APPENDIX C
TRAINING AND CONSTRUCTION ASSUMPTIONS

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APPENDIX C

C.1 TRAINING AND WEAPONRY/EQUIPMENT DESCRIPTIONS

C.1.1 Training Structure and Tempo

This section presents general training groups and training requirements across the United States (U.S.) Armed Services for training on Tinian, which would involve ground combat and certain expeditionary aviation training.

Currently approved training on Tinian is supported and scheduled by Joint Region Marianas. The Commanding Officer of Camp Blaz provides base support functions on behalf of Joint Region Marianas.

As summarized in Chapter 2 of the Final EIS, training events are proposed to occur year-round on Tinian, as scheduled and managed by Range Control operations located within the Base Camp. For this analysis, training is divided into small, medium, and large training events. Small training events could occur throughout the year, while medium and large training events would occur less frequently, approximately 2-4 times per year as shown in Table C.1-1. The size of the units participating in an event would vary based on the type of training and events may overlap or occur simultaneously, with up to 1,000 service members participating in training at one time on Tinian under the Proposed Action.

Table C.1-1 Training Event Size Categories

Size of Training Events	*Approximate Number of Personnel*	*Approximate Training Duration*[1]	*Approximate Training Frequency*[2]
Small	Up to 100 personnel	1-2 weeks	Routinely occurring throughout the year
Medium	Up to 250 personnel	1-2 weeks	Once per quarter
Large	Up to 1,000 personnel	2-4 weeks	2-4 times per year

Notes: [1] Includes time before and after training events for logistics (e.g. setup, and turnover activities).
[2] Small, medium, and large training events could overlap but the number of personnel on island for training at one time would be up to 1,000.

Table C.1-2 provides the estimated peak population for the Proposed Action.

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Table C.1-2. Estimated Peak Population Increase on Tinian from Proposed Action

	2026	*2027*	*2028*	*2029*	*2030*	*2031*	*2032*	*2033*	*2034*	*2035*	*2036*	*2037*
Direct Population[1]												
Within Military Lease Area												
Land-based Training – CJMT[2]	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Land-based Training – MITT[3]	0	0	0	0	0	0	0	0	0	0	0	0
Land-based training – Divert[4]	0	0	0	0	0	0	0	0	0	0	0	0
Outside of Military Lease Area												
Off-island workers for CJMT Range Management[5]	5-10	5-10	10-20	10-20	20	20	20	20	20	20	20	20
Off-island workers for CJMT construction[6]	40	40	40	40	40	40	40	40	40	40	40	40
Indirect and Induced Population[7]												
Outside of Military Lease Area												
Dependents: CJMT Range Management	0	0	0	0	0	0	0	0	0	0	0	0
Dependents: CJMT construction	0	0	0	0	0	0	0	0	0	0	0	0
Total Population Increase[8]												
Direct, indirect, and induced, within and outside of the Military Lease Area	**1,060**	**1,060**	**1,070**	**1,070**	**1,070**	**1,070**	**1,070**	**1,070**	**1,070**	**1,070**	**1,070**	**1,070**

Legend: CJMT = Commonwealth of the Northern Mariana Islands Joint Military Training; DoD = Department of Defense; EIS/OEIS = Environmental Impact Statement/Overseas Environmental Impact Statement; MIRC = Mariana Islands Range Complex; MITT = Mariana Islands Training and Testing; USMC = U.S. Marine Corps.

Notes: [1] Direct population includes military personnel participating in training, DoD civilian workers and contractors, and construction workers.

[2] Training population would fluctuate throughout the year, with up to 1,000 people training within the Military Lease Area at one time. Includes land-based ground and aviation training activities on Tinian that may occur as part of other training events occurring simultaneously or concurrently in the MITT Study Area, which includes the MIRC.

[3] Other approved training in-water and at on-land at locations other than Tinian (e.g., Guam, Saipan, Rota) would continue to occur as described in the 2020 MITT Supplemental EIS/OEIS and 2015 MITT EIS/OEIS. Land-based (ground and aviation) training that would occur on Tinian when scheduled as part of larger events within the MITT Study Area are reflected in the CJMT Land-based Training row.

[4] The 2016 EIS for Divert Activities and Exercises (refer to page ES-7) states that Divert-related military training activities and exercises were analyzed in the 2010 MIRC EIS/OEIS and the 2015 MITT EIS/OEIS, and are thus reflected in the CJMT Ground-based Training row.

[5] A total of approximately 30-50 government employees and contractors would be needed to support Range Control operations and management. The USMC intends to hire locally for these positions, wherever possible, based on labor availability and contracting requirements. Numbers above assume approximately 30 people formerly employed by the U.S. Agency for Global Media that ceased operations in August 2024 would provide an available local hiring pool. Hiring would be phased over the 10 to 15 year construction period as construction is completed and the training infrastructure becomes operational (i.e., expeditionary Base Camp and associated utilities, live-fire ranges, and Landing Zones). Initially, positions may be filled on a rotating basis (e.g., temporary duty assignment) from Marine Corps Base Camp Blaz Range Control staff or other federal civilians.

[6] Construction projects would be phased and individual projects may not take an entire year to construct. Thus, the number of construction workers would fluctuate throughout the year but conservatively reflects the maximum number per year, assuming at least 20 percent of workers would be able to be hired locally. The construction workforce may be supplemented or offset by using military labor, when appropriate.

[7] Population figures do not include Tinian residents who obtain employment as a result of the Proposed Action. Due to the phased nature of construction projects and the use of rotating assignments from Marine Corps Base Camp Blaz to support Range Control, the USMC does not anticipate Range Control personnel would need to relocate their families/dependents to Tinian. This is also the same assumption for construction workers (including construction managers), based on the U.S. Air Force's Divert construction workforce experiences (construction anticipated to be complete by late 2025-2026). The implementation of CJMT training and the operation of the Base Camp are not anticipated to induce additional local employment (in addition to any induced employment that may have already occurred in order to support increased activity related to Divert construction and U.S. Air Force activities to rehabilitate North Field).

[8] Population increases shown are not additive from year to year. They represent the aggregate project-related indirect and direct increases as of any given year relative to the population before project implementation, and not an annual increase.

Alternative 1 and Alternative 2 would both represent an increase in training tempo over current levels in previously approved NEPA documents (DON 2010, 2015; U.S. Air Force 2016, 2020). The training tempo in this Final EIS refers to the total amount of approved activities that could occur over an entire year. Alternative 1 would represent an approximate 15 percent increase over existing approved training (No Action Alternative) and Alternative 2 would represent an approximate 5 percent increase over existing approved training.

Table C.1-3 lists training activities that typically occur on Tinian and the proposed increases by activity. The increases to activities under Alternative 1 reflect proposed levels that provide capacity for current and planned training and testing requirements, with Alternative 2 providing a reduced tempo of training activities that still meets training requirements and strategic necessity. Each small, medium, or large training event scheduled through Range Control would be composed of one or more of the activities shown in Table C.1-3. Although the increases shown by each activity varies (some remain the same across each alternative while some increase under Alternative 1 and Alternative 2 and some only under Alternative 2), the general increase in tempo accounts for the entirety of activities in one year of training. The at-sea portion of training falls under the MITT EIS/OEISs, and may include naval operations, ship-to-shore movements, and maritime support.

