

4.2 AIRSPACE

4.2.1 Impact Methodology

Impacts on airspace use were assessed by evaluating the potential effects of the proposed training activities on the principal attributes of airspace use, as described in Section 3.2. In the following paragraphs is a discussion of the impact categories and how they were assessed for this project:

- Impacts on controlled and uncontrolled airspace were assessed by determining if the project would reduce the amount of navigable airspace by creating new, or expanding existing, special use airspace or by introducing temporary flight restrictions or presenting an obstruction to air navigation.
- Impacts on special use airspace were assessed by determining the project's requirement either for new special use airspace or for modifying existing special use airspace.
- Impacts on military training routes were assessed by determining if the project would require a change to an existing or planned military training route.
- Impacts on en route airways were assessed by determining if the project would lead to a change in a regular flight course or altitude or instrument procedures.
- Impacts on airports and airfields were assessed by determining if the project would restrict access to or affect the use of airports/airfields available for public use or if it would affect airfield/airport arrival and departure traffic flows.
- Impacts on public health and safety were assessed based on the adequacy of federal and Army aviation flight regulations and the Army's aviation accident history in Hawai'i.

4.2.2 Factors Considered for Determining Significance of Impacts

Based in part on FAA Order 7400.2E, *Procedures for Handling Airspace Matters*, an action is considered to have a significant airspace impact if it would result in any of the following:

- Reduce the amount of navigable airspace;
- Create an obstruction to air navigation;
- Assign new special use airspace (including prohibited areas, restricted areas, warning areas, and military operations areas) or require the modification of existing special use airspace;

- Change an existing or planned military training route or slow route;
- Change an existing or planned IFR minimum flight altitude, a published or special instrument procedure, or an IFR departure procedure or require a visual flight rules (VFR) operation to change from a regular flight course or altitude;
- Restrict access to or effects on the use of airports and airfields available for public use;
- Change commercial or private airfield or airport arrival and departure traffic flows; or
- Reduce public health and safety due to a change in aviation safety risk.

4.2.3 Summary of Impacts

None of the alternatives would have impacts on airspace within the ROI. No changes to use of airspace or to airspace designations are proposed. None of the alternatives would reduce navigable airspace or create an obstruction to air navigation. No new special use airspace, nor the modification of existing special use airspace, would be necessary to accommodate the increase in training.

There are no military training routes in the ROI, and the existing flight corridors used by participating aircraft would not change. There are no en route low-altitude airways in the ROI, and no IFR procedures would need to change. Access to and the approach and departure patterns associated with the airports and airfields in the ROI would not be restricted, nor would they be required to change. Well-established and understood aviation procedures and rules governing flight operations in both controlled and uncontrolled navigable airspace and special use airspace, coupled with the Army's excellent aviation safety record in Hawai'i, make future adverse impacts on public health and safety extremely unlikely.

Other training activities, such as sniper and demolitions training, would have no impact on airspace use because none of the factors considered for the impact analysis apply to those activities. Below is a summary of impacts on airspace in the ROI. The potential for impacts on land use, air quality, and noise environments from aircraft activity are addressed in Sections 4.1, 4.4, and 4.5, respectively.

Summary of Potential Airspace Impacts

| Impact Issues | No Action Alternative | Alternative 1 MMR (Reduced Capacity Use with Some Weapons Restrictions) | Alternative 2 MMR (Full Capacity Use with Some Weapons Restrictions) | Alternative 3 MMR (Full Capacity Use with Fewer Weapons Restrictions) | Alternative 4 PTA (Full Capacity Use with Fewer Weapons Restrictions) |
|---|--------------------------|---|---|---|--|
| Reduction in navigable airspace | ○ | ○ | ○ | ○ | ○ |
| Creation of an air navigation obstruction | ○ | ○ | ○ | ○ | ○ |
| New/modified special use airspace | ○ | ○ | ○ | ○ | ○ |
| Change to a military training route | ○ | ○ | ○ | ○ | ○ |
| Change in en route airway or IFR procedure | ○ | ○ | ○ | ○ | ○ |
| Restriction of access to airports/airfields | ○ | ○ | ○ | ○ | ○ |
| Change in airport/airfield approach or departure patterns | ○ | ○ | ○ | ○ | ○ |
| Reduction in public health and safety due to change in aviation safety risk | ○ | ○ | ○ | ○ | ○ |

LEGEND:

- ⊗ = Significant impact
- ⊙ = Significant impact mitigable to less than significant
- ◐ = Less than significant impact
- = No impact
- + = Beneficial impact

No Action Alternative

No Impacts

Under No Action, there would be no impacts on airspace use. There would be no reduction in the amount of navigable airspace, no assignment of new or modified special use airspace, and no change to an existing or planned military training route or slow route. Similarly, there would be no change to en route airways or instrument flight rules procedures. There would also be no restrictions on access to and no effect on the use of airports or airfields available for public use, nor would there be any effect on airport or airfield arrival and departure traffic flows. There would be no construction that could obstruct air navigation and no new air traffic that could affect aviation safety.

