
CHAPTER 2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.0 INTRODUCTION

The Proposed Action is to construct and operate a modern IPBC and associated infrastructure that is compliant with current Army training requirements.

2.1 INFANTRY PLATOON BATTLE COURSE (IPBC)

In the Draft PEIS, the IPBC was analyzed as part of a larger IPBA that included a MOUT Assault Course and a live-fire Shoothouse facility. Due to funding constraints, the MOUT Assault Course and Shoothouse are no longer part of the present project. The IPBC will be the only part of the IPBA analyzed in this Final EIS.

The Army proposes to construct an IPBC capable of supporting standard Infantry Platoon Live-Fire Training enabling units to accomplish their METL tasks using one range. An IPBC supports a variety of light infantry training events, day and night, such as reconnaissance and security, movement to contact, attack, raid, ambush, defend, and retrograde operations. An infantry platoon training on the IPBC would move from objective to objective while engaging targets.

2.2 IPBC CONSTRUCTION

The proposed IPBC would be sited within the impact area at PTA where no ranges currently exist. This action would reclaim impact area as training area and therefore, the reclaimed portion of the impact area was evaluated. Evidence of the MEC/UXO in the area of the proposed Western Range Area and Charlie Circle Alternatives demonstrates that the project location has been exposed to indirect fire (artillery fire).¹⁶ Information on the two proposed locations for the IPBC is discussed below along with a summary of the cultural and natural resources surveys conducted for each alternative location.

The entire developed footprint of the IPBC would be approximately 110 ac (44.5 ha) (ground softened), and includes an unpaved access road to the IPBC, the Range Operations Control Area (ROCA), objectives with instrumented targetry that Soldiers engage during training exercises, and maneuver lanes (trails that Soldiers and their equipment use to move down the course to engage objectives). Figures 2.2-1 and 2.2-2 depict visual simulations of the North Road and range objectives at the proposed IPBC at PTA.

¹⁶ Artillery firing points could be redirected to avoid impacting this area for future use.

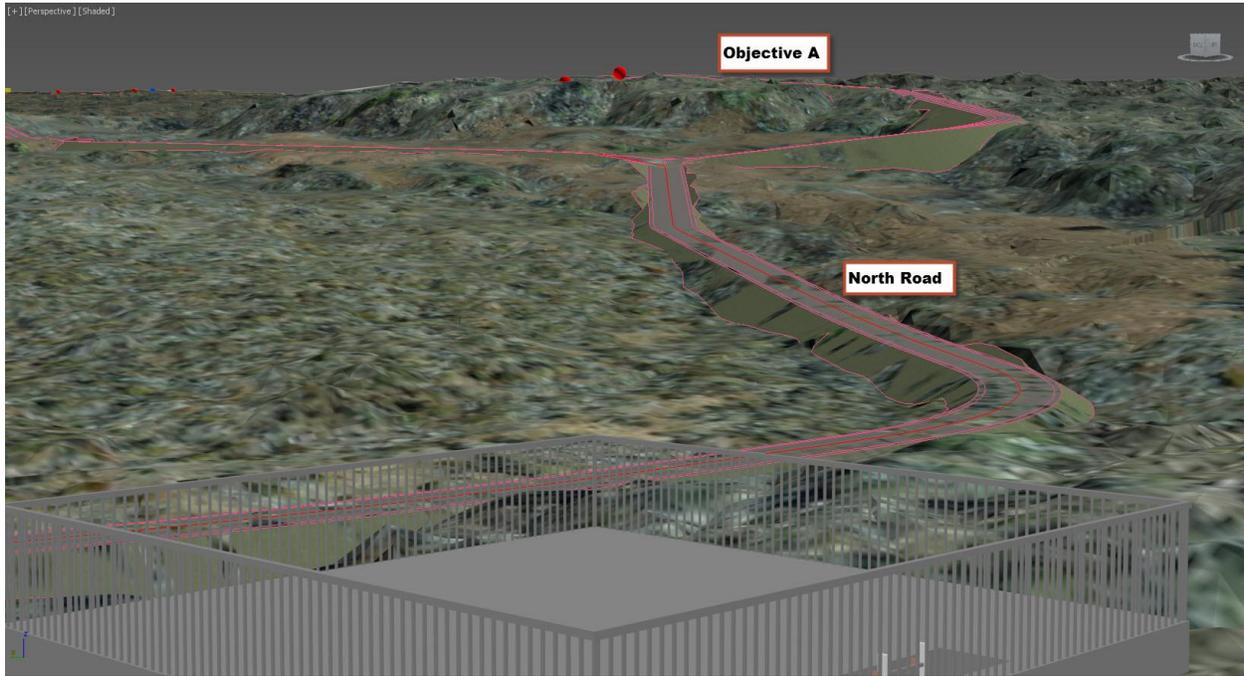


Figure 2.2-1. Visual simulation of the North Road and Objective A from the range control tower

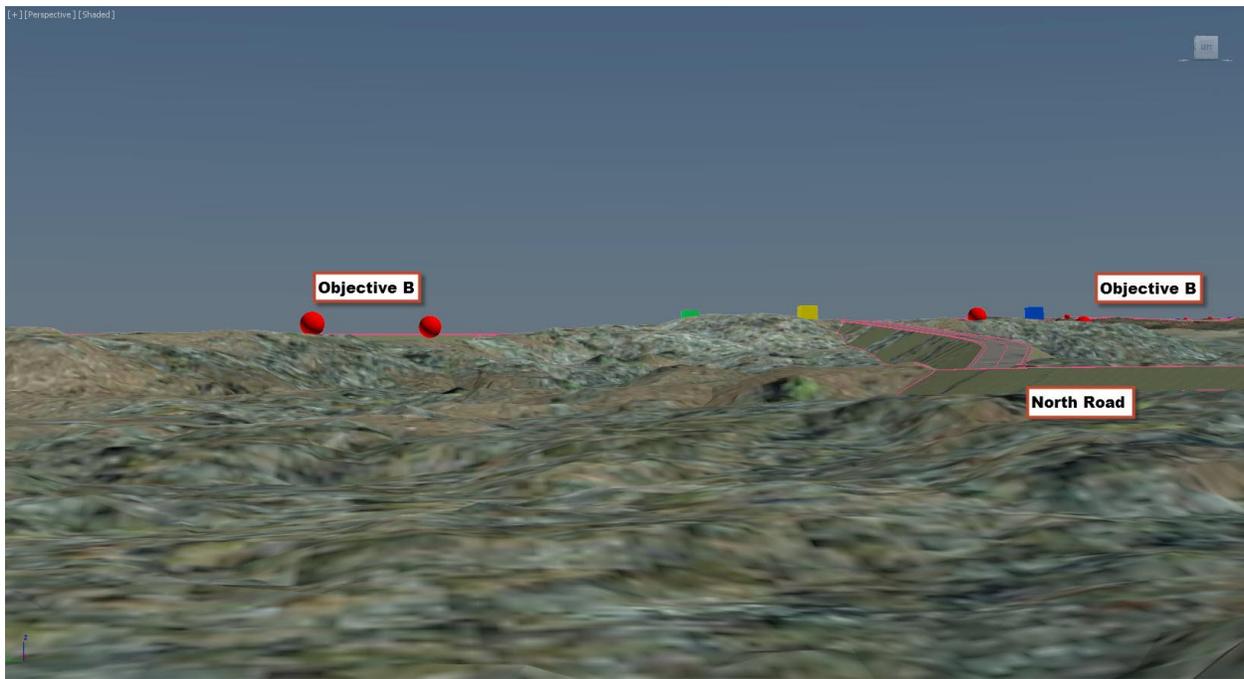


Figure 2.2-2. Visual simulation of the North Road and Objective B

2.2.1 Access Road

Since there is limited access to the impact area presently to any of the proposed IPBC sites, the Army would need to construct an access road from the existing road network to the ROCA. D-9 bulldozers would be used to ground soften lava to create the road. The road would be sited around known MEC/UXO. Geotechnical surveys would be completed in advance of ground softening to ensure no large subsurface voids lie beneath the lava surface that could endanger the lives of authorized personnel operating in the proposed IPBC area.¹⁷ The USACE has planned for the IPBC access road to be approximately 6,600 ft (2,011 m) long and 24 ft (7.3 m) wide.

2.2.2 ROCA

The IPBC would also include associated range operations and control facilities to operate the IPBC. Supporting facilities could include a range control tower, operations/storage building, classroom, bleachers enclosure, covered mess, ammunition breakdown building, and latrines. There would be enough parking to accommodate up to 20 high-mobility multipurpose wheeled vehicles (HMMWVs), or other combinations of vehicles around an approximate 20 HMMWV equivalent. Electricity and telecommunication lines would be run from the main road, on poles, down the access road and to the ROCA. Once at the ROCA, lines would be run underground to structures that require power and/or telephone. Electricity would feed only the ROCA and not the range itself. Power would be 150 kilo Volt Amperes (kVA) delivered by copper line. No water lines would be run to the ROCA; rather, water would continue to be delivered to Soldiers via trucks. A water reserve would be available in the storage building to operate an eyewash station co-located with battery storage. A nearby dip tank would serve helicopters that provide fire protection support to the IPBC. The following are design specifications for each of the ROCA facilities:

- **Range Control Tower**

The structure would be 657 square foot (sf) (61 m²) in area. Building construction would consist of concrete spread footings, structural steel frame, and fencing around the tower to control access. The tower roof would be flat with guardrails to ensure the safety of personnel accessing the roof to provide maintenance to radio antennas secured to the roof. Gutters and grading would be used to divert rainwater away from the building base. Lighting would be installed inside and outside the tower. A heat pump would be installed for cooling and heating. Power and telephone lines would be run to this structure. Figure 2.2-3 shows a picture of a typical range control tower.

- **Operations/Storage Building**

The building would be approximately 800 sf (74.3 m²) in area, constructed on a concrete slab with a steel frame and walls made of concrete masonry block. Power and telephone lines would be run to the building. Figure 2.2-4 shows a picture of a typical operations and storage building.

¹⁷ Construction workers operating D-9s, or Soldiers operating Strykers (or Marine Corps Light Armored Vehicles (LAV) which are similar in size to the Stryker) or HMMWVs, could break through the top of a lava tube situated close to the surface and be injured or killed by the impact. Geotechnical surveys are used to evaluate the soil characteristics, its natural stability and slope, and rock/fault distribution to allow designers to consider the site limitations of an area and allow for the proper engineering to site range features, develop foundations for buildings and roads, and characterize areas that may otherwise present a risk to human activity (e.g., vehicle operations).

- **Classroom**

This building (not sized yet) would be large enough to house one 40-person platoon. Similar to the operations building, the classroom would be a concrete masonry unit built with steel frame on a concrete slab. This facility requires power to run lighting and a few electrical outlets. A heat pump would be installed for cooling and heating. Figure 2.2-5 shows a picture of a training classroom and briefing room similar to that proposed for the IPBC.

- **Bleachers Enclosure**

The bleachers enclosure would be 726 sf (67.4 m₂) in area, and placed on a concrete slab with a steel frame, metal siding roof, and three un-insulated walls. Power would be run to this facility to provide lighting and to run a few electrical outlets. The bleachers would have a capacity of holding 200 Soldiers.

- **Covered Mess**

This structure would be of austere design approximately 800 sf (74 m²) in area with steel beams supporting a metal roof built on a concrete slab. Wire mesh would be extended under the roof to prevent bird roosting in this open enclosure. Food would be prepared at the Cantonment Area and brought to this area as needed. Power would be run to the facility to operate lighting and an electrical outlet. Figure 2.2-6 shows a picture of a covered mess similar to that proposed for the IPBC at PTA.