Table C.1-3 Comparison of Proposed Level of Training on Tinian under All Alternatives

Training Activities	*Description*	*No. of Approved Activities Per Year*		
		No Action Alternative	*Alternative 1*	*Alternative 2*
Expanded Expeditionary Airfield Operations at North Field	Expeditionary airfield operation training exercises are designed to enhance rapid deployment and air combat capability in austere environments. These operations establish and utilize an airfield to support rotary- and fixed-wing aircraft in forward-deployed locations.	12	32	16
Assault	An amphibious assault is a coordinated military operation where forces move from ships at sea to conduct an attack on a land-based objective. This type of operation is designed to secure a landing site, allowing follow-on forces to move inland and achieve strategic objectives. The land-based portion that would be covered under this Revised Draft EIS includes activities such as troop landings, vehicle deployment, maneuver operations, and securing objectives onshore.	6	20	10
Raid	A raid training exercise is a military operation designed to train forces in executing rapid, small-scale, and precision attacks on a land-based objective before withdrawing to the sea. Unlike a full-scale amphibious assault, a raid focuses on speed, surprise, and minimal engagement duration to achieve objectives such as intelligence gathering, infrastructure disruption, or enemy force neutralization. Small unit forces move swiftly for a specific short-term mission. These are quick operations with raids sized to the mission requirement and no larger. This activity may employ small unit non-live-fire operations. The land-based portion that would be covered under this Final EIS includes troop insertion, target engagement, and coordinated withdrawal.	6	16	8
Anti-Terrorism/Force Protection	An Anti-Terrorism/Force Protection training event is designed to enhance the ability of military personnel to detect, deter, and respond to potential threats, ensuring the security of personnel, facilities, and assets. This training prepares forces to handle asymmetrical threats, including terrorist attacks, unauthorized intrusions, and security breaches. The land-based portion would be covered under this Final EIS and includes perimeter defense, access control procedures, active threat response, and security patrols. Training may involve simulated attacks, surveillance detection, and defensive tactics to enhance force readiness.	80/75[1]	100/90[1]	80/75[1]
Combat Search and Rescue	A Combat Search and Rescue training event prepares military forces to locate, recover, and provide medical assistance to isolated or downed personnel in hostile environments. The land-based portion would be covered under this Final EIS and includes insertion and extraction of recovery teams, tactical evasion techniques, simulated medical treatment, and engagement with potential threats.	80	80	80

Training Activities	*Description*	*No. of Approved Activities Per Year*		
		No Action Alternative	*Alternative 1*	*Alternative 2*
Direct Action (Combat Close Quarters and Breaching)	A Direct Action training event focuses on combat close quarters and breaching involves high-intensity operations designed to neutralize threats in confined spaces and penetrate fortified structures. The land-based portion would be covered under this Final EIS and includes close-quarters combat drills, breaching techniques, room-clearing operations, and small-unit coordination.	72/72	72/72	72/72
Embassy Reinforcement	An Embassy Reinforcement training event involves military personnel practicing the procedures for securing and defending a U.S. embassy in the event of a security threat or crisis. The land-based portion would be covered under this Final EIS and includes securing embassy perimeters, defending critical infrastructure, and coordinating evacuation operations.	50	70	50
Field Training Exercise	A Field Training Exercise is a comprehensive, hands-on training event that simulates real-world military operations in an outdoor environment. The exercise includes ground-based tactical drills, movement exercises, logistics operations, field combat scenarios, and force protection drills. Units may engage in terrain navigation, command and control operations, and emergency medical response training.	116	160	116
Humanitarian Assistance/ Disaster Relief Operations	Humanitarian Assistance/Disaster Relief operations are designed to provide immediate aid and support in the aftermath of natural or man-made disasters, focusing on the rapid delivery of essential supplies, medical care, and infrastructure repair to affected populations. These operations may include search and rescue missions, medical assistance, food and water distribution, and the restoration of critical infrastructure such as roads and utilities. The land-based portion would be covered under this Final EIS and includes establishing emergency response zones, setting up field hospitals, medical triage, and logistical hubs, and coordinating the delivery of supplies and restoration of essential services.	5	10	5
Intelligence, Surveillance, and Reconnaissance	Intelligence, Surveillance, and Reconnaissance operations are designed to gather critical information to support military decision-making and operational effectiveness. These operations involve the collection of intelligence through aerial, ground, and maritime assets, enabling real-time surveillance and reconnaissance of enemy forces, terrain, and infrastructure. The land-based portion would be covered under this Final EIS and includes ground-based reconnaissance, signal interception, visual and thermal imagery, and the deployment of various platforms such as drones, manned aircraft, and sensors.	44	50	44
Land Demolitions (UXO, IED Discovery/Disposal)	Land demolitions training is designed to prepare military personnel for safely identifying and neutralizing explosive threats in the field, focusing on the discovery and disposal of unexploded ordnance and improvised explosive devices.	120	160	120

Training Activities	*Description*	*No. of Approved Activities Per Year*		
		No Action Alternative	*Alternative 1*	*Alternative 2*
Marine Air Ground Task Force Exercise – Battalion	A Marine Air Ground Task Force Battalion Exercise is a large-scale training event that involves integrating various elements of the Marine Corps, including ground combat units, aviation assets, and logistics support, to conduct coordinated military operations. The exercise typically lasts 10 days and simulates real-world combat scenarios where units work together to perform missions such as offensive operations, defense, and force projection. The land-based portion would be covered under this Final EIS and includes ground maneuver operations, live-fire exercises, command and control coordination, and combat support and logistics operations.	4	12	8
Non-combatant Evacuation Operations	Non-combatant Evacuation Operations are designed to facilitate the safe evacuation of civilians—including U.S. citizens, foreign nationals, and diplomatic personnel—from areas experiencing conflict, natural disasters, or instability. The land-based portion that would be covered under this Final EIS includes security operations at evacuation points, transportation coordination, escort missions, and managing evacuation logistics to ensure the orderly movement of civilians.	5	12	5
Parachute Insertion	Parachute operations involve training exercises designed to deploy personnel via aircraft into designated Landing Zones for tactical missions. The land-based portions, covered under this Final EIS, include drop zone preparation, parachute Landing Zone security, and ground recovery operations.	64	64	64
Personnel Insertion/Extraction	Personnel insertion and extraction operations are training exercises focused on the rapid deployment and retrieval of personnel in challenging or hostile environments. The land-based portions, covered under this Final EIS, include ground-based insertion techniques, such as airborne drops, vehicle convoys, or helicopter landings. Extraction can also involve helicopter extractions and vehicles to retrieve personnel.	365	365	365
Marine Expeditionary Unit Exercise[2]	Typically a 10-day at-sea and ashore exercise similar to the Marine Air Ground Task Force Battalion Exercise described above. A Marine Expeditionary Unit Exercise is a training event focused on enhancing the readiness and coordination of a self-contained, rapid-response Marine Corps unit capable of deploying to crisis areas worldwide. The Marine Expeditionary Unit consists of ground, air, and logistics components, and the exercise typically includes amphibious assaults, humanitarian missions, combat operations, and force protection in diverse environments. The land-based portion that would be covered under this Final EIS includes ground maneuver operations, combat training, medical response drills, and force protection exercises.	2	6	4

Training Activities	*Description*	*No. of Approved Activities Per Year*		
		No Action Alternative	*Alternative 1*	*Alternative 2*
Seize Airfield	A seize airfield exercise involves military personnel and assets conducting operations to capture and secure an airfield in a contested or hostile environment. The land-based portion covered under this Final EIS includes ground combat operations, including assault tactics, defensive perimeter establishment, and force protection after the airfield is secured.	12	40	26
UAS Operation (including Intelligence, Surveillance, and Reconnaissance, and Training and Certification)	UAS operations, including Intelligence, Surveillance, and Reconnaissance, and training and certification, involve the deployment of unmanned aircraft to perform surveillance, gather intelligence, and support military missions. The land-based portion that would be covered under this Final EIS includes target tracking, battlefield reconnaissance, and environmental monitoring. Training and certification exercises focus on launch, recovery, and operation of UAS platforms, and data collection, analysis, and reporting for intelligence purposes.	100/951[3]	100/951[3]	100/951[3]
Urban Warfare Training/Exercise	Urban warfare training/exercises are designed to prepare military forces for operations in dense, built-up environments, such as cities or towns, where they must contend with complex terrain, civilian populations, and diverse threats. This training focuses on tactics for close-quarters combat, building clearance, hostage rescue, and crowd control in urban settings. The land-based portion that would be covered under this Final EIS includes clearing of urban training sites, and simulated combat operations in buildings, streets, and other urban structures within the Military Lease Area.	36	80	60
Water Purification	Water purification operations are training exercises that prepare military forces to obtain and treat water in austere or combat environments where clean water is not readily available. These operations involve the use of portable or established water purification systems to convert contaminated or saline water into safe, drinkable water for military personnel and supporting operations. The land-based portion that would be covered under this Final EIS includes field water purification, where military personnel deploy mobile purification units or set up water filtration systems in training areas.	16	28	20
U.S. Air Force Divert Activities and Exercises				
Cargo and Tanker Exercises	Maximum of 720 operations (i.e., 360 take-offs and 360 landings). All operations take place within a maximum of 8 weeks per year of exercises at TNI.	720	720	720
Support Activities	Jet fuel is offloaded at a fuel offloading facility at the port. Fuel is transferred from the port to the airport via pipeline. Medical care is provided by military personnel on Tinian in non-life-threatening situations. Emergency medical care for military personnel occurs at Saipan Hospital under agreement.	N/A	N/A	N/A

Legend: EIS = Environmental Impact Statement; IED = Improvised Explosive Device;; N/A = Not Applicable; No. = Number; OEIS = Overseas Environmental Impact Statement; TNI = Francisco Manglona Borja / Tinian International Airport; U.S. = United States; UAS = Unmanned Aerial System; UXO = Unexploded Ordnance.

