number of CALFEXs for up to three years (through October 2004). Since October 2004, the Army has continued to prepare the EIS required under the Settlement Agreement and has conducted only limited, nonlive-fire training at MMR. On January 8, 2007, Mālama Mākua and the DoD entered into a partial Settlement Agreement (referred to herein as the 2007 Settlement Agreement), in which the 25th ID agreed to provide an additional 60-day comment period and a public meeting for the Draft EIS, undertake a marine resources study regarding contamination, and provide a 60-day comment period and a public meeting for the marine resources study and subsurface archaeological survey.

The CALFEXs the Army was permitted to carry out include the following:

- Up to 16 CALFEXs at MMR in the first 12 months immediately following issuance of the agreement (2001 to 2002);
- Up to nine CALFEXs at MMR in the second year (2002 to 2003);
- Up to 12 CALFEXs at MMR in the third year (2003 to 2004).

In fiscal year 1999, the 25th ID conducted six CALFEXs—three at the National Training Center (NTC), Fort Irwin in California and three at a training center in Thailand. In fiscal year 2000, the 25th ID conducted no CALFEXs that met the division standard. In fiscal year 2001, the 25th ID completed seven CALFEXs at the Joint Readiness Training Center (JRTC), Fort Polk in Louisiana. In fiscal year 2002, 13 CALFEXs were conducted at MMR (consistent with the Settlement Agreement). Eight CALFEXs were conducted at MMR in fiscal year 2003.

CALFEXs were not conducted at MMR in fiscal years 2004 through 2008. This was a result of the suspension of live-fire training due to the terms of the settlement agreement. Since 2004, the use of MMR has been limited primarily to non live-fire training events, to include aviation lasing, and unmanned aerial vehicle (UAV) training. Aircraft lasing involves the use of lasers to train pilots in the identification and discrimination of targets on the ground. Any targets involved in these training exercises are limited to the existing range boundaries at MMR. A detailed description of UAV training is provided in Section 2.4.3. Other infrequent nonlive-fire training

involves utilizing MMR as a staging base for ground or air movement command and control elements, blank ammunition training, and for engineer Training. More discussion regarding this training is offered in Section 2.3.

Due to the nature of the wars in Iraq and Afghanistan, Army training doctrine has continually evolved. Beginning in 2004, Army units were required to focus their training time on tasks related to their deployments to Iraq and Afghanistan. These included tasks such as convoy live-fire, cordon and search operations, and urban operations. Because of the short time between operations, the units did not have time to conduct training on core tasks, such as those in CALFEXs. Nevertheless, Army units ultimately will be required to resume training for more conventional force-on-force operations, which will require CALFEXs. It is therefore extremely important to establish CALFEX training capability for Army units stationed in Hawai'i.

Since 2004, the 25th ID has not conducted CALFEX training. This is not a sustainable strategy for the accomplishment of long term training needs of the 25th ID.

In addition to CALFEX training, convoy LFXs have become an important pre-deployment training requirement based on lessons learned in Iraq and Afghanistan. Convoy live-fire training provides realistic training for convoy operations and an opportunity to employ direct live-fire in support of tactical movements. Convoy live-fire training is designed to train units to react to enemy contact during tactical movement. This training is required for all types of units including combat arms, combat support, and combat service support.

Improvised explosive device (IED) attacks on convoys account for the majority of all US casualties in the United States Central Command (USCENTCOM) area of responsibility, with a substantial portion of those killed and wounded in action. Because of this, training to counter IEDs has become a high priority for all Army units. Unit After Action Reviews and lessons learned clearly identify the critical importance for all Army units to be tactically proficient in all tasks that are currently included in convoy live-fire training. Reaction to IEDs is an important part of live fire training. IEDs are the enemy's preferred asymmetric weapon against US forces in Iraq and Afghanistan. Units must arrive in the operational theatre prepared to operate on a battlefield characterized by the enemy's use of IEDs.

The USCENTCOM commander has issued specific guidance for all units, regardless of branch of service, organization, or function, deploying into

the USCENTCOM area of responsibility to conduct counter-IED training from the individual and collective small unit-level to the brigade combat team-level and higher battle staff tasks. It is essential for units to conduct this counter-IED training during LFXs, such as those proposed for execution at MMR. Combat proficiency is attained by commanders evaluating their units' current training readiness, assessing their units' capabilities against expected tactical conditions, and developing a relevant unit pre-deployment training strategy. At the small unit level, this is accomplished through multiple repetitions of tactical tasks conducted to standard. In doing so, commanders can directly decrease fatality rates of their units.