- **Ammunition Breakdown Building**

The ammunition breakdown building would be 120 sf (11.1 m²) in area, built as a concrete masonry unit with steel frame on a concrete slab. Power would be run to this facility to operate lighting. This facility would require a 50 ft (15 m) set-back from other facilities in the ROCA as a safety feature when handling live ammunition. An explosives safety plan would not be required for this facility. Only small-caliber munitions authorized for use on the IPBC would be permitted in this facility. Figure 2.2-7 shows a picture of an ammunition breakdown building similar to that proposed for the IPBC.

- **Latrines**

This would be a set of six portable latrines, emplaced on two concrete slabs (three latrines per slab). Power would be run to a light post in the latrine area. The installation would contract the removal and replacement of portable latrines on a regular basis to eliminate waste buildup.



Figure 2.2-3. Picture of a typical range control tower



Figure 2.2-4. Picture of a typical operations and storage building



Figure 2.2-5. Picture of a training classroom and briefing room



Figure 2.2-6. Picture of a covered mess



Figure 2.2-7. Picture of an ammunition breakdown building

Figure 2.2-8 illustrates a conceptual drawing of the IPBC ROCA. The actual design layout may be modified, but no changes to the type/function of the structures are expected.

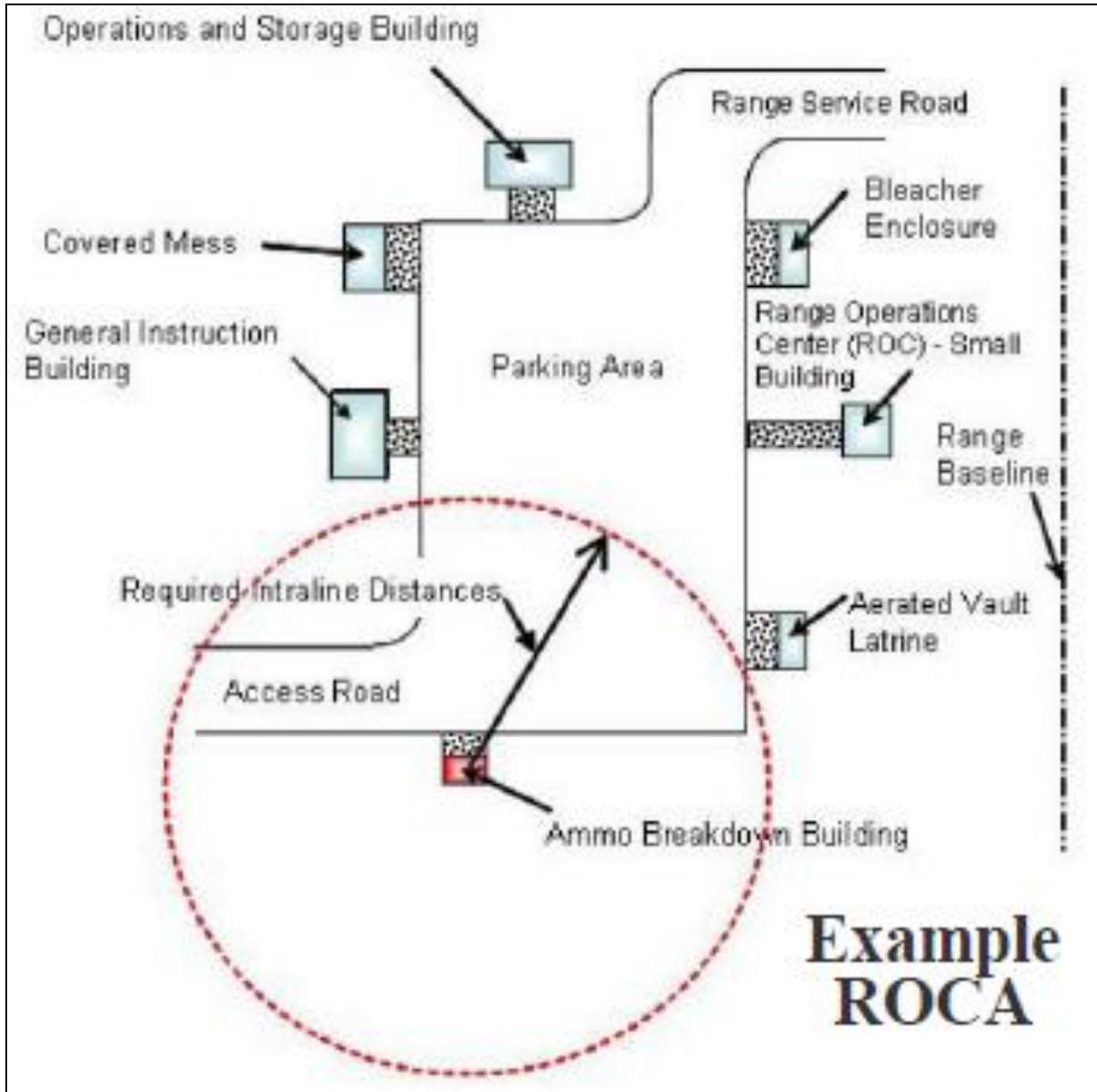


Figure 2.2-8. Conceptual drawing of the IPBC ROCA

2.2.3 IPBC with Objectives

A standard IPBC is approximately 1,640 ft (500 m) wide at the range entry point and 4,921 ft (1,500 m) wide at the final engagement point, and 13,123 ft (4,000 m) long. The Army intends to construct an enhanced IPBC that is 3,281 ft (1,000 m) wide at the range entry point to increase the number of targets on the range, and realign objectives to enable a unit commander to have greater flexibility when designing training scenarios, and/or allow up to two platoons to use the IPBC at the same time (Figure 2.2-9). Target arrays would include stationary and moving armor targets (SATs and MATs), Stationary Infantry Targets (SITs) and Moving Infantry Targets (MITs), trench obstacle(s), machine-gun bunkers (with sound effects simulator), and an assault/defend house.¹⁸ Table 2.2-1 shows a comparison between standard and enhanced IPBC targetry features.

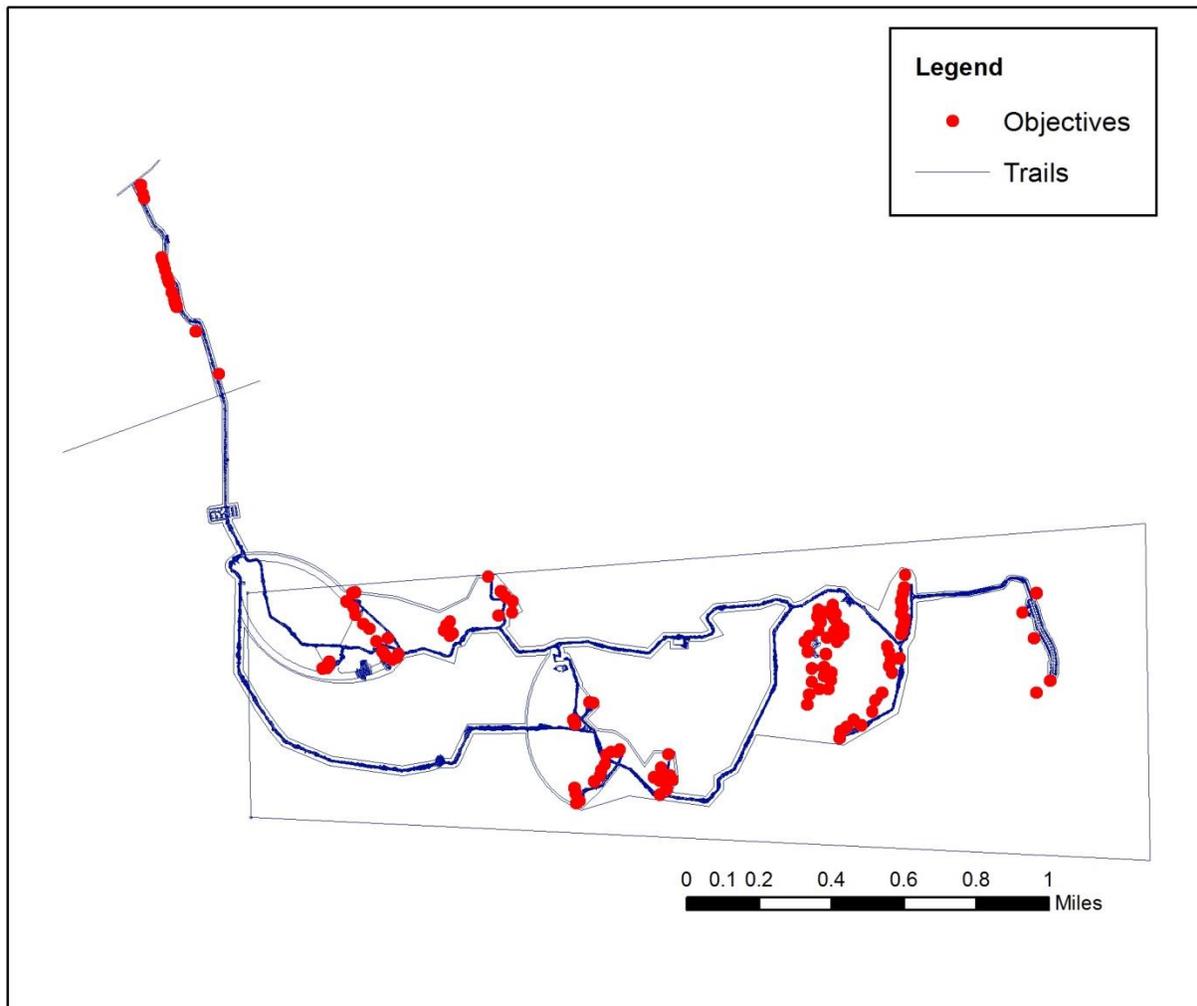


Figure 2.2-9. Enhanced IPBC (objectives still in design phase)

¹⁸ In a memorandum dated 14 July 2010, the USAG-HI Deputy Chief of Staff, G-3/5/7 (Operations, Plans, and Training) requested an exception to the TC 25-8 standard design for the IPBC for widening entry point range dimensions. The exception to standard was approved on 1 December 2010.

Table 2.2-1. IPBC Targetry Features

Standard IPBC Targetry Features	Enhanced IPBC Targetry Features
1,640 ft (500 m) wide at initial entry point	3,281 ft (1,000 m) wide at initial entry point
43 SITs	56 SITs
6 SATs	8 SATs
1 MATs	1 MAT
9 machine gun/observation bunkers	10 machine gun/observation bunkers
14 MITs	18 MITs
1 trench obstacle	1 trench obstacle
2 LZs	2 LZs
1 assault/defend house	1 assault/defend house

The enhanced design also includes hardened targetry to protect sensitive targetry on the IPBC from aircraft live-fire engagements.¹⁹ Target locations would be site adapted to meet established training requirements. All trenches, bunkers, and target emplacements would replicate typical threat scenarios and would also contain battle/sound effects simulators. Mortar simulation device emplacements would be located in areas where unfriendly mortar fire would be simulated.

To replicate a realistic training environment, the IPBC would incorporate the use of thermal targets, night illumination devices, and visual flash simulators. Targets would be fully automated and powered by photovoltaic panels. Dirt berms would be built-up behind targets to collect lead from expended ammunition. Berm maintenance (including lead removal) would be closely monitored and conducted in accordance with Sustainable Range Program (SRP) environmental activities. Figure 2.2-9 illustrates the enhanced IPBC design. Figure 2.2-10, shows the standard design of an IPBC, and Figure 2.2-11 shows the enhanced design overlaid with the standard design of TC 25-8.