Notes: [1] Anti-Terrorism activities authorized for 80/year; Force Protection activities authorized for 75/year. Alternative 2 would authorize Anti-Terrorism activities for 100/year and Force Protection activities for 90/year.
[2] Special Purpose Marine Air Ground Task Force Exercise renamed Marine Expeditionary Unit Exercise.
[3] UAS ISR activities authorized for 100/year; UAS Aerial Training and Certification activities authorized for 951 /year.

C.1.2 Training on Tinian

Training on Tinian would be classified as either a non-live-fire or live-fire event. Non-live-fire events would include both ground and aviation training that could occur throughout the Military Lease Area. Live-fire events would only take place on either the Multi-Purpose Maneuver Range or the Explosives Training Range, in addition to the use of currently approved bullet traps in some existing structures on Tinian. Both live-fire and non-live-fire training events could be conducted continuously throughout the day and night.

In general, a degree of simultaneous use of the live-fire ranges or other training areas throughout the Military Lease Area, including aviation and ground training events at Landing Zones and North Field, could occur.

Activities and exercises performed during training events would differ in size, tempo, and complexity of training. For example, some small events could involve only a squad or platoon, last for only one to two days, and involve only a single training area and/or range. Medium events could also be limited to a single or few training areas and ranges but would typically last 1-2 weeks. Large exercises would typically encompass the entire Military Lease Area and use both live-fire ranges during the full 2-4 weeks. The following section provides a description for each size of event to illustrate what a representative day of training may include in terms of personnel, locations, and activities, including those that would result in the public being temporarily restricted from accessing certain portions of the Military Lease Area and the waterways north of the island.

C.1.3 Representative Training Descriptions

Small Event

A small exercise could consist of 30 personnel practicing various live-fire and non-live fire activities including land navigation, survival techniques, setting up communications equipment, or practicing offensive or defensive live fire drills and activities on either of the two live fire ranges. This event could last for four days and take place in a single training area (e.g., Training Area B2, refer to Figure 2.1-2 in Chapter 2 of the Final EIS). In a small non-live-fire scenario, there would be no hazards to the public based on the type and complexity of the training activities and access to the Military Lease Area would not be restricted. The public would have shared access to Training Area B2 while service members are traversing the land for training. As larger groups, up to 100 personnel, may be involved in small events, or multiple small events may be scheduled to overlap, training may occur in multiple training areas at the same time that may not be adjacent to one another. Small events could also occur at the Multi-Purpose Maneuver Range and Explosives Training Range that would require access restrictions corresponding to the surface danger zones when live-fire is occurring. An example for a medium event involving live-fire is included below.

Medium Event

A medium exercise could involve 200 personnel over two weeks practicing various live- and non-live-fire exercises with both ground and aviation elements. For example, the first week of training could involve aviation training, which could occur at North Field or at various Landing Zones

throughout the Military Lease Area, using the Landing Zone(s) in Training Area B1 for helicopter training involving practicing landing/taking off and disembarking/boarding, and patrolling the airspace above the Military Lease Area. During the second week, the exercise could incorporate maneuver training on any number of ranges coupled with training on the live-fire ranges. Live-fire training could consist of daily events on the Multi-Purpose Maneuver Range located in Training Area D. A typical schedule could include:

- Rehearse in the morning from 8 a.m. to 10 a.m. (i.e., practice the movements and timing without firing weapons).
- Conduct live-fire training from 10 a.m. to 4 p.m.
- Debrief and review the day's exercise once it concludes at 4 p.m. and break to prepare for night training.
- Live-fire night training would occur from approximately 8 p.m. to 10 p.m.

Due to the types of activities that would occur in this example, the public would be restricted from accessing certain parts of the Military Lease Area while training is underway. During the first week, the public would be restricted from accessing Training Area B1. Range Control would provide advanced notice of helicopter training and would include details such as what areas are off limits to the public, what roads may be temporarily blocked with signage or sentries, etc. For the second week, in addition to range areas and roadway access limitations to Training Area D, when live-fire training is occurring on the Multi-Purpose Maneuver Range, the waterway within the surface danger zone would be closed to public access. For live-fire training, Range Control would provide advanced notice and would include a Notice to Mariners, published weekly by the U.S. Coast Guard, to identify when the surface danger zone would be active (for this example, from 10 a.m. to 4 p.m. and 8 p.m. to 10 p.m.). The size of the surface danger zone would correspond to the type of ammunition being used on the range for that training event, and multiple types of ammunition may be used during the day (refer to Figure 2.1-9 in Chapter 2 of the Final EIS). As an example, if 5.56 ammo would be used from 10 a.m. to 2 p.m., the smallest surface danger zone would be active during that time, and if 7.62 ammo would be used from 2 p.m. to 4 p.m. the middle-sized surface danger zone would be active during those hours. Range Control communications would provide this detail for each activity or exercise scheduled for the Multi-Purpose Maneuver Range.

Large Event

A large event, such as a force-on-force training exercise, could encompass all of the eight training areas and live-fire ranges for a duration of three weeks, involving 1,000 personnel distributed throughout the Military Lease Area. This type of exercise could involve two opposing forces, with one force trying to locate and capture the opposition where they are staged in different parts of the Military Lease Area, as might occur in a real life engagement, including the use of tactical vehicles and helicopters. During the exercise, Range Control at the Base Camp would monitor both forces using sensors supported by a transportable antenna system that allows for the tracking of personnel and vehicles across the Military Lease Area.

During the three weeks of training, while public access to the Military Lease Area would be more limited than for small and medium events, Range Control would schedule training to allow for public access when and where it can be safely achieved. The entire Military Lease Area would not

be closed off for the duration of the exercise. As described above, Range Control would issue advance notifications to the public about areas where land and water access would be restricted based on the event's day-to-day schedule. For this example, if the first week of training included activities in six training areas (A1-A3 and B1-B3), but helicopter landings would only be occurring in Training Area A1 and A3, access restrictions would be in place to ensure the non-participants would remain a safe distance away from Landing Zone areas in Training Areas A1 and A3 but the public would have shared access to Training Areas A2, B1, B2, and B3. Service members may be visible to the public while traversing the land by foot or moving between areas on roadways or previously disturbed access paths using tactical vehicles while training is occurring.

C.1.4 Arrival of Participating Personnel, Vehicles, Supplies, and Equipment

Arrival and Departure of Personnel

Regardless of the size and type of the exercise, personnel participating in training events, along with their equipment, would arrive through one of three locations: (1) Francisco Manglona Borja / Tinian International Airport (TNI); (2) North Field; or (3) the Honorable Jose Pangelinan San Nicolas Commercial Port of Tinian (Port of Tinian). Units and assets requiring biosecurity inspection would be routed through the biosecurity station at each of these locations before transport to the Military Lease Area. All personnel would receive briefings for the exercise as part of the preparation prior to the start of training including information on the island's cultural resources, off limits or "no training" areas, and the boundaries of the training areas within the Military Lease Area.

At the conclusion of an exercise, the service members would retrograde back through Base Camp and the biosecurity facility to clean vehicles and equipment in preparation for movement off island. During this time, Tinian Range Control would inspect the Military Lease Area to ensure all trash, ordnance, and equipment has been removed from the training areas and live-fire ranges.

Use of Vehicles Within the Military Lease Area

Use of vehicles within the Military Lease Area would fall into two categories: administrative and tactical. Administrative activity would primarily occur at the beginning and end of an exercise and describes transporting personnel and equipment to set up the training (e.g. driving equipment up from Base Camp to the range to set up). Tactical activity would consist of exercise activity with military tactical vehicles as part of the exercise. During training, these tactical military vehicles (primarily Joint Light Tactical Vehicles and High Mobility Multipurpose Wheeled Vehicles, also called "humvees") would traverse established roadways throughout the Military Lease Area as part of the exercise.

