

Section 3: Identification of alternatives

3.1 GENERAL This Section of the Supplemental Environmental Assessment discusses alternatives to the Proposed Action. Each alternative is discussed as to its general environmental effects, its support of the 25th ID(L) mission, and its economic effects. There is a constant cost associated with operating any range. The costs addressed in this section are estimated additional costs of conducting training if the proposed action is not selected.

3.2 ALTERNATIVE 1: NO ACTION Under the No Action alternative, Makua would be closed to military training. Army maintenance and stewardship programs would continue, but at a much-reduced level due to the absence of Army training activity. The Army would protect resources as required by law.

This reduced stewardship would continue until a determination is made that the Army would no longer need the land, at which time a disposal process would be initiated. Under the disposal process, leased and licensed lands would be returned to the lessor, the State of Hawaii. Land the Army owns in fee simple would be subject to General Services Administration excessing procedure, including screening under the Hawaiian Homelands Recovery Act and the McKinney Act, and for potential use by other agencies. (The Hawaiian Homelands Act requires federal agencies excessing property to consider uses for the benefit of Hawaiian natives. The McKinney Act requires federal agencies to consider potential use of excess facilities to house the homeless.) Ceded lands would also go through an excessing process. Congress has provided that ceded lands, if not needed by the federal government, would revert to State of Hawaii

ownership. During the disposal process, the Army would provide care and custody of the lands. Disposal of Army lands would be subject to its own NEPA process.

Environmental cleanup must generally occur before disposal of federal land can occur. All remedial action necessary to protect human health and the environment from the effects of hazardous substances must be taken. After completion of the disposal process, care and custody of the property would be the responsibility of the new owner. The Army would retain some responsibility for additional environmental remediation that becomes necessary. These responsibilities would be addressed in the NEPA disposal document and would be embodied in transfer documents.

3.2.1 Impacts on the human and natural environments Impacts of this alternative on Makua are addressed in Section 4 of this Supplemental Environmental Assessment. Generally, permanent cessation of military training would have an environmentally beneficial effect on Makua. However, removing the land from Army stewardship and disposal and subsequent use by other parties could have adverse environmental impacts. The impacts of disposal and use by others are not analyzed in this document. Rather, they would be examined in a separate NEPA document for disposal.

3.2.2 Mission concerns The 25th ID(L) needs to conduct company level combined-arms maneuver live-fire training in order to execute its mission successfully. The training facilities at Schofield Barracks and Pohakuloa can only adequately support platoon level live-fire and maneuver training (as discussed more fully in 3.3 and 3.7). Infantry soldiers are organized and fight collectively as squads, platoons, and companies. The company is the first level where combat forces from outside the unit are integrated into and synchronized with the infantry combat operations. The company commander is the critical first level commander in Army infantry units responsible for this integration and synchronization. Leaders at the company level are young individuals being developed for more complex roles later in their careers. Training and practice in the command and control of a company during a maneuver CALFEX (which includes the coordination among the platoons within the company and attached engineer, artillery, and/or aviation elements, and the supporting weapons, each of which may be doing a different task within the exercise or operation) is essential. Both company commanders and their soldiers require safe, effective and realistic training to be competent in their mission essential company collective tasks.

Because the No Action alternative precludes reasonably available resources for company maneuver CALFEXs for the Army in Hawaii, this alternative is unacceptable from a mission perspective.

3.2.3 Economic issues The Army would be obligated to clean up UXO at Makua Military Reservation as part of the disposal procedure. No site-specific estimate of cleanup cost for Makua has been prepared. Exclusive of the high logistics overhead associated with operations there, clean-up costs for Kaho'olawe Island, a former bombing range, have amounted to approximately \$14,000 per acre.

Although it might be desirable to clean the entire Makua Valley, to do so with current technologies requires clearing of all vegetation and possible excavation of soils from a depth between 1 foot to 14 feet (DOD, 1999) depending on the intended subsequent use of land (see 4.2.2). Since the soil contains cultural resources, and the vegetation (particularly in the higher areas) contains endangered species, it is not possible to state accurately what the total cost of UXO cleanup will amount to for the 4,190-acre reservation. In part, this is dependent on the technology available at the time of clean up.

The Army is currently spending about \$1 million per year on environmental tasks at Makua. If the property were to be transferred to others, the Army would not expect to continue these activities

3.2.4 Conclusion The No Action alternative is not acceptable because it does not allow the Army to execute required training missions and does not allow the Army to maintain its combat readiness within the existing resources. Environmental consequences of the No Action alternative are addressed in detail in Section 4.

3.3 ALTERNATIVE 2: CONDUCT ALL TRAINING AT POHAKULOLOA TRAINING AREA In this alternative, Makua would be closed and the land disposed of as described in 3.2, the No Action alternative. Training previously conducted there would instead be conducted at Pohakuloa Training Area on the Big Island of Hawaii. All personnel and equipment required to conduct the exercise would be transported to PTA.