1.2 PURPOSE OF THE PROPOSED ACTION

The Army's Proposed Action is to conduct the necessary type, level, duration, and intensity of live-fire and other military training exercises, in particular company-level CALFEXs and convoy LFXs, for the combat units assigned to the 25th ID and for other military units to attain and maintain the combat readiness of those units. The purpose of the Proposed Action is to enable the military in Hawai'i to achieve and maintain readiness for immediate deployment. Providing the best and most realistic training for the types of threats the Army expects to encounter during combat operations ensures that the military's leaders and Soldiers are prepared for the full spectrum of operations faced in combat. These operations include offensive, defensive, stability, and support operations.

1.3 NEED FOR THE PROPOSED ACTION

The 25th ID must be prepared to execute the full spectrum of military operations in complex terrain. To achieve and maintain the combat skills appropriate for each Soldier in the force, training must replicate, as closely as possible, the conditions that would arise in expected combat situations. As outlined in the Department of the Army Field Manual (FM) 7-0, *Training the Force*, "train as you fight" is an essential principle of the Army training doctrine.

Army doctrine requires combined arms teamwork and synchronization. Units must train for wartime combined arms operations. Combined arms proficiency results from regular practice of combat missions and tasks in the live domain. It starts with developing individual skills. Individual skills, when combined and practiced, build unit proficiency from crew through brigade task force.

The 2/25th SBCT requires 459 days of collective training per year; and the 3/25th IBCT requires 127 days of collective training per year. Other units

stationed in Hawai'i requires 58 days of collective training per year. There is currently a shortfall of collective training range capacity in Hawai'i.

In accordance with AR 350-1, *Army Training and Leader Development*, and the 25th ID annual training guidance, each infantry rifle company is required to conduct CALFEX training annually. Training at the company level is one of the key components in the Army's progressive training doctrine, in which smaller units train individually and then collectively as part of a larger unit. During a CALFEX, individual Soldiers must coordinate their actions within their squad, squads must coordinate their actions within their platoon, platoons must coordinate their actions within their company, and companies must coordinate their actions with the supporting combat elements. Company-level units are generally the smallest units that exercise direct command and control of combined arms elements in the synchronized execution of actual combat operations. A company-level CALFEX provides invaluable training to an infantry commander, who learns the skills required to plan, coordinate, and execute integrated combined-arms combat operations supported by aviation, artillery, mortar, and combat engineer assets. The communication and coordination skills learned during CALFEXs also are essential for successful training when several companies combine in a battalion operation under the control of a battalion commander. Given the present number and types of units stationed in Hawai'i requiring use of Army live-fire ranges, Hawai'i needs the range capacity to support 32 company-level CALFEXs annually. 10 of these are companies of the 3/25th IBCT (nine Infantry companies and one Engineer company). Thirteen of these are SBCT companies, which need a suitable mounted maneuver facility in order to conduct a CALFEX to standard, and therefore, could not conduct mounted CALFEX training at MMR. The SBCT units would primarily train with Stryker vehicles (mounted exercises) at either the Schofield Barracks or PTA BAX, upon completion of these complexes, to meet their tactical live-fire operational requirement.

In addition, the Army needs to be prepared to host nine US Marine Corps (USMC) companies. Therefore, the minimum required CALFEXs at MMR would be 19 (10 Army, 9 USMC).

The SBCT could conduct dismounted live-fire training at MMR. The SBCT training would be substantially similar to the CALFEXs proposed to be conducted by the IBCT, however, the Stryker vehicles (up to five at one event) would utilize designated firing points, and would remain stationary from fixed positions while personnel perform dismounted live-fire exercises.

The No Action Alternative and Alternative 1 exclude SBCT training at MMR, while MMR Alternatives 2 and 3, presented in the EIS, are based on the dismounted Stryker scenario, and anticipate that SBCT companies will need the capacity to conduct more than the minimal, doctrinally-required training.

Lessons learned during the conflicts in Afghanistan and Iraq indicate the need for more frequent, realistic, and challenging company LFX training in addition to the smaller unit training (e.g., squad, platoon) that must be accomplished before proceeding to company-level exercises. Other factors, such as deployment of units for combat, influence the precise number of CALFEXs actually conducted in a given year, which may vary accordingly. As a result, full capacity of up to 50 annual CALFEX events per year is analyzed in three of the alternatives.

Live-fire contributes to the realism of training. The advantage of live-fire training is the ability to simulate, as closely as possible, the characteristics and environment of an actual battlefield scenario. These simulated battle conditions best prepare the company commander, subordinate leaders, infantry Soldiers, and supporting teams for combat. Moreover, because all infantry forces of the US military must be trained and ready for daytime and nighttime combat and maneuvers, both daytime and nighttime training is required. Training during these times allows Soldiers and commanders to become familiar with different weapons systems, equipment, and maneuver tactics that can be deployed under various combat conditions. While the Army has not conducted night training at MMR for the last few years, use of MMR or an alternate location for night training is an essential factor in readiness for our military forces. The Army intends to seek future authorization for night training, and will consult the US Fish and Wildlife Service (USFWS) to meet their stipulations on this matter, as discussed in the 2007 Biological Opinion (Appendix H-1).