¹⁹ In a memorandum dated 31 March 2011, USARPAC Director of Training requested an exception to the TC 25-8 standard design for the IPBC for hardening target emplacements. The exception to standard was approved on 1 April 2011. Hardening target replacements would be accomplished by increasing protective berm dimensions on the IPBC to meet aviation berm standards. These berm standards would be built to withstand (with maintenance) the firing of 2.75 inch rockets from aviation assets. IPBC ammunition and weapon system requirements are discussed in Section 2.3.5.

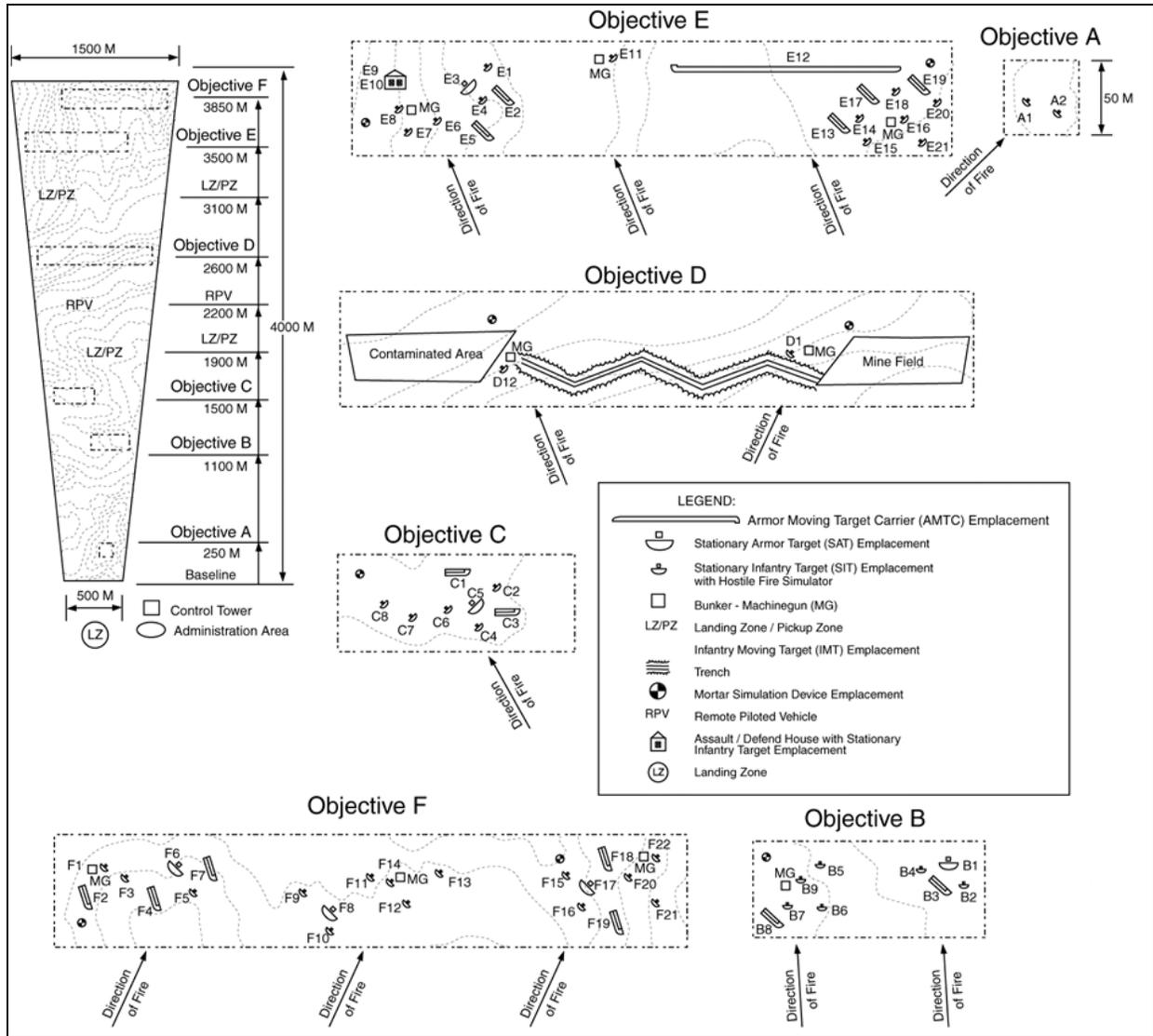


Figure 2.2-10. Standard design of an IPBC (TC 25-8)

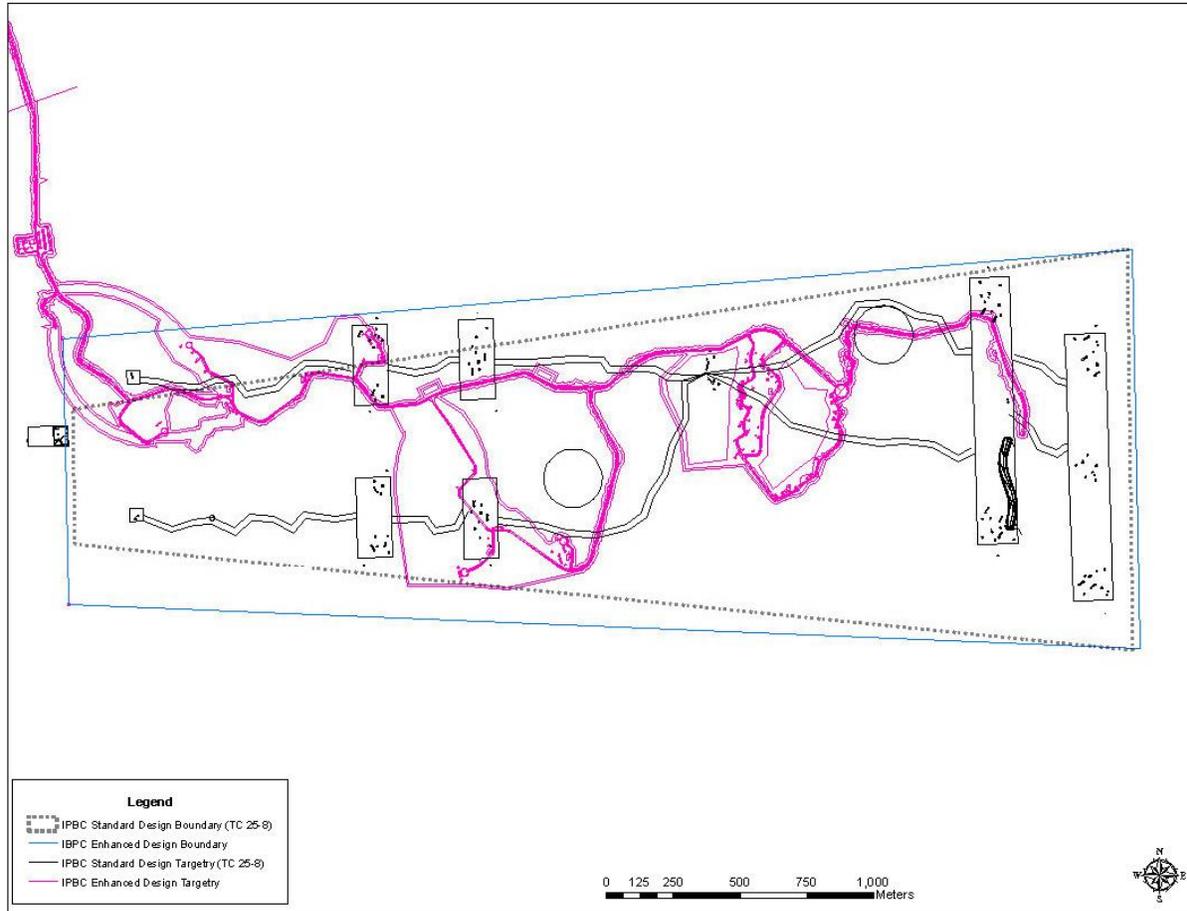


Figure 2.2-11. IPBC enhanced design overlaid with the standard design

2.3 IPBC OPERATION

2.3.1 Travel to PTA

Army units deploy to PTA from O‘ahu by helicopter or by fixed wing aircraft from Joint Base Pearl Harbor Hickam or WAAF and landing at BAAF. Equipment supporting the unit training deployments is transported to PTA using up to 66 Logistic Support Vessels (LSV) and four barge round trips per year entering into the military dock at Kawaihae Harbor.²⁰ Once unloaded at Kawaihae Harbor, troops and equipment would move by convoys of trucks or tactical vehicles on state and county two-lane roads to PTA. Convoys would include no more than 30 vehicles at a time. A convoy first travels on Kawaihae-Waimea Road and then on Māmalahoa Highway and onto Saddle Road or on Kawaihae-Waimea Road to Queen Ka‘ahumanu Highway to Waikoloa Road to Māmalahoa Highway and onto Saddle Road.

²⁰ The length of the runway at BAAF is too short to support large aircraft that could directly transport such items.

Per command guidance, USAG-HI convoys normally maintain a gap of at least 30 minutes between serials (a group of military vehicles moving together), and 330 ft (100 m) between vehicles on highways and 25 to 50 ft (7.5 to 15 m) while in town traffic. Per state regulation, military convoys are normally restricted from operating on state highways between 6:00 am and 8:30 am and between 3:00 pm to 6:00 pm during the normal work week. This is to avoid peak traffic hours and to reduce the risk of accidents. In addition, convoys and ammunition movements normally are not authorized to pass through a school zone when students are in transit; that is, when school zone lights are flashing Monday through Friday. Movements on Saturday, Sunday, and holidays are by special request only.

2.3.2 Arrival at Cantonment Area

Company leaders (Captains, Lieutenants, and Sergeants) receive special briefings in advance of the Company deployment to PTA. In addition, USAG-Pōhaku (USAG-P) natural and cultural resources staff have developed an environmental briefing; all troops receive safety and environmental briefings from the USAG-HI and Director of Mission Support Element - Hawai‘i (MSE-HI) on the locations of threatened and endangered species and habitat, locations of known cultural resource sites, fire hazards, and fire prevention measures and procedures at the beginning of their deployment. Where necessary, the training scenario is modified to reduce the risk of fire and other damage to the environment (this is often accomplished through adjusting SDZs).

From the Cantonment Area, the IPBC would be reached by exiting the installation onto Old Saddle Road and travelling west to Menehune Road, and then exiting onto Lava Road, turning southward onto MPRC Road. MPRC Road can access the area west of the impact area at PTA. Charlie Circle Road, which is the primary proposed access point to the IPBC, is a loop that intersects MPRC Road in two locations.

2.3.3 Live-Fire Training

The enhanced IPBC offers units alternatives to conduct challenging and realistic training events. In one scenario, two infantry platoons could fire and maneuver on the IPBC simultaneously. In another scenario, helicopters could be used in support of dismounted Soldiers as part of air-ground integration training.

SDZs are designed for each military range and training event, in accordance with DA PAM 385-64 *Ammunition and Explosives Safety Standards*. SDZs include the ground and airspace designated within the training complex (to include associated safety areas) for vertical and lateral containment of projectiles, fragments, debris, and components resulting from the firing, launching, or detonation of weapon systems to include explosives and demolitions. In accordance with the USAG-HI and 25th ID Regulation 210-6 *Installation Ranges and Training Areas* the training unit provides the range control officer (RCO) with a training scenario describing the proposed fire and maneuver plan. The RCO validates the scenario and ensures the SDZ supports the training scenario. The SDZs will be adjusted as new types of ammunition are introduced.

In the event that MEC/UXO is discovered either during or post training, qualified explosive ordnance disposal (EOD) or other certified personnel would destroy the munitions item. Ordnance normally is destroyed where it is found, whether from the training being conducted or from earlier exercises. No known such rounds are left in place at the conclusion of a training exercise.