3.3.1 Mission implications

3.3.1.1 Existing and required facilities TC 25-8, Training Ranges, defines the area ideal area for a company maneuver CALFEX as 1,137 acres (Department of the Army, 1992). The Makua Military Reservation CCAAC has 457 acres. The single maneuver live-fire range complex at PTA, known as Range 10, is an Infantry Platoon Battle Course comprised of approximately 80 acres. In light of the rugged terrain and available land space, this land area is considered only minimally sufficient for platoon-level training. Range 14, a defensive, non-maneuver live fire range, occupies about 69 acres and is not suitable for a company maneuver CALFEX as defined above.

There is sufficient suitable terrain at PTA to build a replacement facility for Makua. Under current design standards, the Multipurpose Range Complex-Light (MPRC-L) is the appropriate range facility for conducting company combined-arms maneuver live-fire training. For the purposes of comparison for this alternative however, a smaller facility, similar in size to the CCAAC at Makua, would be used. This would require separate NEPA documentation, as well as consultation under Section 7 of the Endangered Species Act, and Section 106 of the NHPA. Construction of the new facility could potentially take seven years to complete: five years to secure funds, two years of planning and programming and NEPA studies, and two years for actual construction. In the interim there would be no appropriate facility available in Hawaii to conduct company maneuver CALFEX.

3.3.1.2 Operational concerns Upon completion of the new facility, the Army would be able to train its units on an appropriate training range. This alternative would require additional and longer deployments from Schofield Barracks on Oahu. The increased deployments and separation from families and home station adversely impacts morale.

During each unit movement to and from Pohakuloa, two to three days would be spent at the beginning and at the end of the exercise entirely in transit (loading equipment on ships or barges, sail time, offload and consolidation of the unit and transit to Pohakuloa). If a contingency mission required immediate deployment of units conducting training at PTA, the small airfield there cannot support the large aircraft

required for a direct deployment. Therefore units in training would have to move to a civilian aerial port of debarkation (such as Kona or Hilo) for load out on civilian or military aircraft.

In addition to the organic elements of an infantry company, the external assets (such as helicopters, artillery, engineers and battalion-level weapons systems required for company maneuver CALFEXs) would also have to be transported to Pohakuloa in support of training. Aviation is often used in a CALFEX. For aviation units, each one-way trip from Oahu to the Island of Hawaii requires at least three hours of flight time, which provides little training benefit to the aviators. A full air-assault operation for one infantry company at Pohakuloa requires support from fifteen assault helicopters, which would be unavailable for other operational missions or deployments. When this type of training is conducted at Makua, both the ground and aviation units are much closer to their deployment stations, and are able to deploy, support the mission, and redeploy more quickly. Because movement of personnel and equipment from home station to the combat area of operations is an essential part of “training as we fight,” pre-positioning of materiel at PTA to avoid transit costs is also not a suitable solution.

The site conducive for a company maneuver CALFEX would require the clearance of unexploded ordnance (UXO). One part of this UXO area contains Improved Conventional Munitions (ICM). Unexploded ICMs are highly sensitive and considered by the Army to be the most dangerous type of UXO. Entering into these areas requires a Department of the Army waiver.

Although PTA does provide a needed venue for other types of training, its severe volcanic terrain is unlike most of the conditions in which companies of the 25th ID(L) might be expected to deploy and fight in the Pacific theater. In addition, the rough terrain (aa lava) restricts maneuver training in its current state.

3.3.2 Impacts on the human and natural environments The environmental consequences of this action at Makua would be the same as those of the No Action alternative. PTA could be expected to experience increased impacts from construction of a new facility, and as a result of the increase in training.

3.3.3 Resource concerns Programming, planning, and construction of a replacement facility, similar to the Makua CCAAC, would cost approximately \$10 to \$15 million. Mitigation of environmental impacts from construction and the increased training frequency at PTA would generate additional costs.

In addition to building an appropriate range facility at Pohakuloa, the Army would incur the costs of air transporting soldiers and shipping equipment between the islands. Assuming that the most effective method of conducting the training requirements is to deploy a complete battalion Task Force (three infantry companies and supporting elements), the costs for the division to deploy each of six battalions to the Island of Hawaii at least one time a year in order to complete the company maneuver CALFEX requirement may be estimated as follows. The task force would include the three infantry companies, the headquarters company, an artillery battery, and an engineer platoon (approximately 600 personnel and 100 vehicles). The cost of transporting one battalion task force to Pohakuloa and back is estimated to cost an average of \$253,000. Conducting the PTA deployment once per year for each of 6 battalions (three companies) results in an annual cost of:

6 battalions x 1 iteration/year x \$253,000/battalion = \$1,518,000/year

The \$1,518,000 is an additional cost above and beyond the costs of conducting the training at Makua.

Aviation support or air assault operations requiring helicopters would increase the costs above this level. For example, each UH-60 Blackhawk helicopter costs \$1,600 per hour to fly. Sending only five UH-60 helicopters to support the company mission could cost a minimum estimate of an additional \$25,000 per exercise if this support is used as part of the CALFEX.

