

Draft Environmental Assessment for an Air Tour Management Plan for Haleakalā National Park

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1 PURPOSE AND NEED

1.1 Introduction

The Federal Aviation Administration (FAA) and the National Park Service (NPS) (collectively, “the agencies”) are working together to develop an air tour management plan (ATMP) pursuant to the National Parks Air Tour Management Act of 2000 (the Act) and a draft Environmental Assessment (EA) for Haleakalā National Park (hereafter referred to as the “Park”). The Act was signed into law on April 5, 2000. The Act applies to all commercial air tour operations over a unit of the national park system.

The Act requires the FAA, in cooperation with the NPS, to develop an ATMP or Voluntary Agreement for parks and tribal lands where operators have applied to conduct commercial air tours. The Act provided for existing commercial air tour operations occurring at the time the law was enacted to continue until an ATMP for the park was implemented by expressly requiring the FAA to grant interim operating authority (IOA) to existing operators.^{1,2} Currently, there are five commercial air tour operators that conduct air tours over the Park, although there are six operators with combined IOA for 25,827 commercial air tours annually. IOA includes only an annual cap on the number of commercial air tours that may be conducted by an operator, but does not designate the routes, time-of-day, altitudes, or other conditions for such tours.

The objective of this ATMP, under the Act, is to develop acceptable and effective measures to mitigate or prevent significant adverse impacts, if any, of commercial air tour operations on the Park’s natural and cultural landscapes and resources, areas of historic and spiritual significance to Native Hawaiians, Wilderness character, and visitor experience. The regulations implementing the Act are found in Title 14, Code of Federal Regulations (CFR), Part 136, *Commercial Air Tours and National Parks Air Tour Management* (14 CFR Part 136). This draft EA is being prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) (42 United States Code (U.S.C.), 4321 et seq.), Council on Environmental Quality (CEQ) NEPA implementing regulations (40 CFR Parts 1500-1508), the 2015 FAA 1050.1F Order, *Environmental Impacts: Policies and Procedures*, and NPS NEPA policies and procedures (2015 NPS NEPA Handbook and 2015 NPS NEPA Handbook Supplemental Guidance - *Writing Impact Analysis Sections for EAs and EISs*).

The term commercial air tour operation is defined as any flight conducted for compensation or hire in a powered aircraft, where a purpose of the flight is sightseeing over the Park or within

¹ 49 U.S.C. § 40128(c)(2)(A)(i-ii)

² 70 Fed. Reg. 58,778 (Oct. 7, 2005).

½-mile outside the Park's boundary during which the aircraft flies below 5,000 feet (ft.) above ground level (AGL).

1.2 Background

On February 14, 2019, Public Employees for Environmental Responsibility and Hawai'i Coalition Malama Pono filed a petition in the U.S. Court of Appeals for the District of Columbia Circuit requesting that the Court order the agencies to complete ATMPs for seven parks including the Park. On May 1, 2020, the Court granted the petition and ordered the agencies to submit a schedule to bring 23 eligible parks (based on reported air tour data from 2018) into compliance with the Act within two years or to show specific, concrete reasons why doing so will take longer. Consistent with the Court's order, agencies submitted a proposed plan and schedule (Compliance Plan) on August 31, 2020. On June 21, 2022, the Court ordered the agencies to file a joint supplemental report and propose firm deadlines for bringing each of the parks included in the Compliance Plan into compliance with the Act. On July 21, 2022, the agencies filed their report and provided a deadline of December 31, 2023, to complete the ATMP for the Park.

In order to conduct the planning processes consistent with the Court's decision, the agencies formally terminated longstanding ATMP planning process for several parks via a September 3, 2020 Federal Register notice.³ The previous planning process for an ATMP for the Park was initiated in 2003. In 2004, the FAA published a notice of the agencies' intent to prepare an EA for that ATMP.⁴ In 2006, the FAA published a notice of intent to prepare an environmental impact statement for that ATMP.⁵ Due to the passage of the 2012 amendments to the Act, work on the previous planning process was paused until the time it was terminated in order to initiate the current planning process.

On February 28, 2022, the FAA and the NPS initiated a 30-day NEPA public scoping process and put forth three potential ATMP alternatives for public and stakeholder review and comment. The comments received were used to further refine or dismiss alternatives as described in this draft EA and were also used to inform the environmental analysis. Refer to Appendix J, *Public Scoping Newsletter and Comment Summary Report*, for more information.

³ Termination of Previously Initiated Processes for the Development of Air Tour Management Plans and Environmental Assessments/Environmental Impact Statements for Various National Park Units and Notice of Intent to Complete Air Tour Management Plans at 23 National Park Units, 85 Fed. Reg. 55,060 (Sept. 3, 2020).

⁴ Environmental Assessments for the Air Tour Management Plan Program at Haleakalā National Park, Hawai'i Volcanoes National Park, Pu'ukoholā Heiau National Historic Site, Kaloko-Honokōhau National Historical Park, Kalaupapa National Historical Park, and Pu'uhonua O Honaunau National Historical Park, 69 Fed. Reg. 9,420 (February 27, 2004).

⁵ Notice of intent to prepare an Environmental Impact Statement (EIS) and initiation of public and agency scoping for the Haleakalā National Park Air Tour Management Plan, 71 Fed. Reg. 66,575 (November 15, 2006).

1.3 Proposed Action

The proposed action is to implement an ATMP for the Park. The Act defines an ATMP as a plan used to develop acceptable and effective measures to mitigate or prevent the significant adverse impacts, if any, of commercial air tour operations upon natural and cultural resources, visitor experiences, and tribal lands. An ATMP describes conditions for the conduct of air tour operations over a park, including routes, altitudes, time-of-day restrictions, restrictions for particular events, maximum numbers of flights, or other provisions. The Act and implementing regulations found in 14 CFR Part 136 state that the ATMP for a park:

- May prohibit commercial air tour operations over a national park in whole or in part;
- May establish conditions for the conduct of commercial air tour operations, including, but not limited to, commercial air tour routes, maximum number of flights per unit of time, maximum and minimum altitudes, time of day restrictions, restrictions for particular events, and mitigation of noise, visual, or other impacts;
- Shall apply to all commercial air tour operations over a national park or within ½-mile outside the park's boundary;
- Shall include incentives (such as preferred commercial air tour routes and altitudes, relief from caps and curfews) for the adoption of quiet aircraft technology by commercial air tour operators conducting commercial air tour operations at the park;
- Shall provide for the initial allocation of opportunities to conduct commercial air tour operations if the plan includes a limitation on the number of commercial air tour operations for any time period;
- Shall justify and document the need for measures taken pursuant to the items above and include such justifications in the record of decision.

The ATMP will prescribe describe operating parameters to mitigate impacts from commercial air tours on Park resources. Three alternatives for the Park's ATMP are considered and evaluated in this document.

1.4 Purpose and Need

Purpose: The purpose of the ATMP is to comply with the Act and other applicable laws, consistent with the *Plan and Schedule for Completion of Air Tour Management Plans at Twenty-Three Parks* approved by the U.S. Court of Appeals for the District of Columbia Circuit on November 20, 2020, in Case No. 19-1044, *In Re Public Employees for Environmental Responsibility and Hawai'i Coalition Malama Pono* (Compliance Plan).

Need: The Act requires an ATMP or voluntary agreement to be developed for the Park. Air tours have the potential to impact natural and cultural resources, Wilderness character, and visitor experience. The Act requires that the FAA and the NPS develop acceptable and effective measures to mitigate or prevent significant adverse impacts, if any, of commercial air tour

operations on natural and cultural landscapes and resources, Wilderness character, visitor experience, and Native Hawaiian Traditional Cultural Properties (TCPs) including Native Hawaiian sacred landscapes, sites, and ceremonial areas.

1.5 Environmental Impact Categories Not Analyzed in Detail

The following environmental impact categories were considered but not analyzed in detail in this draft EA because:

- The topics do not exist in the analysis area, or would not be affected by the ATMP; or
- The likely impacts are not reasonably expected.

Biological Resources (Fish, Plants, and Invertebrates)

The ATMP would not result in ground disturbance or in-water activities that could affect plants, fish, or invertebrates. The proposed minimum altitude (2,000 ft. AGL over land and 3,000 ft. AGL over the ocean) included in the action alternative under which commercial air tours would be permitted within the ATMP planning area creates sufficient separation between commercial air tours and fish such that impacts are not expected to occur, either directly or indirectly.

Noise from aircraft have been demonstrated to influence the behavior of ecologically significant pollinators and seed dispersers in natural and human altered landscapes (Francis et al., 2012; Gallardo et al., 2021). Specifically, Francis et al. studied the effect of compressor noise running continuously and generating noise at high amplitudes (greater than 95 decibels at a distance of 1 meter). Within the study, experimental sites were established 125-150 meters from the noise source. Noise exposure had an indirect positive effect on pollination by hummingbirds, but an indirect negative effect on piñon pine seedling establishment by altering the composition of animals preying upon or dispersing seeds. In contrast to this experimental design, commercial air tours do not generate continuous noise, and the proposed minimum altitudes (2,000 ft. AGL over land and 3,000 ft. AGL over the ocean) in the action alternative under which air tours would be permitted in the ATMP planning area provide much greater spatial separation as compared to the study sites. Therefore, the agencies have determined that noise associated with the ATMP is unlikely to result in impacts to plants or plant pollination.

Native invertebrates in Hawai'i are largely restricted to areas of predominantly native vegetation (Magnacca and Foote, 2006) and insects comprise 87% of the invertebrate fauna of the Park. Many native Hawaiian insects are host-specific and could be in danger of extirpation because many native Hawaiian host plants are rare or endangered (e.g., Haleakalā silverswords). These native plant-dependent insects (e.g., *Drosophila*, moths, and planthoppers) are in turn hosts of native specialist predators and parasitoids (e.g., *Sierola*), which can follow their host into extinction (Fung Associates and SWCA Environmental Consultants, 2019). The minimum proposed altitudes included in the action alternative in which air tours would be permitted within the ATMP planning area (2,000 ft. AGL over land and

3,000 ft. AGL over the ocean) create sufficient separation between commercial air tours and invertebrates such that impacts are not expected to occur, either directly or indirectly.

Air tours could result in some effects on air quality, such as emissions or the potential for low-flying aircraft to generate dust, which could indirectly affect plants. While air quality is a topic that is analyzed in detail in this draft EA, the minimum altitudes considered by the action alternative in which air tours would be permitted within the ATMP planning area (2,000 ft. AGL over land and 3,000 ft. AGL over the ocean) create sufficient separation between plants and aircraft such that it is unlikely that the dust or changes in air quality would have a meaningful effect on plants.

In summary, for these reasons, the agencies have dismissed these resources from detailed analysis.

Children's Environmental Health and Safety Risks

The ATMP would not affect products or substances that a child would be likely to come into contact with, ingest, use, or be exposed to, and would not result in environmental health and safety risks that have the potential to lead to a disproportionate health or safety risk to children. Therefore, this topic has not been analyzed in detail in this draft EA.

Hazardous Materials, Solid Waste, and Pollution Prevention

Applicable FAA air tour regulations include restrictions to protect individuals and property on the ground, and prevent collisions between aircraft, land or water vehicles, and airborne objects. The FAA has issued safety standards for safe air tour operations to reduce the potential for air tour crashes. Even so, there are various circumstances that can lead to an air tour crash or emergency landing, including but not limited to poor weather, pilot error, mechanical failure, or faulty maintenance. The agencies acknowledge that in the unlikely event of an accident, there could be potential impacts to Park resources from associated debris and aircraft fuel. Consistent with 43 CFR § 1502.21(c)(1)-(4), the agencies are disclosing that information necessary to analyze site-specific impacts from an air tour crash is not available. The agencies cannot speculate if, where, or when an air tour accident or incident may occur or the degree of Park resource damage.

In order to limit potential impacts to Park resources in the event of an emergency landing inside the Park, once the aircraft has safely landed and any medical or other emergency issues have been addressed, the operator would immediately notify the Park through park dispatch of the incident and location. Prior approval from the Park superintendent or designee would be required for the removal or take off of the landed aircraft in order to coordinate joint resources for the safety of visitors and Park resources (36 CFR 2.17). Prior approval from the Park superintendent or designee would be required for any non-emergency landing of aircraft within

the Park boundaries, including replacement aircraft deployed to retrieve passengers who are not able to exit via ground transportation.

If an air tour crash occurs, the NPS or a cooperating emergency response agency such as Maui Police or Fire Departments, or the U.S. Coast Guard would respond as soon as possible to provide life-saving search and rescue efforts. If the crash resulted in fire or hazardous materials contamination, responding personnel would attempt to secure the area and control the fire or contain potential contaminants while mitigating impacts to Park resources to the greatest extent possible. The Park's Fire Management Plan (NPS, 2022) would guide fire response and associated resource protection. Assessment of resource damage, initiation of restoration, and financial compensation sought would be guided by the System Unit Resource Protection Act, 54 U.S.C. § 100721 et. seq.

Air tour operators must comply with all applicable federal, state, and local rules and regulations pertaining to the proper storage, handling, and use of hazardous materials. The ATMP would not result in impacts regarding hazardous materials, solid waste, and pollution prevention because it would not 1) violate laws or regulations regarding hazardous materials and/or solid waste management; 2) involve a contaminated site; 3) produce an appreciably different quantity or type of hazardous waste; 4) generate an appreciably different quantity or type of solid waste or use a different method of collection or disposal; 5) exceed local capacity; or 6) adversely affect human health and the environment. Therefore, the ATMP is not expected to result in impacts related to hazardous materials and this topic has not been analyzed in detail in this draft EA.

Farmlands

The ATMP planning area, as described in Section 2.3, ATMP Planning Area, contains soils that are designated as prime/unique farmland soils. However, the ATMP would not involve ground disturbance that would have the potential to convert farmland to non-agricultural uses. Therefore, this resource has not been analyzed in detail in this draft EA.

Land Use

Land use refers to the general characteristics of how land is allocated among various administrative, preservation, recreational, and development needs. The ATMP would not result in ground-disturbing activities, and commercial air tours would not take off or land within the ATMP planning area. The impacts to land use are not reasonably expected; therefore, land use is not analyzed in detail in this draft EA.

Natural Resources and Energy Supply

Commercial air tours have been ongoing within the ATMP planning area prior to enactment of the Act. The ATMP would not result in the extraction of resources from the Park or cause measurable increases in the consumption of energy resources that would exceed available or

future supplies of natural or energy resources. Therefore, this topic is not analyzed in detail in this draft EA.

Visual Effects – Light Emissions

Commercial air tours do not fly at night as it creates safety concerns when flying in areas with little artificial light on the ground surface, and points of interest that could otherwise be seen from an air tour are not visible at night. Any lights from commercial air tour aircraft are not likely to be noticeable. Therefore, light emissions are not expected to occur as a result of the ATMP and this topic has not been analyzed in detail in this draft EA.

Water Resources (Including Wetlands, Floodplains, Surface Waters, Groundwater, and Wild and Scenic Rivers)

Due to topography which leads to Park water resources being either intermittent or small perennial sources, the absence of Wild and Scenic Rivers, the absence of ground disturbing activities, and the proposed altitudes in each of the ATMP alternatives, the ATMP is unlikely to directly or indirectly adversely affect water resources. As noted above in the analysis for Hazardous Materials, Solid Waste, and Pollution Prevention, the agencies are unable to speculate if, where, or when an air tour accident or incident could occur and the Park resource damage that could result, including that related to hazardous material entering water resources within the ATMP planning area. Therefore, water resources are not expected to be impacted as a result of the ATMP and have not been analyzed in detail in this draft EA.

2 ALTERNATIVES

2.1 Alternatives Development

Prior to public scoping, the preliminary ATMP alternatives were developed primarily by an NPS interdisciplinary team comprised of subject matter experts from the NPS's Natural Sounds and Night Skies Division, Environmental Quality Division, Pacific West Regional Office, and the Park. In developing the alternatives, the team considered the noise impacts of existing air tour routes and operations, the Park's cultural and natural resources, and the Park's existing and natural acoustic environment, visitor experience, and visual resources, as well as potential protective measures that could be included in an ATMP. The alternatives identified by the NPS and justifications for restrictions on commercial air tours were reviewed by the FAA, including the FAA's local Flight Standards District Office (FSDO) who noted any aviation safety concerns.

The agencies also conducted a preliminary environmental analysis earlier in the planning process to identify the appropriate level of NEPA review for a draft ATMP. In 2021, using routes, altitudes, reporting data provided by commercial air tour operators, and other relevant information, the agencies modeled existing air tour conditions over the Park using the FAA's Aviation Environmental Design Tool (AEDT), a software system that models aircraft performance in space and time to estimate fuel consumption, emissions, noise, and air quality. This information was then considered, in addition to acoustic monitoring information, and analyzed by the NPS's interdisciplinary team. The FAA, in coordination with the NPS, also initiated consultation pursuant to Section 106 of the National Historic Preservation Act of 1966 (NHPA) (54 U.S.C. §§ 300101 et seq.), including consultation with Native Hawaiian individuals and Native Hawaiian Organizations (NHOs). The input from consultation and preliminary environmental analysis was used to further refine or dismiss potential alternatives prior to the public scoping period. Ultimately, three potential alternatives (Alternative 1: No Action, Alternative 2 which would not permit air tours within the ATMP planning area, and Alternative 3 which would permit limited numbers of air tours in the ATMP planning area) were released for review and comment during the public scoping period in February 2022. Refer to the public scoping newsletter in Appendix J for details on the alternatives included in public scoping.

As further discussed in Section 2.4, Alternative 1 (No Action Alternative), after the public scoping period, the agencies refined the No Action Alternative to be the three-year average instead of IOA, recognizing that IOA is not reasonably foreseeable. As a result of the comments received from the February 2022 public scoping period, the agencies also refined the route and altitudes in Alternative 3. There were no changes made to Alternative 2, no air tours within the ATMP planning area, as shared during public scoping. The three alternatives presented in this draft EA, including the No Action Alternative, represent the refined alternatives following the public scoping period. Refer to Appendix J, *Public Scoping Newsletter and Comment Summary Report*, for additional details on the alternatives that were released for public scoping.

Alternatives may be further developed or modified through the NEPA process in response to public, consulting party, and agency comments on this draft EA and draft ATMP.

2.2 Alternatives Considered but Eliminated from Further Study

2.2.1 Air Tours at or above Existing Levels

The agencies considered but eliminated alternatives that would allow air tour operations at or above existing numbers. These alternatives were eliminated from further study because the NPS determined they would result in unacceptable impacts to the Park's natural and cultural resources and visitor enjoyment (NPS Management Policies 1.4.7.1, 2006), and do not meet the purpose and need for the plan.

The NPS determined the existing level of air tours is inconsistent with the Park's purpose and values as described in its Foundation Document (NPS, 2015a), which states:

For the inspiration of current and future generations, Haleakalā National Park protects a wild volcanic landscape with a wide array of fragile and diverse native ecosystems, including plant and animal species found nowhere else on earth. Our stewardship perpetuates the unique and continuing connections between Hawaiian culture and this sacred and evolving land.

Existing air tour operations result in frequent and loud noise disruptions in many areas of the Park. Noise and visual effects from air tours negatively impact existing Native Hawaiian sacred sites and landscapes, as well as the feeling and setting of other historic properties throughout the Park. The NPS Management Policies direct the NPS to avoid adversely affecting the physical integrity of sacred sites to the extent practicable (NPS Management Policies § 5.3.5.3.2, 2006). Additionally, culturally appropriate sounds are important elements of the national park experience in many parks, and therefore, the NPS is directed to “prevent inappropriate or excessive types and levels of sound (noise) from unacceptably impacting the ability of the soundscape to transmit the cultural and historic resource sounds associated with park purposes” (NPS Management Policies § 5.3.1.7, 2006). Native Hawaiians who were consulted, and part of the ethnographic study, have consistently noted the persistent air tours over the Park unreasonably interfere with ceremonies conducted by Native Hawaiian practitioners at these sacred sites, as well as archaeological sites and historic trails (Prasad and Tomonari-Tuggle, 2008).

Existing air tours over the Park also directly interfere with resource management activities (such as acoustic based bird surveys) which impedes the NPS's ability to fully meet the Park's purpose of preserving endemic Hawaiian ecosystems and does not support the perpetuation of biological diversity and ecological integrity which are fundamental resources and values of the Park (see the Park's Foundation Document (NPS, 2015a)). A recent study in Hawai'i documents that loud, frequent helicopter noise results in changes in avian vocalization (Gallardo Cruz et al.,

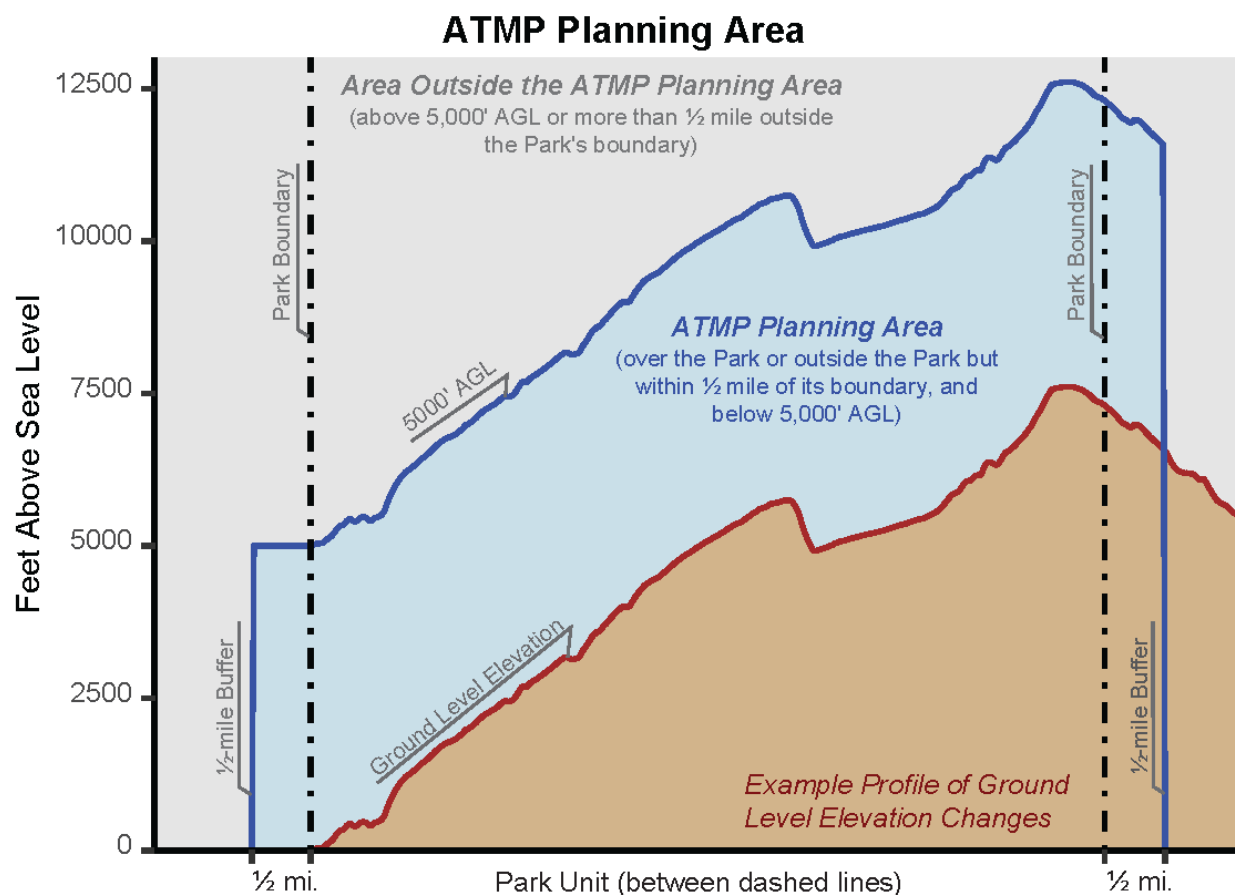
2021). Helicopter noise could detrimentally affect physiology, pairing and breeding success, and territory size of birds by limiting communication between individuals (Habib et al., 2007; Nemeth and Brumm, 2010; Halfwerk et al., 2011; Kleist et al., 2018). These effects could have a greater impact on Hawaiian endemic species, many of which are federally listed under the Endangered Species Act (ESA) and already face a number of stressors (Atkinson and Lapointe, 2009; Pratt et al., 2009; LaPointe et al., 2010), compared to non-native species. The existing level of air tours also diminishes visitor opportunities to learn about and be inspired by Park resources and values, and the NPS has determined it unreasonably interferes with Park programs, activities, the atmosphere of peace and tranquility and the natural soundscapes in Wilderness (see 2006 NPS Management Policies 1.4.7.1). Existing air tours repeatedly interrupt and, as determined by the NPS, unreasonably interfere with interpretive programs and visitor activities at the Haleakalā Summit, in Kīpahulu and in the Haleakalā Crater, which may impede visitors from enjoying and learning about existing Park resources. Natural quiet is a foundational resource for the Park and a primary reason for visitation. Air tours currently disrupt natural quiet throughout the Park. Additionally, as determined by the NPS, existing air tour operations unreasonably interfere with the natural soundscape maintained within the Haleakalā Wilderness. Persistent noise within Wilderness interferes with the opportunity for solitude and detracts from the undeveloped and natural qualities of Wilderness.