The IPBC facilities would normally be available 242 days per year as discussed in Section 1.2.1.

2.3.4 Operational Description

An IPBC range supports unit collective (group) live-fire training. The IPBC range is used to train and test infantry platoons and other small units on the skills necessary to conduct tactical movement techniques, and detect, identify, engage, and defeat stationary and moving infantry and armor targets in a tactical array. Soldiers would engage targets with small-arms, machine gun, and other weapon systems as part of live-fire exercises and air-ground integration training. In addition to live-fire, the range would also be used for training with sub-caliber and/or laser training devices.

The unit actions are recorded on video, and the target engagements are scored in order to provide the unit commander a complete after action review package. Immediate feedback and a take-home after action review package are critical to effective training.

2.3.4.1 Example Training Scenario

The IPBC can support a variety of light infantry training events, day or night, such as: reconnaissance and security; movement to contact; attack; raid; ambush; defend and retrograde (tactical withdrawal). The unit commander will select the missions and develop a fire and movement scenario according to: training directives, guidance and priorities from chain of command; the company's METL; the platoon's current mission capability/readiness and availability of training resources (e.g., ammunition); and time.

In this example a light infantry platoon is conducting a daylight movement to contact on an IPBC of standard design with six objectives. Ordinarily the platoon would conduct the exercise "dry" (no ammunition) or using blank ammunition before conducting a live-fire exercise.

Phase One

The platoon is in an assembly area in a covered and concealed position off the IPBC where it is given an operations order describing the enemy situation, the fire and movement plan, command and control procedures, and other tactical information, as well as safety instructions. Ammunition and other supplies and equipment are issued and checked. At the designated time, the platoon leaves the assembly area and moves on to the start of the IPBC.

Phase Two

As the platoon crosses the start of the IPBC the Soldiers move into a tactical formation and load their weapons with ammunition, and the platoon begins moving down the IPBC. Upon simulated enemy fire and/or targets appearing on Objective One, the platoon conducts a hasty attack by maneuvering on and firing at the targets until the targets are all engaged or the timed scenario ends. The platoon may stop briefly to consolidate and reorganize on the objective, and assess their own and the enemy situation. The platoon will resume moving downrange to the next objective.

Phase Two through Five

These phases are similar to Phase One, although the conditions (ex. bunkers, trenches, small buildings) and targets (stationary and/or moving and infantry and/or vehicle) will change. The platoon's actions are also similar: react, develop the situation, execute a battle drill of fire and movement, and use the most effective weapons to engage the targets. The commander may choose to add other elements to the scenario at any time, for example a simulated Improvised Explosive Device (IED) explosion, ammunition resupply, or casualties requiring treatment and evacuation.

Phase Six

The platoon will assault, secure, consolidate, and reorganize into a hasty defense on the final objective. At “cease fire” weapons are cleared and checked, and no more targets will be presented. The company and platoon leadership will conduct an After Action Review (AAR) to discuss how well the platoon did in accomplishing the mission. Depending on the training plan and how well the platoon executed the movement to contact and hasty attacks the platoon may stay on Objective Six to defend it; retrograde back to the IPBC start point; repeat the scenario or portions of it; or move off the IPBC to another training event.

2.3.4.2 Training on the Enhanced IPBC

The Army does not expect an increase in the number of Soldiers using the new proposed IPBC as compared with current levels on the existing, non-standard, IPBC Range 10.

The 3/25 Infantry Brigade Combat Team (IBCT) would use the IPBC to train an estimated 68 platoon-level live-fire events per year. In accordance with DA PAM 350-38 STRAC, each of the 34 rifle/weapons/scout platoons assigned to the IBCT is authorized to conduct two platoon-level live-fire events per year, thus equating to 68 live-fire events per year. The assigned weapons squads and elements from the engineer platoons will also support these platoons during these live-fire training events, as part of the collective combined arms training strategy.

The 2/25 Stryker Brigade Combat Team (SBCT) would use the IPBC to conduct an estimated 90 platoon-level live-fire events per year. In accordance with DA PAM 350-38 STRAC, each of the 45 rifle/scout/MGS platoons in the SBCT is authorized to conduct two platoon-level live-fire events per year, thus equating to 90 live-fire events per year. The assigned weapons squads and elements from the engineer platoons will also support these platoons during these live-fire training events, as part of the collective combined arms training strategy.

The proposed IPBC is not anticipated to result in an overall increase in helicopter activity at PTA. Helicopters are currently used in conjunction with training at the non-standard Range 10 IPBC, as well as other sites at PTA (e.g., Range 20); however, Range 10 targetry is not designed/hardened to support air-ground integration training.²¹ Helicopters training near Range 10 fire into the adjacent impact area. During operation of the proposed, enhanced IPBC, helicopter training activity near the enhanced IPBC is anticipated to increase as these aircraft would be employed in support of dismounted training. Those other ranges and training locations will experience a commensurate decrease of helicopter training operations.

²¹Helicopter use at the IPBC is now referred to as air-ground integration rather than aerial gunnery. Aerial gunnery is a term of art and refers to the weapons qualification each helicopter crew member must complete. This qualification training will not occur at the IPBC; fewer flights and munitions will be involved. The 25th CAB will support air-ground integration training at the IPBC in conjunction with platoon-level live-fire training events as described above because the IPBC targets will be hardened to accommodate air-ground integration.

The 25th CAB will support air-ground integration training at the IPBC in conjunction with platoon-level live-fire training events as described above because the IPBC targets will be hardened to accommodate air-ground integration. Air-ground integration training begins with UH-60 Blackhawk helicopters (about six) delivering the infantry platoon to the range. The UH-60 Blackhawk would fire machine guns to cover the landing. Later, as the platoon advances on the course, it could call for air support. The OH-58 Kiowas would arrive and fire on targets. It should be noted that this support would not be available or required for each exercise. It would depend on whether the CAB could provide the resources and whether air support is needed for the ground commander's scheme of maneuver.

The annual IBCT, SBCT, and CAB ammunition expenditures which are currently authorized for these training events are outlined in Tables 2.3-1 to 2.3-4. STRAC authorizations are subject to change in future years, based on new and emerging Army training strategies.

Actual range usage as described above may vary based on deployment schedules, unit training schedules, range availability, and other factors. Other users of the IPBC may include units from the Hawai'i National Guard, the Marine Corps, Special Operations community, U.S. Partners and Allies from the Pacific Region, as well as, local, state and Federal Law Enforcement Agencies.

2.3.4.3 Duration of Event

To complete the reconnaissance, one or more practice runs, which are determined by the leader's evaluation of the platoon's proficiency, and a live-fire exercise, each platoon would need six hours of daylight and six hours of reduced visibility (night). Some time is also required to set up and close down the IPBC, and to conduct safety briefings, and after-action reviews.

2.3.5 Weapons, Ammunition, and Aiming Devices

Tables 2.3-1 through 2.3-3 identify the estimated annual expenditure of munitions on the enhanced IPBC, by weapon system, and by unit echelon (platoon through brigade). Table 2.3-4 identifies the total CAB expenditures. These amounts are somewhat different than the estimates in the Draft PEIS because more accurate information has become available. Table 2.3-5 shows the ammunition expenditures associated with the additional weapons that the 25th ID plans to use at the IPBC. Platoons, consisting of three rifle squads and a weapons squad would train on the IPBC twice per year as part of the squad-platoon-company live-fire strategy (DA PAM 350-38, para. 5-7c(1)). The single engineer platoon per infantry battalion would also train at the IPBC.

Table 2.3-1. Estimated Total IBCT Annual Ammunition Expenditures at the IPBC

Weapon Type	Ammo Type	Ammo per weapon/event ¹	Weapons per platoon ²	Weapons per company ²	Weapons per battalion ²	Weapon per BCT ³	Annual Expenditures (2 events/yr)
Rifle Squads							
M16 / M4 Rifle	5.56 BALL	150	24	75	225	642	192,600
	5.56 BLANK	300	24	75	225	642	385,200

Weapon Type	Ammo Type	Ammo per weapon/event ¹	Weapons per platoon ²	Weapons per company ²	Weapons per battalion ²	Weapon per BCT ³	Annual Expenditures (2 events/yr)
M249 Squad Automatic Weapon (SAW)	5.56 BALL	300	6	18	54	120	72,000
	5.56 BLANK	600	6	18	54	120	144,000
M203 40 mm Grenade Launcher	40 mm TPT	18	7	21	91	228	8,208
Weapons Squad							
M16/M4 Rifle	5.56 BALL	150	7	21 Rifle CO/ 48WPN CO	111	222	66,600
	5.56 BLANK	300	7	21 Rifle CO/ 48WPN CO	111	222	133,200
M240B	7.62 BALL	300	2	6 Rifle CO/ 6 WPN CO	36	98	58,800
	7.62 BLANK	600	2	6 Rifle CO/ 6 WPN CO	36	98	117,600
M2 Machine Gun	.50 cal BALL	75	2	8	15	50	7,500
MK 19	40 mm TPT	5	1	4	8	28	280
Engineer Platoon							
M16/M4	5.56 BALL	150	12			36	10,800
M249	5.56 BALL	300	2			6	3,600
M240	7.62 BALL	300	1			3	1,800

Weapon Type	Ammo Type	Ammo per weapon/event ¹	Weapons per platoon ²	Weapons per company ²	Weapons per battalion ²	Weapon per BCT ³	Annual Expenditures (2 events/yr)
M2	.50 cal BALL	100	1			3	600

NOTES:

¹Ammunition required per IBCT training event is derived from the Platoon/Company level ammunition allocations which are set forth in Standards in Weapons Training, Department of Army Pamphlet 350-38.

²The weapons per Platoon, Company, and Battalion are derived from the organizational structure of the Brigade's two Rifle Battalions.

³The total number reflects the weapons authorized in the Brigade's two Rifle Battalions and the Cavalry Squadron.

Table 2.3-2. Estimated Total SBCT Ammunition Expenditures at the IPBC¹

Weapon Type	Ammo Type	Ammo per weapon/event ²	Weapons per platoon ³	Weapons per company ³	Weapons per battalion ³	Weapon per BCT ⁴	Annual Expenditures (2 events/yr)
Rifle Squads							
M16 / M4 Rifle	5.56 BALL	150	30	90	270	1,017	305,100
	5.56 BLANK	300	30	90	270	1,017	610,200
M249 SAW	5.56 BALL	300	6	18	54	162	97,200
	5.56 BLANK	600	6	18	54	162	194,400
M203/M32 0 40 mm Grenade Launcher	40 mm TPT	18	8	23	69	247	8,892
Weapons Squad							
M16/M4 Rifle	5.56 BALL	150	7	21 Rifle CO/ 48WPN CO	111	333	99,900
	5.56 BLANK	300	7	21 Rifle CO/ 48WPN CO	111	333	199,800
M240B	7.62 BALL	300	2	6 Rifle CO/ 6 WPN CO	24	72	43,200

Weapon Type	Ammo Type	Ammo per weapon/event ²	Weapons per platoon ³	Weapons per company ³	Weapons per battalion ³	Weapon per BCT ⁴	Annual Expenditures (2 events/yr)
	7.62 BLANK	600	2	6 Rifle CO/ 6 WPN CO	24	72	86,400
M2 Machine Gun	.50 cal BALL	75	5	16	49	165	24,750
MK 19	40 mm TPT	5	2	8	24	90	900
Engineer Platoon							
M16/M4	5.56 BALL	150	12			36	10,800
M249	5.56 BALL	300	2			6	3,600
M240	7.62 BALL	300	1			3	1,800
M2	.50 cal BALL	100	1			3	600
Mobile Gun System	.50 cal (Slap-T)	10	3	3	9	27	540
	.50 cal BALL	100	3	3	9	27	5,400
	7.62 cal BALL	300	3	3	9	27	16,200

NOTES:

¹The SBCT ammunition types are generally the same as the IBCT, with the exception of the MGS weapons/munitions which are only associated with the SBCT. However, the SBCT have different amounts of weapons and munitions than the IBCT based on a different manning and equipping structure.