3.3.4 Conclusion Currently no appropriate facility exists at PTA to conduct company maneuver CALFEXs. This alternative is unacceptable because: combat readiness would be adversely impacted during the time required to program, plan, and construct a replacement company maneuver CALFEXs facility at PTA; the training facility is estimated to cost between \$10 and \$15 million and could take an estimated four years to complete (two years for planning and programming and two years for construction) provided funds are immediately available; portions of the existing terrain consist of harsh aa lava that restricts maneuver training and does not simulate the conditions where the 25th ID(L) expects to deploy; additional UXO clearance (to include ICM) is necessary; personnel deployments would increase with more frequent and extended deployments; and operational expense would increase. Therefore this alternative is unacceptable and is excluded from further consideration.

3.4 ALTERNATIVE 3: CONDUCT TRAINING IN THE CONTINENTAL UNITED STATES

(CONUS) In this alternative, Makua would be closed and disposed of as described in 3.2, under the No Action alternative. Army and other-service units stationed in Oahu would be transported to installations in the continental United States to conduct company maneuver CALFEXs. The closest CONUS installation with the required facilities is Yakima Training Center in eastern Washington State. Conducting company maneuver CALFEXs at a CONUS range would necessitate additional movement of personnel and equipment, increased personnel deployments (more time away from home station and families), and increased costs for service and support.

3.4.1 Impacts on the human and natural environments The environmental consequences of this action at Makua would be the same as those of the No Action alternative. Effects of this alternative on Yakima Training Center are not known, but it could experience increased impacts as a result of the increase in training frequency.

3.4.2 Mission concerns Yakima Training Center has an MPRC that can support company maneuver CALFEXs, as well as battalion and brigade maneuver training. Yakima would be satisfactory in terms of facilities if the frequency of training could be maintained irrespective of cost limitations. However, the 25th ID(L) is stationed in and trains in Hawaii to prepare itself for warfare in the unique environments of the Pacific Basin and Pacific Rim, including potential operational areas similar to Korea, Indonesia, and Southeast Asia. Makua Military Reservation is topographically and climatologically similar to the types of terrain into which the 25th ID(L) would be expected to deploy. Yakima Training Center (or for that matter most other CONUS installations) would be less realistic for the 25th ID(L). As a result, training would not be as effective.

The availability of range facilities at Yakima cannot be assumed. Yakima Training Center is a primary Mobilization Station for Army Reserve and National Guard units in the Pacific Northwest and is currently supporting the training and development of two interim brigade combat teams as part of the Army's current transformation into a new fighting force. The two enhanced separate brigades of the Washington and Oregon Army National Guard also use Yakima Training Center for live fires and maneuver training. Battalions of the 25th ID(L) deploying to Yakima would be expected to maximize the benefit of their deployment and could therefore realistically extend their exercises to thirty days (6 battalions x 1 month = 6 months). Facilities at Yakima Training Center were built to support units assigned to the region, and may not be available to accommodate the additional demands imposed by the 25th ID(L).

3.4.3 Resource issues Using the same deployment reasoning as the PTA alternative, the division would deploy six battalion task forces at least one time per year. The average round trip cost of transporting each of the battalions by air and ship from Hawaii to Tacoma (point of debarkation) is \$1,100,506. The annual cost for the division is:

$$6 \text{ battalions} \times 1 \text{ trip/year} \times \$1,100,506/\text{trip} = \$6,603,036/\text{year}$$

This cost is for the ground units and would be significantly greater with an aviation (helicopter) package.

3.4.4 Conclusion Conducting all required company maneuver CALFEXs at Yakima Training Center would not allow the 25th Infantry Division (Light) to maintain its combat readiness. This alternative is unacceptable because range availability cannot be guaranteed, and because climate and terrain at Yakima do not simulate the conditions where the 25th ID(L) expects to deploy. This alternative is also unacceptable because personnel deployments would increase with more frequent and extended deployments and the operational expense would increase. Therefore this alternative is unreasonable and is excluded from further consideration.

3.5 ALTERNATIVE 4: STATUS QUO (PRE- SEPTEMBER 1998) In the Status Quo alternative, the Army would continue using the CCAAC at Makua Military Reservation for company maneuver CALFEXs. The CALFEXs would include use of TOW missiles, incendiary munitions, and tracers. All current environmental programs would also continue, including natural and cultural resource management, wildland fire management, and other programs as described in Section 4 of this Supplemental Environmental Assessment.

3.5.1 Impacts on the human and natural environments The environmental consequences of this action at Makua, although less than the impacts of actions prior to September 1998, would be greater than those of the Proposed Action (below), in that there would be a greater risk of fire and its consequences. In their Section 7 consultation, the Army and USFWS agreed that the greatest single threat to native and endangered species at Makua is the threat of fire. Based on historical data, the elimination of TOW missiles, tracers, and incendiary munitions alone will reduce the risk of training related fires by over sixty percent. This alternative, using tracers and TOW missiles, represents pre-Section 7 use of the CCAAC, and would be higher tempo and higher risk than the Proposed Action.