Therefore, authorizing commercial air tours at or above the existing level of operations would not meet the objective of an ATMP. The NPS has determined that the existing level of air tours cannot be mitigated to avoid or prevent unacceptable impacts and therefore any alternative that would maintain or increase the existing number of air tours over the Park does not meet the purpose and need for the ATMP. For all of these reasons, the agencies have considered but eliminated alternatives that would continue air tours at or above existing air tour numbers.

2.3 ATMP Planning Area for the Development of the Alternatives

An ATMP regulates commercial air tours over a national park or within ½-mile outside the park's boundary during which the aircraft flies below 5,000 ft. AGL. This is referred to as the ATMP planning area in this document and as the ATMP boundary in the ATMP itself. Air tours outside of the ATMP planning area are not subject to the Act and are therefore not regulated under the ATMP. As air tours outside of the ATMP planning area are outside the jurisdiction of the ATMP, there would be no limitations on the annual number of such air tours that could occur, and no designated routes could be set outside the ATMP planning area under any alternative. Refer to Figure 1 for a graphic depiction of the ATMP planning area. Although they may occur within the ATMP planning area, general aviation flights, overflights by commercial airlines, and military flights would not be regulated by the ATMP because they are not commercial air tours subject to regulation under the Act.

There are two districts in the Park: the Summit District and the Kīpahulu District. The Summit District includes a portion of Haleakalā Highway (known as Crater Road within the Park), Haleakalā Crater, Kaupō Gap, and Nu‘u. The Kīpahulu District includes ‘Ohe‘o Gulch, Kīpahulu Valley, Manawainui, and Ka‘āpahu.



2.4 Alternative 1 (No Action Alternative)

The No Action Alternative represents a continuation of what is currently flown under existing law including applicable regulations that govern aviation safety (14 CFR Part 136, Appendix A, Special Operating Rules for Air Tour Operators in the State of Hawai‘i (formerly Special Federal Aviation Regulation 71)) and any FAA exceptions issued to individual operators as outlined by the 2008 FAA Hawai‘i Air Tour Common Procedures Manual (Hawai‘i Common Procedures Manual).⁶

⁶ Hawai‘i Air Tour Common Procedures Manual, FAA Document Number: AWP13-136A, 2008, https://www.faa.gov/about/office_org/field_offices/fsdo/hnl/local_more/media/hawaii_air_tour_common_proc.pdf

The No Action Alternative provides a basis for comparison but is not a selectable alternative because it does not meet the purpose and need for the ATMP (refer to Section 1.4, Purpose and Need).

2.4.1 Commercial Air Tours per Year

Six commercial air tour operators currently hold IOA to fly up to a combined total of 25,827 commercial air tours per year over the Park (see Table 1). The yearly average number of commercial air tours conducted over the Park from 2017-2019 across all operators is 4,824. The agencies consider the 2017-2019, three-year average, the existing baseline for the purposes of understanding the existing number of commercial air tours over the Park. The requirement for commercial air tour operators to report annual commercial air tour operations to the agencies was implemented in 2013. Reporting data from 2013 and 2014 are considered incomplete as reporting protocols were not fully in place at that time and likely do not accurately reflect the number of air tours conducted. Flight numbers from a single year were not chosen as the existing baseline because the three-year average accounts for both variation across years and takes into account the most recent pre-pandemic years. Reporting data from 2020 was not used because the 2020 COVID-19 pandemic resulted in lower than normal commercial air tour operations due to travel restrictions and closures in the State of Hawai'i, which does not represent the conditions in a typical year. The agencies also decided against using 2021 or 2022 data due to continued abnormalities associated with the COVID-19 pandemic and the unavailability of reporting data for 2021 or 2022 during most of the planning effort.

Although 25,827 commercial air tours per year are authorized under IOA, the operations reported by air tour operators reflect an average of 4,824 commercial air tours per year. While it is possible that air tour operations could increase to the level authorized by IOA and thus dramatically change potential impacts to Park resources, the data does not support such changes in the way commercial air tour operations have occurred over the reporting years. The three-year average of commercial air tours from 2017-2019 is 4,824 per year, which is less than 20 percent of IOA, and reflective of data collected. The agencies determined that air tour operations up to current IOA is not reasonably expected to occur within the life of the plan because IOA was based on numbers reported by operators more than 20 years ago and does not represent the most current or reliable operational data. There is no verifiable data demonstrating that operators have ever flown the number of commercial air tours authorized by IOA or will fly this number of tours in the future. Thus, the No Action Alternative is a continuation of existing conditions and uses the three-year average of flights from 2017-2019 for this draft EA analysis and impacts of IOA are not analyzed nor included as the baseline condition.

2.4.2 Commercial Air Tour Routes and Altitudes

There are no designated flight routes or no-fly zones under the No Action Alternative. The figure for this alternative (Figure 2) depicts both general route information provided by current commercial air tour operators and Automatic Dependent Surveillance-Broadcast (ADS-B) flight tracking data of likely commercial air tour operations over and adjacent to the Park. Likely commercial air tour operations are dispersed around the generalized routes provided by operators depicted on Figure 2. The ADS-B tracking data is more reflective of existing operations for various reasons including deviations that may occur due to weather. There are currently no route limitations on air tours and routes may change, depending on an operator's preference to change routes or fly higher or lower than they currently are flying. For purposes of defining the No Action Alternative, the route information in Figure 2 is considered in this draft EA.⁷

Air tour operators authorized to fly below 1,500 ft. AGL (14 CFR Part 136, Appendix A, Special Operating Rules for Air Tour Operators in the State of HI) within the ATMP planning area must comply with requirements such as training and limitations set forth by the FAA in the Hawai'i Common Procedures Manual. Minimum altitudes for commercial air tours within the ATMP planning area are flown in accordance with the Hawai'i Common Procedures Manual, from 500-1,500 ft. AGL, weather dependent and contingent on location over the island. In most locations over the Park, the Hawai'i Common Procedures Manual requires helicopters to fly at a minimum 500 ft. AGL. Refer to Figure 2 for details.

All air tour operators are required to report to the FAA and the NPS⁸, on a semi-annual basis, the number of commercial air tour operations they have conducted within the ATMP planning area. The operators must provide the date and time each tour occurred, the make/model of aircraft used, and the route on which the tour was conducted. Air tour fee payment is required for commercial air tour operations conducted over the Park under 54 U.S.C. § 100904(f).

2.4.3 Commercial Air Tour Operators and Aircraft Types

Five of the six operators that hold IOA for the Park reported flying commercial air tours over the Park between 2013 and 2020. All five operators that have reported conducting commercial air tours over the Park during this period fly helicopters (not fixed-wing aircraft). Air tours occur year-round on an average of 345 days per year based on 2017-2019 reporting activity. Table 1

⁷ A 1998 Letter of Agreement between the Park and the Hawai'i Air Tour Association (Maui) was established with one of the main provisions prohibiting air tours over Haleakalā Crater. Recent flight tracking data indicates that air tours over the Park are primarily conducted in compliance with that agreement (see Beeco et al., 2020) although Park staff have reported occasional flights over Haleakalā Crater in the past.

⁸ See *Air Tour Reporting Guidance Memo* (2020), https://www.faa.gov/about/office_org/headquarters_offices/ara/programs/air_tour_management_plan/program_information

summarizes each operator's aircraft type, IOA, reported tours, and 2017-2019 average number of reported tours over the Park:

Table 1. Commercial Air Tour Operators, Aircraft Type, Reported Tours, and IOA.

Operator	Aircraft Type	2013	2014	2015	2016	2017	2018	2019	2020 ⁹	2017-2019 Average	# of Air Tours IOA
Aris, Inc. (Air Maui Helicopter Tours)	AS350BA	1,230	1,090	721	818	905	863	735	87	834	3,996
Hawai'i Helicopters, Inc.	AS350B2	476	424	380	476	516	328	283	13	376	5,682
Helicopter Consultants of Maui, Inc. (Blue Hawaiian Helicopters)	AS350B2, EC130 T2, EC130 B4	1,966	2,550	2,376	2,334	2,100	2,503	2,740	416	2,448	8,348
Schuman / Makani Kai	No Data	0	0	0	0	0	0	0	0	0	25
Sunshine Helicopters, Inc.	AS350BA	959	868	927	679	881	703	775	76	786	4,853
Alaka Aviation, Inc. (Alexair, Maverick)	EC130B4	N/A	0	139	282	437	360	342	55	380	2,923
TOTAL		4,631	4,932	4,543	4,589	4,839	4,757	4,875	647	4,824	25,827

Source: 2013-2019 Annual Reports, "Reporting Information for Commercial Air Tour Operations over Units of the National Park System". See: <https://www.nps.gov/subjects/sound/airtours.htm>.

⁹ Based on unpublished reporting data.

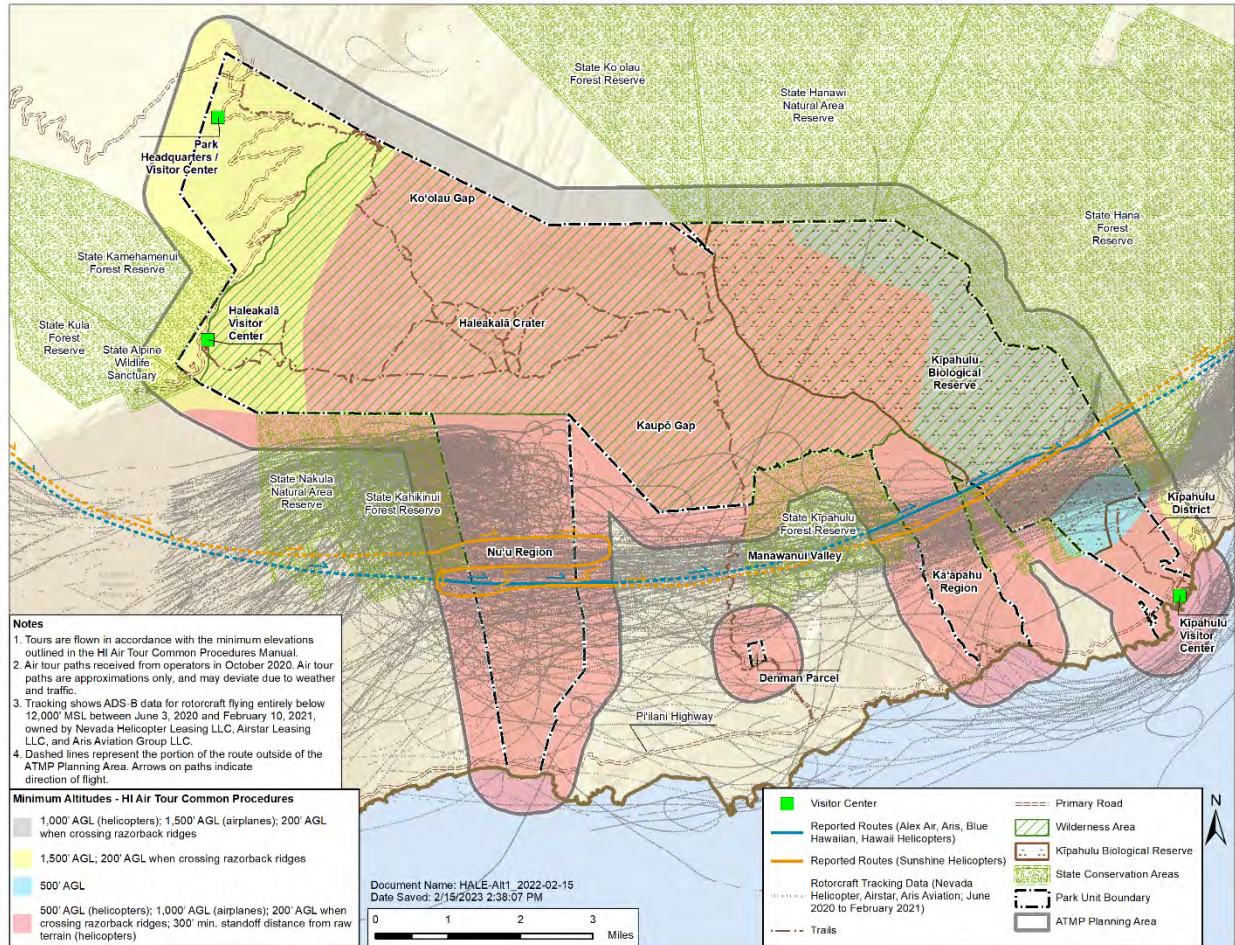


Figure 2. Alternative 1 (No Action)

2.5 Alternative 2

Alternative 2 provides the greatest level of protection for the purposes, resources, and values of the Park because it would not authorize air tours in the ATMP planning area. This includes the summit of Haleakalā (meaning rim and crater), a TCP which holds spiritual and cultural significance to Native Hawaiians; threatened and endangered species and other wildlife sensitive to noise; Congressionally designated Wilderness and visitor opportunities for solitude; visitor experience; Native Hawaiian traditional cultural practices; scenic qualities, and natural sounds.

The following objectives were considered by the NPS in the development of this alternative: protect cultural resources, reduce impacts to biological resources, protect Wilderness values, and avoid or reduce impacts to Wilderness values, cultural resources, natural soundscapes, wildlife and visitor use by reducing the number of commercial air tours per year over the Park as compared to existing conditions.

Alternative 2 would prohibit commercial air tours within the ATMP planning area no later than 180 days after the ATMP is signed by all required signatories from both agencies (its effective date). Operators would be permitted to continue to conduct air tours within the ATMP planning area up to the limit of their IOA until operations specifications are amended to incorporate the ATMP's operating parameters which would occur no later than 180 days after the effective date of the ATMP. All IOA for the Park would terminate by operation of law 180 days after the establishment (effective date) of the ATMP, 49 U.S.C. 40128(c)(2)(E), after which time no operator could continue to rely on any operations specifications issued under IOA as authority to conduct commercial air tours within the ATMP planning area. Operations specifications would be rescinded or amended to incorporate the operating parameters set forth in the ATMP within 180 days after the effective date of the ATMP.

Air tours outside of the ATMP planning area (i.e., at or above 5,000 ft. AGL or more than ½-mile outside the Park boundary) are not subject to the Act and are therefore not regulated under the ATMP. Thus, there would be no limitations on the number of air tours that could occur outside the ATMP planning area. Routes outside of the ATMP planning area are difficult to predict and are necessarily speculative. Operators could continue along current routes outside the ATMP planning area, could fly along current routes but above 5,000 ft. AGL, or routes could vary greatly due to operator preference and weather conditions at the time of the air tour. Refer to Figure 3 for a depiction of this alternative.

Aircraft monitoring and enforcement would still occur under this alternative to ensure that commercial air tour operators are complying with the terms and conditions of the ATMP by not conducting commercial air tours within the ATMP planning area. The NPS and the FAA would both be responsible for the monitoring and oversight of the ATMP.

The FAA reviewed the alternative to ensure it is safe (See Section 2.1, Alternatives Development).

2.5.1 Commercial Air Tour Routes and Altitudes

Air tours could be conducted only outside the ATMP planning area. An unknown number of air tours originating on Maui Island may continue to fly more than ½-mile outside of the Park's boundary at or above minimum altitudes ranging from 500 to 1,500 ft. AGL, depending on location on the island, in accordance with the Hawai'i Common Procedures Manual. Operators may continue to fly to points of interest on the island outside of the ATMP planning area where they already fly or fly routes over or around the ATMP planning area similar to existing flights paths but outside of the ATMP planning area.

Some air tour operators may choose to fly air tours just above the ATMP planning area at or above 5,000 ft. AGL. Over some areas of the ATMP planning area, this would be impractical due to the high elevation of the terrain because it would require operators to fly above 10,000

ft. mean sea level (MSL).¹⁰ Supplemental oxygen use is required in unpressurized aircraft flying over 10,000 ft. MSL for more than 30 minutes (14 CFR § 135.89, § 135.157); therefore, it is unlikely air tours would fly higher for extended periods of time. The actual flight path of air tours outside the ATMP planning area would vary based on operator preference and weather conditions at the time of the air tour. The preciseness of routes and altitudes for tours flown on alternative routes are generally subject to Visual Flight Rules,¹¹ which is based on the principle of “see and avoid”, and therefore may vary greatly.

2.5.2 Monitoring and Enforcement

Aircraft monitoring and enforcement would occur to ensure that commercial air tour operators are complying with the terms and conditions of the ATMP. The NPS would conduct ADS-B aircraft monitoring when possible and work with the FAA to identify and respond to any instances of noncompliance. The agencies would both be responsible for the monitoring and oversight of the ATMP. If the NPS identifies instances of noncompliance, the NPS would report such findings to the FAA’s Honolulu FSDO. The FSDO would investigate and respond to all written reports consistent with applicable FAA guidance. The public may also report allegations of noncompliance with the ATMP to the FSDO, which may result in an FAA investigation. FAA determination of noncompliance may result in legal enforcement actions. Any violation of operations specifications would be treated in accordance with FAA Order 2150.3, *FAA Compliance and Enforcement Program*.

¹⁰ Altitude expressed in units AGL is a measurement of the distance between the ground surface and the aircraft, whereas altitude expressed in MSL refers to the altitude of an aircraft above sea level, regardless of the terrain below it. Aircraft flying at a constant MSL altitude would simultaneously fly at varying AGL altitudes, and vice versa, assuming uneven terrain is present below the aircraft. Refer to Figure 1 for a depiction of this concept as it applies to the ATMP planning area.

¹¹ FAA Advisory Circular 91-36D Visual Flight Rules Flight Near Noise-Sensitive Areas

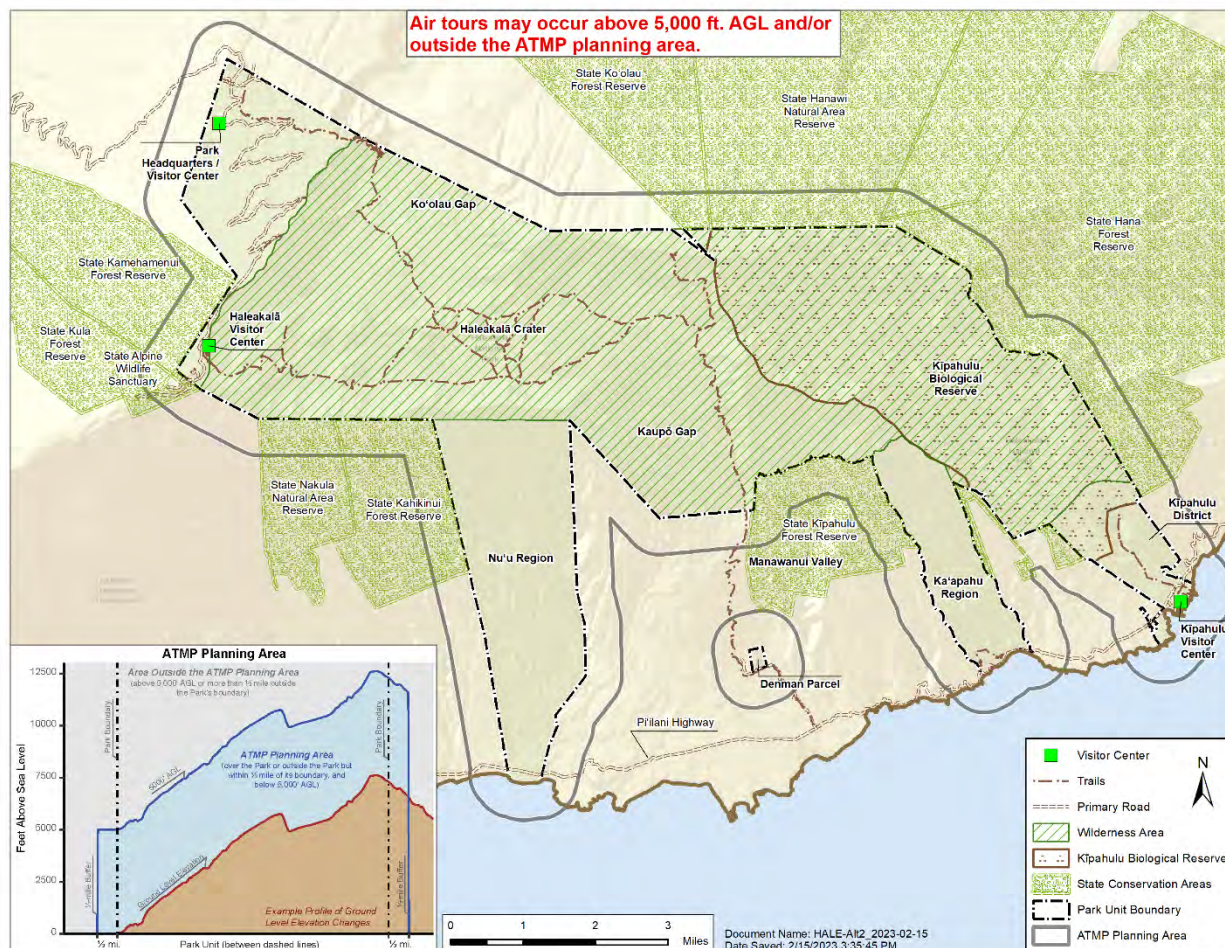


Figure 3. Alternative 2

2.6 Alternative 3 (Preferred Alternative)

The NPS developed Alternative 3 to protect Wilderness values, cultural resources, natural soundscapes, wildlife, and to improve visitor enjoyment of the Park (visitor use) while providing opportunities for air tours to be conducted over the Park. The following objectives were considered by the NPS in the development of this alternative:

- *Protect cultural resources.* The single flight path would avoid identified culturally significant areas, including those used by traditional cultural practitioners, the Kīpahulu Historic District, Crater Historic District, the Kapahu Living Farm, and cultural fishing access and use in certain coastal areas (Prasad and Tomonari-Tuggle, 2008).
- *Reduce impacts to biological resources.* The single flight path avoids the Kīpahulu Biological Reserve and reduces impacts to forest birds and ‘ua‘u by maintaining mid-slope elevations (i.e., staying below 4,000 ft. contour line elevations). Thus, the designated route would shift air tours away from key avian habitat. The flight path

would also allow lower altitude flights through a specific location over the Park in order to move existing air tours away from cliff-nesting seabirds and forest birds of the Manawainui plateau.

- *Improve visitor experience and protect Wilderness values.* The single flight path avoids the Keonehe'ehe'e (Sliding Sands) Trailhead at the visitor center parking lot, Waimoku Falls and lower Kīpahulu area including the Visitor Center, and the Halemau'u Trail switchback areas for protection of Wilderness values and improved visitor use conditions.
- Avoid or prevent unacceptable impacts to Wilderness values, cultural resources, natural soundscapes, wildlife, and visitor use by reducing the number of commercial air tours per year over the Park and adding time-of-day restrictions as compared to existing conditions.

Refer to Figure 4 for a depiction of this alternative. The FAA reviewed the alternative to ensure it is safe.