The Proposed Action is needed because there are no existing training areas on O'ahu, outside of MMR, that are currently configured and available to support a company-level CALFEX and convoy LFX. As such, MMR meets the Army's need to conduct live-fire training within the shortened home station periods that result from accelerated deployments associated with overseas combat activities in Iraq and Afghanistan. This Proposed Action provides opportunities to conduct realistic, integrated training prior to deployment. The necessary criteria to support military training at this level are as follows:

- Range capacity;
- Range design;

- Quality of life; and
- Time and cost.

Range Capacity

The area at MMR used for CALFEXs totals 1,136 acres (460 hectares). This includes a training area of 812 acres (329 hectares), including the 457 acres (185 hectares) within the CCAAC. An additional 324 acres (131 hectares) are required for the SDZs, which include some buffer areas. The topography of MMR, with steep valley walls enclosing the relatively flat CCAAC on three sides and MMR's isolation from population centers provide the necessary buffer areas that facilitate live-fire training at the reservation.

The Army standard range design to support Infantry Company live fire events conducted at the CCAAC at MMR was combined into one of the several functions of a Multipurpose Range Complex – Light (MPRC-L). Army Training Circular 25-8, Training Ranges, specifies that the ideal land area for an MPRC-L is 1,112 acres (450 hectares), with additional buffer areas required to accommodate the SDZs for use of the specified munitions, as required by AR 385-64, *Ammunition and Explosive Safety Standards*. There are currently no MPRC-L ranges in Hawai'i.

Because the acreage at MMR is less than the ideal land area for an MPRC-L, the Army has determined that a range facility to replace the MMR range would need at least 812 acres (329 hectares) of maneuver area, and 1,136 acres (460 hectares) including the maneuver area and SDZs.

A facility of this size would also have to be available when and where it would not interfere with the current training requirements of other military units. Use of such a replacement range facility should not require the closure of other training facilities or otherwise restrict training at nearby facilities.

The Army has not yet finalized a minimum design standard for convoy live-fire ranges. The USMC has proposed to build a convoy LFX facility at Pōhakuloa Training Area (PTA). The Army would be able to use this range when constructed.

A convoy live fire range must have the capacity to train convoys comprised of at least 5 vehicles travelling at intervals of 25-100 meters. At MMR, a typical training scenario will have normally five to six vehicles. It should have roads of such a length that it will appear as a surprise to Soldiers where the ambush or IED attack will occur. It must also have live fire capacity including targets with associated surface danger zones.

Range Design

Based on MMR training capabilities, a live-fire maneuver range for an infantry unit must be substantially similar to either an Infantry Platoon Battle Course (IPBC) or MPRC-L, and of sufficient acreage to accommodate the SDZs for use of the specified munitions, as required by DA PAM 385-64, *Ammunition and Explosive Safety Standards*. This would require a minimum of 1,136 acres (460 hectares). The range must be configured in a manner that would support a CALFEX and smaller unit LFXs described in Sections 2.5.1 through 2.5.3, as well as the additional training activities set forth in Section 2.5.4. In addition, a range would need to have an existing impact area sufficient to support the live-fire munitions contemplated for use at MMR. A range would need to be configured (e.g., course and targets) in a manner that would lend itself to achieving the offensive and defensive objectives for a company-level CALFEX and convoy LFX.

A convoy live fire range must have roadways that simulate conditions experienced by tactical convoys. A typical convoy live fire course will have an entry control point with several objectives, consisting of stationary and moving targets with facades to replicate urban areas that the enemy will normally attack from. Surface danger zones will always be established for all target arrays and facades throughout the course.

Quality of Life

Continuous training is essential to ensure that Army units are ready at any time for deployment into combat situations. Combat skills must be repeatedly exercised to ensure combat readiness and to counter the effects of high levels of personnel turnover, as Soldiers move to other installations or take other jobs. Strict training schedules require advanced planning and maximize the amount of training that units receive. Transporting infantry and other combat unit elements that participate in CALFEXs and convoy LFX requires substantial exercise planning effort at least eight weeks prior to the exercise. These various units are committed to CALFEXs for up to five days. If additional time were spent preparing and transporting these units and their equipment to and from a distant training area, there would be less time available for other required training and exercises. There are a finite number of training days in a year. The amount of required annual training, along with finite training resources, makes it a challenge to schedule training. Infantry companies typically accomplish most of their company-level (or smaller) collective training at or near their home station. Larger training exercises involving battalion (or larger) elements and those involving formal external evaluations often take place away from the home station. Generally, infantry units cannot afford the additional time and resources required for distant deployment/redeployment to accomplish company-level CALFEXs

and convoy LFXs at training areas that are great distances from the home station. Moreover, in certain instances and for certain periods of time, infantry units cannot deploy to accomplish training; they must be available at their home station due to operational requirements. Convoy live-fire is a somewhat different situation. All units deploying to Iraq or Afghanistan require this training, not just infantry companies. The training is a much shorter duration than a CALFEX.