3.5.2 Mission and resource concerns This alternative will allow the Army to train its units with maximum realistic training with critical weapons systems on an approved live-fire assault course. For that

reason it would well serve the Army's mission in the Pacific. The light infantry forces of the 25th ID(L) are predominantly a night-fighting force, and the use of tracers is very valuable in showing the soldier the trajectory of the bullets and accuracy of his aim. Additionally, the use of artillery and mortar delivered white phosphorus (WP) for smoke during daytime attacks and illumination for nighttime attacks are significant training enhancers.

3.5.3 Conclusion This high-tempo alternative bears a risk of fire that is not worth the increased training benefit obtained from the use of tracers, incendiaries, and TOW missiles. It carries an unwarranted risk of environmental damage. Therefore this alternative is not reasonable and is excluded from further consideration.

3.6 ALTERNATIVE 5: CONDUCT NON-LIVE-FIRE TRAINING AT MAKUA MILITARY RESERVATION In this alternative, the Army would conduct maneuver training at Makua but without live fire. This would be essentially the same type of training currently conducted at Schofield Barracks, Kahuku and Kawaiiloa Training Areas.

3.6.1 Impacts on the natural environment Non-live-fire maneuver training would reduce the risk of fire and the subsequent threats to the natural environment. However, maneuver training would still generate impacts on natural and cultural resources. Maneuver training consists of the movement of forces in relation to the enemy to gain positional advantage. It includes concentrated and singular movement of troops and vehicles across the terrain, use of laser weapon training simulators, and encampment. Impacts to natural and cultural resources could include the effects of trampling, introduction of alien weeds, and some (but reduced) risk of fire.

3.6.2 Mission concerns This alternative also does not fulfill the annual requirement to conduct company maneuver CALFEXs. The presence of UXO on the site would reduce the actual land available for maneuver training to the area currently used for training, about 1,034 acres including the CCAAC, bivouac area, and firing points. The 1,034-acre area available could be used, but many much larger maneuver areas are currently available for non-live-fire training on Oahu at Schofield Barracks, Kawaiiloa and Kahuku Training Areas. The use of live fire is essential to the training mission, as it represents a far greater degree of difficulty and complexity than maneuver training alone. A company maneuver CALFEX range would still need to be built somewhere else as described above.

3.6.3 Economic concerns Keeping Makua open to non-live-fire maneuver training would not be justifiable, since other non-live-fire maneuver lands are available on Oahu.

3.6.4 Conclusion Because it does not allow the Army to conduct company maneuver CALFEX, this alternative does not meet the mission needs of the Division. The training value of the range used solely as maneuver area would not be worth the high cost of maintaining Makua. Therefore this alternative is not reasonable and is excluded from further consideration.

3.7 ALTERNATIVE 6: CONSTRUCT A REPLACEMENT FACILITY AT ANOTHER ARMY INSTALLATION ON OAHU In this alternative, Makua would be closed to training and disposed of as described in 3.2, the No Action Alternative. The Army would construct an appropriate replacement

facility in order to conduct a company maneuver CALFEX at another Army installation on the island of Oahu.

3.7.1 Impacts on the human and natural environment The environmental consequences of this action at Makua would be the same as those of the No Action alternative. The impacts on the environment at the site for the replacement facility would depend on conditions at the selected site, and could range from minimal to significant.