2.6.1 Commercial Air Tours per Year

Alternative 3 would authorize 2,412 commercial air tours per year within the ATMP planning area. Thus, it would authorize 50% of the existing number of flights to travel within the ATMP planning area based on the three-year average of reporting data from 2017-2019. The number of air tours authorized per year was selected to reduce impacts to noise sensitive areas in the Park including those with Wilderness values, cultural resources, the natural soundscape and acoustic environment, wildlife, and visitor experience, while also providing expansive views of coastal areas to air tour customers.

The ATMP would be established and effective as of the date it is signed by all required signatories from both agencies. No later than 180 days after the effective date of the ATMP, the number of flights authorized each year would be proportionally allocated to each of the five operators that reported operations over the Park in the period from 2017-2019. Each operator's initial allocation would reflect the proportion of their average number of reported flights from 2017-2019 as compared to all operators that reported flying over the Park during this period. The initial allocation would remain in place until a competitive bidding process could occur.

All IOA for the Park would terminate by operation of law 180 days after the date of establishment (effective date), 49 U.S.C. 40128(c)(2)(E), after which time no operator could continue to rely on any operations specifications issued under IOA as authority to conduct commercial air tours within the ATMP planning area. Operations specifications that incorporate the operating parameters set forth in the ATMP would be issued within 180 days of the effective date of the ATMP.

2.6.2 Commercial Air Tour Route and Altitudes

Alternative 3 would authorize a single one-way, west to east, flight path with a minimum altitude requirement of 2,000 ft. AGL over land and 3,000 ft. AGL over the ocean as described below:

- The first segment of the route would enter the ATMP planning area at the southern boundary of the State Kahikinui Forest Reserve at a minimum altitude of 2,000 ft. AGL. Aircraft would maintain a minimum altitude of 2,000 ft. AGL across the Nu‘u area until they exit the ATMP planning area.
- The second segment of the route would re-enter the ATMP planning area within ½ mile from the northern edge of the Park’s Denman parcel in Kaupō at a minimum altitude of 2,000 ft. AGL. Aircraft would maintain a minimum altitude of 2,000 ft. AGL until they exit the ATMP planning area.
- The third segment of the route would re-enter the ATMP planning area ½ mile from the Park’s Ka‘āpahu area at a minimum altitude of 2,000 ft. AGL. Aircraft would maintain a minimum altitude of 2,000 ft. AGL until they exit the ATMP planning area.
- The fourth segment of the route would re-enter the ATMP planning area offshore from Kīpahulu at a minimum altitude of 3,000 ft. AGL. Aircraft would maintain a minimum altitude of 3,000 ft. AGL until they exit the ATMP planning area.

The altitude restrictions are protective of marine threatened and endangered species. Vertical separation of aircraft along the route would be prohibited because it could increase noise levels and duration, and it could negatively impact visitor experience and noise sensitive cultural and natural resources. Vertical separation refers to when aircraft following the same route are “stacked,” or separated from each other by a vertical buffer. Refer to Figure 4 for a depiction of the flight corridor and altitudes. The air tour route within the ATMP planning area is represented by a line with a ¼-mile buffer on either side of the route that indicates the acceptable range of deviation that would not trigger enforcement action. Aircraft would not be required to fly the entirety of the route as long as they comply with the altitude requirements and follow the designated route over the parcels overflown.

If operators are entering or are on the route in the ATMP planning area and weather conditions do not allow them to follow the route at the prescribed altitude, they must not proceed further on the route. Operators must safely exit the route and leave the ATMP planning area. Operators may not deviate from the designated route and altitudes except as necessary for safe operation of an aircraft as determined under Federal Aviation Regulations requiring the pilot-in-command to take action to ensure the safe operation of the aircraft. Under Alternative 3, no air tours could occur within the ATMP planning area, except air tours authorized on the designated route at the designated altitudes described above. Because air tours outside of the ATMP planning area are not regulated by the ATMP, air tour routes outside of this area are difficult to predict with specificity. Operators could fly routes outside the ATMP planning area

similar to existing flight paths, or routes could vary greatly from those currently flown and would depend on operator preference and weather conditions at the time of the tour. Operators could also fly air tours just above the ATMP planning area at or above 5,000 ft. AGL; however, this may be impractical due to the high elevation of the terrain because it would require operators to fly above 10,000 ft. MSL, as discussed in Section 2.5.1.

2.6.3 Commercial Air Tour Aircraft Type

Operators would be limited to using the aircraft types reported in the period from 2017-2019 (see Table 1). Any new or replacement aircraft could not exceed the noise level produced by the aircraft being replaced. Operators would notify the FAA and the NPS in writing of any prospective new or replacement aircraft and obtain concurrence before initiating air tours with the new or replacement aircraft.

2.6.4 Commercial Air Tour Day/Time

Air tours would be permitted between the hours of 11:00 AM – 2:00 PM local time. Exceptions to these parameters for quiet technology aircraft are noted in Section 2.6.7, Quiet Technology Incentives. Air tours would be permitted on all days of the week except Sunday and Wednesday. Selecting non-consecutive days comprising one weekend day and one weekday would offer a broad range of visitors access to the natural acoustic environment and the renowned quiet of the Haleakalā Crater. Air tour operators would also be required to observe the Park's six existing commercial free days¹² as no-fly days as well as the two historically significant Hawaiian State holidays (see Section 2.6.5, Restrictions for Particular Events).

2.6.5 Restrictions for Particular Events

In addition to the weekly no-fly days of Wednesday and Sunday, Alternative 3 would establish six annual no-fly days for commercial air tours over the Park that vary from year to year. These calendar dates are generated by following the Hawaiian Moon Calendar and Makahiki Season and currently (2023) are:

1. January 6 - end of Makahiki
2. May 24 - Zenith Noon
3. June 21 - Summer Solstice
4. July 18 - Zenith Noon
5. October 27 - start of Makahiki
6. December 21 - Winter Solstice

¹² Commercial free days in this plan refer to designated days when commercial air tour operators do not operate within the ATMP planning area.

The NPS would provide notice of the six no-fly dates to all air tour operators. Additionally, two historically significant Hawai'i State holidays would be designated as no-fly days and do not vary from year to year¹³:

1. Prince Jonah Kūhiō Kalaniana'ole Day (March 26)
2. King Kamehameha I Day (June 11)

In addition to the six no-fly days that follow the Hawaiian Moon Calendar and Makahiki Season and the two no-fly days based on Hawai'i State holidays, the NPS would be allowed to establish additional temporary no-fly periods that apply to commercial air tours for other special events or planned Park management. Absent exigent circumstances or emergency operations, the NPS would provide a minimum of two months' notice to the operators in writing in advance of the no-fly period. Events may include Native Hawaiian ceremonies or other similar events.

2.6.6 Additional Requirements

- **Daily Caps:** Alternative 3 would limit the number of commercial air tours within the ATMP planning area to no more than 16 tours per day across all operators and limit the number of tours each operator could conduct on the days where air tours are permitted. The operator-specific limits are based on the proportional number of reported total flights per year conducted by each of the five active operators compared to the total number of air tours reported from 2017 to 2019 and the operators' annual allocations. The maximum number of commercial air tours that could be conducted on a single day would be as follows:
 - Aris, Inc. (Air Maui Helicopter Tours) – 3 air tours per day
 - Hawai'i Helicopters, Inc. – 2 air tours per day
 - Helicopter Consultants of Maui, Inc. (Blue Hawaiian Helicopters) – 6 air tours per day
 - Sunshine Helicopters, Inc. – 3 air tours per day
 - Alike Aviation, Inc. (Alexair, Maverick) – 2 air tours per day
- **Hovering/Circling:** This alternative would prohibit hovering and circling because it could negatively impact visitors, cultural, and natural resources, including sensitive sites.
- **Adaptive Management:** Adaptive management is a systematic approach for improving resource management and ensuring the continued effectiveness of the ATMP over time through the monitoring of park conditions and by learning from management actions or choices. Adaptive management is also used to address changed conditions such as if the breeding habitat of a sensitive species moves to a new area. Adaptive management of the route, frequency, and timing will be considered, analyzed, and included in this alternative for the protection of the bird movement patterns and climate change-

¹³ Unless a holiday falls on the weekend and the holiday is observed on the nearest weekday.

induced range shifts, biological reserves, Wilderness, and cultural resource condition, and visitor experience impacted by air tours. NPS would conduct monitoring to ensure that the terms and conditions of the ATMP remain consistent with Park management objectives. The FAA and the NPS would provide additional information for interested parties about the notice and process of adaptive management changes.

- Interpretive Training and Education: When made available by Park staff, operators/pilots would take at least one training course per year conducted by the NPS. The training would include the Park information that operators could use to further their own understanding of Park priorities and management objectives as well as enhance their interpretive narrative for air tour clients and increase understanding of the Park's natural and cultural resources by air tour clients. Helicopter pilots would also be required to complete the FAA Introduction to Fly Neighborly training.¹⁴ The Fly Neighborly Noise Abatement Training program, created by the FAA and endorsed by Helicopter Association International, teaches pilots and operators noise abatement procedures and situational awareness tools that can be used to minimize the effects of helicopter noise emissions.
- Annual Meeting: The Park staff, the local FAA FSDO, and all operators would be required to meet once per year at the request of either of the agencies, to discuss the implementation of the ATMP and any amendments or other changes to the ATMP.
- In-Flight Communication: For situational awareness when conducting tours within the ATMP planning area, the operators would utilize frequency 122.85 and report when they enter the ATMP planning area to begin the route and upon completion of the route.
- Reporting, Monitoring, and Enforcement: Operators would be required to equip all aircraft used for air tours with flight monitoring technology, to use flight monitoring technology during all air tours under the ATMP, and to report flight monitoring data as an attachment to the operator's semi-annual reports. FAA determination of noncompliance may result in loss of authorization to conduct commercial air tours authorized by the ATMP. Any violation of operations specifications would be treated in accordance with FAA Order 2150.3, *FAA Compliance and Enforcement Program*.¹⁵ Air tour fee payment is required for commercial air tour operations conducted over the Park under 54 U.S.C. § 100904(f). In order to streamline the payment process, reduce administrative costs, avoid accounting errors, and make it easier for private sector partners doing business with the NPS, the NPS uses the Pay.gov system, which is the U.S. Department of the Treasury's electronic payment system. Each air tour operator allocated commercial air tour operations under the ATMP would report the total number of air tours conducted in the previous month to the NPS via email to hale_commercial_manager@nps.gov no later than the 30th day of the following month. For example, the total number of air tours conducted in March must be

¹⁴ https://www.faa.gov/gslac/ALC/course_content.aspx?pf=1&preview=true&cID=500

¹⁵ https://www.faa.gov/regulations_policies/orders_notices/index.cfm/go/document.information/documentID/1034329

submitted to the NPS no later than April 30th. The email should also include the name and contact information for the person who is responsible for the fee payment, including their email address, to ensure that the bill is sent to the correct person. Upon receipt of this information from an air tour operator, the NPS will send an electronic bill, via email, to the contact provided for fee payment. Detailed directions for fee payment through Pay.gov will be included with the electronic bill.

- Non-transferability of Allocations: Operations under Alternative 3 would be non-transferable.
- Emergency Landings: In the event of an emergency landing inside the Park, once the aircraft has safely landed and any medical or other emergency issues have been addressed, the operator would immediately notify the NPS through Park dispatch or emergency contacts of the incident and location. Prior approval from the Park superintendent or designee would be required for the removal or take off of the landed aircraft in order to coordinate joint resources for the safety of Park visitors and resources (36 CFR 2.17). Prior approval from the Park superintendent or designee would be required for any non-emergency landing of aircraft within the Park boundaries, including replacement aircraft deployed to retrieve passengers who are not able to exit via ground transportation.

2.6.7 Quiet Technology Incentives

The Act requires that the ATMP include incentives for the adoption of quiet technology by commercial air tour operators. This alternative incentivizes the use of quiet technology aircraft by relaxing time-of-day restrictions to allow quiet technology aircraft to fly from 11:00 AM to 4:00 PM (two hours longer than non-quiet technology aircraft) on all days that air tours are authorized. This alternative would require that, by 2033 all operators exclusively use quiet technology aircraft to conduct tours within the ATMP planning area.

2.6.8 Initial Allocation and Competitive Bidding

The Act states whenever an ATMP limits the number of commercial air tour operations during a specified time frame, a competitive bidding process must occur pursuant to the criteria set forth in 49 U.S.C. § 40128(a)(2)(B). Since the number of flights would be limited under Alternative 3, competitive bidding would be required. In the time period between the finalization of an ATMP and the completion of the competitive bidding process, commercial air tour operators would be allocated a certain number of commercial air tours over the Park, referred to as the initial allocation as described in Section 2.6.1, Commercial Air Tours per Year. Based on the proportional number of reported total flights per year for each of the five operators from 2017-2019, the air tours would be allocated among the five air tour operators who have conducted air tours over the Park since 2017 as follows:

- Aris, Inc. (Air Maui Helicopter Tours) – 417 air tours
- Hawai'i Helicopters, Inc. – 188 air tours

- Helicopter Consultants of Maui, Inc. (Blue Hawaiian Helicopters) – 1,224 air tours
- Sunshine Helicopters, Inc. – 393 air tours
- Alika Aviation, Inc. (Alexair, Maverick) – 190 air tours

Competitive bidding may be appropriate to address, for example, a new entrant application, a request by an existing operator for additional operating authority, or consideration by the agencies of Park-specific resources, impacts, or safety concerns. The Act directs the agencies to consider various factors during the competitive bidding process including known resource issues, reporting, and compliance concerns. Competitive bidding may necessitate an amendment to the ATMP, additional environmental review, and/or the issuance of new or amended operations specifications. If operations specifications are required, they will be issued by the FAA.

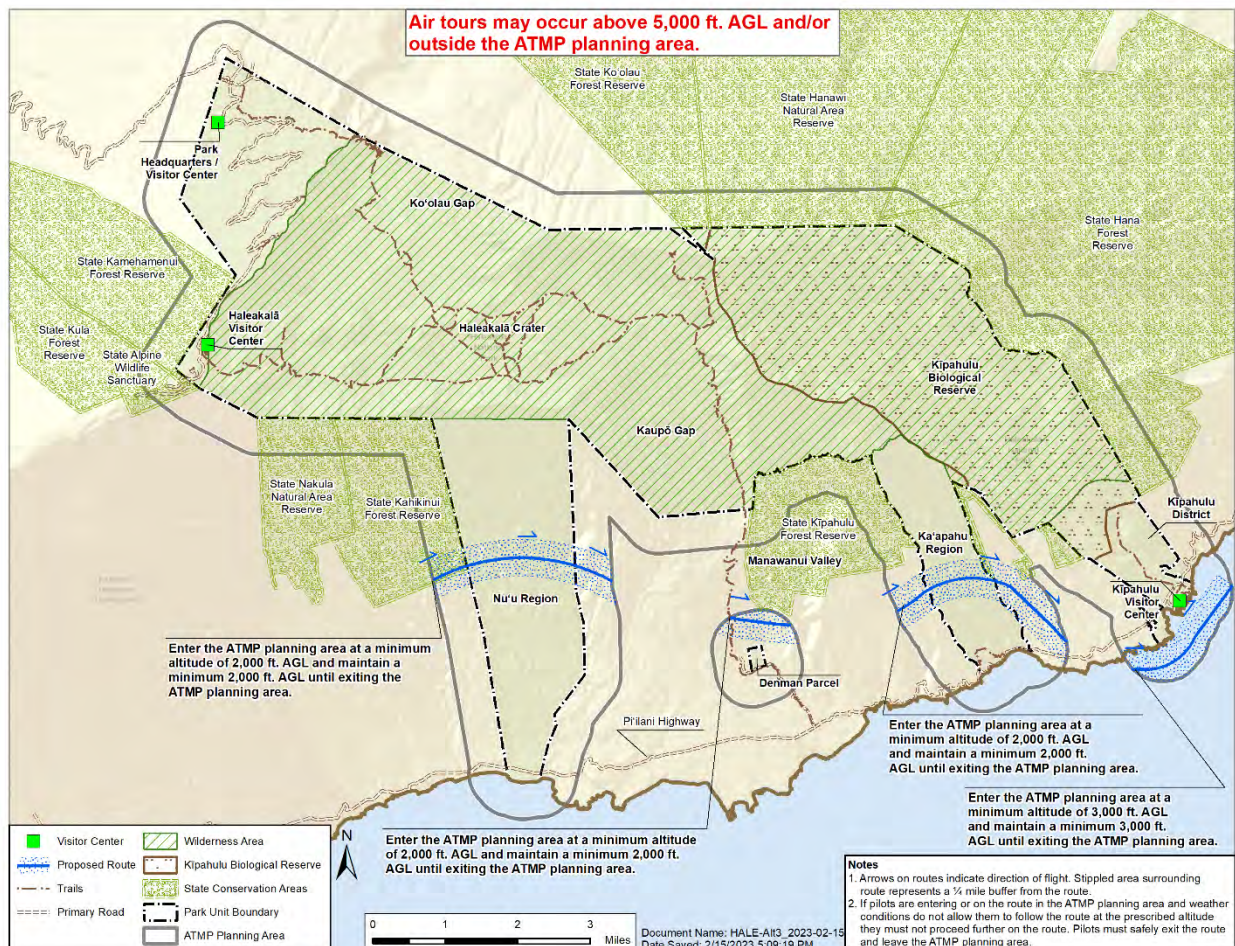


Figure 4. Alternative 3

2.7 Summary Comparison of the ATMP Alternatives

Table 2. Summary Comparison of the ATMP Alternatives.

Alternative Attributes	Alternative 1 (No Action)	Alternative 2	Alternative 3 (Preferred)
General Description and Objectives	Allows a continuation of air tours without implementation of an ATMP or voluntary agreement. Does not meet the purpose and need for the ATMP.	Prohibits air tours within the ATMP planning area to maximize Park resource protection. Air tours could still continue to fly outside the ATMP planning area (i.e., at or above 5,000 ft. AGL or more than ½-mile outside of the Park's boundary).	Provides a single flight path within the ATMP planning area and a reduction in the annual number of commercial air tours over the Park. Air tours could still continue to fly outside the ATMP planning area (i.e., at or above 5,000 ft. AGL or more than ½-mile outside of the Park's boundary).
Annual/Daily Number of Flights	Considers the three-year average of 4,824 flights per year (based on 2017-2019 reporting) as the existing condition.	None in ATMP planning area.	Authorizes 2,412 flights per year. Daily limit of 16 flights per day across all operators on those days where flights are allowed.
Routes	No mandatory routes or no-fly zones. See Figure 2 for depiction of reported routes and actual operations.	None in ATMP planning area. Operators may continue to fly to points of interest on the island outside of the ATMP planning area where they already fly, fly around the ATMP planning area similar to existing flights, or above the ATMP planning area (at or above 5,000 ft. AGL).	One air tour route, entering the Park from the west, south of the State Kahikinui Forest Reserve and exiting the ATMP planning area approximately 1.25 km from the Kīpahulu area and Visitor Center. This route requires operators to fly in one direction.
Minimum Altitudes	Flown in accordance with the Hawai'i Common Procedures Manual, generally between 500-1,500 ft. AGL.	Minimum required altitudes are at or above 5,000 ft. over the ATMP planning area. Operators may continue to fly to points of interest on the island outside of the ATMP planning area where they already fly or fly routes over or around the ATMP planning area similar to existing flights paths but outside of the ATMP planning area. Flights more than ½-mile outside the park boundary would continue to occur and are also outside the ATMP	Minimum 2,000 ft. AGL over land; minimum 3,000 ft. AGL over the ocean. Operators may continue to fly to points of interest on the island outside of the ATMP planning area where they already fly or fly routes over or around the ATMP planning area similar to existing flights paths but outside of the ATMP planning area. Flights more than ½-mile outside the Park boundary would continue to occur and are also outside the ATMP

Alternative Attributes	Alternative 1 (No Action)	Alternative 2	Alternative 3 (Preferred)
		planning area and are subject to the altitude restrictions of the Hawai'i Common Procedures Manual. Some air tour operators may choose to fly air tours above the ATMP planning area, but this would be impractical in some locations, such as over the crater, due to safety requirements for unpressurized aircraft.	planning area and are subject to the altitude restrictions of the Hawai'i Common Procedures Manual. Some air tour operators may choose to fly air tours above the ATMP planning area, but this would be impractical in some locations, such as over the crater, due to safety requirements for unpressurized aircraft.
Time of Day	No Restrictions.	N/A	On days where air tours are permitted: 11 AM – 2 PM for non-quiet technology flights. 11 AM – 4 PM for quiet technology flights.
Day of Week	No Restrictions.	N/A	No-fly days on Sunday and Wednesday.
Hovering/ Circling	No Restrictions.	N/A	Not permitted.
Quiet Technology Incentives	None.	N/A	Quiet technology flights may fly 11AM – 4PM except on no-fly days. All commercial air tours within the ATMP planning area must utilize quiet technology aircraft by 2033.
Interpretative Training and Education	None.	N/A	Mandatory. Helicopter operators would also be required to complete the FAA Introduction to Fly Neighborly training.
Annual Meeting	None.	N/A	Mandatory.
Restrictions for Particular Events	None.	N/A	Six no-fly days generated by following the Hawaiian Moon Calendar and Makahiki Season; two no-fly days on Hawai'i State holidays of historical importance with prior notice provided to operators.

Alternative Attributes	Alternative 1 (No Action)	Alternative 2	Alternative 3 (Preferred)
			NPS could establish restrictions for particular events with two months' notice provided to operators.
Monitoring and Enforcement	Operators report the number of tours, aircraft type, route, and day/time of tour to the FAA and the NPS on a semi-annual basis.	The NPS would conduct ADS-B aircraft monitoring and work with the FAA to respond to instances of noncompliance. The FAA FSDO would investigate all written reports of noncompliance. FAA determination of noncompliance may result in legal enforcement actions.	Operators would provide semi-annual reports, including the flight monitoring data. Additional monitoring and enforcement would occur as described in Alternative 2.
Adaptive Management	None.	N/A	Adaptive management of the route, frequency, and timing would be considered/analyzed. The NPS would conduct monitoring to ensure that the terms and conditions of the ATMP remain consistent with Park management objectives.
Operators, Initial Allocation of Air Tours, and Aircraft Types	Reflects existing conditions of five operators with reported data from 2017-2019.	N/A	The initial allocation would reflect the proportion of the annual air tours flown on average, by each of the five air tour companies from 2017-2019, and would restrict companies to the same aircraft type flown during that time. After the initial allocation, competitive bidding would occur. Any new or replacement aircraft must not exceed the noise level produced by the aircraft being replaced.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter includes a description of each environmental impact category. This chapter also includes the environmental consequences of the alternatives and evaluates how the direct, indirect, and cumulative impacts on those environmental impact categories may change by implementing the No Action Alternative or an action alternative at the Park. The analysis methodology for assessing impacts for each environmental impact category is in Appendix E.

As described in Section 1.1, Introduction, under the Act and its implementing regulations, an ATMP regulates commercial air tours over a national park or within ½-mile outside the park's boundary during which the aircraft flies below 5,000 ft. AGL (ATMP planning area). Air tours outside of the ATMP planning area are not regulated under the ATMP. Unless otherwise noted, the study area, referred to as the ATMP planning area, for each environmental impact category includes the Park and areas outside the Park within ½-mile of its boundary. Environmental impact categories that considered a study area different from the ATMP planning area are noted as such in that section.

This draft EA analyzes the following environmental impact categories in detail: Noise and Noise-Compatible Land Use; Air Quality and Climate Change; Biological Resources; Cultural Resources; Wilderness; Visitor Use and Experience and Other Recreational Resources; Environmental Justice and Socioeconomics; Visual Effects; Coastal Resources; and Department of Transportation (DOT) Act Section 4(f) Resources. The FAA, in cooperation with the NPS, considered the impact categories specified in FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures* (FAA, 2015) and NPS Director's Order #12 Conservation Planning, Environmental Impact Analysis, and Decision-making, and other categories identified during the agency and public scoping process. See Section 1.5, Environmental Impact Categories Not Analyzed in Detail for environmental impact categories not analyzed in detail.