C.1.5 Representative Equipment

Various types of equipment would be used during training events (Table C.1-4).

Table C.1-4 Representative Equipment

Aircraft (Rotary wing training at North Field and Landing Zones, Fixed-wing training at North Field, Fixed-wing cargo/personnel delivery at TNI)		*Vehicles (On Roads throughout the Military Lease Area)*
 Attack Helicopter (AH-1 or UH-1)	 Tilt-Rotor Aircraft (MV-22)	 Light Armored Vehicle (LAV-25)
 Fixed-Wing Aircraft (FA-18, F-35, C-130, C-17, KC-135, and similar aircraft)	 Unmanned Aircraft System (Unmanned Air Vehicle Groups 1-4)	 Wheeled Vehicles (High Mobility Multi-Purpose Wheeled Vehicles, 5- and 7-ton Trucks, Logistic Vehicle System)
 Ground/Air Task-Oriented Radar (G/ATOR)	 Navy Marine Expeditionary Ship Interdiction System (NMESIS) Mounted on a Tactical Vehicle	 Marine Air Defense Integrated System (MADIS) Mounted on a Tactical Vehicle
Live-Fire Weaponry		
 Pistols (9 mm, combat shotgun, and .45 caliber pistol)	 Rifles (5.56 mm service rifle, 7.62 mm and 50-caliber sniper weapon, and M27 infantry automatic rifle)	 Machine Guns (50-caliber machine gun, 7.62 mm machine gun, 5.56 mm squad automatic weapon)

Legend: mm = millimeter; TNI = Francisco Manglona Borja / Tinian International Airport.

C.2 RANGE MANAGEMENT

Section 2.1.8 of Chapter 2 provides information on Range Control under the Proposed Action. Additional details are provided in this appendix.

C.2.1 Public Access and No Training Areas

Training Areas

The Tinian Range Control would identify when public access during a training event would not be safe for the public and implement appropriate restrictions. Certain roads and certain areas within the Military Lease Area may be temporarily closed to the public during training periods. Public access restrictions would only be in place for the live-fire ranges during the times weapons are being fired or ordnance is used. Range Control would coordinate notifications and scheduling. One of the functions of Tinian's Range Control is to schedule training events and provide advanced notice to the public when events would occur and what portions of the Military Lease Area and/or surrounding waterways would be affected. For live-fire events, the public would be notified in advance. Non-live-fire activities that would limit access to portions of the Military Lease Area would be announced prior to the exercise. Each training event would be evaluated to minimize access disruptions to the extent as can be safely permitted. To ensure the safety of both the service members and non-participating personnel (i.e., members of the public traveling in the Military Lease Area for the purposes of tourism, foraging, recreation, etc.), access to the Military Lease Area would be coordinated directly by Range Control. The public would have access to information about training activities in the Military Lease Area through established communication channels coordinated by Range Control. In addition to proactive notifications issued prior to live-fire and non-live-fire training exercises, mechanisms for obtaining timely updates would help support public safety, awareness, and oversight of range activities. The USMC's goal is to create a structured and user-friendly process for members of the public to communicate with Range Control in order to foster a safe and well-managed environment while training is occurring within the Military Lease Area.

No Military Training Areas

There are areas within the Military Lease Area designated as no training areas, shown on Figure 2.1-3 of the Final EIS, the former Tinian Mortar range, the area reserved for a potential future landfill site, and areas to protect natural and cultural resources. Within the remainder of the Military Lease Area, training would be limited to roads and previously disturbed access paths, with the exception of limited foot maneuvering. Vegetation clearing, digging, and other ground intrusive activities would continue to be prohibited at culturally significant sites.

C.2.2 Environmental Management

All live-fire ranges on Tinian would be managed in compliance with current federal environmental laws and regulations. Department of Defense (DoD) Instruction 4715.14, *Operational Range Assessments,* establishes procedures that military services use to conduct assessments of all operational ranges within the U.S. The purposes of the assessments are to understand the potential long-term impacts of the use of military training lands and to help ensure that these resources are available for future training. Under the Environmental Compliance Evaluation Program, installations and regions complete annual inspections and Headquarters USMC inspects all aspects

of an installation's environmental program every 3 years. Headquarters USMC also conducts assessments of operational ranges to ensure long-term sustainment of training areas while protecting the surrounding environment. In assuring compliance with federal laws and regulations, these actions are carried out with the goal of maintaining the safe, efficient, effective, and environmentally sustainable use of the ranges.

Hazardous Materials

All fuels, petroleum, oils, and lubricants would be stored, handled, transported, and disposed according to existing best management practices, standard operating procedures, applicable federal and CNMI regulations, and military requirements. Transportation of all hazardous materials would be conducted in compliance with the U.S. Department of Transportation regulations and Code of Federal Regulations (C.F.R.) Title 49, Subtitle B, Chapter I that regulates who may transport hazardous materials, how they are transported, the required training for handlers and transporters, the requirements for emergency spill response, and the specifications for all aspects of material and handler documentation and certification. The federal Hazardous Materials Program procedures outlined in C.F.R. Title 49 have been adopted by the CNMI.

An expeditionary Forward Arming and Refueling Point may be established for training to refuel aircraft. During training exercises, the Forward Arming and Refueling Point would be a temporary, mobile field facility, with secondary containment capabilities. It would be set up and broken down as part of a training exercise, so it would not have a designated permanent location.

Hazardous materials and fuel storage facilities on Tinian would be constructed using best management practices for construction in any unavoidable areas that are known to have seismic and tsunami hazards to minimize potential impacts from geologic hazards. Storage areas would also be located 500 feet from any surface water body and outside of inundation areas.

Training and maintenance would involve the use of hazardous materials managed according to Resource Conservation and Recovery Act regulations and other federal laws and regulations. Hazardous materials that would be routinely used on Tinian include fire extinguishers, batteries, pesticides, herbicides, paints, solvents, fluorescent light fixtures, and flameless chemical ration heaters for meals. Pesticides and herbicides would be used as part of range and facility management to control nuisance species and would be applied and managed in accordance with applicable regulations and manufacturer instructions.

Some of these hazardous materials would be stored in small quantities at the Base Camp. These include fire extinguishers that would be positioned anywhere there are flammable materials or spark sources and light bulbs that may be stored in designated areas throughout the facility where occupied buildings are located. Chemical ration heaters would be brought in with the unit supplies to support each training activity and would be stored with the unit where they are camping– either at the Base Camp or within the training areas. Best management practices would be followed regarding handling and storage.

Environmental Protection Programs

Joint Region Marianas has implemented basic environmental protection actions to ensure compliance with applicable environmental requirements across all environmental media areas. Basic environmental protection features incorporated into range management include, but are not

limited to: fire condition monitoring for firefighting readiness and modification of training as appropriate, adherence to protective measures established in natural and cultural resource management plans, biological opinions, and programmatic agreements, restricting vehicular activities to designated/previously identified areas, prevention of soil erosion, and implementation of stormwater pollution prevention plans.

C.2.3 Biosecurity

The movement of munitions, military vehicles, equipment, and cargo to/from Tinian under the Proposed Action would meet the Armed Forces Pest Management Board Technical Guide 31 standards for bio-sanitation to prevent the inadvertent transport and introduction of exotic plant and animal pests resulting in damage to human health, agriculture, forestry, or the environment. Plant debris, garbage, food, soil, and even fresh water from foreign countries may contain organisms of quarantine importance. DoD policy mandates that all organizations and personnel involved in the movement of DoD-sponsored cargo, personal property, and accompanied baggage would take the steps necessary to prevent the spread of exotic pests, and plant and animal diseases from one location to another (Armed Forces Pest Management Board 2017).

Joint Region Marianas has an established comprehensive brown tree snake interdiction program to ensure that military activities, including the transport of personnel and equipment from Guam, do not contribute to the spread of brown tree snakes to the CNMI or other areas in the Pacific. Brown tree snake interdiction requirements contained in Commander, Navy Region Marianas and Joint Region instructions would be implemented for all proposed activities.

