3.2 AIRSPACE

3.2.1 Introduction/Region of Influence

Airspace, which lies above a nation and comes under its jurisdiction, is generally viewed as being unlimited. However, for aviation purposes, it is a finite resource that can be defined vertically and horizontally, as well as chronologically. The scheduling, or time dimension, is a very important factor in airspace management and air traffic control.

The following list identifies comments received during the scoping process and the sections where these are addressed in the EIS:

- Frequency of helicopter use (Chapter 2, Description of the Proposed Action and Alternatives);
- Length of flights and preferred flight patterns (Chapter 2);
- Whether or not there would be helicopter flights over heavily populated areas, including homes and Mākaha Elementary School (Chapter 2);
- Whether the community would be provided with flight schedules in advance (Chapter 2);
- Risks to the community from the use of helicopters (Section 3.2, Airspace);
- Aviation safety (Section 3.2);
- Requests for accident reports and descriptive maps (Chapter 2 and Section 3.2);
- Avoidance of bird-helicopter interactions (Section 3.9, Biological Resources); and Mitigations to nesting birds (Section 3.9).

The ROI is defined as the area that could be affected by implementing the live-fire training activities at MMR on O‘ahu, or PTA on Hawai‘i.

Mākua Military Reservation

The ROI for MMR is that airspace in the northwest part of O‘ahu over and surrounding MMR itself, along with SBMR, WAAF, and DMR. Helicopters participating in the training activities at MMR are based at and fly out of WAAF and land at SBMR and DMR for rearming and refueling. The affected airspace environment is described below in terms of its principal attributes, namely controlled and uncontrolled airspace, special use airspace, military training routes, en route airways, airports and airfields, and air traffic control/aviation safety. Jet routes are not included in the ROI because they are above 18,000 feet (5,486 meters) mean sea level (msl) and well above the proposed training activities.

Pōhakuloa Training Area

The ROI for PTA is that airspace over and surrounding PTA on the Island of Hawai‘i, along with the en route airways between SBMR, WAAF and PTA. Helicopters participating in the training activities at PTA are based out of WAAF and will utilize BAAF for staging, refueling and rearming.

3.2.2 Airspace Overview

The Federal Aviation Administration (FAA) regulates military operations in the National Airspace System by implementing FAA Handbook 7400.2E, *Procedures for Handling Airspace Matters,* and FAA Handbook 7610.4J, *Special Military Operations.* The latter was jointly developed by the DoD and FAA to establish policy, criteria, and specific procedures for air traffic control planning, coordination, and services during defense activities and special military operations.

There are two categories of airspace or airspace areas, as follows:

- Restricted, prohibited, and regulatory areas (the last consisting of controlled airspace [Class A, B, C, D, and E airspace areas, in descending order of restrictive operating rules]); and
- Nonregulatory, consisting of military operations areas, warning areas, alert areas, and controlled firing areas.

The following four types of airspace exist within these two categories:

- Controlled;
- Uncontrolled;
- Special use; and
- Other airspace.

The categories and types of airspace are dictated by the complexity or density of aircraft movements, the nature of the operations conducted within the airspace, the level of safety required, and the national and public interest. (Appendix D provides a full definition of the different classes of airspace and an explanatory diagram.)

Issues related to airspace and noise are addressed in Section 3.5, Noise.

3.2.3 Controlled/Uncontrolled Airspace

Most of the airspace above northwest O‘ahu is controlled. The distinction between controlled and uncontrolled airspace is important. Within controlled airspace, air traffic control service is provided to aircraft in accordance with the airspace classification. Aircraft operators also are

subject to certain pilot qualification, operating rules, and equipment requirements. Whereas within uncontrolled airspace, no air traffic control service to aircraft is provided, other than possible traffic advisories when the air traffic control workload permits and radio communications can be established (Illman 1993).

Mākua Military Reservation

Helicopters participating in the training activities at MMR are based at and fly out of WAAF. The airspace over northwest O‘ahu is dominated by the Class D airspace over WAAF, with a ceiling of 3,300 feet (1,006 meters), and special use airspace, discussed separately below (Figure 3.2-1). The Class D airspace over WAAF has two control zone extensions, to the east and south outside the 4.3-nautical-mile (8-kilometer) radius of the airfield’s traffic area, that facilitate instrument flight rule (IFR) landings and departures. Elsewhere, the airspace below 18,000 feet (5,486 meters) not designated as Class D or E airspace is uncontrolled (Class G) airspace from the surface to a ceiling of either 700 or 1,200 feet (213 or 366 meters). Above this, the rest of the ROI is covered with Class E controlled airspace up to 18,000 feet (5,486 meters) msl.