Time and Cost

Range assets must be available for access by all O‘ahu-stationed units to meet their annual training requirements and to achieve combat readiness status before they deploy. This means that sufficient ranges must be available within a geographic distance that allows each unit to deploy its Soldiers logistically and equipment to and from range locations to complete essential live-fire tasks within established timeframes. Construction of a range complex necessary to support live-fire tasks for the combat readiness of home-stationed units would not be reasonable in the absence of Congressional appropriations, Headquarters Department of the Army approval, and a plan for the expeditious design and construction. Any construction should avoid or minimize to the greatest extent practicable disturbing sensitive natural and cultural resources. The time and cost of transporting units to a training area must not have a major impact on the overall training levels for a unit. Each unit has a limited amount of time and cost resources to achieve training requirements. The time and cost of transport cannot be so excessive that it compromises the unit’s ability to meet all mission essential tasks and readiness requirements.

1.4 SCOPE OF ANALYSIS

This EIS has been developed in accordance with NEPA, CEQ implementing regulations, and 32 CFR Part 651, *Environmental Analysis of Army Actions*.² Its purpose is to inform Army decision makers and the public of the likely environmental consequences of the Proposed Action and alternatives. This EIS analyzes the environmental impacts from a full range of routine military training activities proposed for execution in the State of Hawai‘i. An interdisciplinary team of biologists, hydrogeologists, air scientists, environmental scientists, noise scientists, planners, economists, engineers, archaeologists, historians, and military range experts has prepared this document. During the scoping process detailed

²Council on Environmental Quality: Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, 40 CFR Parts 1500-1508 and Army implementing regulations contained in 32 CFR Part 651.

in Section 1.7, Public Involvement, the Army received public input on the issues to be analyzed in this EIS.

The Army conducted site-specific environmental and cultural resource studies to address the major public concerns and issues expressed during the public scoping process. Some of these studies were also undertaken as a result of conditions stipulated in settlement agreements between the Army and Mālama Mākua (see Section 1.1). These studies include the following:

- Hydrogeologic investigations. The Army conducted a hydrogeologic investigation (soil, surface water, groundwater) and environmental sampling at MMR to evaluate the potential for contaminants to migrate beyond the boundaries of MMR.
- Air sampling during a prescribed burn and two CALFEXs. The Army conducted air studies to evaluate the general potential for prescribed burn operations and military training exercises to release air pollutants to the atmosphere and to determine the potential for on-site and off-site migration of air pollutants.
- Noise monitoring during three CALFEXs. The Army conducted noise monitoring studies during CALFEXs in 2002 and 2003 to determine noise levels on MMR and for sensitive noise receptors, such as users of recreational areas.
- Hydrophonic noise study. During a future CALFEX, the Army plans to conduct a hydrophonic noise study to determine the impulse noise levels at Mākua Beach and above and below the water at offshore locations. In addition, the Army has conducted noise modeling to estimate the noise levels at these locations.
- Nearshore dive survey. The Army 7th Dive Detachment conducted and videotaped a 12-diver, 3-day nearshore dive survey of Mākua Beach that included all locations where members of the public stated that metal globules were suspected to be on the ocean floor.
- *Muliwai* sediment sampling. *Muliwai* are brackish water pools near the mouth of a stream that are created by seasonal barriers of sand or sediment. The Army sampled *muliwai* sediment to evaluate the potential for contaminants in the surface soil and surface water at MMR to be carried by runoff to the *muliwai* west of Farrington Highway.
- Marine resources study. The Army completed a marine resources study in 2007 to determine whether marine resources (fish and limu [seaweed]) near Mākua Beach and in the Mākua *muliwai* are contaminated with constituents primarily associated with proposed

training activities at MMR. This study also evaluated the potential that activities at MMR could contribute to any contamination detected in the marine resources, and evaluated whether the proposed training activities at MMR pose a human health risk to area residents that rely on marine resources for subsistence. A supplemental study was conducted in 2008 that expands on the findings of the 2007 Marine Resources Study, focusing on the sampling and analysis of shellfish, following established and agreed upon field sampling protocols.