The biosecurity protocols to be set forth in the U.S. Fish and Wildlife Service (USFWS) Biological Opinion for the Proposed Action are expected to include but may not be limited to the following: (1) 100 percent inspections for brown tree snakes for all munitions, military vehicles, equipment, and cargo transported from Guam; (2) redundant brown tree snake inspections of munitions, military vehicles, equipment, and cargo within a brown tree snake barrier at the receiving jurisdiction after discussions with appropriate stakeholders; (3) bio-sanitation standard operating procedures to meet and validate the Armed Forces Pest Management Board Technical Guide 31 standards for munitions, military vehicles, equipment and cargo prior to arrival and departure on island. The USMC would strictly adhere to processes for avoiding the introduction of non-native species to Tinian. The USMC would develop Hazard Analysis and Critical Control Point plans and implement the plans for construction and operation activities. A biosecurity education program for all civilian, contractor, and military personnel (including any participating foreign ally personnel) would be provided to teach personnel how to identify native and non-native species.

Personnel or equipment arriving from Guam would undergo inspection at one of the three specified entry points.

C.3 TRAINING INFRASTRUCTURE

C.3.1 Base Camp

A Base Camp would provide basic services for up to 500 training personnel. Utilities on base camp would be sized to the surge capacity of up to 1,000 personnel training on island at one time, such as during a large event. In those situations, the additional personnel would camp in the training areas throughout the Military Lease Area.

The Base Camp would be gated with access limited to military and DoD civilian personnel only. Base Camp facilities would include:

- **Administration and Range Control building.** This building would house Range Control. This facility would provide key administrative functions: base administration, Range Control, base security, base communications, and the battalion (medical) aid station. Range Control would coordinate with TNI, Saipan International Airport, and DoD Range Control in Guam in concert with live-fire and air-based training events on Tinian. The Range Control building would be co-located with the base headquarters/administration.
- **Training Support area.** This would include a unit marshaling area, and restrooms/showers. The unit marshaling area would provide space to wash and stage vehicles, equipment, and personnel prior to their departure to the Port of Tinian or TNI. Restrooms, showers, and outdoor gear wash-down stations would be provided.
- **Warehouse.** This would provide storage for range targets and equipment and storage for units during training exercises.
- **Aircraft Shelter.** An aircraft shelter for performing minor aircraft maintenance and repairs. The proposed 105 feet wide by 154 feet long by 44 feet high shelter would be sized and constructed to provide protection for one aircraft from inclement weather including typhoon winds. The shelter could also be used for equipment staging, training unit mustering, emergency maintenance, or similar purposes.

C.3.2 Utilities

The USMC would either connect to existing utilities infrastructure or develop new utilities infrastructure on Tinian. The following subsections summarize the proposed development of utilities infrastructure that is common to both alternatives.

- **Electrical Power.** The existing Commonwealth Utilities Corporation Tinian Power Plant has sufficient generation capacity to support the anticipated power demand and no additional power generation is proposed. However, to support mission critical facilities during power blackouts, the USMC would install individual emergency power generators near mission critical facilities. The USMC would purchase electrical power from the Commonwealth Utilities Corporation and install an interconnection with the existing transmission line(s) servicing the former USAGM. Power lines would be installed to the Base Camp and each of the surface radar sites. Power lines would be placed underground to protect from weather events and to meet live-fire, aviation, and explosive safety requirements. There would be no permanent power infrastructure associated with the Landing Zones. Power to these facilities would be provided by alternative means (e.g., battery packs, photovoltaic solar panels).
- **Potable Water.** A potable water study indicated that the fresh groundwater supply from Tinian's aquifer, beneath the Military Lease Area, has ample capacity to meet the estimated average daily potable water demand (refer to Appendix M, *Utility Studies*, of the Final EIS). The Proposed Action includes construction of new water infrastructure to avoid impacts on the Commonwealth Utilities Corporation water system. This proposed new water infrastructure would supply the domestic, industrial, and fire protection demands of military training activities and the majority of water used during construction. This

proposed new water infrastructure would be operated by the USMC and would not be connected to the Commonwealth Utilities Corporation water system.

- Water infrastructure to support Base Camp would consist of up to four new groundwater wells, aboveground storage tanks, and distribution piping to meet potable water demand and fire protection demand. Wells would be connected to water supply lines and electrical power. For security purposes, fencing would be installed around each well.
- Two water wells and associated storage tanks and booster pumps for firefighting support would be developed or rehabilitated at North Field, north of the airfield.
- The specific location of wells and tanks at North Field and Base Camp would be determined during engineering design. Installation of water wells would be conducted by a licensed driller under the guidance of a Professional Geologist. All other training areas or other locations in the Military Lease Area would rely on water trucks to access potable water.

- **Wastewater.** Wastewater facilities would be constructed and operated at the Base Camp in the form of one or more new septic tanks and an associated leach field. Training areas, construction areas, and other locations may emplace temporary portable toilets to support operational activities. These portable toilets would be periodically emptied and disposed of at a septage disposal site approved by the CNMI Bureau of Environmental and Coastal Quality per section 65-120-1405 (CNMI Administrative Code).
- **Solid Waste.** Solid waste generation would include municipal solid waste, construction and demolition waste, green waste, and wastewater (sewage) sludge from septic tanks. Currently, the Tinian municipality does not have solid waste infrastructure that could support the management of all solid waste generated during the construction and operational phases of the Proposed Action. During the construction phase, the USMC would manage project-related solid waste (including municipal solid waste, construction and demolition waste, and green waste) in accordance with applicable laws and regulations.
  - Solid waste on Tinian is currently transported by residents and business entities to the Tinian Puntan Diablo disposal facility located adjacent to 8th Avenue near San Jose and the southwest coast. The facility is operated by the CNMI Department of Public Works. The existing disposal facility is unlined and not presently in compliance with the design and operating requirements of the Resource Conservation and Recovery Act (RCRA) Subtitle D regulations (40 Code of Federal Regulations [CFR] Part 258) governing municipal solid waste landfills.
  - CNMI intends to convert the disposal facility to a permitted landfill by demonstrating compliance with the small community exemption available in RCRA Subtitle D regulations 40 CFR Part 258.1(f)(1) (CNMI, 2023). The anticipated timeline to complete the permitting process is 6 to 12 months.
  - CNMI is initiating permitting efforts for a new landfill at the Atgidon site, located north of 86th Street and between Riverside Drive and 10th Avenue (CNMI, 2023). The CNMI plans to permit this new site under the small community exemption. CNMI anticipates permitting would take 5 years to complete, with site development commencing shortly thereafter to ensure disposal capacity at the new Atgidon Landfill

is available prior to cessation of operations at Puntan Diablo (CNMI, 2023). It is expected the on-island landfill capacity would be sufficient to manage the solid waste generated through project construction and during the ongoing training facility operational life.

- If the planned permitting of the existing Tinian landfill and the proposed Atgidon landfill is not completed, and landfill disposal capacity is not available, the alternate management methods for solid waste that would be considered include: 1) transport solid waste to Marpi Landfill on Saipan; 2) on-site incineration of waste to reduce the volume prior to the transport of the residual non-hazardous ash to Marpi Landfill; or 3) transport the waste to one or more off-island facilities authorized to accept DoD waste. If using incineration to minimize waste volume, the incinerator would be a commercially available solid waste incineration unit that meets U.S. EPA emissions guidelines with a capacity sufficient to handle the Proposed Action-generated waste, and would require approval and permitting by the CNMI before use.

- **Green Waste**. The USMC would generate green waste mostly during the construction period and would collect green waste at one or more locations. The USMC would potentially use a variety of methods to manage the green waste stream, including but not limited to, chipping and reuse, or chipping and decomposition.

- **Stormwater.** The USMC would manage stormwater quality and quantity to maintain existing hydrology conditions to the maximum extent feasible and control pollutant loading in accordance with the CNMI regulations and U.S. federal and military guidance/policies. The USMC would maintain existing basin and sub-basin hydrology, where feasible, to limit the required stormwater infrastructure and pond sizes. Stormwater improvements would be constructed and maintained to incorporate Low Impact Development Integrated Management Practices at the Base Camp.

  - Stormwater management facilities could include a combination of natural and engineered features such as retention/detention ponds that control the volume, direction, and rate of stormwater runoff (i.e., minimize or eliminate hydromodification), filter out pollutants, and facilitate groundwater recharge through increased infiltration. Surface conveyance and control would be via vegetated swales, pipe culverts, and retention ponds. The majority of roadways would be rural road sections (no curb and gutter), so stormwater would be managed using roadside vegetated swales.