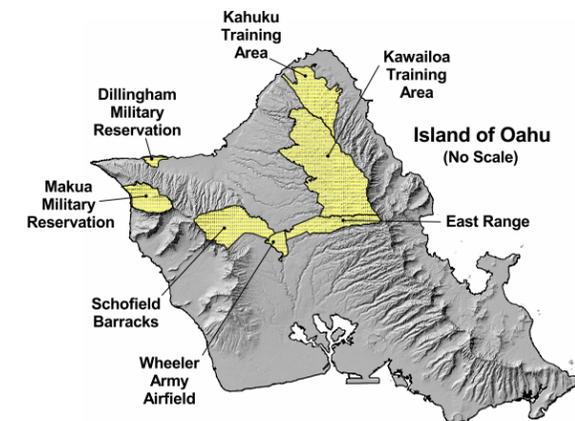
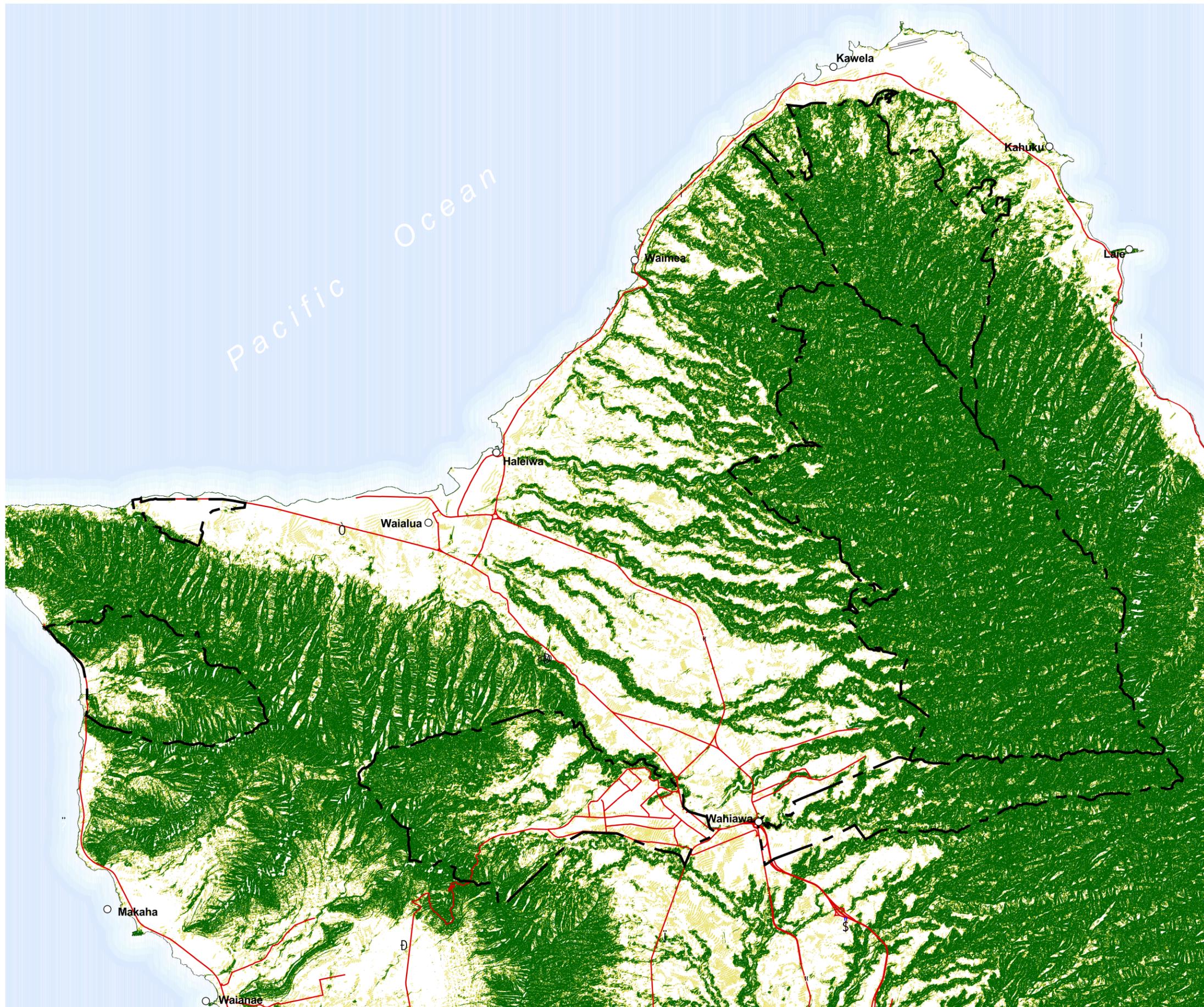
3.7.2 Mission concerns It is assumed that a replacement facility would be built at one of the six Army installations on Oahu that are used for training—see Table 1-1 for a listing, and Figure 1-1 for a map.

3.7.2.1 Land requirement The Department of the Army standard range design for an Infantry Company Battle Course (the standard design for a facility that would replace the CCAAC at Makua) has been combined into one of the several functions of the MPRC-L for planning purposes. The optimal land area is given in TC 25-8, Training Ranges, as 1,137 acres (Table 1-3), which includes the physical part of the complex with target areas and the land used for movement towards the objectives (Department of the Army, 1992). On completely open flat terrain, the range might therefore occupy an area about 1 mile wide by 2 miles long. This area allows for multiple objectives to be placed far enough apart to allow for simultaneous use, but close enough to allow elements of the company to work together in reaching them. It also allows deployment of the various long-range weapons available during a company live-fire exercise. The concept for a company combined-arms assault course (CCAAC) was designed by the 25th ID(L) in Hawaii to maximize the potential of the training areas available to provide the minimum adequate requirements needed to conduct a combined-arms maneuver live fire to standard. Table 1-2 and Table 1-3 offer a comparison between the Army standard ranges and maneuver live fire ranges available in Hawaii.

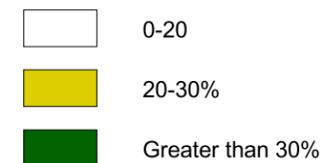
A safety barrier or buffer area must be included in the down-range, or direction-of-fire, area to stop or contain the ballistics effects of the weapons fired. This buffer area is in addition to the 1,137 acres. The size of the buffer will depend on the suitability of surrounding terrain to contain weapons effects. Such terrain may be steep and forested, as it is in Makua. The site should have enough relief to provide cover during maneuver, but not be so steep or rugged that soldiers cannot move across it. In general, slopes should be less than 10 percent. The entire range should be visible from various points in the complex. Some tall vegetation may be present, but the site cannot be entirely forested.