- Cultural resources surveys, including a traditional cultural places survey, surface, and subsurface archaeological surveys of all areas within the CCAAC training area circumscribed by the south firebreak road, and surface archaeological surveys of SDZ areas.

Available results from these studies have been incorporated into the EIS and are discussed in the related resource sections listed in Table 1-1. A detailed overview of the field investigations is provided in the introduction to Chapter 3, Affected Environment.

The breadth of the subject matter in this EIS and the nature of the environmental resources that could be affected require that the Army consider many laws, regulations, and executive orders related to environmental protection. Some of these authorities prescribe standards for compliance; others require specified planning and management actions that protect environmental values potentially affected by Army actions. Appendix A identifies the principal laws and executive orders and how they relate to the Proposed Action. These authorities are addressed in various sections of this EIS where they are relevant to particular environmental resources and conditions.

Table 1-1
Summary of Sections Providing Discussions Pertaining to Army Field Investigations

Field Investigations	Discussion of the Results of the Investigations	Discussion of the Associated Impacts
Water	Section 3.7	Section 4.7
Soil	Section 3.8	Section 4.8
Air	Section 3.4	Section 4.4
Noise	Sections 3.5 and 4.9	Sections 4.5 and 4.9
Nearshore Dive Survey	Section 3.11	Section 4.11
<i>Muliwai</i>	Sections 3.7 and 3.11	Section 4.7

Field Investigations	Discussion of the Results of the Investigations	Discussion of the Associated Impacts
Sediment		
Marine Resources Study	Section 3.7	Section 4.7
Cultural Resources Surveys	Section 3.10	Section 4.10

1.5 DECISION(S) TO BE MADE

This EIS provides the decision maker and the public with the information necessary to evaluate the potential impacts associated with the alternatives developed to fulfill the purpose and need for the Proposed Action, as directed by NEPA. It also serves to provide information on how to meet the training needs of the 2/25th and evaluates reasonable alternatives that would minimize adverse environmental effects or enhance the quality of the environment. Selection of an alternative by the decision maker will take into account the environmental, economic, and social issues as well as the alternative's ability to meet the objectives of the military mission. Chapter 4 includes any practical mitigation measures available to avoid, minimize, or mitigate adverse environmental impacts.

1.5.1 Cooperating Agencies

CEQ defines the rights and responsibilities of cooperating agencies in Section 1501.6 of the CEQ regulations (CEQ 1978) and in Question 14 of *The 40 Most Asked Questions* (about NEPA) (CEQ 1981). Upon request of the lead agency, any other federal agency that has jurisdiction by law or that has special expertise with respect to any environmental issue, may become a cooperating agency. No federal agencies were formally requested to be cooperating agencies, nor have any federal or state agencies requested this status. Nonetheless, the Army is working closely with agencies that have jurisdiction over or special expertise regarding resources at MMR (see Section 1.6.2).

1.5.2 Interagency Coordination

For preparation of this EIS, the Army has coordinated with other military services in Hawai'i relative to their proposed use of MMR. Government consultations identified during the development of this document and the SEA are identified in Table 1-2. This table provides a quick reference and is not meant to be a comprehensive listing of all consultations and permits that may eventually be required.

**Table 1-2
Summary of Government Consultations**

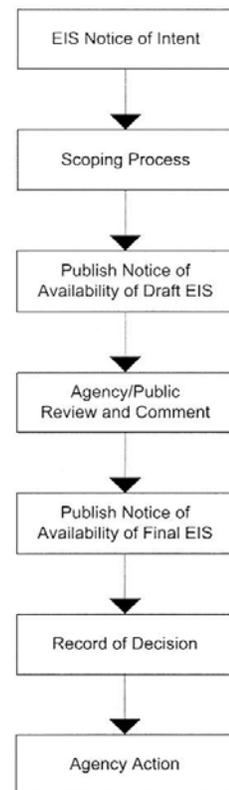
Consultation or Concurrence	Regulatory Agencies and Organizations
Concurrence with Consistency Determination under the Coastal Zone Management Act (CZMA), CZM Program, State Department of Business, Economic Development, and Tourism (State DBEDT)	CZM Program, State DBEDT
Consultation in accordance with Section 7 of the ESA and the Marine Mammal Protection Act (MMPA)	USFWS, National Marine Fisheries Service (National Oceanic and Atmospheric Administration [NOAA] Fisheries)
Consultation in accordance with Section 106 of the National Historic Preservation Act (NHPA)	State Historic Preservation Officer (SHPO), Advisory Council on Historic Preservation (ACHP), and native Hawaiian organizations

The Army may obtain permits from the State Department of Land and Natural Resources (DLNR) to conduct troop marches on lands other than federal lands.