- **Information Technology/Communications.** The USMC would use commercial Information Technology/Communications service providers to connect appropriate facilities in the Base Camp and surface radar sites. The proposed telecommunications system would consist of a combination of overhead pole-mounted cabling and underground conduits, manholes/hand holes, and pull-boxes to support government communications systems (e.g., government telephone, government data, security, and closed-circuit television), and commercial utilities services (e.g., commercial telephone, internet, and cable television).

C.4 TRAINING RANGE SUPPORT FACILITIES

C.4.1 Ammunition Holding Areas

The USMC would construct and operate two ammunition holding areas within the Military Lease Area, one at the proposed Base Camp and one at the Multi-Purpose Maneuver Range. Facilities would include concrete pads and paved roads and would be secured with temporary fencing and artificial lighting.

Both ammunition holding areas would be used on a temporary basis for storing ammunition. Ammunition would only be stored during the duration of the training exercise. Upon completion of the training all unspent ammunition would be removed by the training team. Ammunition holding areas would include an Inhabited Building Distance Explosive Safety Quantity Distance Arc and Public Traffic Route Distance Explosive Safety Quantity Distance Arc sized to the munitions (refer to Figure 2.1-10 in Chapter 2 of the Final EIS). When ammunition is stored, the facility would be guarded 24 hours a day by armed personnel.

C.4.2 Live-Fire Training Ranges: Multi-Purpose Maneuver Range and Explosives Training Range

Chapter 2, Sections 2.1.5.1 and 2.1.5.2, provide descriptions of the proposed Multi-Purpose Maneuver Range and Explosives Training Range, respectively. Range Control would manage the proposed live-fire training ranges to ensure safe operations within the established surface danger zones.

Surface danger zones would be established for the two live-fire ranges. The size and configuration is dependent on the performance characteristics of a given weapons system, training requirements, range configuration, and geographical location. A surface danger zone is defined for each range using a safety model that determines an area for which there is a one-in-a-million chance (including the ground and airspace) of a projectile landing outside the surface danger zone during training.

For the Multi-Purpose Maneuver Range, the USMC would pursue U.S. Army Corps of Engineers designation of danger zones that correlate to the type of weapon being used, in accordance with Section 7 of the Rivers and Harbors Act of 1917, 33 C.F.R. Part 209.200. The danger zones would be plotted on nautical charts and the Notice to Mariners, published weekly by the U.S. Coast Guard, would identify when the danger zones would be active.

Figure 2.1-9 in the Final EIS shows representative surface danger zones for types of ammunition typically used on the Multi-Purpose Maneuver Range and the surface danger zone for the Explosives Training Range. This surface danger zone for the Explosives Training Range does not extend over the water and would not require charting.

C.4.3 Surface Radar Sites

Two surface radar sites are required for the live-fire ranges. Each could include a metal lattice tower and observation platform, and radio transmitter and receiver equipment (Figure C.3-1). Each site would provide a surface radar, a visual color camera and thermal imager, and a diesel backup generator. The backup generator would be housed in a concrete structure providing weatherproofing and safety. The surface radar sites would include an additional camera for monitoring the danger zone to shore interface. The sites would include a security perimeter fence

and gate. Information technology and communications infrastructure would be provided through aboveground and belowground transmission lines. Each site would include electrical service and single mode fiber optic communications connections linking to the communications facilities at the Base Camp.

Figure C.4-1 Representative Surface Radar Tower

C.4.4 Communication Towers

Existing communication towers at the former USAGM Tinian and Saipan sites would be repurposed to provide Range Control with consistent radio communications that provide positive control and safety of training events.

Information technology and communications infrastructure would be provided through aboveground and belowground transmission lines. Each site would include electrical service and single mode fiber optic communications connections linking to the communications facilities at the Base Camp.

C.4.5 Road Infrastructure

Existing roads in the Military Lease Area are a combination of paved roads (mostly constructed prior to or in the 1940s during World War II), unpaved (gravel) roads constructed in the last 50 years to provide access to beaches and other locations, or unimproved (grass/dirt) agricultural access roads.

Existing roads throughout the Military Lease Area would be evaluated and, as necessary, improvements made to support both military training and public access. The following road infrastructure modifications or improvements are proposed:

- **New Unpaved Roads.** The USMC would construct and maintain new unpaved roads primarily near the Explosives Training Range and some Landing Zones. Unpaved roads would be a single travel lane with no shoulder. These roads would be maintained at the level necessary to support continued USMC function and use.

- **Repairs to Existing Roads within the Military Lease Area.** The USMC proposes to repair and maintain some of the existing roads in the Military Lease Area at the level necessary to support continued USMC function and use. Broadway and 86th Street have been identified as candidates for repairs, including converting Broadway from its current two-lane bi-directional travel back to its original World War II-era bifurcated boulevard design.
- **Repairs to Existing Roads Outside of the Military Lease Area.** The USMC would evaluate the primary and secondary access routes from the Port of Tinian to the Military Lease Area (to include West Street, 6th Avenue, 8th Avenue, 42nd Street, and Broadway) to be used for both the construction phase and during training to determine whether the roads meet U.S. Department of Transportation and American Association of State Highway and Transportation Officials roadway safety and design standards. The USMC would upgrade roads outside of the Military Lease Area to meet required roadway safety and design standards and would maintain roads to the extent USMC determines necessary to support continued USMC function and use.

C.5 CONSTRUCTION PHASING AND LOGISTICS

The Proposed Action would include the construction of support facilities, airfield improvements, and range facilities on Tinian. The following sections describe the process of obtaining necessary real estate interests on Tinian, and the phased construction schedule, public access controls during construction, and a summary of construction and ongoing vegetation maintenance on Tinian.

C.5.1 Real Estate Interests on Tinian

The USMC proposes to discuss updating real estate interests with the CNMI government to facilitate development of facilities and infrastructure within the existing leases on Tinian and the USAGM lease on Saipan. The current leases would need to be updated by mutual agreement to facilitate the implementation of either alternative.

C.5.2 Construction Schedule

The USMC would phase military construction projects over 10-15 years. The first 5 to 7 years of construction would include trimming and clearing of vegetation, fire breaks, establishment of utility connections, Range Control functions, clearing vegetation for Landing Zones, North Field improvements, development of biosecurity facilities at the Port of Tinian, and establishing the Multi-Purpose Maneuver Range, including associated surface radar towers and ammunition holding areas. The remaining years would include construction of the Base Camp, Aircraft Shelter, and Explosives Training Range. Approximately 50 construction workers are estimated to be needed each year using military troop labor or through federal contracts. If contracts are used, a possible majority of construction workers would come from off island due to the limited workforce available on Tinian. It is expected that construction contractors would utilize workforce housing recently constructed for the U.S. Air Force Divert project and other local hotels. USMC contractors would lease these facilities and utilize the adjacent mess facilities.

C.5.3 Public Access During Construction on Tinian

The USMC would require its construction contractors to prepare and implement health and safety plans. Construction contractors would be required to implement temporary controlled access to

construction sites where only authorized personnel would be allowed entry. Although the phased construction period is expected to last approximately 10-15 years, construction would only result in public access controls at specific construction sites; access to most of the Military Lease Area would still be possible during activities. The USMC and its construction contractors would coordinate with the Tinian municipality and appropriate agencies regarding access controls and notify the public road closures.

C.5.4 Summary of Construction

As part of construction phase activities, the USMC would conduct munitions and explosives of concern clearance, vegetation clearance, and grubbing and grading activities. During initial site preparation for construction of the ranges, supporting facilities, and infrastructure, vegetation would be physically removed with the use of hand and heavy machinery. The USMC would also conduct varying degrees of earthwork (excavation and fill) at some of the construction sites. Excess material would be managed on island.

C.5.5 Vegetation Management

The proposed training infrastructure would require varying degrees of vegetation management to accommodate line of sight, wildland fire control, firing positions, target objective areas, Base Camp facilities, and security purposes. The USMC would identify specific vegetation removal/maintenance and earthwork techniques as part of future project-level design.

C.5.6 Summary of Construction Facilities, Vegetation Clearing, and Road Improvements

Table C.5-1 provides a summary of Construction for Buildings, Support Facilities, Utilities and Ranges. Table C.5-2 provides a summary of road improvements.