3.1 Noise and Noise-Compatible Land Use

FAA Order 1050.1F, Appendix B, paragraph B-1.3, Affected Environment, requires the FAA to identify the location and number of noise sensitive uses in addition to residences such as schools, hospitals, parks, and other recreation areas, that could be significantly impacted by noise. As defined in Paragraph 11-5.b(10) of FAA Order 1050.1F, a noise sensitive area is "[a]n area where noise interferes with normal activities associated with its use. Normally, noise sensitive areas include residential, educational, health, and religious structures and sites, and parks, recreational areas, areas with wilderness characteristics, wildlife refuges, and cultural and historical sites." Noise sensitive areas within the ATMP planning area include the Park, cultural resources discussed in Section 3.4, parks and Section 4(f) resources discussed in Section 3.10, as well as residential areas outside of the Park boundary but within the ½ mile buffer.

Section 4.9, Soundscape Management, of NPS Management Policies (2006) directs the NPS to preserve the Park's natural soundscape and acoustic environment which refer to the combination of all the natural sounds occurring within the Park, absent the human-caused sounds, as well as the physical capacity for transmitting those natural sounds and the interrelationships among Park natural sounds of different frequencies and volumes. This management policy directs the NPS to preserve soundscapes and the acoustic environment to the greatest extent possible and restore these resources to their natural condition wherever they have become degraded by noise and unwanted sounds. The NPS defines the acoustic environment as the aggregate of all sounds within an area; it is the total acoustic environment in the Park. The soundscape is the human perception of the acoustic environment. In a national park setting, the soundscape can be composed of both natural ambient sound and a variety of human-made sounds.

3.1.1 Affected Environment

The NPS defines acoustic resources as physical sound sources, including both natural sounds (wind, water, wildlife, vegetation) and cultural and historic sounds (battle reenactments, tribal ceremonies, quiet reverence). The acoustic environment includes both natural and human generated sounds and the physical capacity for transmitting those natural sounds and the interrelationships among park natural sounds. Within the Park, natural sounds are considered part of the biological or other physical resource components. Examples of natural sounds include:

- Sounds produced by birds, such as the nēnē (Hawaiian goose), to define territories, communicate with dependent offspring, or aid in attracting mates;
- Sounds produced by bats to locate prey or navigate which are not audible to humans; and
- Sounds produced by physical processes, such as wind in the trees, wind in the bamboo forest, claps of thunder, falling water, rain, etc. (NPS Management Policies, 2006, Section 4.9)

Natural sound levels in the Park are remarkably low. Natural sounds are a fundamental resource and value of the Park. The natural soundscape is a highly desired value for park visitors and low ambient sounds play a vital role in the health of park natural ecosystems (NPS, 2015a). Visitors can experience intense quiet inside the Haleakalā Crater. It is one of the quietest areas measured in the national park system, with sound levels, at times, approaching the threshold of human hearing and as low as 10 decibels (Lynch, 2012; Wood, 2015).

One of the natural resources of the Park is the natural soundscape, also referred to as the natural ambient or "natural quiet." The natural ambient includes all naturally occurring sounds, as well as the quiet associated with still nights and certain seasons. It excludes all mechanical,

electrical and other human-caused sounds. An important part of the mission of the NPS is to preserve or restore the natural soundscapes associated with units of the national park system (NPS, 2006).

The term existing ambient refers to the sound level of all sounds in a given area, and includes all natural sounds as well as all mechanical, electrical, and other human-caused sounds. Human-generated noise sources may include wheeled vehicles on roads, such as passenger vehicles and tour buses, and cyclists, and aircraft overflights consisting of high-altitude commercial jet aircraft, occasional NPS flights for research or other purposes, commercial air tour operations, and private general aviation aircraft. Human-generated noise within the Park is typically concentrated in areas of high visitor use such as overlook areas along the road to the Haleakalā Summit, and near Waimoku Falls in the Kīpahulu area.

To characterize the natural and existing ambient (both with and without air tours), detailed sound level measurements were conducted at ten locations across the Park in 2003 (Lee et al., 2016). From the detailed data collected in 2003, an ambient “map” of the natural soundscape of the ATMP planning area was developed to be used in computer modeling (Figure 5). For more explanation for how sound is described, see *Noise Technical Analysis*, (Appendix F, Table 1). These acoustic sampling locations were chosen to be representative of the natural ecological zones or broad ecosystems of the Park and ATMP planning area. Median daytime natural ambient (L_{50}) sound levels¹⁶ ranged from 21 decibels, A-weighted (dBA)¹⁷ in backcountry areas to 45 dBA along the shoreline; median daytime existing ambient (L_{50}) sound levels for these areas exhibit similar variability, ranging from 23 dBA in the backcountry to 46 dBA in the front country where visitors are more prevalent. The median or L_{50} sound level (in decibels) is the sound level exceeded 50 percent of the day. Table 3 in the *Noise Technical Analysis* (Appendix F) contains additional breakdown of the ambient sound level data by zone.

Additional sound level measurements were conducted in 2008 and 2013, providing further information and characterization of the natural and existing ambient conditions. In 2008, data was collected at three locations (Lynch, 2012) to understand the level of air tour operations at

¹⁶ Natural Ambient (L_{50}): The sound level exceeded 50 percent of the time determined from the natural sound conditions found in a study area, including all sounds of nature (i.e., wind, streams, wildlife, etc.), and excluding all human and mechanical sounds. Ambient data were based on a 12-hour, daytime, time period, 7 AM to 7 PM, typical operating hours for air tours.

¹⁷ dBA (A-weighted decibels): Sound is measured on a logarithmic scale relative to the reference sound pressure for atmospheric sources, 20 μ Pa. The logarithmic scale is a useful way to express the wide range of sound pressures perceived by the human ear. Sound levels are reported in units of decibels (dB) (ANSI S1.1-1994, American National Standard Acoustical Terminology). A-weighting is applied to sound levels in order to account for the sensitivity of the human ear (ANSI S1.42-2001, Design Response of Weighting Networks for Acoustical Measurements). To approximate human hearing sensitivity, A-weighting discounts sounds below 1 kHz and above 6 kHz.

the time and to provide a snapshot of the acoustical conditions at the Park. The 2008 sites were located in the same general area as a selection of sites from the 2003 study to allow for potential comparisons. Similar trends were observed, where Haleakalā Crater sites were quieter during the day than Kīpahulu sites. Overall, the median natural and existing ambient levels measured at Haleakalā Crater sites in 2003 were slightly higher (3 dBA) than the 2008 study, likely due to differences in vegetation types at these locations as well as proximity to sound sources, variation in weather conditions (particularly wind patterns), and differences in methods used to compute natural ambient sound levels. Authors of the 2008 study state that these two studies present a likely range of ambient sound levels for the sampling areas in the Park. The 2013 measurements (Job, 2018) were performed to establish a baseline inventory of the newly-acquired Nu'u unit. Results indicated that the natural ambient sound levels (L_{nat})¹⁸ during the monitoring period were 21.1 dBA during the daytime. Existing ambient sound levels (L_{50}) were slightly higher, 23.5 dBA. For details about sound levels at specific locations refer to Table 6 in Appendix F, *Noise Technical Analysis*.

The contribution of aircraft noise during sound level measurements only provides a snapshot in time at a particular location and is not necessarily a representative characterization of current conditions. Current conditions were determined by adding the noise exposure due to air tours ($L_{Aeq, 12h}$), based on a peak month average day (PMAD) and modeled using the FAA AEDT version 3e, to the Existing Ambient without Air Tours (L_{50})¹⁹ (see Appendix F, *Noise Technical Analysis*, Figure 3). The result of this process is the Cumulative Existing Ambient, Figure 6.

¹⁸ Natural Ambient (L_{nat}): Estimates what the acoustic environment would be without the contribution of anthropogenic sounds. L_{nat} and natural ambient L_{50} are similar; both are intended to characterize the acoustic environment in the absence of anthropogenic sounds. However different computational processes are used to arrive at these values, and thus different descriptor notations are used to differentiate. Natural ambient L_{50} refers to the natural ambient computation process described in Lee 2016, while L_{nat} refers to the natural ambient process described in Lynch 2012 and Job 2018. Although different, the processes are highly correlated and yield similar results; differences are generally less than 1 dB (Rapoza, 2008). Both are based on a 12-hour time period, 7 AM to 7 PM.

¹⁹ The Existing Ambient without Air Tours (L_{50}) is defined as the composite, all-inclusive sound associated with a given environment, excluding the sound source of interest, in this case, commercial air tour aircraft. It does include all other human-caused sound sources that were audible at the measurement site; hikers, visitor centers, commercial jets, general aviation aircraft, military aircraft, and administrative aircraft operations. Ambient data were based on a 12-hour, daytime, time period, 7:00 AM to 7:00 PM, typical operating hours for air tours.

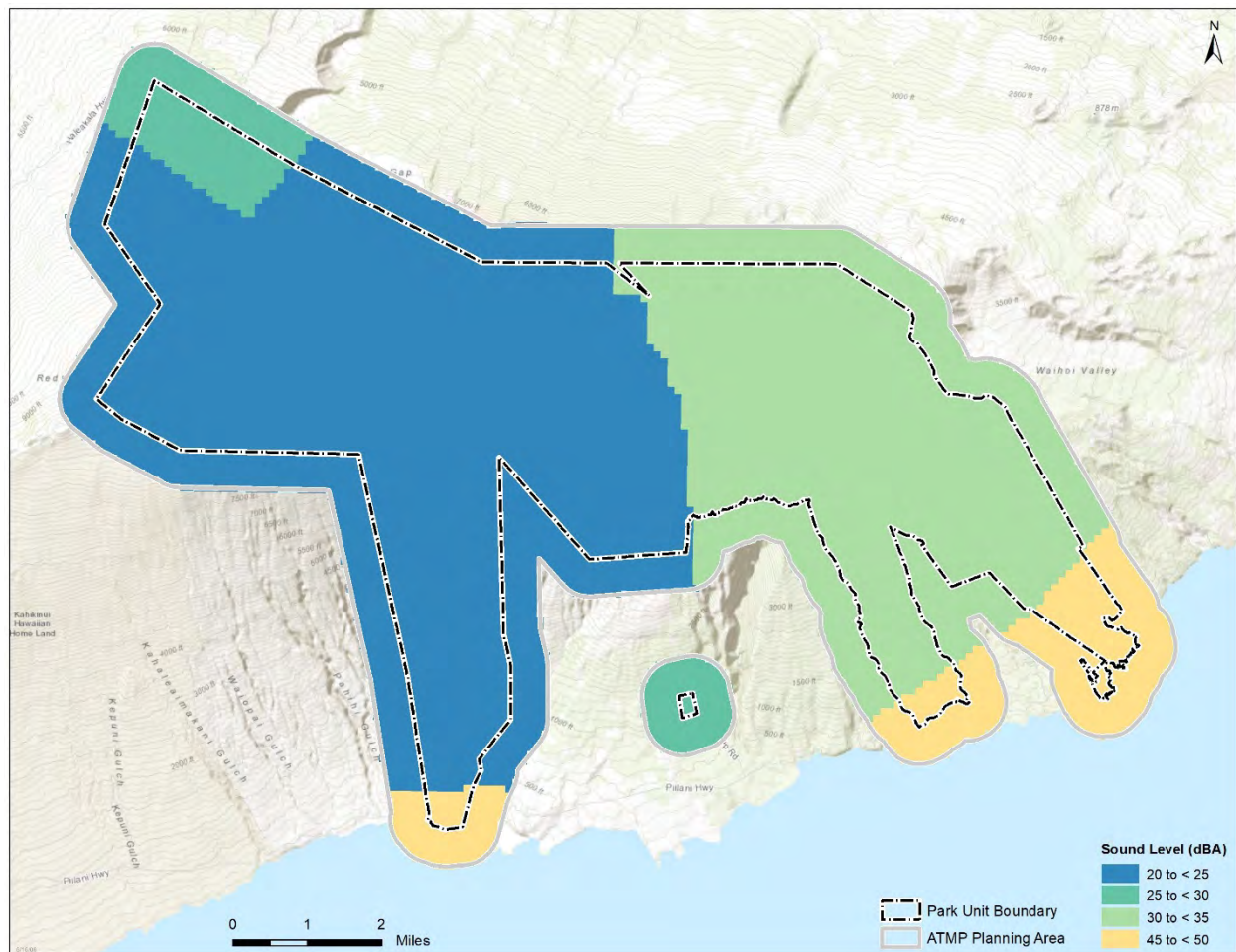


Figure 5. Natural Ambient L_{50}

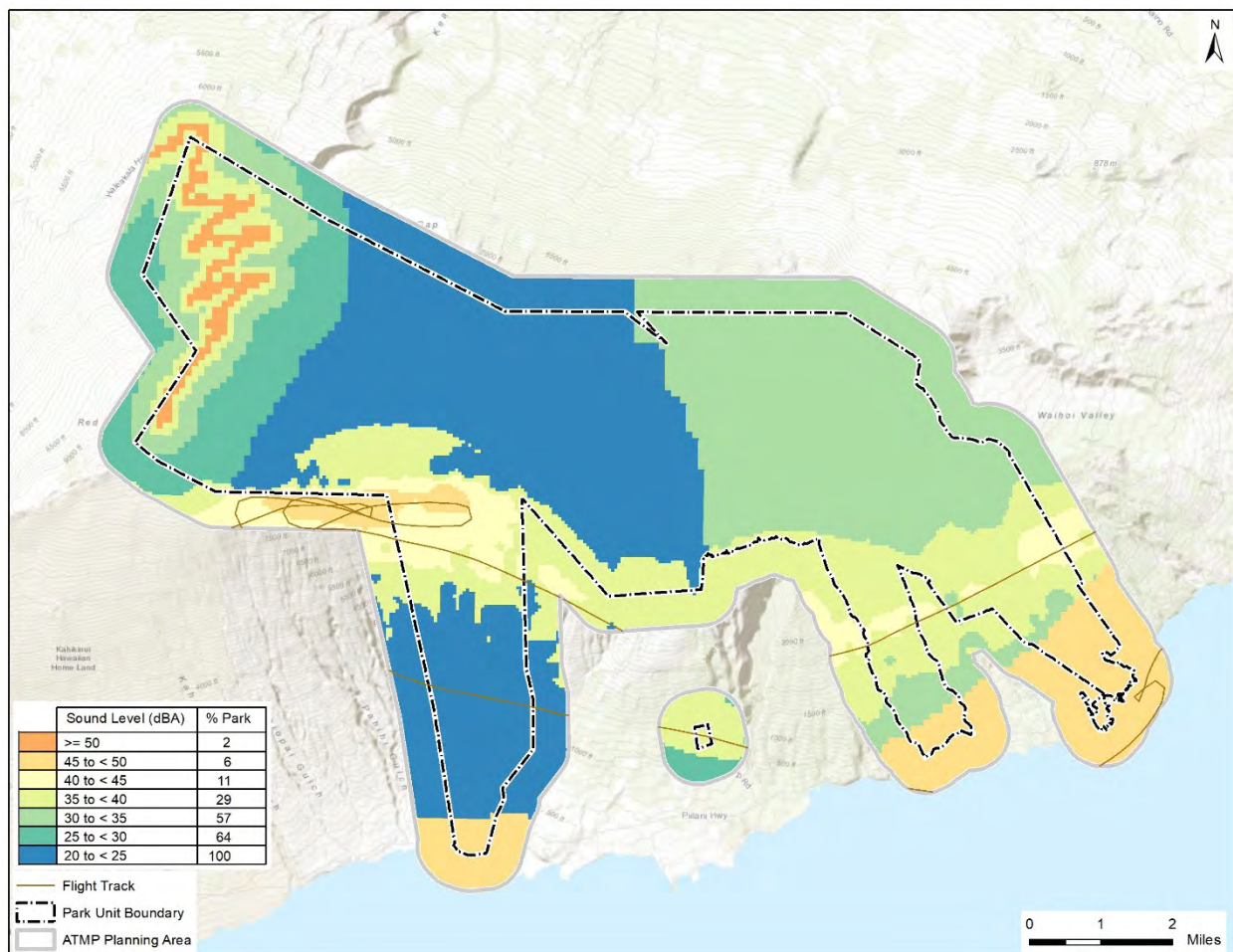


Figure 6. 12-hour Cumulative Existing Ambient Sound Level (Daytime) for Current Conditions

3.1.2 Environmental Consequences

There are numerous ways to measure the potential impacts of noise from commercial air tours on the acoustic environment, including intensity, duration, and spatial footprint of the noise. The affected environment and impact analysis uses noise metrics consistent with both FAA and NPS noise guidance. The FAA's primary noise metric established in FAA Order 1050.1F is the yearly Day-night Average Sound Level (DNL, denoted by the symbol L_{dn}) metric; the cumulative noise energy exposure from aircraft over 24 hours. The NPS considers various metrics to analyze impacts to Park resources and values from noise, including equivalent continuous sound level (L_{Aeq}), time audible (the amount of time you can hear air tour aircraft noise), the amount of time that the noise from a commercial air tour operation would be above specific sound levels that relate to different Park management objectives (e.g., 35 and 52 dBA), and maximum sound level (L_{max}). These metrics are discussed further in Table 3; a comparison of the sound levels noted in Table 3 to values for a range of everyday sounds can be found in Figure 1 of the *Noise Technical Analysis* (Appendix F).

Table 3. Primary Metrics Used for the Noise Analysis.

Metric	Relevance and citation
Equivalent sound level, $L_{Aeq, 12\text{ hr}}$	The logarithmic average of commercial air tour sound levels, in dBA, over a 12-hour day. The selected 12-hour period is 7 AM to 7 PM to represent typical daytime commercial air tour operating hours.
Day-night average sound level, L_{dn} (or DNL)	<p>The logarithmic average of sound levels, in dBA, over a 24-hour day, DNL takes into account the increased sensitivity to noise at night by including a 10 dB penalty on noise events occurring between 10 PM and 7 AM local time.</p> <p>Note: Both $L_{Aeq, 12\text{ hr}}$ and DNL characterize:</p> <ul style="list-style-type: none"> Increases in both the loudness and duration of noise events The number of noise events during specific time period (12 hours for $L_{Aeq, 12\text{ hr}}$ and 24-hours for DNL) <p>If there are no nighttime events, then $L_{Aeq, 12\text{ hr}}$ is arithmetically three dBA higher than DNL as the events are averaged over 24 hours instead of 12 hours.</p> <p>The FAA's (2015, Exhibit 4-1) indicators of significant impacts are for an action that would increase noise by DNL 1.5 dB or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB level due to a DNL 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe.</p>
Time Audible Natural Ambient	<p>The total time (minutes) that aircraft noise levels are audible to an attentive listener with normal hearing under natural ambient conditions.</p> <p>The natural ambient is the sound level exceeded 50 percent of the time L_{50}, determined from the natural sound conditions found in a ATMP planning area, including all sounds of nature (i.e., wind, streams, wildlife, etc.), and excluding all human and mechanical sounds. Time audible does not indicate how loud the event is, only if it might be heard.</p>
Time Above 35 dBA	<p>The amount of time (in minutes) that aircraft sound levels are above a given threshold (i.e., 35 dBA).</p> <p>In quiet settings, outdoor sound levels exceeding this level degrade experience in outdoor performance venues (American National Standards Institute (ANSI), 2007); blood pressure increases in sleeping humans</p>

	(Haralabidis et al., 2008); maximum background noise level inside classrooms (ANSI/Acoustical Society of America S12.60/Part 1-2010).
Time Above 52 dBA	<p>The amount of time (in minutes) that aircraft sound levels are above a given threshold (i.e., 52 dBA).</p> <p>At this background sound level, normal voice communication at five meters (two people five meters apart), or a raised voice to an audience at ten meters would result in 95% sentence intelligibility (United States Environmental Protection Agency (EPA), Office of Noise Abatement and Control, 1974). This metric represents the level at which one may reasonably expect interference with Park interpretive programs, activities that require communication from a distance and other general visitor communication.</p>
Maximum sound level, L_{max}	The loudest sound level, in dBA, generated by the loudest event; it is event-based and is independent of the number of operations. L_{max} does not provide any context of frequency, duration, or timing of exposure.

Acoustic metrics were modeled using the FAA's AEDT, Version 3e and results are described below for each alternative. The *Noise Technical Analysis* in Appendix F contains figures and tables showing the detailed noise results for two types of analyses: 1) contour analysis and 2) representative location point analysis. A noise contour presents a graphical illustration or "footprint" of the area potentially affected by the noise. Location point results present the metric results at specific points of interest.

Alternative 1: No Action

Under the No Action Alternative, the acoustic conditions described in the affected environment would be expected to continue. Air tour noise would vary depending on how many commercial air tours are flown, but because air tour numbers are expected to stay near the three-year average, noise conditions are likely to be similar to existing conditions. Refer to Section 2.4 and the *Noise Technical Report* in Appendix F for additional details on the No Action Alternative. Modeling results for the No Action Alternative are presented in Table 4 below. See Figure 7 and Figure 8 for noise metrics results that would be experienced within the ATMP planning area under the No Action Alternative.

Table 4. Summary of Noise Modeling Metric Results Under the No Action Alternative.

Metric	No Action Alternative
12-hour Equivalent Sound Level	<ul style="list-style-type: none"> Maximum value <50 dBA Affected portions of the ATMP planning area would continue to be 35 to <40 dBA, representing 20% of the total area
Day-night Average Sound Level	<ul style="list-style-type: none"> DNL would be 3 dB less than the 12-hour equivalent sound level, and therefore less than 50 dB
Time Audible Natural Ambient	<ul style="list-style-type: none"> The maximum time that air tours may be audible would exceed 225 minutes a day*, representing less than 1% of the ATMP planning area More than half (53%) of the ATMP planning area would experience audible air tour noise for more than 120 minutes a day (non-contiguous) 100% of the ATMP planning area would continue to experience audible air tour noise
Time Above 35 dBA	<ul style="list-style-type: none"> The maximum time that noise from air tours would be above 35 dBA is between 75 and 90 minutes a day, representing 1% of the ATMP planning area 45% of the ATMP planning area would continue to experience noise above 35 dBA for more than 30 minutes a day
Time Above 52 dBA	<ul style="list-style-type: none"> The maximum time above 52 dBA experienced across all points modeled would be 23.6 minutes 61% of points modeled would experience time above 52 less than 1 minute
Maximum Sound Level	<ul style="list-style-type: none"> The maximum sound level (i.e., the loudest sound level generated by the loudest event independent of the number of operations) would be 68.7 dBA at Point Location #40 (Nu'u 7500 ft. elevation)

*In this context, day refers to a 12-hour day, 7 AM to 7 PM, typical air tour operating hours.

For purposes of assessing noise impacts from commercial air tours on the acoustic environment under FAA's policy for NEPA, the analysis indicates that the resultant DNL is expected to be below 50 dB.