Alternative 1 (Reduced Capacity Use with Some Weapons Restrictions)

No Impacts

Reduction in navigable airspace. The staging base air assault and aviation support exercises conducted under this alternative would not reduce the amount of navigable airspace in the MMR ROI. Those exercises would not lead to the assignment of new special use airspace or require existing special use airspace to be modified. Similarly, no flight restrictions or altitude reservations would be imposed.

Creation of an air navigation obstruction. Training activities under this alternative would not require the construction of towers or objects that might affect the line-of-sight view of all runways, taxiways, and traffic pattern areas from the air traffic control towers of the airports involved. Nor would training have a physical effect on airport approach lighting systems.

New/modified special use airspace. No new special use airspace or any modifications to the existing special use airspace would be required. The staging base air assault exercises, using blank ammunition, conducted over MMR are all contained within the R-3109/R-3110 restricted area complex or, in the case of the FARRP, at DMR, just outside the complex. Restricted areas are designed to contain precisely these kinds of activities. During the published hours of use (by notice to airmen [NOTAM]), the Army is responsible for controlling all military activity within the restricted areas and for determining that its perimeters are not violated. The pilots of nonparticipating aircraft understand that the penetration of restricted areas without the authorization from the using or controlling agency may be extremely hazardous to the aircraft and its occupants. The boundaries of the R-3109/R-3110 restricted area complex are clearly indicated on local aeronautical charts and are published in the *Federal Register*.

Change to a military training route. While there are no published military training routes in the MMR ROI, Alternative 1 would require no change to the existing flight corridors between WAAF and MMR.

As identified in Chapter 2, aircraft leaving and arriving at WAAF would follow well-defined flight corridors, in accordance with the air traffic, general operating rules, and flight rules of FAR Part 91 and AR 95-1. WAAF lies in Class D airspace, so all aircraft departure and arrival operations would be subject to air traffic control clearances and instructions, thus avoiding any direct adverse impacts on general aviation air traffic. While the airspace over SBMR and WAAF is considered congested for general aviation aircraft, procedures are in place that,

although not mandatory, allow general aviation to function satisfactorily. Moreover, the WAAF tower provides traffic advisories to general aviation pilots when it is open. On weekends, when the tower is closed, pilots tune into the common traffic advisory frequency to monitor other traffic and to broadcast their positions (Bruckner 2003).

Helicopters participating in exercises over MMR that may use the Dillingham FARRP located just outside the R-3110 special use airspace would follow the air traffic, general operating, and flight rules of FAR Part 91 and AR 95-1 and would not interfere with local general aviation flights.

Change in en route airway or IFR procedure. There are no low altitude en route airways in the MMR ROI. There would be no change to IFR minimum flight altitudes, no special instrument procedures would be required, and VFR operations would not be required to change from a regular flight course or altitude.

Restriction of access to airports/airfields. Access to airports and airfields in the ROI would not be restricted under Alternative 1.

Change in airport/airfield approach or departure patterns. No change to any of the approach and departure patterns associated with airports and airfields in the ROI would be necessary under this alternative.

Reduction in public health and safety due to change in aviation safety risk. Well-established and understood aviation procedures and rules governing flight operations in both controlled and uncontrolled navigable airspace and special use airspace, coupled with the Army's excellent aviation safety record in Hawai'i, make adverse impacts on public health and safety extremely unlikely.

Potential future UAV flights under Alternative 1 would normally be conducted within the R-3109 and R-3110 restricted area complex. Although the nature and intensity of utilization would vary over time and by individual special use airspace area, the UAV flights would represent precisely the kinds of activities for which the special use airspace was created. As such, the UAV flights would not represent a change in aviation safety risk or an adverse impact on public health and safety.

Operations for those UAV flights that could not be contained wholly within the restricted area complex would be conducted in accordance with well-defined FAA procedures for remotely operated aircraft. At least 60 days before UAV operations begin, a certificate of authorization would be sought from the FAA regional office in Honolulu. Approval would be contingent on the demonstration of a method that provides an equivalent

level of safety, comparable to see-and-avoid requirements for piloted aircraft. Methods include, but are not limited to, radar observation, forward- or side-looking cameras, electronic detection systems, observation from one or more ground sites, monitoring by patrol or chase aircraft, or a combination thereof (FAA 2001). In addition, coordination, communications, route and altitude procedures, and lost link/mission abort procedures would all have to be identified. Consequently, authorized UAV flights would not present an adverse risk to aviation safety and thus to public health and safety in the ROI.