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Table C.5-1 Buildings, Ranges, and Support Facilities

Description	*Building Requirement (SF)*	*New Building Construction (SF)*	*Vegetation Clearing (SF)*	*New Impervious or Semi-Impervious Surface (includes new building footprint) (SF)*
Base Camp Buildings				
Consolidated Base Camp Headquarters, including Range Control Re-use of USAGM Transmitter / Administration Building (23,000 SF)	10,200	0	0	0
Training Support (Exercise Control) Operational Trainer Building Re-use of USAGM Transmitter / Administration Building (23,000 SF)	10,000	0	0	0
Generator Building Re-use of USAGM Power Plant Building (2,600 SF)	2,600	0	0	0
Range Support Maintenance Shop Re-use of USAGM Warehouse and Maintenance Building (3,500 SF) and add 1,260 new SF to expand to required 4,760 SF	4,760	1,260	0	1,260
Fire and Non-Potable Pump Station Re-use of USAGM Water Pump House Building (400 SF)	200	0	0	0
Fuel Pump Station (supports fuel for emergency generators only) Re-use of USAGM Fuel Pump House Building (400 SF)	200	0	0	0
Guard Booth Re-use of USAGM Guard House Building (100 SF)	100	0	0	0
Communications Area Distribution Node (ADN): connects Base Camp to local Internet Service Provider to proposed communications towers and proposed Base Camp facilities.	2,700	2,700	0	2,700
General Purpose Warehouse and Hazardous materials storage and transfer Building	36,000	36,000	0	36,000
Base Camp Public Works Shop	8,700	8,700	0	8,700
Electrical Distribution Building / Switching Station	900	900	0	900

Description	*Building Requirement (SF)*	*New Building Construction (SF)*	*Vegetation Clearing (SF)*	*New Impervious or Semi-Impervious Surface (includes new building footprint) (SF)*
Electrical Controls and Fire Pump Building This building is included in the description of Base Camp Potable water wells and would go in the same area as the potable water storage tanks.			0	
Wastewater/Restrooms/Showers: Up to 2 buildings @ 1,600 SF each plus 2 outdoor gear wash stations at 1,000 SF each and space for up to 2 underground septic tanks and 2 approximately 1 acre leach fields. Note that the existing aeration tank would be removed or replaced/upgraded.	3,200	3,200	0	5,200
Aircraft Shelter: (approximately 105 feet wide by 154 feet long and 44 feet tall or 16,200 SF), Site requirements estimated at: 40,000 SF for shelter apron, parking, circulation and access road. Note: This facility is not included in the Base Camp and is same location for both Base Camp options located on the US Air Force Divert Aircraft Parking Apron.	16,200	16,200	0	56,200
Base Camp Supporting Facilities Note - other Base Camp functions such as troop marshalling area, bivouac area, and mess area could be include at Base Camp but these would not require vegetation clearing or new impervious surface				
Base Camp Ammunition Holding Area: (approximately 164 feet wide by 164 feet long or approximately 27,000 SF to support up to 4,418 lb. NEW)	N/A	N/A	0	27,000

Description	*Building Requirement (SF)*	*New Building Construction (SF)*	*Vegetation Clearing (SF)*	*New Impervious or Semi-Impervious Surface (includes new building footprint) (SF)*
Base Camp Potable Water Services: Potable Water Tanks (2 @300,000 GAL). Each tank would be approximately 33 FT in diameter and 48 FT high on a concrete pad. The tanks would be located with the Base Camp site on previously disturbed land. The tanks would require an approximately 900 SF electrical controls and fire pump building and approximately 20,000 total SF of impervious or semi-impervious surface for placement of concrete pads/tanks, pumphouse, and supporting infrastructure.	900	900	0	20,000
Potable Water Well Field: Up to four (4) wells would be installed within the well field. Installation of water wells would be conducted by a licensed driller under the guidance of a Professional Geologist. Each well would require an initial approximately 0.5 acre cleared area for well installation and development, 2 acres total. Each well would include a 900 SF building for equipment and an approximately 0.5 acre area fenced. The well field would also include a 3,600 SF building for electrical controls, emergency generator, and chlorination. The 3,600 SF building would require an approximately 1.5 acre fenced area. Fencing at each well head and the 3,600SF building would be double fencing: (Outer fence (8' total height – 7' fence with 1' Y top) with reinforcement cables and dead man anchors, Y top, barbed wire and razor wire. Inner fence (8' total height – 7' fence with 1' Y top) with Y top, barbed wire and razor wire.). A 20-foot wide asphalt service road would be constructed to access each well for a total of approximately 260,000 SF of roads. Entry points to wells would be gated and illuminated.	7,200	7,200	412,460	260,000
Camping Concrete Tent Pads: (10 pads, 22 feet by 46 feet)	N/A	N/A	0	10,120

Description	*Building Requirement (SF)*	*New Building Construction (SF)*	*Vegetation Clearing (SF)*	*New Impervious or Semi-Impervious Surface (includes new building footprint) (SF)*
Base Camp Training Unit Vehicle Parking: (87 tactical vehicles and various tactical equipment) (gravel area).	N/A	N/A	0	63,000
Base Camp Motor Pool (Base services, security, maintenance vehicles, etc.) (30 vehicles) (paved or unpaved area)	N/A	N/A	0	9,500
Base Camp Security Fencing The existing barbed wire fence surrounding the approximately 300 acres would be replaced with 7-foot chain link fence with double outrigger barbed wire. The existing fence has approximately 10 feet wide mowed area around the perimeter. New fencing would require 20 feet of cleared space within the fence and 10 feet of cleared space outside the fence. This would require an additional 20 feet of vegetation clearance (15,670 linear feet x 20 feet = 313,400 SF or 7.2 acres). The entry points to Base Camp would be illuminated.	N/A	N/A	313,400	0
Base Camp Biosecurity/Wash Rack (paved area with wash-water run-off containment)	N/A	N/A	0	5,400
Port Biosecurity/Wash Rack (paved area with BTS fencing and wash-water run-off containment). Wash rack would be connected to CUC power and water supply. Wastewater would be recycled and oil water separator and used water would be pumped out and disposed of in conformance with CNMI regulations. Facility would include an estimated 5,400 SF wash rack and 20,000 SF of paved area for inspection of vehicles and equipment. The entire approximately 26,000 SF area would be surrounded with fencing and brown tree snake traps.	N/A	N/A	0	26,000

Description	*Building Requirement (SF)*	*New Building Construction (SF)*	*Vegetation Clearing (SF)*	*New Impervious or Semi-Impervious Surface (includes new building footprint) (SF)*
Fuel Storage and Distribution Fuel requirements are estimated at 100,000 gallons storage capacity. This would be satisfied with two 50,000 gallon fuel bladders. Total site area to include bladders, clearance and secondary containment is approximately 18,000 SF. Once facilities are constructed, fuels would be sourced from the existing Divert facilities using fuel trucks. The EIS assumes approximately 1M gallons of fuel needed per year and this would result in an average of 4 truck trips per week from Divert to the Base Camp. This could increase during peak large training events to 16 truck trips per week.	N/A	N/A	0	18,000
Utility alignments. Note - Electrical and communication lines would be undergrounded. Lines would be constructed to serve Base Camp, Surface Radar Towers, Well Fields and the MPMR Ammunition Holding Area. Utility trenches are expected to be located approximately 16 feet from the centerline of roads. A total of approximately 14 feet of cleared area is needed along the road to construct the trench. The trench would be approximately 3 feet in width if shored and approximately 10 feet in width if not shored. Shoring is typically required in poor soil conditions and/or if the trench is deeper than 4 feet. The trench would be up to 6 feet deep for water lines and 3 feet deep for electrical or communication lines. The EIS would assume a 10 foot wide trench for water lines and a 3 foot wide trench for electrical and telecommunications. An estimate of disturbed area is shown as follows:				
Water line from Well Field A (maximum proposed distance following 8th Avenue) 24,000 linear feet by 14 feet wide for vegetation clearing = 336,000 SF. Actual ground disturbance would be 24,000 linear feet by 10 feet wide = 240,000 SF.	N/A	N/A	336,000	0
Water line from Well Field B (maximum proposed distance following 8th Avenue) 15,540 linear feet by 14 feet wide = 217,560 SF. Actual ground disturbance would be 15,540 linear feet by 10 feet wide = 155,400 SF.	N/A	N/A	217,560	0