1.6 PUBLIC INVOLVEMENT

Through public involvement, the Army determined the range of issues and those significant issues to be addressed in the EIS. Public involvement also allows for full and fair discussion of significant environmental impacts. By providing a means for open communication between the Army and the public, the procedural aspects of NEPA promote better decision making. Persons who were known to have a potential interest in the Proposed Action, including minority, low-income, disadvantaged, and Native Hawaiian groups, were notified and invited to participate in the environmental impact analysis process.

The 25th ID and USAG-HI reached out to numerous organizations to gather input on the NEPA process. Civic organizations consulted included Rotary International, chambers of commerce, the Military Affairs Committee, veterans groups, retired military members, state and city government officials, Members of Congress, and neighborhood boards. Native



**Figure 1-3
EIS NEPA Process**

Hawaiian and Pacific Islander groups also have been encouraged to participate in the NEPA process.

CEQ regulations and 32 CFR Part 651 guide public participation opportunities. The Army's public participation outreach includes issuing in the *Federal Register* a notice of intent (NOI) to prepare an EIS,³ a public scoping process, a 45-day public review period for the Draft EIS, and publication of the Final EIS, accompanied by a 30-day mandatory waiting period before a ROD is issued (Figure 1-3). The Notice of Availability (NOA) for the ROD will be published in the *Federal Register* before Army action is taken.

The NOI was published in the Federal Register on March 20, 2002, public notices were published in the major newspapers on O'ahu announcing the time and location of two public scoping meetings that were held to solicit public input and to obtain comments on the scope of the EIS: *Honolulu Advertiser* (March 24, 26, 27, 28, 2002), *Honolulu Star-Bulletin* (March 24, 26, 28, 2002), and *Midweek* (March 27, 2002). In addition, the public scoping meetings were announced in the April 8, 2002, issue of *The Environmental Notice*, published by the State of Hawai'i Department of Health (HDOH), Office of Environmental Quality Control. The scoping period was 45 days, during which the public, organizations, and agencies were encouraged to provide comments.

The public scoping meetings were held on April 9, 2002, at the Nānākuli High and Intermediate School cafeteria, and on April 13, 2002, at the Wai'anae District Park multipurpose building. Approximately 174 people attended the scoping meetings, and 67 individuals provided oral comments for the Army's consideration. The Army also received written comments from approximately 80 individuals and organizations. The major concerns expressed during the scoping process concerned the following issues:

- Potential contamination of soil, surface water, groundwater, *muliwai*, nearshore ocean water, and air;
- Reduction in access to hunting and cultural sites;
- Impacts on cultural sites and traditional cultural practices;
- Transportation of munitions;
- Socioeconomics and environmental justice;
- Wildfires;
- Noise;

³The NOI for this EIS was published in the *Federal Register* on Wednesday, March 20, 2002 (Vol. 67, No. 54).

- Air safety; and
- Effects on threatened and endangered species.

Subsequently, the Army prepared a Draft EIS. For public review of the Draft EIS, the US Environmental Protection Agency (EPA) published a notice of availability in the *Federal Register* on July 22, 2005, and the Army published a notice of availability in the *Federal Register* on August 3, 2005. The Army also issued a press release on the availability of the Draft EIS on July 22, 2005. In addition, the availability of the Draft EIS was announced in the July 23, 2005, issue of *The Environmental Notice*, published by the HDOH, Office of Environmental Quality Control.

The Army provided a public comment period for the Draft EIS of 60 days (from July 22 to September 21, 2005), then extended it an additional 15 days to October 6, 2005. Extension of the comment period was published by the EPA in a September 16, 2005, *Federal Register* notice.

Three public comment meetings were held on the island of Oahu on August 23, 25, and 27, 2005. Seventy one individuals or persons representing organizations provided oral comments for the Army's consideration. The Army also received written comments on the Draft EIS from approximately 38 individuals, organizations, and government agencies in the form of e-mails and written letters. The public comments and the Army's responses to them are included in Appendix K.

The Draft EIS was also made available for a second 60-day public comment period, from February 2 to April 3, 2007. The review period for technical experts retained on behalf of Mālama Mākua was extended an additional 16 days, to April 19, 2007. During a public comment meeting on February 24, 2007, the Army received oral comments from 10 individuals or persons representing organizations. Two individuals also provided written comments on the Draft EIS. The public comments and the Army's responses to them are included in Appendix K. The SDEIS was released for public comment on September 22, 2008 with the comment period ending on November 3, 2008. Public meetings were held on October 6, 7, 8, and 9. Responses to these comments are included at Appendix N of the Final EIS. Responses to comments on studies are contained in Appendix G immediately following each study. Revised responses to the 2007 Subsurface Archeological Survey (document found in Appendix G-9) are in Appendix M of the printed Final EIS. 2009 comments on the Marine Resources Study are included with that study at Appendix G-8 of the Final EIS.