²Ammunition required per SBCT training event is derived from the Platoon/Company level ammunition allocations which are set forth in Standards in Weapons Training, Department of Army Pamphlet 350-38.

³The weapons per Platoon, Company, and Battalion are derived from the organizational structure of the Brigade's Stryker Battalions.

⁴The total number reflects the weapons authorized in the Brigade's three Stryker Battalions and the Cavalry Squadron.

Table 2.3-3. Total CAB Annual Ammunition Expenditures at the IPBC

Weapon Type	Ammo Type	Ammo per weapon/event ³	Weapons per platoon ⁴	Weapons per company ⁴	Weapons per battalion ⁴	Weapons per CAB ⁴	Annual Expenditures
Attack Helicopter Squadron (Light)¹							
M274 / m 267	2.75 in. Rocket (Captive Trainer)	14	N/A	N/A	30	30	840
Assault Helicopter Squadron²							
M240	7.62 BALL	150	N/A	N/A	30	30	9,000

¹ 30 each OH-58 Kiowa Helicopters

² 30 each UH-60 Black Hawk Helicopters

³ Ammunition required per CAB training event is derived from the Platoon/Company level ammunition allocations which are set forth in Standards in Weapons Training, Department of Army Pamphlet 350-38.

⁴ The weapons per Platoon, Company, Battalion, and Combat Aviation Brigade are derived from the organizational structure of the 25th CAB.

Table 2.3-4. Additional Ammunition Expenditures at the IPBC

Weapon / Munitions Description	Projected Annual Expenditures
AT4 Launcher & Ctg 84 mm (M136)	45
Smoke Pot Flt (M4A2)	48
BGM-71 TOW (Anti-Tank Missile)	9
Carl Gustav (recoilless rifle)	384
60 mm Mortar, HE	660
60 mm Mortar, Inert	283
81 mm Mortar, HE	408
81 mm Mortar, Inert	184
120 mm Mortar, HE	876
120 mm Mortar, Inert	528
Demolition, Bangalore, M026/M028/MP03	60
Demolition, C-4, M023	1,000
Mine, Claymore, K143/K146	6
Grenades	
Yellow/Green/Red/Violet Smoke Grenades	335
Grenade Frag M67 (G881)	510
Prac Fuze M228 (G878)	480
Grenade Body Inert M69 use with M228 Fuze (G811)	480
Pyrotechnics/Incendiaries	
Artillery Simulators	272
Grenade Simulators	272

2.4 SITE-SPECIFIC IPBC SCREENING CRITERIA

Screening criteria are factors that determine whether an alternative can solve a problem. Alternatives are screened to find workable solutions that will meet the objectives.

In determining an appropriate alternative for the IPBC, the Army considered several factors including mission support sustainability, cost, location, and technical viability. The foremost consideration is location; therefore, this factor is discussed below.

2.4.1 Location

In order to utilize fully the capability that PTA has to offer, the proposed IPBC must be located at PTA. As discussed in Section 1.3, PTA is classified by the Army (see TC 25-8) as an MTA, and it is the primary large unit training area for units of all Military Services permanently stationed in Hawai'i, as well as for units stationed elsewhere in the Pacific. An IPBC that meets current Army training standards and is located in the General Range Area of PTA would support the overall training mission. An IPBC built elsewhere, such as on O'ahu would not contribute to training at PTA. In any event, there are no areas on O'ahu on which an IPBC could be built.

2.4.1.1 *Relationship between Training at PTA and Makua Military Reservation (MMR)*

It is important to discuss the relationship between the 2009 MMR EIS (MMR EIS) (USAEC, 2009b) and this Final EIS for PTA because the MMR EIS had among its alternatives, building a range at PTA.

The Proposed Action in the MMR EIS was to conduct company-level Combined Arms Live-Fire Exercises (CALFEXs) and CLF for the 25th ID and other military units, to attain and maintain the combat readiness of those units. The existing MMR range (the preferred alternative in the MMR EIS) was designed as a Company Combined-Arms Assault Course (CCAAC) in the 1980s. It is no longer a standard range. The standard range for company live-fire exercises in 2009 was a Multi-Purpose Range Complex Light (MPRC-L), whose ideal land area would be 1,112 ac. This was according to TC 25-8, as it existed at the time. The current version of TC 25-8 no longer has an MPRC-L. Instead it has either a MPRC or a digital multipurpose range complex (DMPRC) for Company CALFEXs.

The area available at MMR (training area of 812 ac plus 324 ac for the SDZ) was smaller than a standard MPRC-L. In determining alternatives to conducting the Proposed Action at MMR, the MMR EIS required an area of at least the same size as the existing range at MMR (MMR EIS, p. 1-14). But to avoid requiring alternatives to be larger than the existing MMR range (which would give MMR an unfair advantage by comparison), the EIS considered alternatives that would be roughly the same size as the MMR CCAAC. The range would have to be substantially similar to an MPRC-L or an IPBC and would need to have an existing impact area (MMR EIS, p. 1-15).

The MMR EIS determined that there were no reasonable alternatives on the island of O'ahu other than MMR. It then considered possible alternatives at PTA (MMR EIS, p. 2-64 and the following). It first determined that two larger ranges at PTA, the MPRC, and the BAX and determined that neither would be suitable (MMR EIS p. 2-68). Since it would be unreasonable to build a non-standard range, the MMR EIS analyzed the standard range closest in size to the MMR CCAAC, which was an IPBC. The range designs would have minor modifications to "meet current CALFEX requirements" (MMR EIS, p. 2-64). In other words, it would require modification to meet the requirements of a company as opposed to a

smaller platoon. The maneuver area at an IPBC would be about 988 ac compared to the 812 ac at MMR. Nevertheless, the MMR EIS determined that the ranges analyzed (MMR CCAAC and PTA IPBC) were of similar size and ensured “comparison of like capabilities” (MMR EIS, p. 2-64).

Explained below, under IPBC Alternatives Considered but Eliminated, is why the Twin Pu’u site, considered the only reasonable IPBC alternative in the 2009 MMR EIS, is no longer under consideration. That section has also been expanded to explain why the Preferred Alternative in this Final EIS was not one of the locations considered in the 2009 MMR EIS (except that the proposed Alternative 1: Western Range Area Alternative has a little overlap with the IPBC West (Alternative 2) location from the 2009 MMR EIS). Figure 2.4-1 shows the PTA ranges considered in both EISs, with the exception of the PTA MPRA and BAX.

A PTA alternative offered some advantages over MMR. Soldiers could use tracer ammunition and would be able to train at night, activities that would be subject to restrictions at MMR (MMR EIS, p. 2-58). But in the MMR Record of Decision (ROD), the Army determined that the PTA alternative was not the best (ROD, p. 33). It would cost a great deal because it would require new range construction and cantonment area improvement. The ROD made clear that it would be unlikely that a company would travel alone to PTA to use the range. Rather, it would have to travel with its larger parent unit. This 200-mile trip would be very expensive and the time involved would prevent the units “from meeting much of their training requirements in a given training year.” Given the significant amount of time Soldiers experienced separated from their families as a result of multiple deployments in support of combat operations in Iraq and Afghanistan, the ROD made it clear (MMR ROD, p. 34) that Soldier and Family quality of life was an issue. That is, a PTA alternative would mean that Soldiers would be deployed to PTA and consequently separated from their families even longer as they trained in preparation for a year-long deployment.

In addition to these issues, it is important to understand the differences between what was proposed in the MMR EIS (USAEC, 2009b) and this one. The project-specific analysis discussed in this Final EIS is building a standard range for use by platoons, as opposed to companies. The IPBC range proposed in this Final EIS would not support live-fire training by companies with all of its platoons (three to four depending on type of company) maneuvering simultaneously. Although the ranges considered for PTA in the MMR EIS and in this EIS were both called “IPBC,” they had different purposes and would have had different designs. Finally, the MMR EIS considered the need for a company-level range at either PTA or MMR. This Final EIS makes clear that the IPBC must be located at PTA in order to improve its capacity as a major training area (p. 2-32). The IPBC at PTA would not provide the training opportunities on O’ahu that Soldiers of the 25th ID need. These Soldiers need an area to conduct company-level live-fire training that does not require expensive, time-consuming travel with a larger unit.

The latest TC 25-8 makes it clear that the primary range for a platoon live-fire exercise is an IPBC. The primary range for a CALFEX is an MPRC or DMPRC. The CALFEX would not be performed by units below the company level. The company is the lowest Army unit that would coordinate the use of indirect fire and air support.

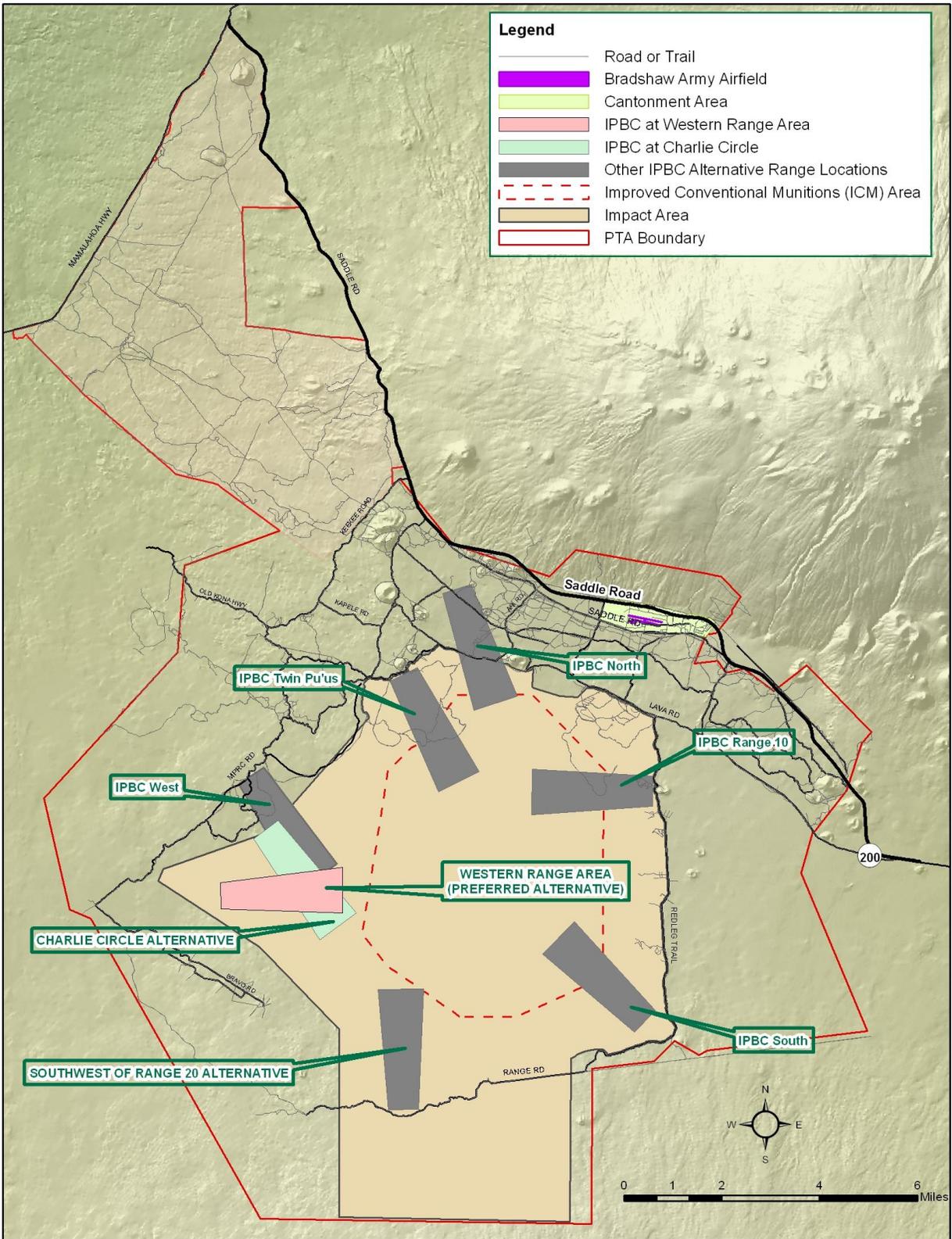


Figure 2.4-1. Eight alternative IPBC sites considered at PTA

It is also important to add that both MMR and an IPBC at PTA would host live-fire exercises. The number of live-fire exercises a unit could undertake in a given year is limited by both time and money. It is likely that if a unit were to utilize a new IPBC at PTA, it would be restricted in terms of time and money from using MMR for live-fire training as much as it would otherwise do. In other words, availability of the proposed IPBC at PTA could lessen but would not eliminate the need for the CCAAC at MMR.