Since all the requirements for an MPRC-L are greater than the current CCAAC at Makua, land requirements for a range similar to the present CCAAC will be considered in this alternative. The actual training area needed to replace the CCAAC facility at Makua would require an area at least 900 meters by 2000 meters deep, or about 447 acres.

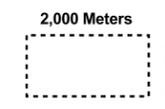
3.7.2.2 Potential locations Lands in Hawaii potentially available for construction of a replacement facility are identified in Table 1-1, (the columns titled “Trafficable maneuver land,” “Impact area,” and “Ranges”). The selected area should already contain a permanent impact area. Approval must be obtained from the Department of the Army for the creation of any new impact areas, and this process could take approximately one year. Figure 3-1 is an analysis of the slopes of all lands in and around the Army’s



Slopes of Oahu



Replacement CCAAC land requirement



Data Sources:
 Topography: USGS 1:250,000 scale Digital Elevation Model (Oahu and Maui - NW data sets), November 2000.
 Slope data derived using ArcView 3.2 and Spatial Analyst 1.0



**Figure 3-1:
Slope Analysis**

BACK OF FIGURE 3-1

training lands on Oahu that is used to determine favorable terrain and potential size. The following paragraphs provide information about the suitability of each of the Army's training land holdings on Oahu as a location for a facility to replace the one at Makua. Tripler Army Medical Center, Helemano Military Reservation, Aliamanu Military Reservation, Fort Shafter and Fort Derussy are excluded from this consideration, as they are small in size, situated in heavily urbanized areas, and fully occupied by buildings. Wheeler Army Airfield is likewise excluded, since it is built up and the only available maneuver terrain is too small, and far too steep and forested to be suitable.

Dillingham Airfield As shown in Table 1-1, this installation has 354 acres of trafficable maneuver land, and no impact area or ranges. Dillingham Airfield does not provide sufficient acreage in order to construct a replacement facility that would meet mission requirements.

Kahuku Training Area There are 4,569 acres of trafficable maneuver land in the Kahuku. Usable land potentially available for a replacement facility at Kahuku is not contiguous, however, and the terrain is too steep in most locations. The only level terrain is currently used as an aircraft landing/pick up zone and is still not large enough for a replacement facility. Figure 3-1 shows that the only available land flat enough for company maneuver CALFEX training is much smaller than the requirements, so the Kahuku is not topographically suitable. Also there are currently no ranges or impact areas at Kahuku, and the Army agreed not to conduct live-fire training at Kahuku Training Area when it purchased the land in 1999. Therefore due to unsuitable terrain and the inability to conduct live fire training as well as the absence of range and impact areas, Kahuku Training Area is unsuitable as a site for a replacement facility.

Kawailoa Training Area Of the total 18,038-acre area at Kawailoa, only 5,310 non-contiguous acres are considered suitable for maneuver. There are currently no ranges or impact areas at Kawailoa. A look at Figure 3-1 shows that almost none of the land is actually topographically suitable for live-fire maneuver training of the type conducted at a CCAAC. Rough terrain and the lack of a range and impact areas at Kawailoa Training Area render it unsuitable as a site for a replacement facility. In any case, the property is leased from Kamehameha Schools and the State of Hawaii, and that lease expires in December 2001.

East Range East Range contains 2,842 acres of trafficable maneuver land. The western portion of these lands is abutted by residential and commercial development on adjacent private property and in the towns of Wahiawa and Mililani Mauka. While an area that is minimally sufficient for a company maneuver CALFEX might fit on the western portion of the training area, no safety buffer zone is available to protect adjacent developments. There is no range or impact area at East Range. The eastern portion is comprised of steep, heavily forested terrain and, as shown in Figure 3-1, contains no land suitable for replacement facility. Therefore due to terrain, size and lack of a range and impact area East range is unsuitable as a site for a replacement facility.

Schofield Barracks. Schofield Barracks includes 1,506 acres of ranges, 2,780 acres of impact area and 1,235 acres of trafficable maneuver land, for a total of 5,521 acres of land that could be considered for a replacement facility. The Schofield impact area has been developed with adjacent range complexes along two perpendicular lines to form an L-shape. Ranges have been built as close together as possible due to limited space. Ranges cannot be built facing each other due to ballistic safety issues.

A replacement facility similar to a CCAAC requires an area of approximately 900 meters by 2000 meters, which equates to about 445 acres, and includes an additional area sufficient enough to include a buffer zone for the weapons used.

The physical terrain limitations of Schofield Barracks range complex restrict the reconfiguration options. As Figure 3-1 shows, at least two areas on Schofield Barracks have terrain and slopes suitable for construction of a replacement facility similar to the CCAAC at Makua. The two areas within the Schofield Barracks complex that could support a replacement facility are the Kolekole Ranges (KR) on the western side of the current complex and the McCarthy Flats (MF) range areas to the east. Because these locations are within the current Schofield Barracks permanent impact area, the selected site would have to be surface cleared of all unexploded ordinance before construction begins. The cost for surface clearing is estimated at \$6 million.