CEQ regulations provide for a minimum 45-day public comment period following publication of the SDEIS. During the meetings, the public was provided opportunities for presenting oral and written comments on the EIS. In addition, individuals and representatives of organizations and agencies submitted written comments to the Army without attending the public meetings.

The Army published a Marine Resources Study on January 14, 2009 and initiated a 60-day public review and comment period. On February 11, 2009, the Army held a public meeting at Nanaikapono Elementary School. Approximately 30 attendees were present at that meeting and 14 speakers addressed the audience. The entire meeting was recorded. The Army also provided for a Native Hawaiian Translator, one court recorder that transcribed the meeting, a second court recorder to take private testimony, and a Facilitator. The Army also made available copies of the Marine Resources Study for the public, and prepared posters summarizing the study for the public to view. The video and transcripts of this meeting are included as part of the administrative record for this EIS. In addition, the transcripts of that meeting, and responses to comments on the study, are available as an appendix to the 2009 Marine Resources Study. The Marine Resources Study is found as Appendix G-8 of the Final EIS.

Per CEQ regulations, after issuing the Final EIS, the Army may issue the ROD following a 30-day mandatory waiting period. The Army will adhere to these procedures for this EIS. Notices announcing the availability of the Final EIS will be published in the *Honolulu Advertiser*, *Honolulu Star-Bulletin*, *Midweek*, *The Environmental Notice*, and other local news outlets.

Individuals and organizations are invited to access information concerning the EIS at the Army's Web site established for this EIS at <http://www.garrison.hawaii.army.mil/makuaeis>.

Other opportunities for public input and involvement included public involvement efforts conducted in support of identification and access of cultural sites and the sampling and analysis plans and studies for the field investigations at MMR. Some of these additional public outreach efforts included the following:

- Public notice announcing public information meetings on MMR environmental studies protocols (July 3, 2002);
- Public information meetings on MMR environmental studies protocols (Wai'anae Recreation Center, July 16 and 18, 2002);

- Public information meeting on cultural access and Unexploded Ordnance Clearance Plan Brief (Wai‘anae Park Recreation Complex, September 24, 2002);
- Press release announcing that the Army adopted public comments for sampling efforts to be conducted at MMR (October 18, 2002);
- Press release announcing that the Army proposed to conduct a prescribed burn (October 28 to November 2, 2002);
- Public meeting on cultural access (Wai‘anae District Park Recreation Complex, December 10, 2002);
- Public notice announcing the availability of the Muliwai Sampling and Analysis Plan for public comment (December 17, 2002);
- Public notice announcing the availability of the Marine Resources Study and the Subsurface Archaeological Study for public comment (February 2, 2007);
- Public meeting on the Marine Resources Study, the Subsurface Archaeological Study, and the Draft EIS (Wai‘anae District Park Recreation Complex, February 24, 2007);
- Public notice announcing the availability of the supplemental Marine Resources Study for public comment (January 14, 2009); and
- Public meeting on the supplemental Marine Resources Study (Nanaikapono Elementary School, February 11, 2009).

1.7 ORGANIZATIONAL STRUCTURE OF THE EIS

This EIS is organized by chapters. Major issues and topics of each chapter are summarized below:

- Chapter 1, describes the purpose and need for the proposed action and outlines the scope of the analysis presented in this document.
- Chapter 2, Description of the Proposed Action and Alternatives, presents the No Action Alternative and four alternatives to accomplish the Proposed Action. Three of the action alternatives are at MMR and one is at PTA.
- Chapter 3, Affected Environment, describes existing resources and environmental conditions at MMR and PTA, and within the ROI. The conditions presented form the baseline for analyzing the environmental impacts of the alternatives. Resource categories addressed in the EIS include land use and recreation, airspace, visual resources, air quality, noise, traffic and transportation, water

resources, geology and soils, biological resources, cultural resources, hazards and hazardous materials and wastes, socioeconomics and environmental justice, public services and utilities, and wildland fires.

- Chapter 4, Environmental Consequences, identifies and describes the adverse and beneficial environmental impacts expected to result from implementing the alternatives. Analyzing potential impacts identifies direct and indirect effects and mitigation measures that could reduce the intensity of adverse effects.
- Chapter 5, Cumulative Projects and Impacts, presents other past, present, and reasonably foreseeable projects and identifies the cumulative environmental effects that could result from implementing those projects along with the alternatives.
- Chapter 6, Other Required Analyses, addresses other considerations required by NEPA, such as significant unavoidable adverse effects.
- Chapter 7, References, lists the references used during preparation of the EIS.
- Chapter 8, Consultation and Coordination, lists the agencies and individuals consulted during preparation of the EIS.
- Chapter 9, List of Preparers, presents the preparers of and contributors to the EIS.
- Chapter 10, Glossary, defines terms used in the EIS.
- Chapter 11, Distribution List, identifies recipients of the Final EIS.