2.4.1.2 IPBC Locations at PTA

Key stakeholders from the Army and USACE coordinated to determine potential locations on PTA where an Army Standard IPBC range (in accordance with TC 25-8) could be located and constructed to meet the training requirements of units based in Hawai'i. At the onset of this initiative, stakeholder efforts in identifying potential IPBC locations were based on the following parameters:

- Explore the western and southern portions of the PTA impact area to minimize SDZ conflicts with existing ranges and maneuver training areas.
- Look for possible IPBC locations entirely inside the PTA impact area to prevent the establishment of a new impact area(s); avoid known cultural sites and existing biological and natural resource mitigation sites.
- Identify potential locations that can support dismounted/mounted infantry platoon live-fire capabilities; that are able to train and test infantry platoons on the skills necessary to conduct tactical fire and maneuver techniques, detect, identify, engage and defeat stationary and moving infantry and armor targets situated in a tactical array.

To focus the planning effort further, in addition to the aforementioned parameters, a set of established screening criteria for all Department of the Army (DoA) range modernization projects was used. This set of established screening criteria consists of mission support, sustainability, cost and time.

2.4.2 Mission Support

PTA's mission is to provide higher level collective task training. In order to support the mission and training requirements of Hawai'i based units in Hawai'i, the Army requires at a minimum one standard IPBC. The existing IPBC (Range 10) does not meet the doctrinal training standards as established in TC 25-8, and therefore units are unable to adequately meet its ULO training requirements (on Range 10). Units deploying to PTA must maximize their training time in order to meet their ULO training requirements in a given year.

2.4.3 Sustainability

The proposed range, including the "downrange" maneuver, firing and target areas; SDZ and administrative/support facilities and area should be sited and integrated to ensure the range "footprint" has the comparably less significant impact on natural and cultural resources and other environmental elements. It should also be capable of incorporating sustainable design standards that are built to current range designs and specified by the USACE, including having properly designed target emplacements, berms and roadways that generally do not promote the migration of munitions constituents and expended lead bullets; firebreaks that minimize the potential for wildfires to threaten the areas outside the IPBC, and features to divert storm water.

2.4.4 Cost and Time

Range siting, construction, and operation must be achieved at a reasonable cost, and should be constructed within a reasonable timeframe so that Soldiers may train there as soon as possible in order to meet their ULO training requirements. The Army follows the processes laid out in Section 1.2.1 to determine training and resource requirements (when to modernize ranges, how to plan for their construction and operation, and how to pay for them). The cost for building a standard IPBC range is fairly well fixed. NEPA documentation, site surveys and other related studies are additional to that amount and although these items are resourced by the Army as necessary, the point of utilizing the processes described in Section 1.2.1, and especially the RDP is to maximize the use of Army land holdings until it is not feasible to do so. In other words, the first natural choice for a military planner when determining how much it will cost to build a range is to compare resources (available land and existing range assets) with known limitations described in management plans and programs (e.g., USAG-HI Cultural Resources Program and Integrated Natural Resource Management Plan (INRMP)). Army policies described in Section 1.2.1 limit the amount of funding that can be made available for range construction. Additional funds that are deemed necessary later, as for example, studies to complete the NEPA process would require a separate funding request and approval.

Using established screening criteria for the IPBC, eight locations were identified as potentially feasible for the IPBC range that would be capable of supporting the conduct of an Infantry Platoon live-fire training exercises.

2.5 IPBC ALTERNATIVES CONSIDERED BUT ELIMINATED

To be carried forward for full evaluation, an alternative must meet the selection criteria discussed below. It should be noted that while cost may not be a factor that eliminates an alternative completely from consideration, it is, however, a contributing factor. The defense budget is finite, and cost-prohibitive projects essentially may not be funded by Congress. Additionally, the process to request additional unplanned funding is lengthy and could unnecessarily keep Soldiers from meeting their ULO training requirements defined in Army doctrine.

The Army applied its screening criteria to eight possible locations for siting the IPBC at PTA (Figure 2.5-1). The improvements proposed at PTA within this Final EIS do not eliminate the need for live-fire ranges on O‘ahu. The purpose and need for this IPBC project is to assist in modernizing PTA’s range and infrastructure to provide better training opportunities for units that use PTA. Ranges at locations other than PTA (such as ranges at O‘ahu) would not meet the purpose and need for this action.

2.5.1 IPBC Selection Criteria

The eight potential IPBC locations identified through the screening process described above are:

- IPBC North
- Range 10 (existing IPBC)
- IPBC South (east of range 20)
- IPBC Southwest of Range 20
- IPBC Western Range Area
- IPBC Charlie Circle
- IPBC West
- IPBC Twin Pu'us.

Five of the eight locations were drawn from previous research, studies, and analysis conducted in support of the MMR EIS (USAEC, 2009b). These five locations are the IPBC West, IPBC Twin Pu'us, IPBC North, IPBC Range 10, and IPBC South. It should be noted that these five locations within the context of the 2009 MMR EIS were considered and analyzed based primarily on their size relative to that of the training area at MMR (required acreage to support the maneuver of a company-sized unit as it conducted a company-level CALFEX). That is, the template range design footprint for an IPBC was used to ensure similar size comparison to that of the training area at MMR.

Within the context of this Final EIS, these same five locations are considered as IPBC range alternatives based on TC 25-8: their ability to support the conduct of an infantry platoon live-fire training event. The other three locations (Southwest of Range 20, Charlie Circle, and Western Range Area) were identified not only based the same screening criteria and their ability to support the conduct of an infantry platoon live-fire training event, but also in an attempt to explore the use of locations within the western and southern portions of the PTA impact area. At the time of the MMR EIS, the Western Range Area Alternative was thought to have too many endangered plants to be useful. Only when surveys were conducted with the assistance of EOD personnel did the Army realize that the Charlie Circle and the Western Range Area alternatives had far fewer endangered plants than anticipated.

With the eight potential locations identified, the Army then developed selection criteria that considered operational limitation(s) and technical viability, which included the ability to build the standard design range.

2.5.2 Location and Technical Viability

As discussed in Section 1.3 of this EIS, PTA is classified by the Army as an MTA. In accordance with TC 25-8 (Section 3-8 through 3-10), PTA should accommodate collective live-fire (platoon through company) and maneuver training (battalion or brigade) that cannot be accomplished on LTAs such as training facilities on O'ahu (Section 2.4).

An alternative should, to the extent practicable, adhere to the following requirements set forth in Army policy, directives, and memorandums that apply to the siting of ranges of the IPBC:

- The terrain should be conducive to constructing an IPBC and accounting for adequate line-of-sight for firing positions and targets.²² The line-of-sight analysis should be able to be accomplished using a minimum of a 1 ft (0.5 m) contour interval topographic survey of the proposed site without special software beyond normal design tools (USACE, 2004a). Therefore, the terrain should be relatively flat otherwise extensive costs could be incurred for modifying the terrain (softening and flattening) to accommodate line-of-sight. Additionally, the terrain should support both the mounted and dismounted maneuver of the training unit (Infantry platoon).
- The ranges of the IPBC should be available for training at least 242 days per year in accordance with TC 25-1, and range siting should avoid negatively impacting training with overlapping SDZs of other ranges in accordance with AR 350-19 The Army Sustainable Range Program.
- Ranges of the IPBC should meet training range design standards such as size of range, number of targets, etc., in accordance with TC 25-8.
- The IPBC should be located at a minimum, adjacent to an impact area (USACE, 2004a) to allow for large caliber munitions and dudded rounds (e.g., MK19) to be fired safely into an impact area (restricted access) (AR 385-63 Range Safety).
- Siting of the IPBC should avoid ground disturbing activities in the ICM restricted area in accordance with Headquarters, Department of the Army (HQDA) Letter 385-01-1, Section 7.²³
- To the extent practicable avoid areas of operational ranges that contain DU in accordance with Department of Defense Instruction (DoDI) 4715.11 Environmental and Explosives Safety Management on Operational Ranges within the U.S., April 2007.
- Minimize impacts on natural and cultural resources, and limit proximity to existing mitigation areas in accordance with installation management plans. Use of the IPBC must not be severely constrained by being co-located or sited in a way that potentially endangers Army programs that promote survivability of listed species or may endanger or damage known artifacts or other culturally sensitive areas.

²² Line-of-sight is defined as the unobstructed path between the firing point and the target that insures Soldiers can first visually acquire the target, and then being capable of engaging the target with a direct fire weapons system (e.g., .50 cal machine gun).

²³ ICMs, also referred to as cluster bombs, are artillery munitions that contain multiple sub-munitions. Due to the extreme safety risk, ICMs are no longer used on Army training land. Evidence of ICM detonation has been discovered at the PTA impact area. This area is closed to Soldiers and vehicles.

2.5.3 Range Design and Area Capacity

Range design is essential to a unit for meeting its ULO training requirements prior to deployment to the operational environment. The range should meet the Army's design standards so that Soldiers can train to standard. Standard designs for the IPBC are found in TC 25-8 Training Ranges. The land requirement for the IPBC is 64,583,462 sf (6,000,000 m²), exclusive of a cleared buffer area surrounding the facility (to be determined).

Table 2.5-1 provides a summary of the Army's screening and selection criteria as applied to each of the eight alternative IPBC locations.

Table 2.5-1. IPBC Alternatives Screening and Selection Criteria

Screening Criteria					Selection Criteria						
					Location and Technical Viability						Range Design, Area Capacity
Criteria Compliance	IPBC Alternatives	Mission Support	Sustainability	Cost	Adequate Line-of-Sight	Avoid SDZ Conflicts	Avoid ICM Area	Avoid DU Area(s)	Avoid Mitigation Areas	Impact Area Present	Sufficient Acreage
	North	Meets Criterion	Meets Criterion	Does not meet	Meets Criterion	Does not meet	Does not meet	Does not meet	Meets Criterion	Meets Criterion	Meets Criterion
	Range 10	Meets Criterion	Meets Criterion	Does not meet	Meets Criterion	Does not meet	Does not meet	Does not meet	Does not meet	Meets Criterion	Does not meet
	South	Meets Criterion	Meets Criterion	Meets Criterion	Meets Criterion	Does not meet	Does not meet	Meets Criterion	Meets Criterion	Meets Criterion	Meets Criterion
	Southwest of Range 20	Does Not Meet Criterion	Meets Criterion	Does not meet	Does not meet	Does not meet	Meets Criterion	Meets Criterion	Meets Criterion	Meets Criterion	Meets Criterion
	Western Range Area (Preferred) ¹	Meets Criterion	Meets Criterion	Meets Criterion	Meets Criterion	Meets Criterion	Meets Criterion	Meets Criterion	Does not meet	Meets Criterion	Meets Criterion
	Charlie Circle ¹	Meets Criterion	Meets Criterion	Meets Criterion	Meets Criterion	Meets Criterion	Meets Criterion	Meets Criterion	Does not meet	Meets Criterion	Meets Criterion
	West	Meets Criterion	Meets Criterion	Does not meet	Meets Criterion	Meets Criterion	Meets Criterion	Meets Criterion	Does not meet	Does not meet	Meets Criterion
	IPBC Twin Pu'us	Meets Criterion	Meets Criterion	Does not meet	Meets Criterion	Does not meet	Does not meet	Does not meet	Does not meet	Does not meet	Meets Criterion

¹ Alternatives carried forward for full evaluation in this EIS.