The airspace above 18,000 feet (5,486 meters) msl is Class A airspace. There is no Class B (generally, that airspace surrounding the nation’s busiest airports) or Class C (where all aircraft are subject to air traffic control) airspace in the region of influence.

The airspace above DMR is composed of Class G (uncontrolled) airspace from the surface to a ceiling of 1,200 feet (365 meters) and Class E (controlled) airspace above 1,200 feet (365 meters).

Pōhakuloa Training Area

Most of the airspace above the northern half of the Island of Hawai‘i is controlled airspace of various classes. Class G (uncontrolled) airspace extends from the surface to 700 feet (213 meters), except around Kona and Hilo International Airports and BAAF, which are surrounded by Class D airspace.

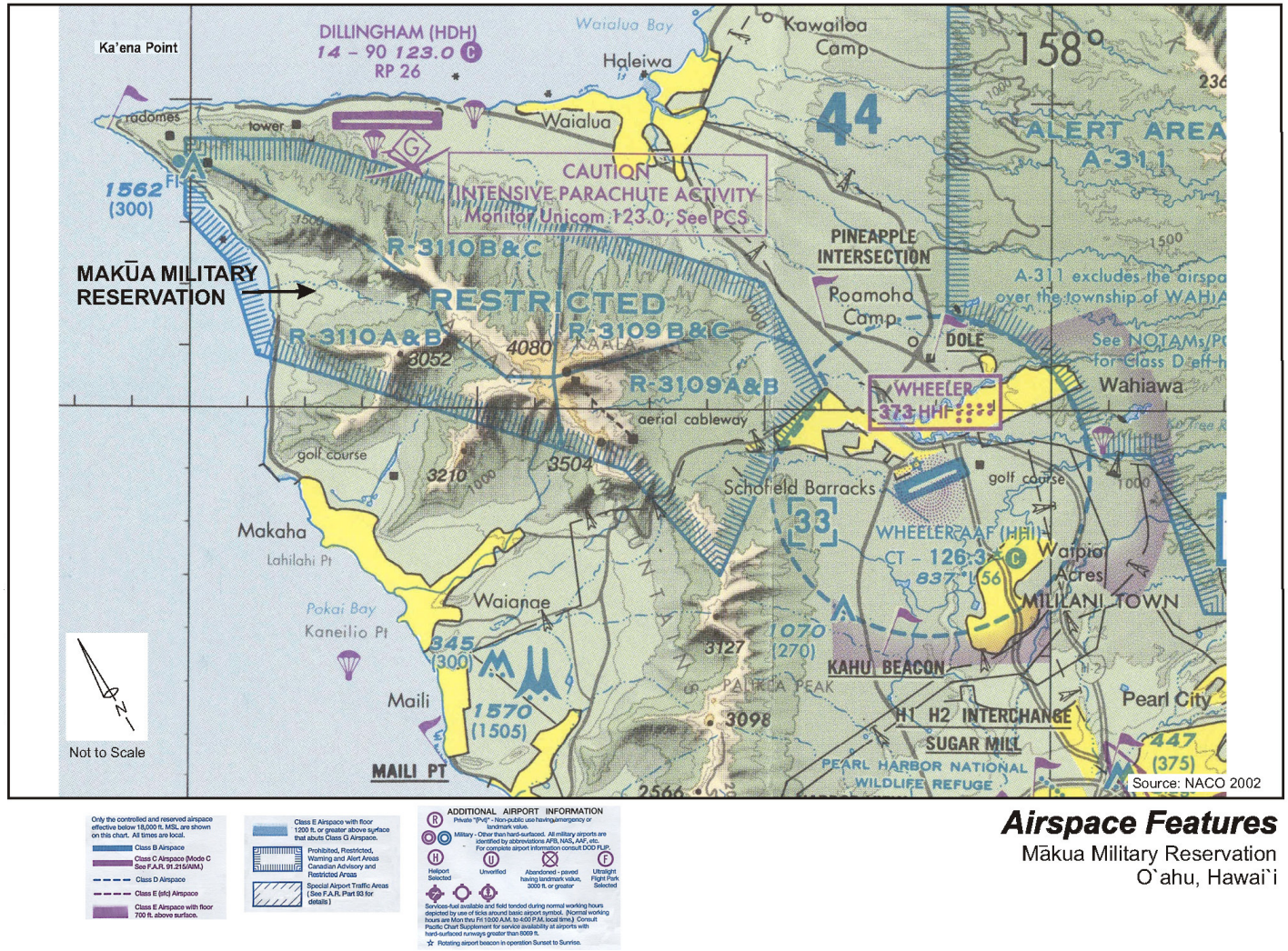

Figure 3.2-1 Airspace Features

3.2.4 Special Use Airspace

The effective altitudes, time of use, and controlling agencies are given in Table 3.2-1. During the published hours of use, the user agency is responsible for controlling all military activity within the restricted area and for determining that its perimeters are not violated. When the airspace is scheduled to be inactive, the user agency releases it back to the controlling agency or center, and, in effect, the airspace is no longer restricted.