Appendices to the printed version of the Final EIS are included to support the analyses that the Army conducted to assess the potential impacts from implementing the proposed action and alternatives. These appendices are included in the printed version because they were added to the Final EIS and were not included as part of the Supplemental Draft EIS; or because they were updated from appendices that were presented in the Supplemental Draft EIS; these are:

- Appendix A: Statutory and Regulatory Framework. This appendix discusses and contains the laws, regulations, and programs associated with the various resources discussed in Chapter 3. Although this appendix remains unchanged, the Army has included this Appendix in the Final EIS to provide a regulatory reference for the reader.

- Appendix B: Public Involvement. This appendix supplements Chapter 1, and describes the public involvement efforts undertaken by the Army during preparation of the Final EIS and its various studies. This appendix is updated with SDEIS and Marine Resources Study public involvement materials.
- Appendix G-8: Marine Resources Study Field Sampling Results and Risk Assessment. This appendix contains the 2009 Marine Resources Study conducted by the Army to determine whether marine resources near Mākua Beach and in the Mākua *muliwai* are contaminated with constituents associated with proposed training activities at MMR. The printed version of the Final EIS does not include Marine Resources Study Appendix B. This is because the lab data, which remains unchanged, is more than 1,000 pages in length. Printing this material would have unnecessarily consumed paper resources. Rather, the Army has included Marine Resources Study Appendix B in the CDs that were distributed with hard (paper) copies of the Final EIS. This Appendix is also available on the Web site established for this document. This Appendix also includes response to public comment.
- Appendix L: Cultural Resources Programmatic Agreement (PA). This appendix contains the 2009 PA that was developed to resolve or mitigate the potential adverse impacts caused by proposed training at MMR. The requirements of the PA are also summarized in Chapter 3.10.8.
- Appendix M: Subsurface Archeological Survey Comments. This appendix contains updated responses to comments on the report by Dr. Dye and Mr. Henkin.
- Appendix N: Supplemental Draft EIS Comments and Responses. This appendix displays public comment provided to the Army by interested respondents and stakeholders on the Supplemental Draft EIS, which was published September 2008. It also contains responses to comments and indicates where changes were made to the EIS as a result of public comment.
- Appendix O: 2006 to 2008 Hydrogeologic Data. This appendix supports Chapters 3.7 Water Resources, and 3.8 Geology and Soils. This appendix contains data used to support the Army's operational range assessment program, and supplements another study to evaluate migration of munitions constituents from MMR.

The Final EIS also refers the reader to appendices that are found as part of the Supplemental Draft EIS, published September 2008. The studies, reports, and agreements contained in those appendices (listed below) are

not changed and continue to supplement the analysis prepared for this Final EIS. Those appendices are also found on the Army's Web site established for this EIS at <http://www.garrison.hawaii.army.mil/makuaeis>. Those appendices are listed below:

- Appendix C: MMR Land Use Requirements
- Appendix D: Airspace
- Appendix E: Air Quality Terminology and Background
- Appendix F-1: Noise Background
- Appendix F-2: Sound Level Meter Logs
- Appendix G-1: Hydrogeologic Investigation Report
- Appendix G-2: Hydrogeologic Data
- Appendix G-3: Muliwai Sediment Sampling Report
- Appendix G-4: Noise Monitoring Report
- Appendix G-5: Noise Modeling Report
- Appendix G-6: Air Sampling Report
- Appendix G-7: Meteorological Data
- Appendix G-9: Subsurface Archeological Survey
- Appendix H-1: 2007 Biological Opinion
- Appendix H-2: 2008 Biological Opinion
- Appendix H-3: Biological Resource Information
- Appendix H-4: Correspondence
- Appendix H-5: DLNR Permit
- Appendix H-6: Excerpts from the Local Flying Rules
- Appendix H-7: CZMA Determination
- Appendix I: Programmatic Agreements
- Appendix J-1: IWFMP Chapter 1
- Appendix J-2: IWFMP MMR Fire Management Area
- Appendix J-3: IWFMP MMR Standing Operating Procedures
- Appendix J-4: Fuel Management Options from Analysis of Fire Management Concerns at MMR
- Appendix J-5: Prescribed Burn FNSI & EA
- Appendix K: Draft EIS Public Comments and Responses