After evaluating the information obtained through the selection process, the Army eliminated the following alternatives from full analysis, Table 2.5-2:

Table 2.5-2. Alternative IPBC Locations Eliminated From Full Analysis

Alternative	Restrictions
IPBC North	<ul style="list-style-type: none"> • Conflicts with DU area which also increases time and cost • Conflicts with ICM area • SDZs conflict with other ranges.
Range 10 (Existing IPBC)	<ul style="list-style-type: none"> • Conflicts with DU area which also increases time and cost • Conflicts with ICM area • SDZs conflict with other ranges • Live-fire Shoothouse and MOUT sited behind the IPBC would conflict with a mitigation area for listed species.
IPBC South (east of Range 20)	<ul style="list-style-type: none"> • Conflicts with ICM area • SDZs conflict with other ranges.
IPBC West	<ul style="list-style-type: none"> • Requirement for expanded impact area at an excessive cost and extensive further documentation • Conflict with a mitigation area.
IPBC Twin Peaks	<ul style="list-style-type: none"> • Conflicts with DU area which also increases time and cost • Conflicts with ICM area • SDZs conflict with other ranges • Requirement for expanded impact area at an excessive cost.

2.5.4 IPBC Alternative Considered but Eliminated After Publication of the Draft PEIS

2.5.4.1 Southwest of Range 20 IPBC Alternative

In the 2011 Draft PEIS, the Army considered the site located Southwest of Range 20 as a viable alternative to be carried forward for full evaluation; however, subsequent reconnaissance resulted in the elimination of this site as an alternative. With the recent return of the 25th ID HQ and its two BCTs (Stryker and Infantry) from combat operations in Iraq and Afghanistan, USARPAC directed a review of the three proposed IPBC alternatives at PTA that included representation by the 25th ID as it would be the primary user of the proposed IPBC training facility. During 31 July to 2 August 2012, representatives from the 25th ID accompanied members of USARPAC G3 Training, USAG-HI, and MSE-HI on the area reconnaissance. On 1 August 2012, the southernmost site was surveyed to determine the viability of the terrain as a likely alternative for the construction of an IPBC capable of supporting and enabling dismounted and mounted infantry collective live-fire training (squad to platoon level), air-to-ground integration training. This site is in the vicinity of Range 20 west and based on a map reconnaissance, was initially assessed in the Draft PEIS to be one of three viable sites to construct the IPBC.

Based on the expertise, experience, and lessons learned in combat from their recent deployments in support of Operation Iraqi Freedom, Operation New Dawn, and Operation Enduring Freedom, the members of the 25th ID brought a new perspective in assessing the proposed alternatives. The findings of this most recent area reconnaissance yielded concerns over the feasibility, acceptability, and suitability of this site as a viable alternative for the IPBC.

Area reconnaissance findings:

- **Observation, Cover and Concealment, Key Terrain**
the lack of key terrain features, undulating terrain, and vegetation throughout this site does not support the tactics, techniques, and procedures with respect to the movement and maneuver of Soldiers both mounted and dismounted. Training value is significantly degraded as the terrain provides no cover and/or concealment to protect and/or mask the movement of Soldiers throughout this site.
- **Avenues of Approach**
the ruggedness of the terrain and soil composition would require a significant amount of ground softening given the extensive number and predominance of pahoe'hoehoe lava tubes, 'a'ā lava, and skylight cave-in areas within the site. This would undermine the Army's intent to meet its training obligations and work to further the Native Hawaiian communities' interests in protecting the unique cultural and environmental resources on the islands. Movement throughout the site is restrictive, impeding the ability of first responders to respond to an emergency incident whether as part of training or in response to a real world injury.
- **Air Avenues of Approach, Key Terrain, Observation**
the training of air-to-ground integration with rotary winged aircraft is significantly degraded based on the nature of the terrain on this site. The ability for pilots to acquire and safely engage targets on the ground is hindered given the slope of the terrain and the proximity of this site to the mountain (Mauna Loa) for aviation live-fire gunnery, the direction of flight is hampered by steep descent(s), prevailing winds (coming from left or right), and the high altitude, making conditions unsafe.

Given these findings and their significance, the IPBC Southwest of Range 20 is eliminated from further consideration as an alternative location for the IPBC. These findings are summarized in Table 2.5-3.

Table 2.5-3. IPBC Alternative Considered but Eliminated After Publication of the Draft EIS

Southwest of Range 20 Alternative	Restrictions
	<ul style="list-style-type: none"> • Terrain would limit line-of-sight between firing points and down-range targets. Additional costs are required to soften and flatten the ground surface at this location. • Additional cultural and biological resources surveys would need to be conducted to determine the extent of archaeological resources and listed species at this location. An archaeological survey was conducted for approximately 40% of this alternative before the determination was made that the location was not suitable.
	Benefits
	<ul style="list-style-type: none"> • Benefit No conflicts with other ranges would ensure that the IPBC could be open when other ranges are in use. • Benefit No conflicts with known DU areas would keep costs for building the range reasonable.

2.6 IPBC ALTERNATIVES CARRIED FORWARD: WESTERN RANGE AREA (PREFERRED ALTERNATIVE) AND CHARLIE CIRCLE

The Army has two remaining alternative locations for the IPBC on PTA: Alternative 1: IPBC at Western Range Area (Preferred Alternative) and Alternative 2: IPBC at Charlie Circle. The restrictions and benefits of these two alternatives are summarized in Table 2.6-1.

Table 2.6-1. Comparison of Restrictions and Benefits for the Western Range Area Alternative and Charlie Circle Alternative

Alternative	Restrictions/Benefits
Alternative 1: IPBC at Western Range Area	<ul style="list-style-type: none"> • Cultural resources and listed plant species surveys were conducted and both were found to be present on the proposed range area. • Benefit: No conflicts with other ranges would insure that the IPBC could be open when other ranges are in use. • Benefit: No conflicts with known DU areas would keep costs for building the range reasonable.
Alternative 2: IPBC at Charlie Circle	<ul style="list-style-type: none"> • SDZs of the IPBC may fall within the mitigation area for listed species at Training Area 23. Due to the distance between the two ranges avoidance measures could be easier to implement at the firing points on the IPBC to site SDZs away from Training Area 23. • Cultural resources and listed plant species surveys were conducted and

Alternative	Restrictions/Benefits
	<p>both were found to be present on the proposed range area. Human remains were found in a lava tube on this site.</p> <ul style="list-style-type: none"> • Benefit: No conflicts with other ranges would insure that the IPBC could be open when other ranges are in use. • Benefit: No conflicts with known DU areas would keep costs for building the range reasonable.

2.7 IPBC ALTERNATIVES

Figures 2.5-1 and 2.7-1 illustrate the Western Range Area Alternative, the preferred location for constructing and operating the IPBC, and Charlie Circle Alternative for siting the IPBC within the existing impact area at PTA. The IPBC would be built similarly at either of these locations as discussed above and depicted in detail in Figure 2.7-1.

Under these alternatives no new impact area would be required. No expansion of PTA’s boundaries would be necessary to accomplish the Proposed Action.

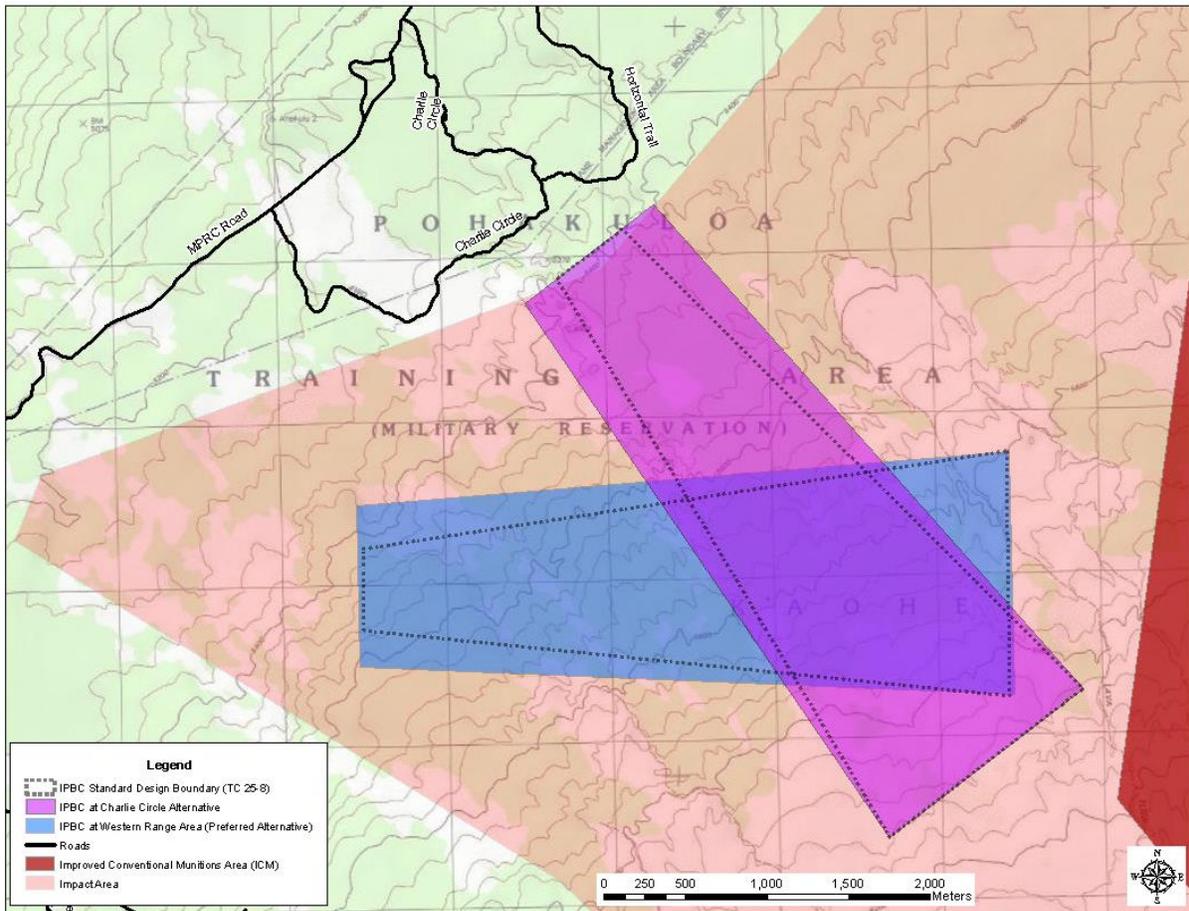


Figure 2.7-1. IPBC Western Range Area and Charlie Circle Alternatives

Each of the proposed locations is in underutilized portions of the PTA impact area where no ranges exist; but each of these locations has been exposed to indirect munitions fire. The Proposed Action involves reclaiming portions of the impact area to build the IPBC. Most live-fire occurring at the IPBC would be directed towards the impact area in order to preserve the newly-built range features.