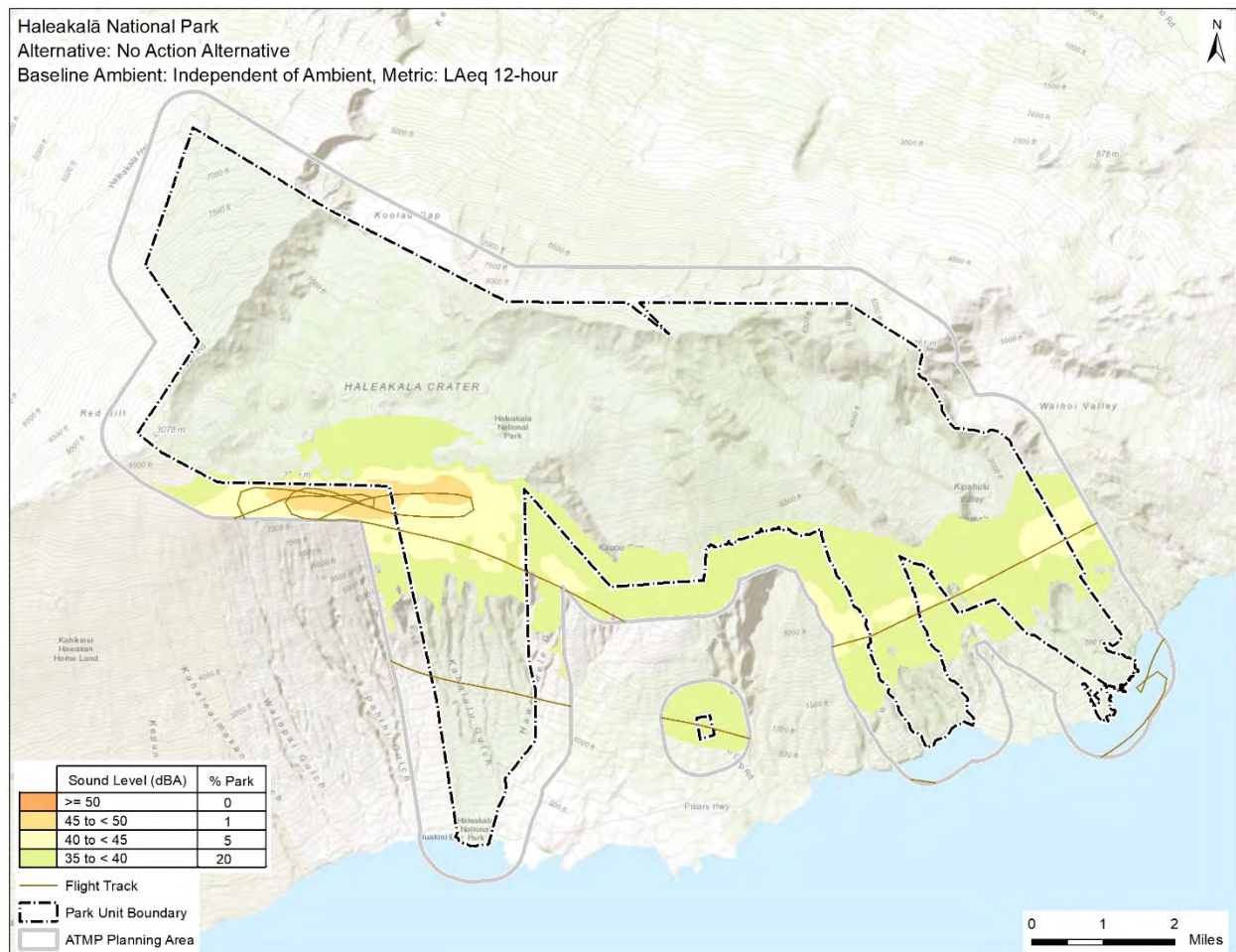


Figure 7. 12-hour Equivalent Sound Level ($L_{Aeq,12h}$) for No Action Alternative

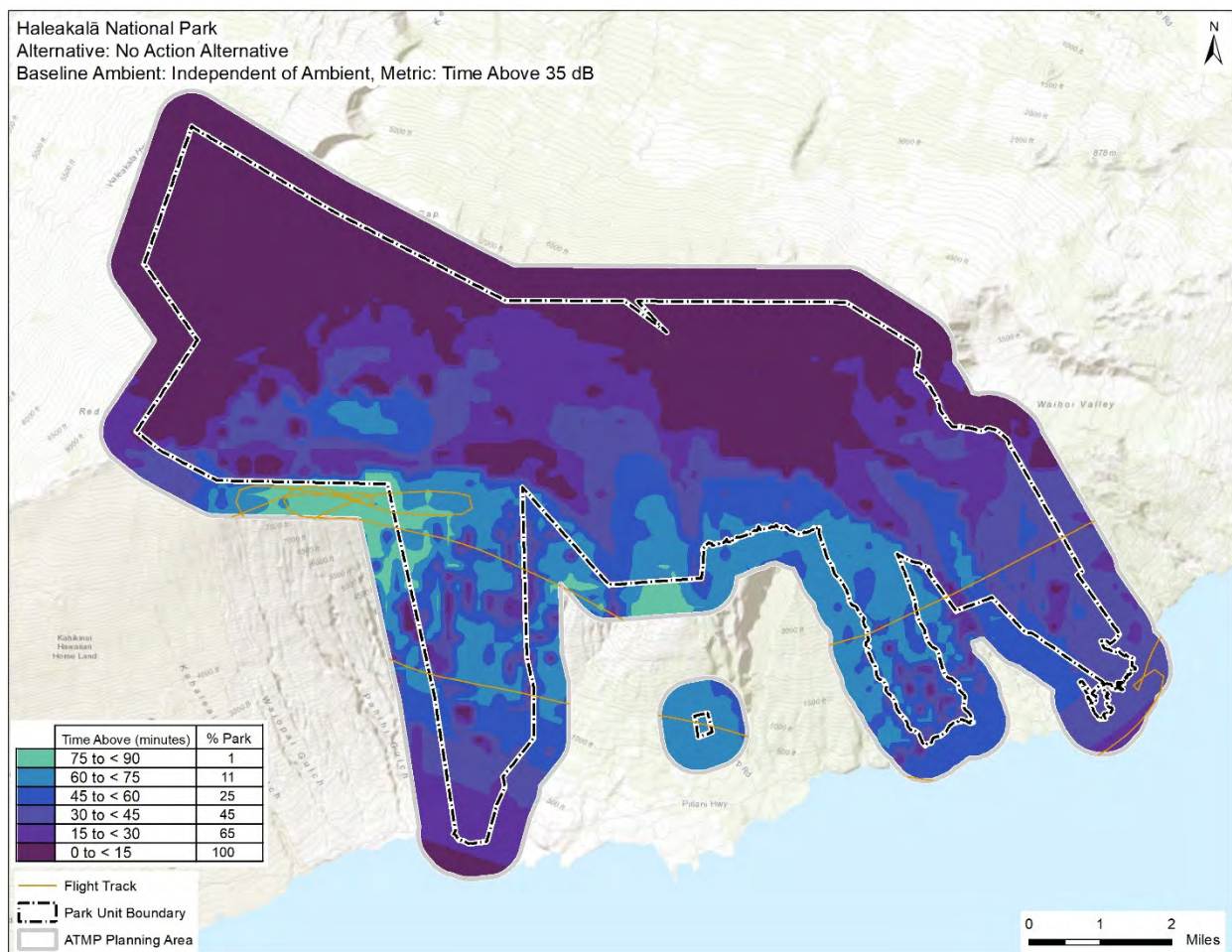


Figure 8. Time Above 35 dBA for No Action Alternative

Alternative 2

Under Alternative 2, commercial air tours would not fly within the ATMP planning area which would reduce this source of noise originating from within the ATMP planning area. Compared to current conditions, Alternative 2 would result in direct beneficial effects on the Park's acoustic environment. The acoustic impacts of Alternative 2 cannot be modeled because, although some speculation about air tour routes can be made, it is unknown where air tours would fly when outside the ATMP planning area. Alternative 2 would provide 365 days per year that are free of noise from air tours within the ATMP planning area and would reduce noise in the most noise sensitive regions of the Park resulting in direct beneficial effects compared to the No Action Alternative and Alternative 3.

Alternative 3

Compared to current conditions, Alternative 3 would result in direct beneficial effects on the Park's acoustic environment. This alternative would provide 112 days per year free of noise

from air tours within the ATMP planning area and a reduction in the overall noise footprint (average sound level over a 12-hour day) compared to current conditions. Compared to current conditions, Alternative 3 also eliminates or reduces noise in the most noise sensitive regions of the Park (refer to the *Noise Technical Analysis*, Appendix F, page 24). Table 5 summarizes the modeled noise metric results that would be experienced within the ATMP planning area under Alternative 3 and Figure 9 and Figure 10 display noise metrics results.

Table 5. Summary of Noise Modeling Metric Results for Alternative 3.

Metric	Alternative 3
12-hour Equivalent Sound Level	<ul style="list-style-type: none"> Maximum value <45 dBA Affected portions of the ATMP planning area would generally be 35 to <40 dBA, representing 6% of the total area
Day-night Average Sound Level	<ul style="list-style-type: none"> DNL would be 3 dB less than the 12-hour equivalent sound level, and therefore less than 45 dB
Time Audible Natural Ambient	<ul style="list-style-type: none"> The maximum time that air tours could be audible would be less than 105 minutes a day, representing less than 1% of the ATMP planning area More than half (54%) of the ATMP planning area would experience audible air tour noise for at least 60 minutes a day (non-contiguous)
Time Above 35 dBA	<ul style="list-style-type: none"> The maximum time that noise from air tours would be above 35 dBA is between 30 and 45 minutes a day, representing 3% of the ATMP planning area 58% of the ATMP planning area would experience noise above 35 dBA for at least 0.1 minutes a day
Time Above 52 dBA	<ul style="list-style-type: none"> The maximum time above 52 dBA experienced across all points modeled would be 9.3 minutes 73% of points modeled would experience time above 52 less than 1 minute, representing an improvement compared to the No Action Alternative as more of the modeled location points would experience noise above 52 dBA for a shorter duration.
Maximum Sound Level	<ul style="list-style-type: none"> The maximum sound level (i.e., the loudest sound level generated by the loudest event independent of the

Metric	Alternative 3
	number of operations) would be 65.0 dBA at Point Location #37 (Measurement Site ST10 (Oheo Coastal))

The resultant DNL for Alternative 3 is expected to be below 45 dB. Refer to the *Noise Technical Analysis* in Appendix F for more information.

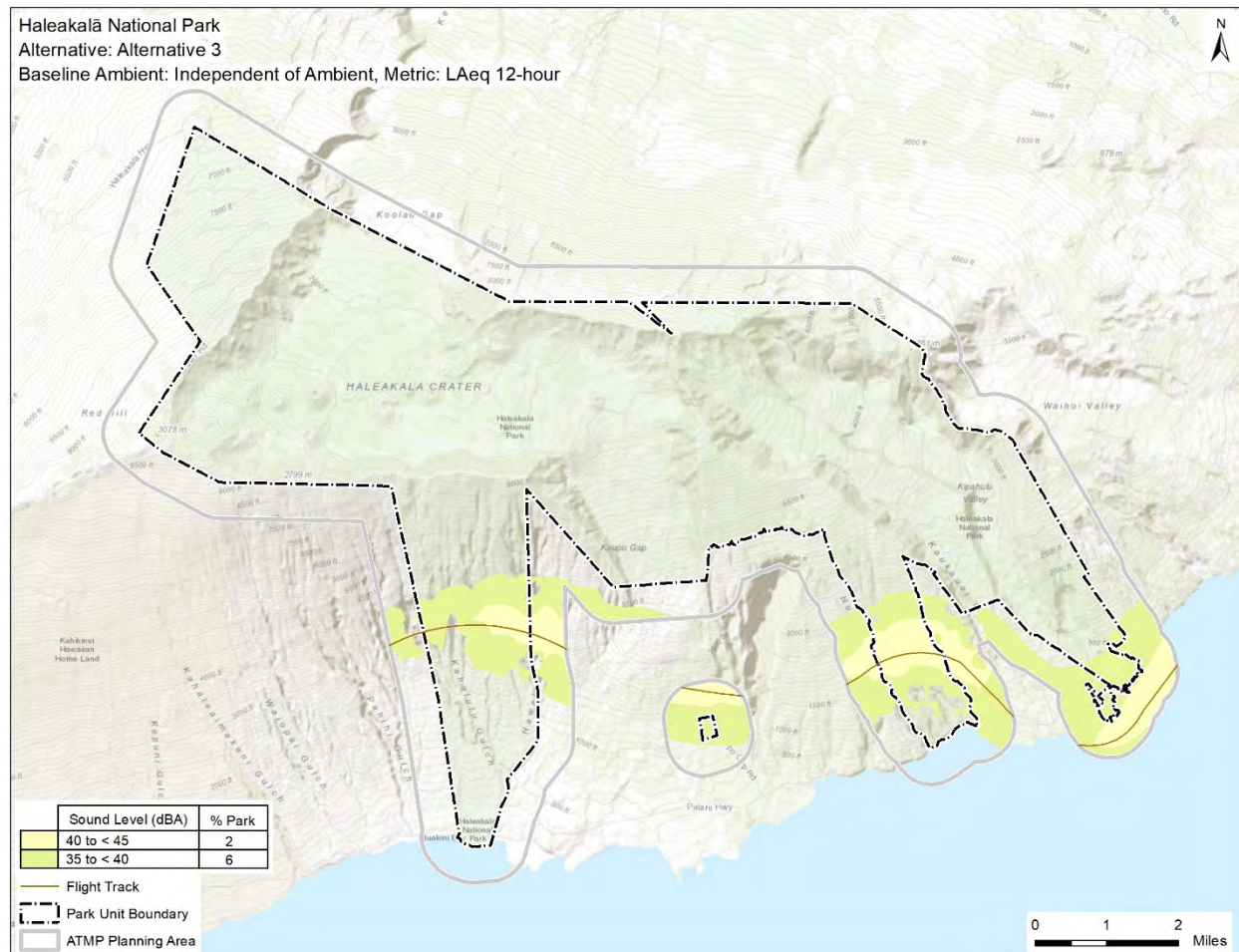


Figure 9. 12-hour Equivalent Sound Level ($LA_{eq,12h}$) for Alternative 3

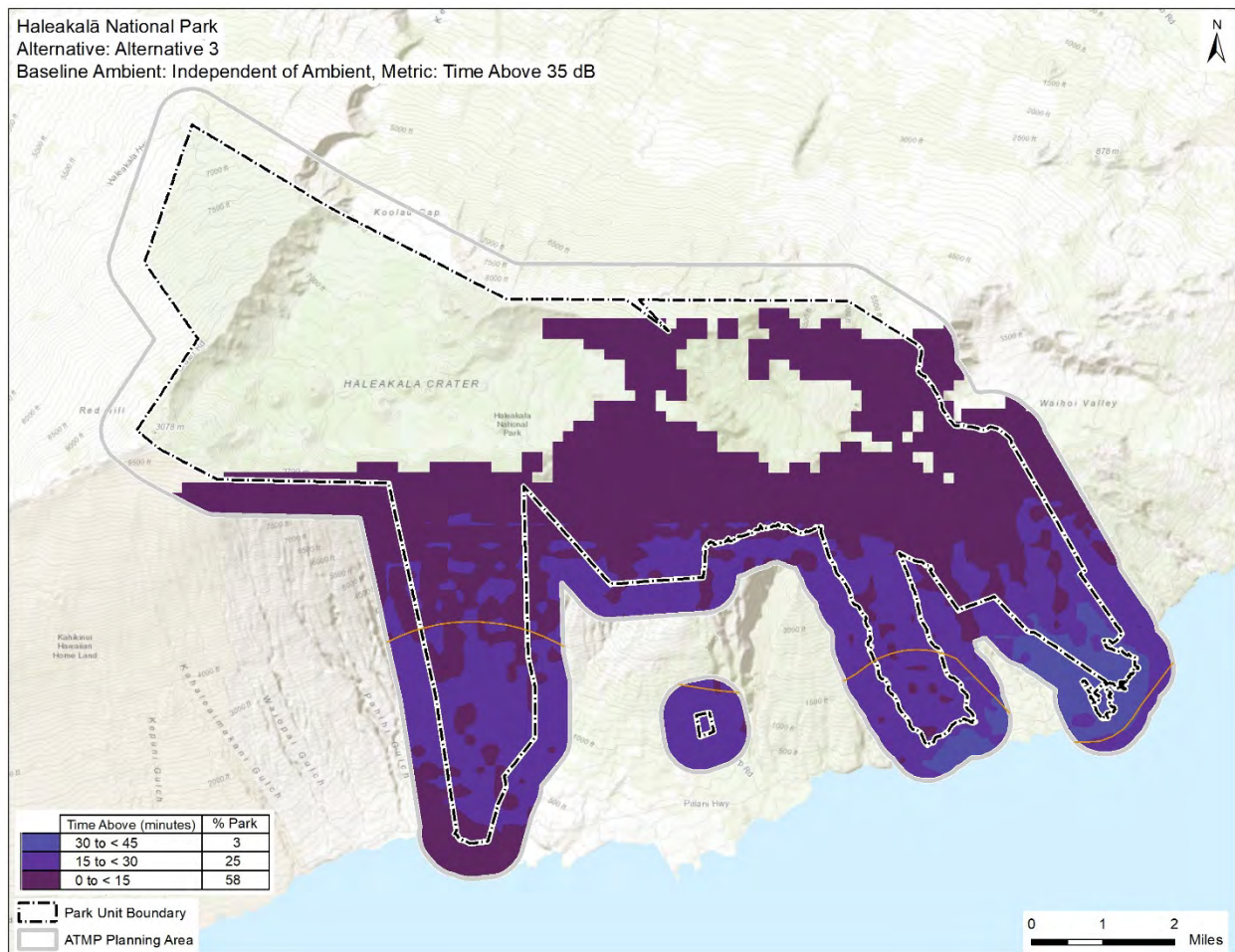


Figure 10. Time Above 35 dBA for Alternative 3

A comparison of impacts to noise and noise-compatible land use between Alternative 3 (on days when air tours would operate) and the No Action Alternative is provided below. Because the noise impacts of Alternative 2 cannot be modeled, Alternative 2 was not included in this analysis:

- 12-hour Equivalent Sound Level:** Compared to the No Action Alternative, the average sound levels under Alternative 3 would be lower for the interior regions of the Park but may be higher in coastal regions. The noise footprint for Alternative 3 potentially affects 16% less of the ATMP planning area and the equivalent sound level does not exceed 45 dBA, 5 dB less than the No Action Alternative.
- Time Audible Natural Ambient:** Compared to the No Action Alternative, the overall time audible noise footprint for Alternative 3 potentially is only 1% smaller than the No Action Alternative; however, approximately 60% of the ATMP planning area would see a potential reduction in audibility between 37 and 194 minutes. The largest reductions (90-95% less) would be at Kalahaku Overlook and Haleakalā Visitor Center. The smallest reductions (40-50% less) would be at Waimoku Falls and Lelekea Stream Bridge.

- *Time Above 35 dBA:* Compared to the No Action Alternative, the time above 35 dBA under Alternative 3 could be up to 61 minutes (85%) less. Only at one point, Waimoku Falls, is time above 35 dBA greater under Alternative 3 (2 minutes). The overall noise footprint for Alternative 3 potentially affects 42% less of the ATMP planning area.
- *Time Above 52 dBA:* Compared to the No Action Alternative, the time above 52 dBA under Alternative 3 could be up to 24 minutes (100%) less. A larger percentage of modeled points under Alternative 3 (73%) experience time above 52 dBA for less than 1 minute. However, time above 52 dBA could be greater under Alternative 3 at eight locations near the coast (ranging from 1.8 to 7.1 minutes greater). Four of those eight locations near the coast would experience an increase of less than three minutes.
- *Maximum Sound Level:* Compared to the No Action Alternative, the maximum sound levels under Alternative 3 could be lower for the interior regions of the Park (up to 40 dBA) but may be higher in coastal regions (up to 9 dBA).

Indirect and Cumulative Effects

Indirect Effects: Under the No Action Alternative, commercial air tour operations within the ATMP planning area would remain consistent with existing conditions, thus there are no indirect impacts that would be expected to occur under this alternative.

For any alternative (Alternatives 2 and 3) that limits the number of flights per year to a level below existing conditions (4,824 flights per year), it is reasonably foreseeable that current air tour operators could seek to make up lost revenue in other ways. One of the ways that operators could potentially generate revenue is by offering air tours outside of the ATMP planning area, as these would not be regulated by the ATMP. This type of shift in air tour activity is referred to as “air tour displacement,” and could consist of air tour operators shifting routes or altitudes to just outside the ATMP planning area. This could result in impacts to resources to the extent that they are present near the locations where the displaced air tours would occur.

It is difficult to predict with specificity if, where, and to what extent any air tours would be displaced to areas outside the ATMP planning area, including over the ATMP planning area at altitudes at or above 5,000 ft. AGL. The preciseness of routes and altitudes for air tours flown on displaced routes are generally subject to Visual Flight Rules, which is based on the principle of “see and avoid” and may vary greatly. It is reasonably foreseeable that operators would continue to fly to points of interest on the island outside of the ATMP planning area where they already fly, or fly routes over or around the Park similar to existing flight paths but outside of the ATMP planning area. Air tour operators are likely to continue to fly some air tours along the perimeter of the ATMP planning area where Haleakalā Crater and other Park features may be visible. If operators choose to fly above the vertical limit of the ATMP planning area, they would likely keep to an altitude close to, but at or just above 5,000 ft. AGL, as higher flights would provide limited value to a sightseeing operation. The terrain of the Park varies greatly,

from sea level at the coastline to more than 10,000 ft. elevation near the summit. Operators may choose to fly at or just above 5,000 ft. AGL over some parts of the ATMP planning area (see Figure 1 for an example profile of ground level elevation changes relative to the vertical boundaries of the ATMP planning area). However, due to the elevation of the crater, flights close to the crater at or above 5,000 ft. AGL are unlikely due to the altitude of the aircraft (likely over 10,000 ft. MSL) and safety requirements for unpressurized aircraft.²⁰

The exactness of routes and altitudes for displaced air tours flown at altitudes below 5,000 ft. AGL flying Visual Flight Rules could vary depending on safety, client demand, weather, fuel load, and other costs. Specific routes, altitudes and numbers would be relevant in assessing noise and other potential indirect and cumulative impacts associated with eliminating air tours within the ATMP planning area. Consistent with the CEQ regulations, the agencies are disclosing that specific air tour routes, altitudes, and numbers of tours are not available to assess noise and other potential indirect and cumulative impacts associated with reducing or eliminating air tours within the ATMP planning area. In addition, because specific air tour routes are not available, it is not possible to identify all the other potential noise sources that might contribute to the acoustic conditions outside the ATMP planning area where operators may fly. Agencies are not required to conduct new scientific or technical research to analyze impacts and may rely on existing information to assess impacts. *See 40 CFR §1502.21(c).* For the purposes of disclosing the potential indirect effects of these alternatives, the agencies have considered the potential noise effects of operations above or along the perimeter of the ATMP planning area.

Displaced air tours above the ATMP planning area (at or above 5,000 ft. AGL) would result in noise within the ATMP planning area. Compared to current conditions, the noise would be spread over a larger geospatial area and would be audible for a longer period, but at lower intensity. Thus, under Alternatives 2 and 3, some locations within the ATMP planning area may experience less intense noise but for a longer period when compared to current conditions. Additionally, other locations within the ATMP planning area not currently experiencing air tour noise may experience some noise under these alternatives when compared to current conditions. However, in both cases, the intensity of noise would likely be low given the aircraft altitude; any noise that might result could also be more easily masked by opportunistic sounds such as wind and various anthropogenic noise sources. In summary, while the area exposed to noise could be greater under these alternatives, the intensity of noise, especially when compared to current conditions at locations near or directly below existing air tour routes, would be less.

²⁰ Supplemental oxygen use is required in unpressurized aircraft flying over 10,000 ft. MSL for more than 30 minutes (14 CFR § 135.89, § 135.157); therefore, it is unlikely air tours would fly higher for extended periods of time.

Displaced air tours have the potential to affect noise-sensitive locations outside the ATMP planning area. However, it is unlikely that displaced air tours would generate noise at or above DNL 65 dB. To illustrate this, the agencies conducted a conservative, screening-level noise analysis (refer to Appendix F, *Noise Technical Analysis*, Section 8 for more information). The analysis indicates that it would be highly unlikely that air tours that are displaced outside the ATMP planning area under these alternatives would generate noise at or above DNL 65 dB.

Cumulative Effects: The cumulative impact of an alternative is the overall acoustic condition of the environment including existing and future noise from sources other than air tours plus anticipated noise from air tours under the alternative. The existing ambient condition of the acoustic environment is disclosed in Affected Environment Section 3.1, Noise and Noise-Compatible Land Use.

As part of the cumulative effects assessment, the FAA and NPS considered other ongoing and planned actions. The Park uses helicopters to transport Park personnel to various locations for resource protection activities, rescue, and facility maintenance activities. NPS staff from the Park's Aviation Division have indicated that during the years 2017, 2018 and 2019, the Park flew 92, 99, and 98 flights respectively or an average of 96 flights each year. These flights contribute noise to the Park acoustic environment. Park staff conduct management and resource monitoring activities in remote areas of the Park. Fieldwork may last for several days to a week at a time. Helicopter use for these activities within the Park boundary average approximately 200 hours/year between 2011 and 2022. Current administrative flight locations are dispersed nearly evenly across the Park.