Description	*Building Requirement (SF)*	*New Building Construction (SF)*	*Vegetation Clearing (SF)*	*New Impervious or Semi-Impervious Surface (includes new building footprint) (SF)*
Proposed Combined Electrical and Communication Line in the Military Lease Area: - USAGM Site to Surface Radar Site 1 = 11,210 ft - Surface Radar Site 1 to Surface Radar Site 2 = 18,650 ft - Ushi Point Road to MPMR Wells and AHA-1 = 4,770 ft Total 34,630 ft by 14 feet wide clearing = 484,820 SF	N/A	N/A	484,820	0
Proposed Communication Line in the Military Lease Area: - TNI/Divert from Broadway to 8th Avenue = 17,040 ft - 8th Avenue to Well Field Option 1 along 86th Street = 11,600 ft - TNI/Divert 8th Avenue to Base Camp = 16,350 ft Total 44,990 linear ft by 14 feet wide clearing = 629,860 SF	N/A	N/A	629,860	0
Proposed Communication Line OUTSIDE the Military Lease Area: - Commercial service provider (San Jose) to Military Lease Area Via Broadway = 6,510 feet by 14 feet wide = 91,140 SF	N/A	N/A	91,140	0
Ranges, Supporting Facilities and Training Areas				
Two Surface Radar Towers Each tower is a minimum of 45 ft and a maximum of 75 feet tall. Each requires a 120 ft by 120 ft fenced area with an additional 20 feet of clearance outside the fence for a total disturbance of 160 ft by 160 ft or 25,600 SF. Each site would include an approximately 40 ft by 40 ft area for the antenna footings and approximately 30 ft by 30 ft equipment shelter. The entry gate at each Surface Radar site would be illuminated. Fencing at the Surface Radar sites would be double fencing: (Outer fence (8’ total height – 7’ fence with 1’ Y top) with reinforcement cables and dead man anchors, Y top, barbed wire and razor wire. Inner fence (8’ total height – 7’ fence with 1’ Y top) with Y top, barbed wire and razor wire.).	1,800	1,800	51,200	5,000

Description	*Building Requirement (SF)*	*New Building Construction (SF)*	*Vegetation Clearing (SF)*	*New Impervious or Semi-Impervious Surface (includes new building footprint) (SF)*
Multi-Purpose Maneuver Range Ammunition Holding Area: (approximately 164 feet wide by 164 feet long to support up to 567 lb. NEW) at Multi-Purpose Maneuver Range. The AHA would require temporary fencing when in use. The temporary fencing typically consists of triple-strand concertina wire, a security barrier made up of three layers of razor wire arranged in a pyramid or stacked formation. The wire is secured in place using metal stakes driven into the ground. Height: 4 to 6 feet Width: 3 to 6 feet Stake Spacing: Every 5 to 6 feet Stake Depth: 18 to 24 inches	N/A	N/A	27,000	27,000
Multi-Purpose Maneuver Range: Perimeter Road and Firebreak (vegetation clearing and regular maintenance), 10,080 linear feet, with 50-foot vegetation clearing for fire-break, 504,000 SF	N/A	N/A	504,000	0
Multi-Purpose Maneuver Range: Firebreak The firebreak would follow existing Boston Post Road that runs east and west along the south side of the MPMR AND Ushi Point Road. Fire breaks would require 8 ft of clearance on either side of the road (vegetation clearing and regular maintenance). The estimated length for fire break along Boston Post Road is 13,690 linear feet. Ushi Point Road fire access road is estimated at 5,240 linear feet for a total of 18,930 linear feet. 18,930 linear feet times 16-foot vegetation clearing = 302,880 SF.	N/A	N/A	302,880	0

Description	*Building Requirement (SF)*	*New Building Construction (SF)*	*Vegetation Clearing (SF)*	*New Impervious or Semi-Impervious Surface (includes new building footprint) (SF)*
Multi-Purpose Maneuver Range Water Wells and Tanks: One new water well and two 100,000 gallon water tanks would be constructed at North Field near Landing Zone 13. Installation of water wells would be conducted by a licensed driller under the guidance of a Professional Geologist. The well would include a 900 SF building to house water pumps, and backup electrical generation. The well and tanks would NOT be fenced. Each 100,000 gallon tank would be approximately 33 feet in diameter and 18 feet high and include wildland fire truck dispensing apparatus. The tanks would require approximately 7,000 total SF of impervious or semi-impervious surface for placement of concrete pads/tanks, pumphouse, and supporting infrastructure. The total disturbed area would be approximately 1.5 acres. The area would be accessed by existing roads and the well, building and tanks would be locked for security. Entry points would be illuminated.	900	900	65,340	7,000
Multi-Purpose Maneuver Range: Center Access Road/UKD Range (vegetation clearing and regular maintenance)	N/A	N/A	108,000	0
Multi-Purpose Maneuver Range: Target/Objective Areas (vegetation clearing and regular maintenance). Includes thinning of vegetation between objective areas. Roads to the range would include gates that could be closed for safety and security. Simple metal gates would also be installed along the public road to prevent access for safety reasons when the Range is in use.	N/A	N/A	531,200	0

Description	*Building Requirement (SF)*	*New Building Construction (SF)*	*Vegetation Clearing (SF)*	*New Impervious or Semi-Impervious Surface (includes new building footprint) (SF)*
Explosives Training Range (ETR) The Explosives Training Range would include a 2.5 acre disturbed area and a 40 feet x 8 feet Missile Proof Shelter & Operational Bunker. The road to the ETR would have a permanent steel swing gate that could be closed for safety and security. The ETR would NOT be fenced. The ETR would also include a flagpole with a redlight. The light would be illuminated and a red flag flown when the range is active.	320	320	108,900	320
Helicopter Landing Zones (remove and maintain vegetation to allow for helicopter landings) 11 small (600 feet by 600 feet) and 2 large (1200 feet by 1200 feet) = 6,840,000 SF or 157 Acres	N/A	N/A	6,840,000	0
North Field Drop Zone (vegetation clearing for safe use of drop zone) (212 acres being cleared by USAF, 89 acres by CJMT)	N/A	N/A	3,876,840	0
TOTAL	106,880	80,080	14,900,600	589,300
		Acres	342.07	13.53

Total Building SF at USAGM site that can be reused	30,000
Total Impervious or Semi-Impervious Surface WITHOUT new building footprints	511,020

Table C.5-2 Roadways

Road Name/Location	Road Segment Length (feet)	Road Type	Construction Type	Road Description	Road Width (feet)	Area of Disturbance (Clearing) (SF = Road Length x Road Width)
Explosives Training Range Access Road (from 86th Street, North to ETR Site/Bunker)	2,800	Gravel	New Construction	24 feet	24	67,200
72nd Street, from Pina Quarry to Pina Plateau, connects to LZ 1	6,954	Gravel	Re-established Road	(2) 12 foot lanes, with 3-foot shoulders	30	208,620
Road to LZ 2	300	Gravel	Re-established Road	24 feet	24	7,200
Road to LZ 3	467	Gravel	Re-established Road	24 feet	24	11,208
Road to LZ 4	1,289	Gravel	Re-established Road	24 feet	24	30,936
Road to LZ 5	226	Gravel	Re-established Road	24 feet	24	5,424
Road to LZ 6	458	Gravel	New Construction	24 feet	24	10,992
Road to LZ 7	382	Gravel	New Construction	24 feet	24	9,156
Road to LZ 8	278	Gravel	New Construction	24 feet	24	6,672
Road to LZ 9	719	Gravel	Re-established Road	24 feet	24	17,256
Road to LZ 10	606	Gravel	Re-established Road	24 feet	24	14,544
Road to LZ 11	1,398	Gravel	Re-established Road	24 feet	24	33,552
Road to LZ 12	2,588	Gravel	Re-established Road	24 feet	24	62,112
Road to LZ 13	0	Gravel	Re-established Road	24 feet	24	0
Total New Construction	3,918				Total New Construction	94,020
Total Re-establish	14,547				Total Re-establish	390,852
Grand Total	18,465				Total	484,872
					Acres New Construction	2
					Acres Re-establish	9
					Acres Grand Total	11

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