The alternative sites contain flows of pāhoehoe and ‘a‘ā lava. The total estimate for ground softening of the IPBC footprint is 110 acres (44.5 ha). Ground softening consists of running a large bulldozer, such as a D-9, over the lava for several passes to crush the lava and make it suitable for construction and ground maneuvers (foot and vehicle traffic).²⁴ Any fill material (dirt or rock) that is required at the construction site to construct berms or other features, would be transported in from a quarry that is located on PTA. The number of construction days for the IPBC is estimated to span 480 working days or 240 days per year for a two-year period. After the IPBC is constructed, the Tank-Automotive and Armaments Command, Life Cycle Management Command will place and wire the targets on the course to make it operational.

The closest range to the two alternative locations is the MPRC at Training Area 23, which is currently inactive. Training Area 23 can be accessed from MPRC Road, which runs west of the impact area.

2.7.1 No Action Alternative (No IPBC)

Under this No Action Alternative, the Army would not construct the IPBC at PTA. The No Action Alternative serves as a snapshot of the existing training environment, infrastructure, and facilities at PTA, and therefore provides the benchmark for comparison of the environmental impacts of the action alternatives. The No Action Alternative does not meet the purpose and need for the Proposed Action. Without a standard IPBC, units of the 25th ID could not meet all doctrinally-required collective training tasks, and would not be prepared sufficiently to succeed in combat. Without the IPBC, units training at PTA to the METL tasks would continue to use the existing Range 10 IPBC as efficiently as possible, and as needed prior to deploying to the operational environment.

2.7.2 Alternative 1: IPBC at Western Range Area

2.7.2.1 Location Description

The Western Range Area IPBC location is the Preferred Alternative. It involves fewer impacts on cultural and natural resources than the Charlie Circle location. Its SDZs are also more fully contained in the impact area.

²⁴ The Army generally tries to crush ‘a‘ā lava wherever possible because it is softer and more brittle than pāhoehoe.

The location of the Western Range Area Alternative runs west to east from the western most portion of the impact area toward the center of the impact area. A recent survey of the preferred IPBC location found that the terrain in the Western Range Area Alternative slopes upward steadily from the western and northern boundaries of the surveyed area, towards the eastern and southern boundaries. Much of the terrain consists of smooth rolling pāhoehoe flows interrupted by elevated ‘a‘ā flows with steep banks up to 100 ft (30 m) high in some areas, and is sparse of vegetation (*Draft Archaeological Reconnaissance Survey Report of Infantry Platoon Battle Course, 2011*). ‘A‘ā flows cover approximately 57% (2,408 ac (974 ha)) of the area and pāhoehoe flows cover approximately 43% (1,816 ac (735 ha)). A surface of rock covers the majority of the area, much of which would need to be softened in order to accommodate dismounted training by infantry units. Figure 2.72 shows an overlay of the IPBC design on the Western Range Area Alternative. Figures 2.7-3 and 2.7-4 demonstrate the terrain at the Western Range Area Alternative that is largely characterized by past lava flows.

If the preferred location (Western Range Area Alternative) is selected, the SDZs for the IPBC would not encroach on Training Area 23, and therefore, the species found at Training Area 23 would remain protected.

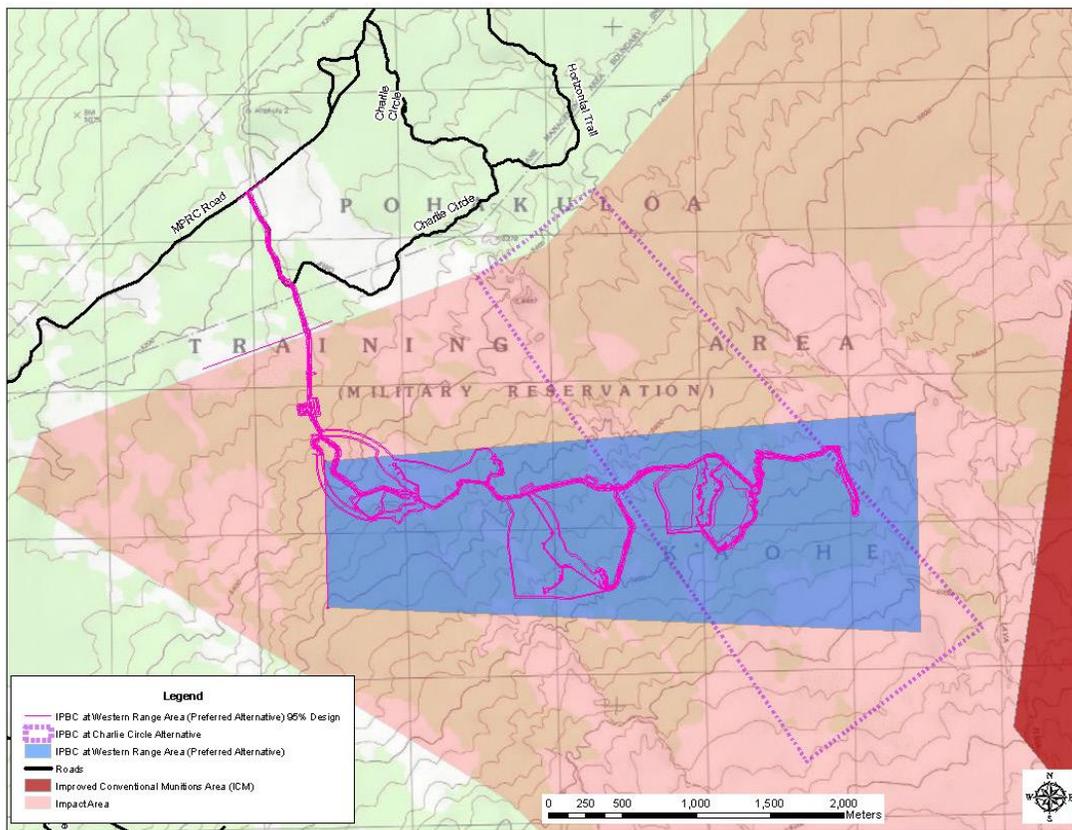


Figure 2.7-2. IPBC enhanced design overlay on the Western Range Area (Preferred Alternative)



Figure 2.7-3. Terrain of the Western Range Area Alternative showing an ‘a‘ā flow



Figure 2.7-4. Panoramic view of Western Range Area Alternative

2.7.2.2 Supporting Infrastructure (Roads and Utilities)

The nearest roads to the Western Range Area preferred IPBC alternative are Charlie Circle Road and MPRC Road. If the Preferred Alternative were selected, an access road would be made from Charlie Circle Road, south toward the proposed IPBC. Utilities for the IPBC, electricity and telecommunication lines, would tie into existing utilities running from the MPRC Road.

2.7.2.3 Surveys and Consultations

The Army conducted several surveys in the Western Range Area Alternative in 2010. A threatened and endangered plant species survey of the Western Range Area Alternative covered a large swath of land that also encompassed a portion of what is the Charlie Circle Alternative location. The results of that survey are summarized in Section 3.9 (Biological Resources). The Western Range Area Alternative in the past was the subject of a planning level survey for listed species that indicated a potential high amount of rare plant species at this alternative. Upon further review, it was found that the planning level survey has since been proven inaccurate due to information gained in follow-on ground surveys. A more detailed discussion of the biological resources surveys of the Western Range Area Alternative is found in Section 3.9.4.

The Army also conducted archaeological surveys of the IPBC range footprint in the Western Range Area Alternative. These surveys are summarized in Section 3.10 (Cultural Resources).

For both the biological and cultural resources surveys, surveyors were escorted by certified contractors trained in ordnance identification (i.e., EOD technicians) who also surveyed for UXO within the investigation area. In addition, EOD technicians performed a full survey of the IPBC range footprint in the Western Range Area Alternative in 2010 to identify and Global Positioning System (GPS) tag MEC/UXO hazards specifically. The results of EOD technician surveys are summarized in Section 3.11 (Hazardous Materials and Hazardous Waste).²⁵

In April 2011, the Army identified a small parcel of land on the northeast border of the IPBC range footprint that required additional surveys for cultural resources and threatened and endangered species. These surveys are summarized in Sections 3.9 and 3.10. The results of these surveys were included in the Army's consultations with the SHPD and USFWS. See Sections 3.9 and 3.10 for more detail all cultural and natural resources surveys.

The Army entered into formal consultation with the Advisory Council on Historic Preservation (ACHP), SHPD, and consulting parties on this alternative in March 2011, and conducted consultation with the SHPD based upon the findings of its archaeological surveys under Section 106 of the National Historic Preservation Act of 1966 (NHPA) (16 U.S.C. §470).

The USFWS has completed a Biological Opinion (BO) based on survey findings of the Western Range Area Alternative and formal Section 7 consultation under the Endangered Species Act (ESA) of 1973. A copy of the BO is included in Appendix G.

²⁵ Successful identification of MEC/UXO will enable the Army to design the IPBC around known high-volume clusters of MEC/UXO, and remove only those that pose a threat to construction contractors when ground softening and building targets/objectives, and to Soldiers that would maneuver on the range. The high cost associated with MEC/UXO removal makes it unfeasible to clear the entire IPBC footprint of all known hazards.

2.7.3 Alternative 2: Charlie Circle

2.7.3.1 Location Description

The Charlie Circle Alternative location shown on Figure 2.7-5- begins at Charlie Circle Road, and runs from northwest to southeast, entirely in the impact area, ending just west of the ICM restricted area. The Charlie Circle Alternative location shares part of the same proposed footprint as the Preferred Alternative (Western Range Area Alternative), and it shares similar characteristics in ground cover (e.g., vegetation and volcanic rock) and topography as the Preferred Alternative (Figure 2.7-6). The nearest range to the Charlie Circle Alternative is Training Area 23. The SDZs for approved IPBC weapons would encroach upon a corner of Training Area 23/MPRC mitigation area for listed species, posing a potential risk to species there. Also, the terrain is not as favorable to conducting dismounted infantry training at this location.

2.7.3.2 Supporting Infrastructure (Roads and Utilities)

The nearest roads to this alternative are Charlie Circle Road and MPRC Road. If this alternative were selected a short access road would run directly from Charlie Circle Road to the proposed IPBPBC. The Charlie Circle Alternative would have similar infrastructure requirements (power and solid waste) as the Preferred Alternative (Western Range Area Alternative).

2.7.3.3 Surveys and Consultations

A threatened and endangered plant species survey of the Western Range Area alternative conducted in 2010 covered a large swath of land that also encompassed a portion of what is the Charlie Circle Alternative location in 2010. However, based on public comments on the Draft PEIS, a full threatened and endangered species survey of the IPBPBC range footprint in Charlie Circle Alternative was undertaken in 2012, as summarized in Section 3.9 (Biological Resources). In addition, a Phase I survey effort for archaeological resources was conducted in 2012. The survey results are summarized in Section 3.10 (Cultural Resources).

For both the biological and archaeological resources surveys at Charlie Circle Alternative, surveyors were escorted by certified contractors trained in ordnance identification (i.e., EOD technicians) who also surveyed for UXO within the investigation area. The results of the EOD technician surveys for Charlie Circle Alternative are summarized in Section 3.11 (Hazardous Materials and Hazardous Waste).

The USAG-Pōhakuloa (USAG-P) modified the APE for the project in October 2012 to include the Charlie Circle Alternative and any required infrastructure. The PA was developed in such a way that mitigation measures will apply to either alternative.