The Park is currently implementing resource protection actions which may require helicopter access to remote locations not accessible by other means. Other activities that use motorized tools include fencing to exclude ungulates and maintenance for existing cabins within Wilderness enclaves. The Park would continue current management actions and respond to future needs and conditions without major changes in the present course. The number of Park administrative helicopter flights and associated noise levels within the ATMP planning area would likely continue at current levels.

Alternatives 2 and 3 would likely result in a noticeable beneficial effect on the overall acoustic environment of the Park from reducing or eliminating air tours within the ATMP planning area since the intensity of noise directly around and below existing air tour routes will decrease as described above. Alternative 3 would result in less cumulative noise in the ATMP planning area than the No Action Alternative, given the reduced number of flights, designated routes, and other ATMP parameters. However, it could allow for more cumulative noise than Alternative 2, where flights would not be authorized in the ATMP planning area. Ongoing present and future Park management actions by the NPS would continue to occur under any of the alternatives.

3.2 Air Quality and Climate Change

3.2.1 Affected Environment

Air Quality

The Park is a designated Class I Airshed, which means that it is afforded the highest degree of protection (NPS, 2015a). The Park is removed from many sources of air pollution. However, volcanic gases and particulate emissions from active volcanic activity, approximately 100 miles away on the Island of Hawai'i, may affect air quality and visibility within the Park. Emissions of sulfur dioxide (SO₂) and other gases chemically interact with sunlight, oxygen, water, and dust to form acidic volcanic smog or "vog." Vog creates a haze that obscures visibility and can contribute to acid rain, impacting human health, natural resources, and cultural resources.

Additional emissions sources that impact air quality within the Park include marine aerosols, motor vehicles, non-road combustion engines, helicopters, and wildfires. These activities can release nitrogen oxides, particulate matter, and other pollutants that impact air quality and visibility.

The National Ambient Air Quality Standards (NAAQS) can determine whether a region is in an air quality attainment or nonattainment area. An area is considered to be in attainment if it meets the federal standard for all criteria pollutants. Subsequently, an area is in nonattainment if it does not meet (or contributes to ambient air quality in a nearby area that does not meet) the standard. When this occurs, states must submit implementation plans to the EPA discussing programs to improve air quality within that region. The Park is currently in an area of attainment for all NAAQS.

A monitoring program was implemented at the Park over 30 years ago to assess air quality and in 2007 to monitor visibility (NPS, 2018). Particulate matter and visibility are monitored at a primary monitoring station at Haleakalā Crater through the Interagency Monitoring of Protected Visual Environments (IMPROVE) program. IMPROVE helps to address visibility degradation issues at Class I areas (UC Davis, 2022). The Haleakalā Crater monitor (ID HACR1) reports levels of particulate matter and other pollutants that contribute to haze, including ammonium nitrate, ammonium sulfate, and organic carbon. Additional particulate matter measurements are collected at a non-park monitor managed by the EPA (PAIA, MonitorID 150090024).

The Park has an air quality protocol to guide the response during periods of poor air quality. The air quality advisory level for the Park and the IMPROVE monitoring site is considered Good, which is the best classification for air quality advisories (NPS, 2022).

Greenhouse Gases

The Intergovernmental Panel on Climate Change (IPCC) estimates that aviation accounted for 4.1% of global transportation greenhouse gas (GHG) emissions (FAA, 2020). GHGs are gases that trap heat in the earth's atmosphere. Naturally occurring and anthropogenic (human-made) GHGs include carbon dioxide (CO₂), water vapor (H₂O), methane (CH₄), nitrous oxide (N₂O), and ozone (O₃). The EPA data indicates that commercial aviation contributed to 6.6% of CO₂ emissions in 2013 in the United States (EPA, 2015).

In response to the increasing need for understanding and action related to climate change impacts in the parks, the NPS launched the Climate Friendly Parks program in 2002, creating opportunities to educate staff about climate change issues, assess each park's contribution to GHG emissions, create short and long-term strategies for reducing emissions, determine potential effects of climate change on park resources, and develop skills and strategies for communicating these effects to the public (NPS, 2015c). As a part of their participation in this program, the Park developed a long-term Climate Action Plan (2010) that involved analyzing the anthropogenic carbon footprint of the Park using the EPA's Greenhouse Gas Equivalencies Calculators. Data used to perform the calculations included the amount of electricity purchased, waste sent to the landfill, and fuels consumed.

Initial findings by the NPS (NPS, 2008) show that transportation (including visitor emissions) was the largest contributor to total GHG emissions for the Park (91% of emissions); energy was the second largest contributor, with 7% of emissions; solid waste and other emission sources (such as refrigeration and air conditioning) also contributed to overall Park emissions (NPS, 2010b). These findings provide an initial overview of the carbon footprint of the Park. Further monitoring and analysis will track progress in reducing the Park's carbon footprint into the future.

3.2.2 Environmental Consequences

Alternative 1: No Action

The No Action Alternative represents existing air tour conditions. Modeling results for the No Action Alternative are presented in Table 6 for the criteria pollutants. Note that ozone is not reported as it is not directly emitted in aircraft exhaust. Pollutant emissions are based on annual flight miles and routes for each aircraft type operating within the ATMP planning area. The emission rates (pounds of emissions per mile flown) used in modeling are aircraft engine- and fuel-specific. The results in Table 6 describe baseline emissions under existing conditions; emissions under alternatives can be compared to baseline emissions to indicate potential impacts on air quality within the ATMP planning area.

Table 6. Summary of Criteria Pollutant Annual Emissions in Tons per Year (TPY) Under the No Action Alternative.

Criteria Pollutant	Total Annual Emissions (TPY)
Carbon monoxide (CO)	0.103
Lead (Pb)	0.000
Nitrogen dioxide (NO ₂)	1.040
Particulate matter: aerodynamic diameter ≤ 2.5 µm (PM _{2.5})	0.009
Particulate matter: aerodynamic diameter ≤ 10 µm (PM ₁₀)	0.009
Sulfur dioxide (SO ₂)	0.109

Total annual GHG emissions for the No Action Alternative are modeled to be 267 metric tons (MT) of CO₂. The No Action Alternative would not cause pollutant concentrations to exceed one or more of the NAAQS for any of the time periods analyzed.

Alternative 2

Under Alternative 2, commercial air tours would not fly within the ATMP planning area which would eliminate direct emissions within the planning area and would not cause pollutant concentrations to exceed one or more of the NAAQS for any of the time periods analyzed. Therefore, Alternative 2 would result in direct beneficial effects on air quality compared to the No Action Alternative, due to lower commercial air tour emissions within the ATMP planning area. Direct emissions in the Park would be expected to decrease by the amount reported in the No Action Alternative (Table 6) and would result in zero emissions from the elimination of commercial air tours within the ATMP planning area. The direct effects of this alternative would be the reduction of the emissions within the ATMP planning area reflected in Table 6; however, emissions could still be generated from displaced air tours (refer to indirect effects analysis below).

Alternative 3

Under Alternative 3, commercial air tour aircraft would still fly within the ATMP planning area; however, the total number of flights per year would be reduced and the routes flown would be modified as compared to existing conditions. Modeling results for Alternative 3 are presented in Table 7 for the criteria pollutants in terms of change in emissions as compared to the No Action Alternative. Note that ozone is not reported as it is not directly emitted in aircraft exhaust. Similar to the No Action Alternative, these results are based on annual flight miles and routes for each aircraft type and the emission rates used in modeling are aircraft engine- and fuel-specific. The results in Table 7 show that emissions from air tours for all criteria pollutants would decrease or remain unchanged under Alternative 3.

Table 7. Summary of Change in Criteria Pollutant Annual Emissions in TPY Under Alternative 3 as Compared to No Action Alternative.

Criteria Pollutant	Change in TPY as Compared to No Action Alternative*
Carbon monoxide (CO)	-0.064
Lead (Pb)	0.000
Nitrogen dioxide (NO ₂)	-0.622
Particulate matter: aerodynamic diameter ≤ 2.5 µm (PM _{2.5})	-0.005
Particulate matter: aerodynamic diameter ≤ 10 µm (PM ₁₀)	-0.005
Sulfur dioxide (SO ₂)	-0.064

*Negative values represent a reduction in total emissions.

The total change in annual GHG emissions for Alternative 3 as compared to the No Action Alternative is modeled to be a reduction of 158 MT CO₂ within the ATMP planning area. Alternative 3 would not cause pollutant concentrations to exceed one or more of the NAAQS for any of the time periods analyzed. Compared to the No Action Alternative, Alternative 3 would result in beneficial impacts to air quality due to lower commercial air tour emissions within the ATMP planning area. Alternative 3 could result in an approximately 60 percent reduction in both criteria pollutant and GHG emissions as compared to the No Action Alternative.

Indirect and Cumulative Effects

Indirect Effects: For any alternative that limits the number of flights per year to a level below existing conditions (4,824 flights per year), as described above, it is reasonably foreseeable that operators could potentially generate revenue by offering air tours outside of the ATMP planning area, as the areas outside this area would not be regulated by the ATMP. Some of this displaced activity could result in impacts to air quality although it is difficult to predict with specificity if, where, and to what extent any displaced air tours would result in impacts in different and/or new areas. The preciseness of routes and altitudes for tours flown on displaced routes are generally subject to Visual Flight Rules and may vary greatly.

Under the No Action Alternative, commercial air tour operations within the ATMP planning area would remain consistent with existing conditions, thus there are no indirect impacts that would be expected to occur under this alternative.

Alternatives 2 and 3 limit the number of flights per year as compared to existing conditions and would therefore have the potential to result in some displacement of air tours outside the ATMP planning area. Air tours occurring outside the ATMP planning area, if any, would not result in direct effects from emissions within the ATMP planning area. However, prevailing winds may transport some of the emissions outside the ATMP planning area to within the

ATMP planning area (i.e., indirect effects). Additionally, some areas that are not currently exposed to emissions from air tours (outside the ATMP planning area) may be exposed to emissions in these scenarios thus affecting the air quality in these areas.

For purposes of assessing indirect air quality and GHG impacts that would occur as a result of Alternatives 2 or 3, this analysis considers whether aircraft currently operating over the Park would generate significant emissions to affect the attainment status of the Park. Based on the analysis, the emissions of all criteria pollutants (excluding ozone) and GHGs from the current number of air tours flown over the Park are minimal. Operations that may occur outside the ATMP planning area as a result of Alternative 2 or Alternative 3, may shift where emissions occur but the total annual emissions are not likely to change substantially.

Because of both the number of air tours and the likely dispersal of air tours outside the ATMP planning area, it is unlikely that air tours that are displaced to outside the ATMP planning area under these alternatives would result in air quality impacts under NEPA or change the current attainment status of the Park. Changes in air tour operations under these alternatives would also likely have minimal impact, if any, to regional air quality.

Cumulative Effects: The cumulative impact of an alternative is the overall air quality of the environment including existing and future emissions from sources other than air tours plus anticipated emissions from air tours under the alternative. The existing air quality in the Park is disclosed in Affected Environment Section 3.2.1. Other ongoing actions related to air quality and GHGs include: the monitoring program to assess air quality and to monitor visibility; an air quality protocol to guide the response during periods of poor air quality; and continued work related to the Climate Action Plan (2010). Alternatives 2 and 3 would likely result in no noticeable change to a slight improvement in overall air quality in the Park, with no change in the current NAAQS attainment status. Ongoing present and future park management actions by the NPS would continue to occur under any of the alternatives.

3.3 Biological Resources

The ESA is the primary federal statute regulating federally listed threatened and endangered species and critical habitat. The United States Fish and Wildlife Service (USFWS) is the federal agency responsible for administration of the ESA, the Bald and Golden Eagle Protection Act, and the Migratory Bird Treaty Act (MBTA). The National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) is the regulatory agency with oversight of the ESA for marine mammals and fishes. Jurisdiction over the Marine Mammal Protection Act (MMPA) is shared between the USFWS and the NMFS. Under the Hawai'i State Endangered Species Statute, HRS 195D, any federally listed endangered or threatened species are also listed under HRS 195D. The NPS 2006 Management Policies direct the NPS to meet its obligations under the NPS Organic Act and the ESA to both proactively conserve listed species and prevent detrimental effects on these species (NPS Management Policies § 4.4.2.3, 2006).

A threatened species is defined under the ESA as “any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.” An endangered species is defined under the ESA as “any species which is in danger of extinction throughout all or a significant portion of its range.” Species designated as threatened or endangered are collectively referred to as listed species in this draft EA. Critical habitat has been designated by USFWS or NMFS as the habitat needed to support recovery of listed species.

The area of analysis for biological resources, including but not limited to species listed as threatened or endangered, in this draft EA includes the Park and areas outside the Park but within ½ mile of its boundary, also known as the ATMP planning area. This area encompasses all effects of the proposed action for biological resources. To the extent that habitat and species occurrences correlate, impacts to biological resources are expected to be similar within the ATMP planning area. Therefore, if habitat exists for a species but occurrence is unknown, the assumption is that the species could be present and will be analyzed accordingly.

The environmental effects of commercial air tour operations are evaluated for biological resources and their habitats. The analysis discloses the context of natural variability and ecosystem integrity, as well as effects on individuals and populations. Some impacts are species specific and are identified accordingly.

3.3.1 Affected Environment

The Park protects a unique diversity of native wildlife species, over 90% of which are endemic to the Hawaiian Islands. Endemic species are plants or animals that exist only in one geographic region. All native mammals and several bird species in the Park are federally and state listed threatened or endangered species. The biological resources analyzed in this section include both listed and non-listed wildlife most likely to be affected by the alternatives. As discussed in Section 1.5, Environmental Impact Categories Not Analyzed in Detail, it is unlikely that plants, invertebrates, and fish species would be affected by air tours, therefore they are not considered for further analysis in this draft EA.

Federally Listed Species

Mammals

Hawaiian Hoary Bat

The Hawaiian hoary bat (*Lasiurus semotus*), or ‘ōpe‘ape‘a, is the only fully terrestrial native mammal in the Hawaiian Islands and is federally listed as endangered. ‘Ōpe‘ape‘a are found from sea level to 11,800 ft. (Bonaccorso et al., 2015), with the highest activity on Maui generally occurring in gulch, low density development, and grassland habitats (H.T. Harvey & Associates, 2020). Data indicates that ‘ōpe‘ape‘a commonly traverse and forage in large parts of the ATMP planning area and are likely to be roosting within this area. Detections were reported from

within the Park up to the summit or the vicinity of the ATMP planning area (Fraser et al., 2007; Krushelnycky et al., 2019; H.T. Harvey & Associates, 2020). Females typically give birth to twin pups from June to August which then leave the maternal roost by November.

‘Ōpe‘ape‘a are known to roost solitarily in tree foliage in a variety of tree species and in an assortment of habitats and elevations (native and non-native habitats). Roost trees are usually larger than randomly selected trees (Montoya-Aiona, 2020). ‘Ōpe‘ape‘a is vulnerable to roost disturbance during pupping and pup care (June-November). Noise exposure to bat species during daytime roosting and while rearing young can lead to abandonment of their roosts and young (California Department of Transportation, 2016). Noise from a variety of sources occurs within the Park, including from commercial air tours, over ‘ōpe‘ape‘a habitat during these sensitive months.

‘Ōpe‘ape‘a is an insectivore, and prey items include a variety of night-flying insects, primarily moths and beetles (Whitaker and Tomich, 1983; Pinzari et al., 2019; H. T. Harvey & Associates, 2020). Acoustic detection studies show seasonal patterns of habitat occupancy with increased activity in the higher elevations (higher than 3,300 ft.) during the non-breeding season (November to April), and increased activity in the low elevations during the breeding season (Bonaccorso et al., 2015).

Due to its solitary and cryptic roosting behavior (Bonaccorso et al., 2015), robust estimates of the population size and trend of the ‘ōpe‘ape‘a are currently unavailable. ‘Ōpe‘ape‘a can be injured and killed from collisions with man-made structures including barbed wire fences, wind turbines, and communication towers; however, limiting factors are poorly understood. Threats to this species include the elimination of roosting sites, habitat destruction, pesticides, and introduced species such as nonnative insects or disease.

Hawaiian Monk Seal

The endangered Hawaiian monk seal (*Neomonachus schauinslandi*), ‘īlio holo i ka uaua, is silvery gray to brownish in color with yellowish-brown ventral pelage, reaching an average length of approximately seven feet by adulthood (NMFS and NOAA, 2007). Within the Park, Hawaiian monk seals have been known to haul out and bask along the shoreline, including sightings up through 2022 (Baker and Johanos, 2004; Krushelnycky et al., 2019). Monk seal births are most common between February and August, peaking in March and April (NMFS and NOAA, 2007). The beach areas used by the seal for hauling out, pupping, and nursing are critical to the well-being of the species. This critical area also includes the first line of vegetation bordering the beaches, which provides shelter from wind and other elements.

Federally designated critical habitat for the Hawaiian monk seal, both terrestrial and marine, is located within the ATMP planning area. See Figure 11.

The Hawaiian monk seal was first listed as endangered on the Endangered Species List in 1976, where it currently remains, in addition to being protected under the MMPA. The Hawaiian

monk seal population is in a decline that has lasted over 20 years (NMFS and NOAA, 2007). Since the 1990s, a small population in the main Hawaiian Islands has increased significantly in size and now represents a quarter of the species' total population size.

The NMFS recovery plan for this species was implemented in 2007, and today their total global population is estimated to be 1,200 individuals. Although this species has a high recovery potential, the magnitude of threats has caused the current total population to be relatively small and in decline, so much so that there is concern about long-term maintenance of genetic diversity (NOAA, 2020). A study of ringed seal responses to fixed-wing airplanes and helicopters in Greenland, Born et al. (1999) found that 6% of the seals showed escape behavior in response to low altitude fixed-wing aircraft overflights at 500 ft. and responded at an average distance of 1,214 ft. in front of the aircraft. Maximum escape response was 1,970 ft. In contrast, 50% of seals showed escape behavior in response to helicopters flying at this same altitude at 1,640 ft. in front of the helicopter and showed a maximum escape distance of 4,760 ft. Although the aircraft and helicopter surveys were conducted at different locations, the magnitude of these differences indicates that seals show a heightened response to helicopters versus fixed-wing aircraft (NMFS, 2015). Other threats to this species include food limitation, entanglement, predation, infectious disease, habitat loss, and human disturbance (NMFS and NOAA, 2007).

Marine Mammals

Other marine mammals that are protected under the ESA may be present within the ATMP planning area. This includes several species of whale: blue whale (*Balaenoptera musculus*), fin whale (*Balaenoptera physalus*), Main Hawaiian Islands Insular false killer whale (*Pseudorca crassidens*), North Pacific right whale (*Eubalaena japonica*), sei whale (*Balaenoptera borealis*), and sperm whale (*Physeter macrocephalus*). Whales in the Pacific Ocean have experienced population declines due to commercial whaling throughout the 1900s. Although commercial whaling has largely been banned, populations are still recovering. Today, threats to whales include vessel strikes, interactions with fisheries, pollution, and climate change.

The Central North Pacific stock of blue whales feed in the summer throughout the Gulf of Alaska and migrate to the Hawaiian Islands in the winter. Blue whales are listed as endangered under the ESA. From 1910 to 1965, approximately 9,500 blue whales were killed from commercial whaling; their population today ranges from 38 to 81 individuals and is increasing as a result of the prohibition of commercial whaling across much of their range (NMFS, 2017).

The fin whale inhabits deep, offshore waters of all major oceans. The estimated population size for fin whales across the State of Hawai'i ranges from 27 to 58 individuals (NMFS, 2017). While population trends for the State of Hawai'i stock are undetermined, other populations of fin whales have had stable abundance, with some stocks in the Pacific Ocean increasing at a rate of 4.8% per year (NMFS, 2017). Fin whales are listed as endangered under the ESA.

The Main Hawaiian Islands Insular false killer whale is one of three stocks of false killer whales in the State of Hawai'i. Critical habitat for this species occurs throughout the Hawaiian Islands and extends approximately 50 kilometers off of the coast of each island. The population of the Main Hawaiian Islands Insular false killer has declined from 162 to 92 individuals from 2000 to 2009 and is expected to continue to decline due to threats such as inbreeding, pollution, and commercial fishery activity that increases competition for food, entanglement, and intentional harm by fishermen (NMFS, 2017). This population of false killer whale is considered to be genetically distinct to other populations of false killer whale. This species was listed as endangered under the ESA in 2012.

The North Pacific right whale is one of the most endangered whale species in the world. Critical habitat for this species is located in the Gulf of Alaska and the Southeast Bering Sea, both of which lay outside of the ATMP planning area. North Pacific right whales migrate to temperate waters, such as those surrounding the State of Hawai'i, in the winter months to reproduce. The Eastern North Pacific stock of right whales has a population that is smaller than the western stock; population size is believed to be less than 100 individuals, with several sampling studies estimating that the population size ranges from 23 to 31 whales (NMFS, 2017).

Sei whales are distributed worldwide. They winter at low latitudes for reproduction and travel to high latitudes in summer where they feed on zooplankton and school of fish. Two subspecies of sei whale are recognized, *B. b. schlegellii* in the Southern Hemisphere and *B. b. borealis* in the Northern Hemisphere, the latter of which could be present in the waters around the State of Hawai'i. Population estimates of the North Pacific population have declined from 42,000 individuals to 8,600 from 1963 to 1974 and were estimated to be 29,632 between 2010 and 2012 (NMFS, 2017). Of the three small stocks that are present in U.S. waters, the State of Hawai'i population is estimated to be 93 to 178 individuals (NMFS, 2017). Sei whales are listed as endangered under the ESA.

Sperm whales are the most abundant large whale species and found in all major oceans. They forage at higher latitudes in the summer and breed at lower latitudes during the winter. Of the three U.S. stocks of sperm whales that occur in the Pacific Ocean, the State of Hawai'i stock is estimated to be 2,539 to 3,354 individuals (NMFS, 2017). Globally, higher estimates of sperm whale abundance are approaching pre-whaling levels.

Several other cetaceans that are not listed under ESA, notably humpback whales (*Megaptera novaeangliae*), bottlenose dolphins (*Tursiops truncatus*), and spinner dolphins (*Stenella longirostris*), frequent the ATMP planning area and are protected under the MMP. The MMPA is administered under NOAA Fisheries and protects these animals from harassment including human-caused disturbance to normal behaviors.

Reptiles

Two sea turtle species protected under the ESA, the green sea turtle (*Chelonia mydas*), honu, and the hawksbill sea turtle (*Eretmochelys imbricata*), honu'ea, forage nearshore in the Kīpahulu District. Three additional ESA-protected sea turtle species could also occur in the ATMP planning area: the leatherback sea turtle (*Dermochelys coriacea*); loggerhead sea turtle (*Caretta caretta*); and olive ridley sea turtle (*Lepidochelys olivacea*). Threats to sea turtles include interactions with fisheries, poaching, and nesting habitat degradation due to coastal development.

Honu are listed as threatened under the ESA. The Central North Pacific population, which includes the State of Hawai'i, has approximately 3,710 breeding females (Seminhoff et al., 2015). More than 96% of nesting occurs at one site in the northwest Hawaiian Islands; the highly concentrated nesting population makes honu vulnerable to stochastic events and threats from climate change that impact their low-level nesting habitat (Seminhoff et al., 2015). However, monitoring over the past 40 years has indicated that overall nesting is increasing in the State of Hawai'i. Critical habitat for this species is designated around Culebra Island, Puerto Rico.

The endangered honu'ea are the second species of sea turtle that regularly nests in the Hawaiian Islands, including on Maui; although there are no known nest sites in the ATMP planning area. Although a large proportion of the known nesting sites in the Pacific are found in Hawai'i, abundance for the species is quite low (USFWS, 2013). These turtles feed in similar habitat to that of the more abundant honu. Like honu, critical habitat is designated around Culebra Island, Puerto Rico.