Table 3.2-1
Special Use Airspace in the MMR Region of Influence

Number/ Name	Effective Altitude (feet/meters)	Time of Use	Controlling Agency
A-311	To 500 ft (152 m) AGL	7:00 AM to 10:00 PM	No A/G
R-3109A	To 9,000 ft (2,743 m)[1]	Intermittent[2]	Honolulu ATCT
R-3109B	9,000 to 19,000 ft (2,743 to 5,791 m)[1]	Intermittent[2]	Honolulu ATCT
R-3109C	To 9,000 ft (2,743 m)[1]	Intermittent[2]	Honolulu ATCT
R-3110A	To 9,000 ft (2,743 m)[1]	Intermittent[2]	Honolulu ATCT
R-3110B	9,000 to 19,000 ft (2,743 to 5,791 m)[1]	Intermittent[2]	Honolulu ATCT
R-3110C	To 9,000 ft (2,743 m) [1]	Intermittent[2]	Honolulu ATCT

Source: NACO 2002
Notes:
A = Alert Area; AGL = above ground level; ATCT = air traffic control tower;
No A/G = no air-to-ground communications; NOTAM = notice to airmen; R = restricted area
[1]To but not including the indicated altitude
[2]By NOTAM

Restricted areas contain airspace within which aircraft, while not wholly prohibited, are subject to restrictions. They denote the existence of unusual, often invisible, hazards to aircraft, such as artillery firing, aerial gunnery, or guided missiles. Alert areas are depicted on aeronautical charts to inform nonparticipating pilots of areas that may contain a high volume of pilot training or an unusual type of aerial activity.

Mākua Military Reservation

The MMR ROI has several special use airspace areas, including the R-3109 and R-3110 restricted area complex over MMR and the areas to the north and east, and the A-311 alert area northeast of WAAF. The alert area extends over the western side of the Koʻolau Mountain Range, from east of Mililani Town to almost Kahuku Point (Figure 3.2-1). There is no special use airspace above DMR. However, the R-3109/R-3110 restricted area complex lies immediately to the south of DMR.

Pōhakuloa Training Area

The northern part of the Island of Hawai‘i has just one special use airspace area, the R-3103 restricted area over PTA in the central part of the island. Its effective altitude is 30,000 feet (9,144 meters) and time of use is intermittent. The controlling agency is the Honolulu Combined Center Radar Approach Control (US Army and USACE. 2004).

3.2.5 Military Training Routes

Mākua Military Reservation

Although there are no formal, published military training routes in the MMR ROI, or indeed anywhere on O‘ahu, the A-311 Alert Area identified in Figure 3.2-1 is used for helicopter training, with an average of 3,500 aircraft movements per month. Movements are defined as arrivals, departures, or overflights. WAAF experiences an average of 6,500 movements per month, 90 percent of which involve helicopters. The movement statistics cover all DoD branches, including the Hawai‘i Air National Guard (Ahching 2002a, 2002b). No movement statistics are available for DMR.

Pōhakuloa Training Area

Although not a published military training route, the R-3103 restricted area is used for helicopter training exercises, with an average of 900 aircraft movements per month, 99 percent of which involve helicopters. These movement statistics cover all DoD branches, including the Hawai‘i Air National Guard (Ahching 2002a, 2002b). Typical training involves the use of 10 rotary winged aircraft at any one time.

3.2.6 En Route Airways

Mākua Military Reservation

There are no low-altitude en route airways that enter or transect the MMR ROI (Figure 3.2-1). The closest one, V-15, is approximately 9 nautical miles (17 kilometers) southwest of MMR, between O‘ahu and Kaua‘i.

General aviation, however, does use the airspace over northwestern O‘ahu. This includes all civil aviation operations, other than scheduled air services and unscheduled air transport operations for hire. For example, 97 percent of DMR’s average of 167 daily operations involve general aviation. WAAF is not open to general aviation aircraft.

For general aviation, the airspace over SBMR and WAAF is congested because it lies in the north-south corridor over O‘ahu, which is hemmed in by the R-3109 and R-3110 restricted area complex to the west and the

mountains to the east (Ahching 2003). However, there are procedures in place that, although not mandatory, allow general aviation to function satisfactorily. For example, general aviation pilots follow the convention of transiting north through the corridor over WAAF on the east side at 2,000 feet (610 meters) msl, and southbound traffic flies on the west side at 2,500 feet (762 meters) msl (Bruckner 2003).