Additionally, if a CCAAC were built at Schofield Barracks, all but two of the existing ranges would need to be reconfigured and realigned. Furthermore, some ranges would be displaced entirely and would have to be rebuilt somewhere other than Schofield Barracks. Even if funding were made available relocating the following ranges could take up to four years, allowing time for a thorough environmental analysis, engineering, design, and actual construction. Table 3-1, below, identifies the ranges, their current uses, and disposition if a CCAAC were to be built at Schofield Barracks.

**Table 3-1:
Disposition of Schofield Barracks ranges required to allow construction of a CCAAC**

<i>Range</i>	<i>Function, remarks</i>	<i>Required for all?</i>	<i>Disposition</i>
CR-3 Rifle Zeroing Range	same as MF4	Yes	Reconfigure/ realign
CR-2A Shotgun/Zeroing Range and Rod and Gun Club Range	Basic shotgun and small arms qualification; scores soldier's ability to engage a target. Also used for recreational private owned weapons use.	No	Reconfigure/ Realign
CR-2 Automated Rifle Field Fire	Separates rifle field fire and is the same as MF4	Yes	Reconfigure/ Realign
CR-1 Automated Rifle Record Fire	Separates rifle record fire and is the same as MF4	Yes	Reconfigure/ realign
CPR Pistols Qualification/ Familiarization	Same as MF5 but separates pistol fire	Yes	Reconfigure/ realign
KR-5 Infantry Platoon Battle Course	Maneuver live fire training event like the CCAAC except at the next lower smaller unit level; does not include combined-arms live fire training.	No	Reconfigure/ realign
ENG DEMO Engineer Demolition	Engineer training requirements using demolitions (similar to MF5, allows the use of larger amounts of explosives)	Yes	Reconfigure/ realign
PT #1 Pointman Course #1	Small unit one or two man field maneuver teams movement training;	No	Reconfigure/ realign
AMB #1, Ambush Site #1	Small unit movement training on reactions to notional enemy ambush	No	Reconfigure/ realign
Gas Chamber	Individual gas mask training	No	Reconfigure/ realign

**Table 3-1:
Disposition of Schofield Barracks ranges required to allow construction of a CCAAC**

<i>Range</i>	<i>Function, remarks</i>	<i>Required for all?</i>	<i>Disposition</i>
Grenade House	grenade range Basic grenade qualification; scores soldier's ability to engage a target with a grenade	No	Reconfigure/realign
INF DEMO	Infantry Demolition Infantry demolitions training; similar to MF-5	Yes	Reconfigure/realign
KR-1A	Practice Grenade Range Basic grenade qualification; scores soldier's ability to engage a target with a grenade	Yes	Reconfigure/realign
PT #2;	Pointman Course #2 Similar to PT#1	Yes	Reconfigure/realign
KR-6	Squad Defense Range Course Live fire training event at the smaller unit level; does not include combined-arms fire training.		Reconfigure/realign
MF-5;	Combat Pistol and Demolition Range Basic pistol marksmanship qualification; scores soldier's ability to engage a target also supports infantry and engineer demolitions training	Yes, if assigned a pistol	Moved elsewhere
MF-4 Rifle	Rifle Zeroing Range Basic rifle marksmanship; aligns rifle to sights and firer	Yes, if assigned a rifle	Moved elsewhere
MF-3	Record Fire and Field Fire Rifle Range Basic rifle marksmanship qualification, practice, and scores soldier's ability to engage a target	Yes, if assigned a rifle	Moved elsewhere
MF-2	Multiple-Purpose Machine Gun/Sniper Range Basic machine gun or sniper team marksmanship qualification ;scores soldier's ability to engage a target	Yes if assigned a crew service weapon	Moved elsewhere
KR-9 launcher weapon;	Qualification/Familiarization M-79, M-203 Rifle Grenade Range Supports basic rifle grenade launcher marksmanship qualification; scores ability of soldier to engage a target	Yes if assigned a rifle grenade	Moved elsewhere
KR-8	Qualification/Familiarization M-73, M-74 Antitank Rocket & MK19 Machine Gun Grenade Launcher Range Basic antitank rocket or machine gun grenade launcher crew marksmanship qualification; scores soldier's ability to engage a target	Yes if assigned these weapons	Moved elsewhere

Source: 25th ID(L) G3

These ranges located at Schofield Barracks are indispensable to maintaining the combat readiness of the Army in Hawaii. At these facilities, individuals and crews learn, practice and qualify on various weapons. Soldiers would not have access to these training and qualification ranges during surface clearing in the impact area, environmental analysis and construction of new facilities. Due to adjacent safety buffer zones, even ranges that were not being moved would be closed during construction of the CCAAC replacement facility. The lack of sufficiently large leveled areas makes the relocation of the displaced facilities difficult.