Leatherback sea turtles are the largest turtle in the world and highly migratory. In the Pacific Ocean, nesting is common in Mexico, Nicaragua, and Indonesia, but rare across the State of Hawai'i. Abundance estimates for leatherback sea turtles are less than 1,000 nesting females for the East Pacific population, and have been declining (NMFS and USFWS, 2020). This species is currently listed as endangered. Critical habitat for leatherback sea turtles is designated along the coasts of California, Oregon, and the southwestern coast of St. Croix in the United States Virgin Islands, all of which are located outside of the ATMP planning area.

The loggerhead sea turtle is the most abundant sea turtle that nests in the U.S and has nine distinct populations. The ATMP planning area is included under the North Pacific population; turtles mate on the coasts of Japan and forage in the western Pacific. The number of nesting females was estimated to be 8,733 individuals and are overall increasing, but population trends are an estimate and can vary by location (NMFS and USFWS, 2020a). Loggerhead sea turtles are listed as endangered and have designated critical habitat that is located outside of the ATMP planning area along the southeastern coast of the United States.

Olive ridley sea turtles are one of the world's smallest sea turtles and are found worldwide, notably in Pacific subtropical waters from California to Peru, but do not nest in the United States. Population estimates of this species vary by nesting location but are believed to be declining overall (NMFS and USFWS, 2014). In the Pacific, large nesting populations are present in Mexico and Costa Rica. Olive ridley are listed as threatened under the ESA.

Birds

Forest Birds

The federally endangered kiwikiu, or Maui Parrotbill (*Pseudonestor xanthophrys*), is a stout yellow and olive-green honeycreeper with a large, hooked bill. Endemic to the Islands of Maui and Moloka'i, the species is currently only found on East Maui and is ranked as one of the most imperiled Hawaiian birds (Mounce et al. 2018; Warren et al., 2020; USFWS, 2019; Paxton et al. 2022). Kiwikiu typically breed between January and June and are primarily insectivorous, using their disproportionately large bill to probe and excavate woody plant material (and, to a lesser extent, fruits) to eat the larvae primarily of beetles (Coleoptera) and caterpillars (Lepidoptera) found on or within native plants and lichens (Mountainspring, 1987; Peck et al., 2015; Simons et al., 2020). Critical habitat (Figure 11) has been designated for kiwikiu (USFWS, 2016a), and its critical habitat lies partially within the ATMP planning area. Their habitat is characterized by wet-mesic and 'ōhi'a-dominated rainforest above 5,280 ft. (Judge et al., 2021).

The federally endangered Maui-endemic 'ākohekohe (*Palmeria dolei*) is a striking forest pollinator with a distinctive crest on the head. Critical habitat has been designated for 'ākohekohe (USFWS, 2016a); its critical habitat overlaps entirely with the critical habitat of the kiwikiu and also lies partially within the ATMP planning area (Figure 11). This Hawaiian honeycreeper persists on less than approximately 7,400 acres of native rainforest above 5,280 ft. (Judge et al., 2021), with breeding typically occurring between November and June in habitat above 5,620 ft. (Berlin and Vangelder, 2020; Wang et. al., 2020).

The 'i'iwi (*Drepanis coccinea*), federally listed as threatened, is a honeycreeper historically widespread and occurring at all elevations, but now persists only in the high-elevation forests primarily of Hawai'i, Maui, and Kaua'i (Scott et al., 1986; Fancy and Ralph, 2020; USFWS, 2016b). Breeding may occur all year, but the peak of breeding occurs from February through June (Fancy and Ralph, 2020). The 'i'iwi is a strong flier capable of high, long flights to locate nectar sources (Guillaumet et al., 2017; Fancy and Ralph, 2020). USFWS has proposed critical habitat for the species (USFWS 2022d), which includes portions of the ATMP planning area.

Avian malaria, a disease transmitted by invasive *Culex* mosquitoes, is driving the rapid decline of Hawaiian forest birds in the Park. Today, most Hawaiian forest birds persist only in high-elevation forests where the risk of malaria transmission is lower due in part to colder temperatures (van Riper et al., 1986; Scott et al., 1986; Atkinson and LaPointe, 2009b; Atkinson

et al., 2014). Even though much of the high elevation threatened and endangered bird habitat in the ATMP planning area is largely protected from feral ungulates and direct human-caused habitat loss, there is evidence of continuing range contraction and population declines, especially from lower-elevation portions of their ranges since 1980 (Baker and Baker, 2000; Camp et al., 2009; Vetter et al., 2012; Judge et al., 2021). Precipitous negative population trends have been observed for kiwīkiu and ‘ākohekohe across their small ranges (Judge et al., 2013, 2021). Under existing conditions, noise from ongoing air tours is present within the ATMP planning area. This noise affects biological resources in various ways, including bird species that occur throughout the ATMP planning area. Specifically, noise from aircraft has been demonstrated to influence bird vocalizations to overcome the masking effects from aircraft noise in areas where loud and frequent helicopter traffic occurs (Gallardo Cruz et al., 2021). As air tours are currently occurring within the ATMP planning area, these effects are ongoing and part of the affected environment for bird species that occur within the ATMP planning area.

Kiwīkiu and ‘ākohekohe population estimates from surveys in 2017 are 157 individuals (44–312 individuals [95 percent confidence interval]) and 1,768 individuals (1193–2411), respectively (Judge et al., 2021). Kiwīkiu and ‘ākohekohe abundance has declined by more than 70 percent since 2001 (Judge et al., 2021), and a predicted range loss of more than 90 percent may occur by the end of this century under moderate climate change scenarios (Fortini et al., 2015). ‘Īiwi have disappeared from most of its historic range (Atkinson et al., 1995; USFWS, 2016b, Table E-2). While most common above 5,000 ft., ‘Īiwi is regularly detected down to 2,700 ft. in the ATMP planning area (Judge et al., 2019). Recent surveys in 2017 resulted in a population estimate of 50,252 (43,908–57,146 individuals [95 percent confidence interval]) birds on East Maui (Judge et al., 2019), and a long-term trend analysis of the Park population shows population stability in portions of the Park but declines in other areas of the Park (Paxton, 2020). Surveys revealed an increasing trend of ‘Īiwi between 2011 and 2017 outside the Park (Judge et al., 2019).

Another endangered forest bird species, ‘ālalā or Hawaiian crow (*Corvus hawaiiensis*), was once common throughout their range on Hawai‘i Island but were not known to occur on the Island of Maui. However, subfossil remains found on Maui indicated existence of either a subspecies of ‘ālalā or related corvid (USFWS, 2009). The last ‘ālalā in its native habitat was thought to have been confined to higher elevations in South Kona. ‘Ālalā became extinct in their native habitat. The last observation of ‘ālalā in the wild was in 2002 (USFWS, 2009). A captive breeding population remains at Keauhou Bird Conservation Center where propagation efforts have been successful. Release of ‘ālalā is being considered for several areas across the State of Hawai‘i and may include areas within the ATMP planning area.

Seabirds

There are three listed seabirds confirmed or potentially breeding in the ATMP planning area. ‘Akē‘akē or Band-rumped Storm-Petrel (*Oceanodroma castro*), is a small black pelagic seabird that breeds on steep, remote cliffs and high-elevation volcanic terrain above 6,900 ft. (Slotterback, 2002; Antaky et al., 2019). The species was listed as endangered in 2016 after the first active nests were discovered in the Hawaiian Islands (USFWS, 2016). ‘Akē‘akē have been detected at multiple locations within the Park, including the Haleakalā Crater, Kīpahulu Valley, and on song meters in Nu‘u (Natividad Bailey, 2009; Haleakalā National Park, 2016; Krushelnycky et al., 2019). However, nest sites within the Park are currently unknown.

Once widespread in the main Hawaiian Islands, the ‘a‘o, or Newell’s Shearwater (*Puffinus newelli*), is federally listed as threatened. ‘A‘o breed on the ground in excavated burrows often surrounded with dense vegetation, including native ‘ōhi‘a (*Metrosideros polymorpha*) and uluhe ferns (*Dicranopteris linearis*), at elevations ranging from 500 to 4,000 ft. on steep slopes and near-vertical volcanic crater walls (Ainley et al., 2019). Evidence of breeding and transiting to nests in the ATMP planning area include radar studies; however, nest locations are not currently known (Krushelnycky et al., 2019). ‘A‘o audio detections are regularly reported by Park and state field teams from various locations within Kīpahulu Valley and along the northern slope of Haleakalā near Ko‘olau Gap, and Hanawī.

Haleakalā Crater currently supports the largest known breeding colony of ‘ua‘u, or Hawaiian Petrel (*Pterodroma sandwichensis*); the population has been monitored since the 1960s and mammalian predator populations have been managed/reduced since 1982 (Krushelnycky et al., 2019). The ‘ua‘u is federally listed as endangered. Nests are found throughout the Park with the highest concentration of known nest sites near the Haleakalā Summit, along the west and south rims of the Haleakalā Crater. Nests have also been located on state land adjacent to the Park.

The ‘ua‘u population in the Park is estimated to consist of 3,000–4,000 breeding pairs and a total of 8,000–9,000 individual birds. NPS biologists indicate that the most recent count of known burrows within the Park is 2,784. The ‘ua‘u population has grown since the 1980s with feral ungulate exclusion and invasive predator control in the Summit District. Current threats to seabirds include habitat loss, trampling of nests by feral ungulates, predation, groundings, and collision with vehicles and man-made objects/structures including potential aircraft strikes.

Climate change affects seabirds’ breeding success with increasing variability in the distribution and availability of at-sea prey, which is being affected by rising ocean temperatures; however, little is known about the potential effects of climate driven changes in the prey available for ‘akē‘akē, ‘a‘o, and ‘ua‘u. Expanding invasive species are also associated with climate change scenarios, which could potentially degrade the breeding habitat of the ‘akē‘akē, ‘a‘o, and ‘ua‘u.

(Ainley et al., 2019). Invasive Hymenoptera have caused seabird nest failures and burrow abandonment (Plentovich et al., 2008).

Hawaiian Goose

The nēnē, or Hawaiian Goose (*Branta sandvicensis*), was extirpated from all islands except Hawai'i by the early 1900s. Initial statewide recovery efforts focused on captive-breeding and release programs. In the early 1960s, the Park, in coordination with the State Division of Forestry and Wildlife, reestablished a population of nēnē on Maui. The subsequent Park population of nēnē provided for the establishment or augmentation of additional release sites on Kaua'i, Moloka'i, Hawai'i Island, as well as Maui until the captive breeding program ended in 2011 (Banko et al., 2020). The nēnē is currently listed as federally threatened but remains state listed as endangered. At the Park, nēnē typically nest between October and April. Nēnē use diverse habitats including sub-alpine grasslands, open native shrubland and grasslands as well as mid- and low-elevation pasture and managed grasslands, to forage on leaves of grass, berries, seeds, and flowers; some make elevational movements for breeding, foraging, and molting (USFWS, 2019; Banko et al., 2020; Leopold and Hess, 2014). On Maui, nēnē require intensive management to protect breeding (ground-nesting) birds from introduced predators, especially the mongoose (*Herpestes javanicus*) and are also susceptible to vehicle collisions, wind farm turbine collisions and human or vehicle-related injuries and trauma, toxoplasmosis (a pathogen carried by feral cats) and mosquito-borne avian pox virus (Work et al., 2015).

The Maui nēnē population is relatively small, fluctuating around approximately 250 breeding pairs (USFWS, 2019). Nēnē have benefitted from landscape level habitat management (ungulate fence/control, invasive plant control) within the Park. In 2020 and 2021, respectively, within Maui Island there were 223 and 164 nēnē outside the Park, and 254 and 190 in the Park. Breeding failures have been attributed to predators and suboptimal weather conditions during the nesting season (typically wet and cold, but also drought conditions) (Black et al., 1997). Increasing drought or other extremes in climate variability, expanding invasive species, and associated climate change scenarios are likely to negatively affect nēnē. Climate change may disrupt seasonal movements and some habitats used by nēnē for molt, breeding, and foraging.

Waterbirds

Two endangered waterbirds, ae'o, Hawaiian stilt, (*Himantopus mexicanus knudseni*) and the 'alae kea, Hawaiian coot, (*Fulica alai*) occur in the Nu'u Refuge, a nearshore wetland within the ½-mile boundary outside the Park in Nu'u.

Several studies have documented that noise from helicopters and fixed-wing aircraft can elicit behavioral responses including flushing and reduced foraging, to various waterbird species at close elevations (Ward et al., 1999; Komenda-Zehnder et al., 2003; Williams, 2007). Results of an experimental procedure for one species, the crested tern (*Sterna bergii*), indicate that the

maximum responses observed, preparing to fly or flying off, were restricted to exposures at sound levels greater than 85 dB(A) (Brown, 1997). This study also showed scanning behavior involving head-turning was the minimum response at lower noise levels, and this, or a more intense response, was observed in nearly all birds at all levels of exposure (Brown, 1997).

Other Protected Native Birds

Within the ATMP planning area, three Hawaiian honeycreeper species (in addition to the three federally protected species described above) are protected under the MBTA, ‘apapane (*Himatione sanguinea*), Hawai‘i ‘amakihi (*Chlorodrepanis virens wilsoni*), and Maui ‘alauahio (*Paroreomyza montana*). Although ‘apapane and Hawai‘i ‘amakihi are most common in native forests above 3,000 ft. in elevation, they will also venture to lower elevation forests. The Maui ‘alauahio occurs in native forest between 3,900 to 7,500 ft. (Baker & Baker, 2020; Judge et al., 2021). The Maui ‘alauahio is restricted to the Island of Maui. The response of ‘apapane vocalizations has been specifically studied in relation to helicopter noise on the Island of Hawai‘i, which actively changed the amount of time they vocalized in relation to loud and frequent helicopter noise, suggesting the presence of vocal plasticity in this species (Gallardo Cruz et al., 2021).

The Hawaiian Short-eared Owl or pueo (*Asio flammeus sandwichensis*) is listed as endangered by the State of Hawai‘i only on the Island of O‘ahu; it is not currently federally listed. The species is protected under the MBTA. Pueo are found on all the main Hawaiian Islands, at elevations ranging from sea level to 8,000 ft. Pueo occupy a variety of habitats, including agricultural lands, grasslands, wetlands, shrublands, and native forests. Ground nests are well concealed and lined with grasses and feather down (Price and Cotín, 2018). Threats to this species include loss and degradation of habitat, predation by invasive mammals, vehicle and wind turbine collisions, and other human interaction (Pueo Project, 2019). Pueo forage and potentially nest within the ATMP planning area, but their abundance and distribution has not been well studied on Maui.

Migrant or transiting birds that occur in the ATMP planning area include the kōlea or Pacific golden plover (*Pluvialis fulva*), an overwintering migrant shorebird which arrive in August and depart in April; the noio or Hawaiian Black Noddy (*Anous minutus melanogenys*) which nests on the coasts; ‘iwa or the Great Frigatebird (*Fregata minor palmerstoni*) which are seen flying over the coastal area of the Park; and koa‘e kea or White-tailed Tropicbirds (*Phaethon lepturus*), which are known to fly over the Park in the Haleakalā Crater, Kaupō Gap, and along the coast.

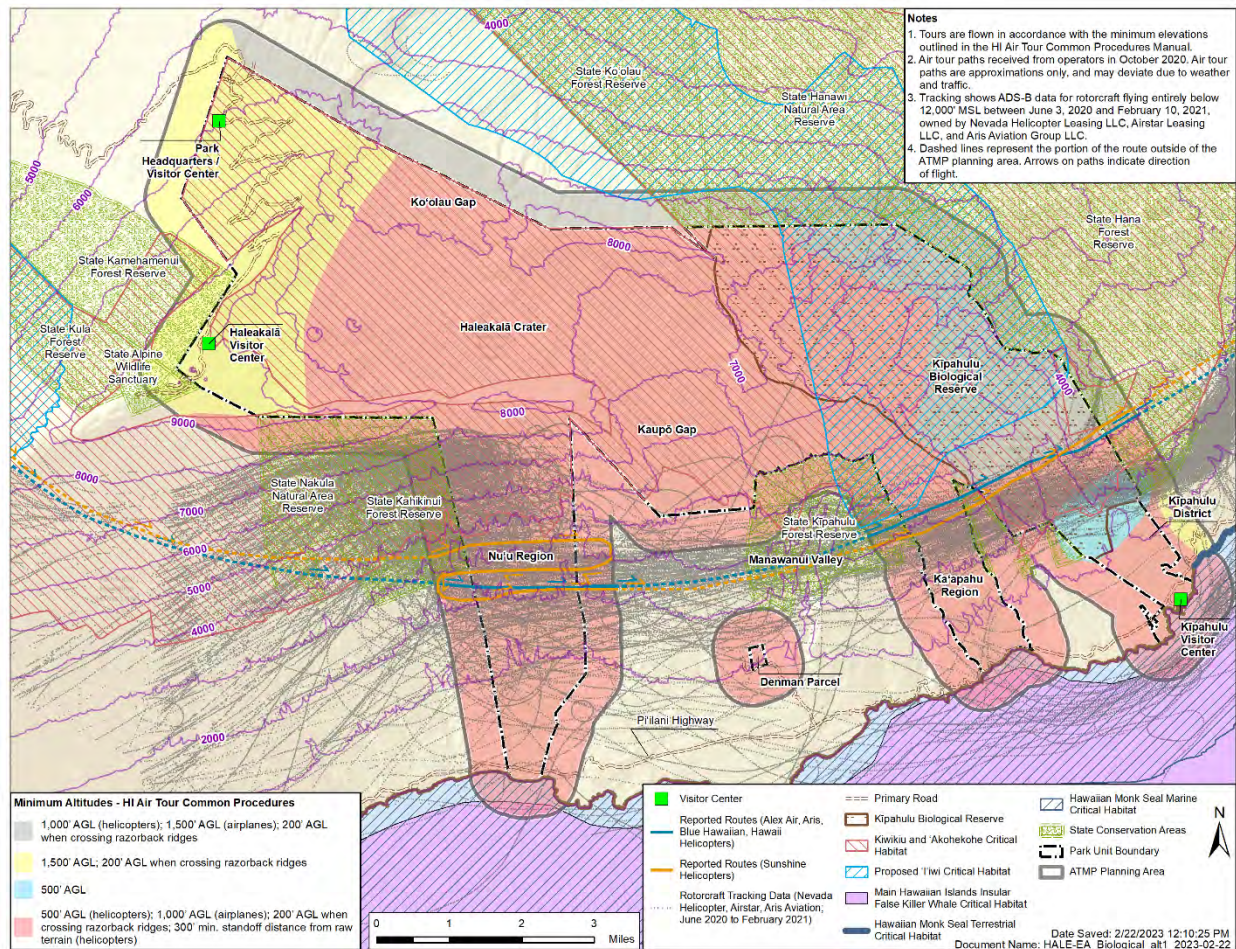


Figure 11. Affected Environment for Biological Resources

3.3.2 Environmental Consequences

Noise from commercial air tours may impact wildlife in a number of ways, including altered vocal behavior, breeding relocation, changes in vigilance and foraging behavior, and impacts on individual fitness and the structure of ecological communities to name a few (Shannon et al., 2016; Kunc et al., 2016; Kunc and Schmidt, 2019; Dolbeer et al., 2021). Understanding the relationships between noise attributes (e.g., timing, intensity, duration, and location) and ecosystem responses is essential for understanding impacts to these species and developing management actions to address them (Gutzwiller et al., 2017). To capture how noise may affect quieter natural sounds or communications, the resource impacts analysis below examines the time above 35 dBA (for quieter natural sounds and impacts to natural resources). Refer to the *Noise Technical Analysis* in Appendix F for more information.

Alternative 1: No Action

Under the No Action Alternative, noise from commercial air tours would continue to affect wildlife throughout the ATMP planning area. Ongoing noise from commercial air tours

currently disturbs the Park's wildlife and could result in changes in wildlife behavior, such as bird vocalizations, or other effects that cause wildlife to change their behavior or avoid an area, such as nest abandonment or flushing, and when flown at low altitudes, commercial air tours may result in direct strikes to airborne species. These effects would be expected to continue to occur under the No Action Alternative.

The Kīpahulu Biological Reserve supports many of the species described in Section 3.3.1, Affected Environment for Biological Resources, as well as provides opportunities for research and education on these species. Under existing conditions, the southern part of the Reserve near Kīpahulu is heavily overflowed by air tours, which introduces auditory disturbances for the species that utilize this area. Under the existing conditions, on days when air tours occur, noise above 35 dBA could occur up to 75 minutes in some areas of the Reserve. This noise may interfere with species behavior for any noise sensitive species that occur in this area and currently interferes with research and education activities such as listening to or recording bird vocalizations. This interference impedes the NPS's ability to fully meet the Park's purpose of preserving endemic Hawaiian ecosystems and would not support the perpetuation of biological diversity and ecological integrity which are fundamental resources and values of the Park since the Park cannot successfully monitor these species without the ability to listen and record bird vocalizations. Effects for specific categories of species are described below.

Mammals

Mammals within the ATMP planning area have a variety of sensitivities to noise from commercial air tours. For nocturnal species, such as the Hawaiian hoary bat, impacts associated with air tours would be less likely to occur, as commercial air tours do not fly at night. When noise from commercial air tours occurs over 'ōpe'ape'a habitat during sensitive breeding months (June-November), impacts could occur but are unlikely based on the analysis of the current noise levels. Based on reporting data from 2017-2019, air tours are flown over the Park during this timeframe, with the frequency of tours distributed approximately evenly throughout the year.

Marine mammals could also be disturbed by noise, including the Hawaiian monk seal and whale species. Helicopter surveys to inventory the status of Hawaiian monk seals by NMFS biologists, responsible for the recovery of this species, follow a guideline of 1,000 ft. AGL (Gilmartin, 2012) for their helicopter population surveys of Hawaiian monk seal. The Hawai'i Common Procedures Manual permits air tours to fly as low as 500 ft. AGL over waters which include Hawaiian monk seal habitat, which does not meet this guideline for protecting the species. Under the No Action Alternative, flights could continue to be flown as low as 500 ft. AGL which could cause Hawaiian monk seals to exhibit escape behavior impacting pupping and nursing (Richardson et al., 1995). Whale species have been found to exhibit behavior responses that

might constitute a disruption of their normal behavior patterns (Patenaude et al., 2002) for altitudes under the No Action Alternative.

Reptiles

Due to the poor sound transference from air to water, noise would be unlikely to illicit a response for individual turtles underwater. While sea turtles could be disturbed by noise, it would result in short-term behavioral reactions, such as swimming away from the aircraft, which is not expected to have fitness consequences (NMFS, 2022).

Birds

Forest Birds

Forest bird habitat within the ATMP planning area generally occurs at higher elevations. For the federally endangered kiwīkiu and ‘ākohekohe, habitat is generally found above 5,620 ft. elevation. Under existing conditions, air tours at higher elevations are concentrated in the Nu‘u area, including over portions of the State Kahikinui Forest Reserve which overlaps the ATMP planning area and Kaupō and Manawainui areas that are audible from high elevation kiwīkiu and ‘ākohekohe habitat. The noise from air tours that occur near forest bird habitat may disturb these species. Under the No Action Alternative, these impacts would continue to occur.

Seabirds

Seabird habitat throughout the ATMP planning area may also be affected by ongoing commercial air tours within the ATMP planning area. In particular for high elevation seabirds, direct strikes could occur if flights occurred near dusk and dawn. ‘Akē‘akē habitat in the Kīpahulu Valley and Nu‘u, and ‘a‘o habitat in Kīpahulu Valley and along the northern slope of Haleakalā near Ko‘olau Gap, and Hanawī are directly overflown by air tours under existing conditions which introduces noise in these areas that could result in behavioral disturbance to nesting and foraging for these species. These effects would continue under the No Action Alternative. The concentration of known nest sites occurs near the Haleakalā Summit, along the west and south rims of the Haleakalā Crater and extends to the upper Nu‘u area. Under existing conditions, the ATMP planning area along the south rim is overflown often by air tours. Noise from air tours in extends into ‘ua‘u habitat. Under the No Action Alternative, the noise from commercial air tours that affects these seabird species and their habitats under existing conditions would continue.