The area around Dillingham Airfield, which is at DMR and situated east of Ka‘ena Point on the north shore of O‘ahu is indicated on aeronautical charts as a glider operating and parachute jumping area. In addition, Dillingham Airfield is a center for skydiving and for ultralight and vintage airplane and aerobatic flights (AirNav.com 2002). The coastal area off Kāne‘īlio Point to the south of Mākaha is a parachute jumping area (NACO 2002).

Pōhakuloa Training Area

In addition to the commercial traffic that use the low altitude en route airways, general aviation aircraft use the airspace over the Island of Hawai‘i. This includes all civil aviation operations, other than scheduled air services and unscheduled air transport operations for remuneration or hire. For example, 50 percent of Kona International Airport’s 281 average daily operations; 28 percent of Hilo International Airport’s 316 average daily operations; and 78 percent of ‘Upolu Airport’s 27 average daily operations involve general aviation (US Army and USACE 2004).

3.2.7 Airports and Airfields

Mākua Military Reservation

The principal airports in the MMR ROI are WAAF and Dillingham Airfield. WAAF had an average of 207 operations per day in 2001 (Ahching 2002a), and Dillingham Airfield had a total of 222 operations per day in 2001, down four percent from 2000 (HI DOT 2002). There are no commercial heliports in the ROI (AirNav.com 2002).

Dillingham Airfield is a joint-use military/civil airfield, portions of which have been leased to the Hawai‘i DOT. The lease limits civil operations from sunrise to sunset. Night operation is reserved for military operations. The Army can close the airfield for daytime military operations with prior notification to the Hawai‘i DOT.

Pōhakuloa Training Area

The Island of Hawai‘i is served primarily by three principal airports. Kona International Airport, just north of Keāhole Point, is on the west coast, Hilo International Airport is on the east coast, and Waimea-Kohala Airport

is located on the northern part of the island. Other airports/airfields in the ROI include BAAF, serving PTA; ʻUpolu at ʻUpolo Point at the northern tip of the island; and the Puʻu Waʻa Waʻa private airfield off Highway 190, midway between Kona and Waimea. There is a private heliport, Kaʻūpūlehu, on the west coast north of Makalawena, just north of Kona International Airport (US Army and USACE 2004).

3.2.8 Air Traffic Control—Aviation Safety

The Honolulu Air Traffic Control Center manages air traffic in the ROI within the 12-nautical-mile (22-kilometer) territorial waters limit of the US. All military aircraft fly in accordance with Federal Aviation Regulations (FAR) Part 91, Subchapter F (Air Traffic and General Operating Rules), which governs the following:

- Operating near other aircraft;
- Right-of-way rules;
- Aircraft speed; and
- Minimum safe altitudes when flying outside special use airspace.

AR 95-1 (Aviation Flight Regulations) covers Army aircraft operations, crew requirements, and flight rules. These regulations have precise requirements for the following:

- Use of airports, heliports, and other landing areas;
- Local flying rules; and
- Special use airspace.

For example, installation commanders having Army aircraft assigned, attached, or tenant to their command, must prepare and publish local flying rules. These rules include the use of tactical training and maintenance test flight areas, arrival and departure routes, and airspace restrictions as appropriate to help control air operations.

There are no formal or special flight plans or restrictions for the air transport of munitions used in the live-fire exercises. Traffic pattern altitudes at Army airfields for airplanes are set at 1,500 feet (457 meters) AGL. Helicopter traffic pattern altitudes are at least 700 feet (213 meters) AGL. Installation commanders may set different altitudes based on noise abatement, fly-neighborly policies, or other safety considerations. These are displayed in flight operations and published in flight information publications for all pilots.

The Army's aviation safety record on O'ahu has been excellent. In the last ten years, there have only been two serious mishaps. The first was the collision of two UH60 Blackhawks, the Army's tactical transport helicopter, in bad weather over the tactical training flight area at Kahuku Training Area; the second was the crash of an AH-1 Cobra, an attack helicopter, while landing at WAAF. These mishaps involved the fatalities of crew members. All other aircraft incidents have been limited to precautionary landings or too-fast descents during sling-load training, where concrete blocks are used to simulate the weight of vehicles or water that may be carried by helicopters during training. There have been no mishaps over MMR in the last ten years. There have been no mishaps or accidents between military aircraft and civilian aircraft anywhere over O'ahu in the last 20 years (Sawyer 2003; Akana 2003).