Because some of the displaced ranges could not be relocated on Schofield Barracks, an alternate site would have to be found. The ranges that would have to be relocated currently support the individual weapons qualification of 200 soldiers per day. Constructing a replacement facility at Schofield would require approximately two years, or longer if NEPA documentation were required, as would probably be the case. Because soldiers would not have the opportunity to qualify on their individual weapons during the CCAAC construction period, the 25th ID(L) would suffer a drastic reduction in overall readiness, including individual and unit qualification. Otherwise, substitute ranges would have to be built first.

Construction of these substitute ranges would take approximately two years, and therefore delay construction of the replacement facility by two years. The timeline for the replacement facility would therefore be a total of at least four years. The Division's overall readiness, including individual soldier and crew qualification on numerous weapons, as well as company maneuver CALFEX training, would suffer drastically due to the loss of these facilities for such extended periods of time.

The same terrain restrictions that make Kawaihoa and Kahuku topographically unsuitable for a replacement facility would also apply to any other type of range relocated to these installations. In fact, the type of fixed-firing-line ranges that would most likely be relocated require even flatter terrain than does the CCAAC. And from a safety impact standpoint, East Range would be as unsuitable for the relocated replacement ranges as it would be for a replacement facility. Additionally, East Range is a non live-fire range and is unsuitable for a replacement facility. For these reasons, Schofield Barracks is not a suitable location for the facility.

Makua Military Reservation This property may be large enough to accommodate the small arms qualification ranges displaced from Schofield Barracks by construction of a replacement facility at Schofield Barracks. Construction of small arms ranges would require extensive excavation and construction of berms, which could damage cultural resources known to exist. Small arms qualification ranges also require the use of tracer ammunition, which increases the risk of fire. Because all Army personnel must use them, the qualification ranges are used nearly every day, night and weekend. This would create significant increase of traffic congestion, continuous noise impacts, and may affect air quality. During the construction period, both the CCAAC at Makua and the displaced small arms ranges from Schofield would be unavailable to support training, resulting in a significant and unacceptable degradation of readiness.

In conclusion, although there is suitable land for the substitute CCAAC at Schofield Barracks, this land is already occupied by other essential military ranges. Displacement and reconfiguration of those ranges would not only delay construction of the CCAAC (with consequential readiness degradation for the Division) but also would involve readiness degradation caused by temporary closure of the ranges being reconfigured. There are also no reasonable alternatives for the location of the potentially displaced ranges. For these reasons, Schofield Barracks is not a suitable location for a CCAAC facility to replace the one at Makua.

3.7.3 Economic concerns The cost of constructing a replacement facility at PTA is estimated at \$10-15 million. Depending on site conditions and the amount of support facility construction required, the cost for construction of a replacement facility at another Army installation on Oahu might be roughly similar. A potential replacement site at Schofield would have to be cleared of UXO; the cost of this action is estimated at \$6 million. Construction of the replacement CCAAC facility would cost \$10-15 million, and reconstruction of the displaced ranges at another location would cost an estimated \$20 million.

3.7.4 Conclusion Potential sites for a replacement facility at other Army installations on Oahu are Dillingham, Kawaihoa, Kahuku Training Area, East Range, and Schofield Barracks. These options have been deemed unsuitable for several reasons. Dillingham does not have an impact area, or sufficient acreage to construct a replacement facility. Kahuku Training Area is topographically unacceptable and has no impact area. Moreover, in accordance with the purchase agreement with the State of Hawaii, live

firing is prohibited at the Kahuku Training Area. Thus Kahuku is considered an unacceptable alternative. Kawaihoa is a leased property with rough terrain. There is also a prohibition on live firing at Kawaihoa. The lease ends in December 2001. These reasons make Kawaihoa unacceptable. Although East Range has sufficient acreage for a replacement facility, it is sandwiched between two large residential areas. Steep terrain as well as environmental and safety restrictions make this alternative unacceptable and it is excluded from further consideration. Schofield Barracks is also unacceptable due to construction costs, negative impact on all weapons training and Division readiness as ranges are rebuilt, unavailability of land for other ranges displaced by a replacement facility for the CCAAC, and construction time required to build the replacement facility. Therefore, Schofield Barrack is not a reasonable alternative for the relocation of the CCAAC at Makua and is excluded from further consideration.

3.8 ALTERNATIVE 7: MODIFIED LIVE-FIRE TRAINING AT MAKUA MILITARY RESERVATION (PROPOSED ACTION)

In this alternative, the Army would continue using the CCAAC at Makua Military Reservation for company maneuver CALFEXs, but would reduce use from its full capacity. In particular, the CALFEXs would not include use of TOW missiles, incendiary munitions, or tracers. Modified training would reduce environmental risks, while continuing or expanding all environmental programs, including wildland fire protection, public involvement, and management of natural and cultural resources. Cultural resources, endangered species, and species of concern would be better protected under these programs. This alternative will allow the Army to execute its required training missions, while protecting the cultural and natural resources. Environmental effects of this alternative are addressed in detail in Section 4 of this Supplemental Environmental Assessment.