Alternative 2 (Full Capacity Use with Some Weapons Restrictions)

No Impacts

Reduction in navigable airspace. The staging base air assault exercises and the CALFEX exercises associated with Alternative 2 would not reduce the amount of navigable airspace in the MMR ROI and would have similar impacts on those described for Alternative 1.

Creation of an air navigation obstruction. Alternative 2 would have impacts similar to those described for Alternative 1.

New/modified special use airspace. The staging base air assaults and CALFEX exercises conducted over MMR, together with proposed weapons use, would all be contained within airspace previously used for training. Consequently, no new special use airspace or any modifications to the existing special use airspace would be required for Alternative 2, even though the number of CALFEXs would be greater. Impacts under this alternative are similar to those described for Alternative 1.

Change to a military training route. While there are no published military training routes in the ROI, Alternative 2 would not require a change to the existing flight corridors between WAAF and MMR. Impacts are similar to those described for Alternative 1.

Change in en route airway or IFR procedure. There are no low altitude en route airways in the MMR ROI. There would be no change to IFR minimum flight altitudes, no special instrument procedures would be required, and VFR operations would not be required to change from a regular flight course or altitude under Alternative 2.

Restriction of access to airports/airfields. Access to airports and airfields in the ROI would not be restricted under Alternative 2.

Change in airport/airfield approach or departure patterns. No change to any of the approach and departure patterns associated with airports and airfields in the ROI would be necessary under Alternative 2.

Reduction in public health and safety due to change in aviation safety risk. Impacts under this alternative are similar to those described for Alternative 1.

Alternative 3 (Full Capacity Use with Fewer Weapons Restrictions)

No Impacts

Alternative 3 would use a slightly expanded training area, compared to Alternative 2, and training activities similar to those in Alternative 2 would be conducted; therefore, the impacts on airspace under Alternative 3 would be similar to those described for Alternative 2. Aviation activities would be essentially the same as Alternative 2. Use of inert TOW missiles, 2.75-caliber rockets, and illumination munitions would not affect use of airspace. No direct adverse impacts on navigable airspace, special use airspace, military training routes, en route airways, or airports and airfields are anticipated. Alternative 3 would not obstruct air navigation in the MMR airspace ROI or adversely affect aviation safety and, thus, public health and safety.

Alternative 4 (Full Capacity Use with Fewer Weapons Restrictions), Pōhakuloa Training Area

No Impacts

Reduction in navigable airspace. Flights in support of CALFEX training under this alternative would not reduce the amount of navigable airspace in the PTA ROI. It is unlikely that a company or brigade would travel to PTA solely to conduct CALFEX training. In most cases, the excessive time and costs associated with moving equipment would lead to combining of various training requirements, and a longer stay at PTA. It is estimated that infantry companies would extend their time on island for an additional 12 to 15 days to accomplish CALFEX training requirements. As a result, it is expected that there would be no net increase in transportation requirements from O'ahu to PTA. Troops would continue to be transported primarily via commercial aircraft, with a small percentage moving by military aircraft and marine vessel transportation. There would be an increase in helicopter air traffic within the PTA airspace, primarily between BAAF, which would serve as a staging area, and the CALFEX location.

Creation of an air navigation obstruction. Training activities under this alternative would require the construction of a small range control tower (approximately 25 feet [7.6 meters]), but it would not be to a height or at a

location that might affect the line-of-sight view of any runways, taxiways, and traffic pattern areas from the air traffic control towers of the airports involved, nor would training have a physical effect on airport approach lighting systems.

New/modified special use airspace. No new special use airspace or any modifications to the existing special use airspace would be required under this alternative. All air assault exercises conducted over this training location would be contained within the existing R-3103 restricted area. Restricted areas are designed to contain precisely these kinds of activities.

Potential future UAV flights under Alternative 4 would normally be conducted within the R-3103 restricted area complex. Although the nature and intensity of utilization would vary over time and by individual special use airspace area, the UAV flights would represent precisely the kinds of activities for which the special use airspace was created. As such, the UAV flights would not represent a change in aviation safety risk or an adverse impact on public health and safety.

Change to a military training route. Since there are no published military training routes in the ROI, Alternative 4 would require no change to the existing flight corridors between BAAF and the CALFEX range.

Change in en route airway or IFR procedure. There would be no change to IFR minimum flight altitudes, no special instrument procedures would be required, and VFR operations would not be required to change from a regular flight course or altitude.

Restriction of access to airports/airfields. Access to airports and airfields in the ROI would not be restricted under Alternative 4.

Change in airport/airfield approach or departure patterns. No change to any of the approach and departure patterns associated with airports and airfields in the ROI would be necessary under this alternative.

Reduction in public health and safety due to change in aviation safety risk. Well-established and understood aviation procedures and rules governing flight operations in both controlled and uncontrolled navigable airspace and special use airspace, coupled with the Army's excellent aviation safety record in Hawai'i, make adverse impacts on public health and safety extremely unlikely.