Hawaiian Goose

When air tour noise occurs over breeding or nesting habitat for nēnē, birds may flush from their nests, as NPS staff have observed this response occurring within the ATMP planning area. As nēnē habitat exists across the entire ATMP planning area, those effects may be widespread and would generally correspond with the areas experiencing the highest density of commercial air

tours (Kīpahulu District and Nu‘u Area near the Haleakalā Summit). Under the No Action Alternative, these effects would continue to occur.

Air tours flown at low altitudes (currently between 500-1,500 ft. AGL under existing conditions) that occur over habitat for bird species could result in direct strikes to those individuals. Under the No Action Alternative, air tours could continue to fly as low as 500 ft. AGL in accordance with the Hawai‘i Common Procedures Manual, and there would be no limits on the time of day that tours could be conducted, which may result in some tours being flown near dawn and dusk which increases the likelihood of a direct strike with species active during the time.

Waterbirds

Waterbird habitat in the Nu‘u Refuge for the ae‘o (Hawaiian Stilt) and ‘alae kea (Hawaiian Coot) is rarely overflown by air tours according to operator reporting and flight tracking data from 2017-2019. However, noise from commercial air tours in other parts of the ATMP planning area may still impede upon these areas and be experienced by these species. As described for other species, this would be likely to continue under the No Action Alternative.

Other Protected Native Birds

Other native birds that occur within the ATMP planning area including other native forest birds, Hawaiian Short-eared Owl, and migratory birds such as the kōlea, noio, ‘iwa, and koa‘e kea could be affected by air tour noise and direct strikes that occur from low-flying aircraft. Under the No Action Alternative, this would likely continue.

Alternative 2

Under Alternative 2, commercial air tour aircraft would not fly within the ATMP planning area which would eliminate this source of noise from the planning area. Therefore, there would be a direct beneficial effect on biological resources since the intensity and likely presence of noise from commercial air tours would be less than under the No Action Alternative. The impacts described above under the No Action Alternative would be less likely to occur as a result of air tours since they would no longer be flying within the ATMP planning area.

Alternative 3

As described in Section 2.6.2, Commercial Air Tour Routes and Altitudes, Alternative 3 would permit air tours to be conducted on a single flight path through the ATMP planning area, avoiding many habitat areas for sensitive species. The flight path stays below the 3,000 ft. elevational contour line as it crosses Nu‘u, which avoids habitat for high elevation forest birds and seabirds, as well as wetland habitats in the Nu‘u Refuge that support waterbirds. As it crosses above the Denman Parcel and through the Ka‘āpahu region, the flight path stays below the 2,000 ft. elevational contour line, avoiding high-elevation habitat for forest birds and seabirds as well as coastal areas that support marine mammals or shorebirds. As it crosses the

ATMP planning area near the Kīpahulu area, the flight path is directed offshore to avoid flying directly over the Kīpahulu Biological Reserve, which limits the intensity and duration of noise that could affect wildlife in this area.

Routing the flight path for Alternative 3 in a manner that avoids air tours flying directly over sensitive habitats for the Park's wildlife reduces the likelihood of impacts to those species including noise that could alter wildlife behavior (see Figure 12). The authorized altitudes under Alternative 3 (minimum 2,000 ft. AGL over land and 3,000 ft. AGL over the ocean) also limit the potential for impacts to wildlife within the ATMP planning area. This includes federal and state listed along with non-listed species within the ATMP planning area. This represents an increase of 500 – 2,500 ft. depending on location within the ATMP planning area as compared to existing conditions. To capture how noise may affect biological resources and quieter natural sounds, the resource impacts analysis examines the time above 35 dBA. Based on the *Noise Technical Analysis* (Appendix F, Figure 13), under Alternative 3, on days when air tours occur, noise above 35 dBA would occur for less than 15 minutes in most areas (58%) within the ATMP planning area, and would occur for less than 45 minutes in 3% of the ATMP planning area, mainly in the Kīpahulu District. The majority of the Haleakalā Crater would not experience noise above 35 dBA which would preserve intact wildlife habitat and ecological processes in these areas. The majority of the Biological Reserve would experience noise above 35 dBA for less than 15 minutes, with a few of the southern areas of the Reserve experiencing noise above 35 dBA for less than 30 minutes. This would protect research, education, and monitoring activities that occur in this area.

A portion of the flight path for Alternative 3 is located over Hawaiian monk seal habitat, including designated terrestrial and marine critical habitat. A specific regulation, issued pursuant to the MMPA and published at 50 CFR 224.103 (a), created a protective zone around humpback whales requiring vessels not to approach humpback whales, within 100 yards by vessel or 1,000 ft. by aircraft, when these whales are within 200 nautical miles of the Hawaiian Islands. In addition, when aircraft fly below certain altitudes (about 500 meters [1,640.4 ft.]), they have caused cetaceans to exhibit behavioral responses that might constitute a significant disruption of their normal behavioral patterns (Patenaude et al., 2002). Although effects vary between cetaceans and pinnipeds and no such standoff zone has been established for Hawaiian monk seals, the 3,000 ft. AGL altitude requirement in the ATMP exceeds altitudes that have been shown to cause effects to other marine mammals. Therefore, the agencies determined that the required altitude in this area (3,000 ft. AGL) is sufficiently protective of Hawaiian monk seal. In addition, this alternative would ensure noise levels are below 73 dBA, a threshold found to cause a behavioral response in Hawaiian monk seals when on land (Sills et al., 2020; Ruscher et al., 2021). Whale and turtle species could traverse near a portion of the flight path for Alternative 3. However, due to the poor sound transference from air to water, noise would

be unlikely to illicit a response for whale and turtle species at these altitudes. Therefore, no impacts to marine mammals or reptiles within the ATMP planning area are expected to occur.

As compared to existing conditions, Alternative 3 would result in fewer impacts to biological resources due to a reduction in the area of wildlife habitat that is overflowed by air tours by requiring them to be conducted on a single fixed route, by authorizing fewer tours on both an annual and daily basis, and requiring tours to fly at increased altitudes. This both reduces the frequency and duration of noise and the sound levels experienced by wildlife within the ATMP planning area, as well as reduces the likelihood of collisions with aircraft. Under current conditions, the entire ATMP planning area would experience noise above 35 dBA on days when air tours occurred, with some portions of the ATMP planning area experiencing noise above 35 dBA for up to 75 minutes a day. In contrast, under Alternative 3, 3% of the ATMP planning area would experience noise above 35 dBA for up to 45 minutes a day, with most areas at less than 15 minutes a day and many areas, including the Haleakalā Crater, not experiencing noise above 35 dBA at all. When compared to existing conditions, in which air tours could fly as low as 500 ft. AGL, Alternative 3 would increase the minimum altitudes for air tours within the ATMP planning area anywhere from 1,500 to 2,500 ft. AGL depending on location over the ATMP planning area (minimum altitudes under Alternative 3 are 2,000 ft. AGL over land and 3,000 ft. AGL over the ocean). Higher altitudes both reduce the likelihood of bird strikes and reduce maximum sound levels at sites directly below the flight path. It should be noted that when the altitude of an aircraft is increased, the total area exposed to the noise from that aircraft may also increase depending on the surrounding terrain. Although the area exposed to noise might increase, this would not meaningfully affect wildlife because of the attenuation of the noise from higher altitude and transient nature of the impacts.

The FAA and the NPS are currently conducting informal consultation with the USFWS and NMFS for those federally listed species and/or designated critical habitat described in Section 3.3.1, in accordance with 50 CFR § 402.02. At the time of this draft EA publication, the agencies do not believe the preferred alternative would jeopardize the continued existence of federally listed threatened or endangered species, nor would it result in the destruction or adverse modification of federally designated critical habitat. For additional information, see Appendix H, *Section 7 Consultation*.

ATMP planning area where they already fly or fly routes just outside of the ATMP planning area similar to existing flight paths. Therefore, under Alternatives 2 and 3, some indirect impacts to biological resources could occur if flights were displaced to outside the ATMP planning area. This would likely affect high-elevation seabirds or forest birds that are found at higher elevations near the Haleakalā Crater for air tours conducted just outside the ATMP planning area, or species that have more widespread habitat, such as nēnē, for air tours conducted above the ATMP planning area. Air tours occurring outside the ATMP planning area could impact wetland birds in the Nu‘u lands owned by Hawai‘i Land Trust. Since Alternative 2 would displace more flights outside the ATMP planning area than Alternative 3, Alternative 2 could result in more indirect effects to biological resources than Alternative 3.

Indirect impacts could also occur to ‘ālalā if they are released within the ATMP planning area at some time in the future. Impacts to ‘ālalā are expected to be similar to other forest bird species. Under existing conditions, air tours at higher elevations are concentrated in the Nu‘u area, including over portions of the State Kahikinui Forest Reserve which overlap the ATMP planning area and Kaupō and Manawainui areas where air tours are audible from high elevation habitat that could be suitable to ‘ālalā resulting in noise impacts to these species under the No Action Alternative. Under Alternative 2, commercial air tour aircraft would not fly within the ATMP planning area which would eliminate potential impacts to ‘ālalā. Alternative 3 would permit air tours to be conducted on a single flight path through the ATMP planning area, avoiding many habitat areas for sensitive species. While it is not known where these species could be reintroduced or become established, the higher altitudes prescribed in Alternative 3, would limit the potential for noise impacts if ‘ālalā were to be reintroduced or recolonize after reintroduction elsewhere. Based on the analysis described in this draft EA and Appendix H, Alternative 3 *may affect, but not likely to adversely affect* ‘ālalā.

Cumulative Effects: The NPS would continue current management actions and respond to future needs and conditions for biological resources without major changes in the present course. The administrative flights and associated noise levels (see Section 3.1.1, Affected Environment for Noise and Noise-Compatible Land Use for more information) and wildlife disturbance risks within the ATMP planning area would likely continue at current levels, approximately 96 flights per year from 2017-2019. Mechanized equipment use and ground teams would generate noise during fencing activities and maintenance of trails. There are no anticipated changes to public access within the ATMP planning area, so ongoing impacts to wildlife from visitors would remain unchanged in the foreseeable future. Avian malaria continues to decimate populations of some endemic birds. The NPS is currently evaluating new technologies to combat avian malaria and slow the rate of decline of these species.

Changes in environmental conditions in the ATMP planning area that may ensue from global climate change include increasing temperatures, decreasing precipitation, increasing storm intensities, and increasing variability in weather patterns (Thomas et al., 2004; Frazier and

Giambelluca, 2017). Changes in microclimatic conditions in the habitats of endemic invertebrates and their host plants may lead to the loss of native species due to direct physiological stress, the loss or alteration of habitat, increasing distribution and abundance of invasive species, and changes in disturbance regimes (e.g., droughts, fire, storms, and hurricanes). Because the ecology and distribution of many invertebrates is little known, specific and cumulative effects of climate change on most species of concern are presently unknown. However, it is well documented that stress from different sources is cumulative having a combined effect on the health of wildlife (Tyack et al., 2022). Alternative 3 would result in less cumulative noise and wildlife disturbance in the ATMP planning area than the No Action Alternative, given the reduced number of flights, designated routes, and other ATMP parameters. However, it could allow for more cumulative noise and associated wildlife disturbance than Alternative 2, where flights would not be authorized in the ATMP planning area. Ongoing present and future park management actions by the NPS would continue to occur under any of the alternatives.

3.4 Cultural Resources

The NHPA (54 U.S.C. §§ 300101 et seq.) is comprehensive federal preservation legislation intended to protect cultural resources. Section 106 of the NHPA (54 U.S.C. § 306108), as implemented in 36 CFR Part 800, requires federal agencies to consider the effects of undertakings on historic properties, should any such properties exist. A historic property is defined in 54 U.S.C. § 300308 and 36 CFR 800.16(l)(1) as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (National Register). This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or NHO and that meet the National Register criteria. The FAA's environmental impact category discussing cultural resources is titled as Historical, Architectural, Archeological and Cultural Resources in FAA Order 1050.1F. These categories include historic properties as well as any cultural resources identified that may not be eligible for listing in the National Register but are otherwise protected as tribal resources or by local and state laws. Sacred sites, for example, are considered significant cultural resources and are also protected under the American Indian Religious Freedom Act. The methodology in Appendix E as well as the Section 106 documentation in Appendix G further describe the identification and treatment of cultural resources for the project.

In addition to Section 106 of the NHPA, the NPS's Organic Act and Section 110 of the NHPA apply to and provide for the preservation of historic, ethnographic and cultural resources on parkland. NPS policies and directives that also apply to Park cultural and ethnographic resources and provide direction for their management include the 2006 NPS Management Policies, Chapter 5 and Director's Order 28: Cultural Resource Management. Executive Order (EO) 13007 provides direction regarding Indian Sacred Sites. NPS Management Policies (2006)

Section 5.3.1.7, Cultural Soundscape Management, also acknowledges that culturally appropriate sounds are important elements of the national park experience in many parks, and that the NPS will preserve soundscape resources and values of the parks to the greatest extent possible to protect opportunities for appropriate transmission of cultural and historic sounds that are fundamental components of the purposes and values for which the parks were established. NPS Management Policies identify and define five types of cultural resources for consideration in NEPA evaluation: Archeological Resources, Cultural Landscapes, Ethnographic Resources, Historic and Prehistoric Structures, and Museum Collections. These resource types correlate generally with the FAA categories as described further below. Museum Collections is dismissed from consideration due to the nature of the project.

Section 106 consultation with the Hawai'i State Historic Preservation Division (SHPD) was initiated via formal letter dated March 29, 2021. On April 28, May 4, and May 6, 2021, the agencies held initial Section 106 consultation webinars to provide basic background information on ATMPs and the ATMP development process. The agencies identified consulting parties that may have an interest in the undertaking and its effects on historic properties. They initiated consultation with consulting parties in three phases in order to include additional parties that were identified as the process moved forward (see Appendix G for correspondence and list of consulting parties). These letters were dated April 16, 2021; August 6, 2021; and October 1, 2021. The last letter included an invitation to the October 28, 2021, informational webinar held to provide background on the ATMP development process. An additional listening session was held December 9, 2021, with Kūpuna groups and other consulting parties and individuals.

The NEPA study area for cultural resources corresponds with the Area of Potential Effects (APE) identified as part of the Section 106 process and encompasses the potential effects of all alternatives under consideration. An APE as defined at 36 CFR 800.16(d) is the geographic area or areas within which the undertaking may directly or indirectly cause alterations in the character or use of any historic properties, if any such properties exist. The proposed undertaking does not require land acquisition, construction, or ground disturbance, and the agencies anticipate no physical effects to historic properties. The APE therefore includes areas where any historic property present could be affected by the potential introduction of visual or audible elements that could diminish the integrity of any identified significant historic properties. The APE has been defined to include the ATMP planning area as well as areas outside of the ATMP planning area between the Nu'u and Ka'āpahu areas of the Park, bounded to the south by the southern limits of the ½ mile buffer around the Kaupō Denman parcel, and the overland area between the Ka'āpahu and Kīpahulu areas of the Park. The APE extends vertically from ground level to encompass areas where cultural resources may be affected by operators flying above the ATMP planning area (i.e., more than 5,000 ft. AGL). As the ground level varies throughout the Park, the vertical limits extend to just above 5,000 ft. MSL at the

coastline to no more than 10,000 ft. MSL near the summit. Refer to Figure 13 for a depiction of the APE.

The agencies consulted with the Hawai'i SHPD, NHOs, Kūpuna, operators, and other consulting parties prior to finalizing the APE. The agencies held a Section 106 consultation meeting with all consulting parties on November 10, 2022, to inform them of the proposed APE and to seek comment on identification of historic properties within the APE and the justification of the boundaries of the APE. Consulting parties provided comments during the meeting as well as in emails and written letters following the meeting. The agencies took into consideration the input from the consulting parties and subsequently expanded the boundaries of the APE to incorporate comments received by the consulting parties regarding additional areas potentially affected by the undertaking. The FAA sent a letter dated December 23, 2022, to the SHPD requesting their input on the APE. SHPD responded with no objection in a letter dated January 26, 2023. The agencies shared the revised APE with the other consulting parties and requested input on any additional historic properties in a letter dated February 10, 2023.

3.4.1 Affected Environment

The affected environment includes prehistoric or historic districts, sites, buildings, structures, and/or objects, as well as TCPs (inclusive of ethnographic resources and sacred sites) and cultural landscapes that have been previously documented in the APE or identified through consultation. Under existing conditions, based on flight tracking data and reported routes, the heaviest concentrations of commercial air tours fly over the southern half of the Park, with many circling or focusing on views of the Haleakalā Summit and Crater area (see Figure 13). Throughout the Section 106 process, the agencies requested consulting party input to help identify historic properties within the APE. The agencies provided an initial historic property identification list to consulting parties in a March 2022 letter accompanying the public scoping newsletter and at the November 10, 2022, Section 106 consulting party meeting and requested further input on the identification of historic properties within the proposed APE. Consulting parties provided comments during the meeting as well as in emails and written letters following the meeting regarding the identification of historic properties, and the agencies took into consideration the input from the consulting parties in identifying additional historic properties. The agencies again requested input on historic property identification in the revised APE in the letter dated February 10, 2023. A final historic properties list was provided in the March 27, 2023 finding of effects letter.

Cultural Resources (including Ethnographic Resources, Sacred Sites and Traditional Cultural Properties)

Ethnographic resources are resources that are associated with the customs, habits, or behaviors of a cultural group, including those that possess religious and cultural significance. A sacred site, as defined in EO 13007, is any specific location that is identified to be an

appropriately authoritative representative of an indigenous religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an indigenous religion. A TCP is a property significant due to its association with past and continuous cultural practices or beliefs of a living community that are rooted in that community's history and are important in maintaining the continuing cultural identity of the community. TCPs possess traditional cultural significance derived from the role the property plays in a community's historically rooted beliefs, customs and practices (NPS, 1992). TCPs are treated as historic properties for the purpose of evaluating effects under Section 106 and NEPA (FAA, 2020).

Consultation with NHOs and kūpuna (elders) associated with the Park has been ongoing since 2004. The kūpuna have reiterated the cultural importance of the entire Park and stated that many sacred and cultural places cannot be disclosed. Based on consultation, as well as a 2008 Ethnographic Study of the Cultural Impacts of Commercial Air Tours over Haleakalā National Park conducted by Prasad and Tomonari-Tuggle (2008), Native Hawaiians view Haleakalā in its entirety as an important cultural place, a wahi pana or place of mo'olelo (stories), traditions, and legends. Based on oral and written traditions, as well as current cultural beliefs, Haleakalā is a sacred mountain. Native Hawaiians use Haleakalā for performance of ceremonies and other traditional practices including makahiki ceremonies and hula. Haleakalā is associated with birth and burial practices in the Native Hawaiian culture. Many traditional Hawaiian practices require that the sounds of nature may be heard and not interrupted by other human noises.

The Haleakalā Summit, including Kīpahulu Valley and Kaupō Gap, is eligible for the National Register as a TCP for its association with the cultural landscape of Maui and because it has known uses, oral history, mele (song), and legends, is a source for both traditional materials and sacred uses, and is considered a place exhibiting spiritual power.

The sacred essence of Haleakalā includes the sky above. Traditional cultural practices within the Haleakalā Summit TCP include ritual ceremonies, spiritual training, practices related to birth and burial, and farming using traditional practices (Prasad and Tomonari-Tuggle, 2008). The oral history, mele, and legends associated with the Haleakalā Summit present a cluster of stories suggesting the significance of Haleakalā as a TCP. Some believe that the Haleakalā Summit possesses therapeutic qualities. It is traditionally believed that gods dwelled at the Haleakalā Summit (CKM Cultural Resources, 2006). Craters, summits, and undisturbed forest areas are of importance to Native Hawaiian culture due to their association with Hawaiian deities and demi-gods including Maui, Pele, Kamohoali'i, Lilinoe, and Kāne/Kana (Prasad and Tomonari-Tuggle, 2008). Native Hawaiians still travel to the Haleakalā Summit to engage in cultural and religious practices. The Haleakalā Summit has also been a site for sourcing of traditional materials, including gathering of plants for medicinal, practical, and spiritual purposes; hunting birds for food and feathers; and basalt collection for the making of stone tools (Cultural Surveys Hawai'i, 2007; Prasad and Tomonari-Tuggle, 2008). The Haleakalā

Summit was also used traditionally for astronomical observations; travel (Haleakalā was traditionally utilized as a travel route through East Maui, particularly through the Kaupō and Koʻolau Gaps); and warfare (Prasad and Tomonari-Tuggle, 2008).

Kīpahulu is also a place rich in traditional Native Hawaiian moʻolelo (story). The goddess Kapo, the aliʻi (chief) Wahioloa, and famous battles are associated with Kīpahulu. Traditional practices in Kīpahulu include Native Hawaiian traditional farming, fishing, ceremony, and use of pre-Contact trails. The Kapahu Living Farm, a contributing feature of the Kīpahulu Historic District (see below) is an ancient loʻi (irrigated terrace complex) that is actively farmed in kalo (taro, *Colocasia esculenta*) and other Polynesian introduced crops, and used as an educational and cultural site by the East Maui community.

Consultation and the Ethnographic Study have also determined that the natural resources within the APE are also considered to be cultural resources by the Native Hawaiians, with particular emphasis on the Native Hawaiian birds within the APE (Prasad and Tomonari Tuggle, 2008). Many of these natural resources are contributing features to the cultural resources detailed throughout this section. A study completed by Maly & Maly (2004) states the following:

“We find in native traditions and beliefs, that Hawaiians shared spiritual and familial relationships with the natural resources around them. Each aspect of nature from the stars in the heavens, to the winds, clouds, rains, growth of the forests and life therein, and everything on the land and in the ocean, was believed to be alive. Indeed, every form of nature was a body-form of some god or lesser deity. In the Hawaiian mind, care for each aspect of nature, the kino lau (myriad body-forms) of the elder life forms, was a way of life. This concept is still expressed by Hawaiian kūpuna (elders) through the present day, and passed on in many native families. Also, in this cultural context, anything which damages the native nature of the land, forests, ocean, and kino lau therein, damages the integrity of the whole. Thus caring for, and protecting the land and ocean resources, is important. In the traditional context above referenced, we find that the land, the native plants and life-forms, and the intangible components therein, are a part of a sacred Hawaiian landscape. Thus, the landscape itself is a highly valued cultural property.”

Archeological Resources

Archeological resources are the physical evidence of past human activity, including evidence of the effects of that activity on the environment. Archeological features and sites within the APE include shrines, encampment remains, stone structures associated with travel, stone walls and enclosures, terraces associated with wet and dry agriculture, trails, burials, remains of lithic activity, ceremonial sites, coastal settlements, pictographs, and petroglyphs. These resources encompass a range of pre-Contact and post-Contact Native Hawaiian and Euro-American sites

(Tomonari-Tuggle and Tuggle, 2007). All of the National Register-eligible sites detailed below retain integrity of location, design, setting, materials workmanship, feeling, and association.

The National Register-listed Crater Historic District, which encompasses much of the northern part of the Park, consists of 56 pre-Contact archaeological sites, including temples and burials, and is significant for its potential to yield information important to the pre-Contact history of Hawai'i (nominated to the National Register in 1974). Rosendahl (1978), Glidden (1998) and Carson and Mintmier (2007) later completed more detailed inventories of sites within the Crater Historic District.

Archeological resources in the APE document the Native Hawaiian ka noho 'ana (way of life in traditional land divisions, or ahupua'a, extending from the uplands to the sea). The National Register-eligible Kīpahulu Historic District, for example, protects multiple intact ahupua'a and is significant for its association with Native Hawaiian culture, tradition, and settlement.

The entire Kīpahulu moku (district), which contains ahupua'a (smaller land divisions) within it, was settled sometime between the twelfth and fourteenth centuries C.E. and contains over 300 archeological features, including agricultural features, marine technology associated with fishing, and evidence of coastal villages including rock walls, pā hale (foundation of living quarters), ko'a (fishing shrines), and heiau (temples). Further inland, the Kīpahulu moku contains remains of lo'i kalo (irrigated taro terraces), animal enclosures, and house sites. The Kīpahulu Historic District was nominated for listing in the National Register in 1976. Since that time, individual sites within the district have been determined to be contributing to the historic district and individually eligible for listing in the National Register in 2002, 2008, 2013, and 2022 (Dye et al., 2002; Carson and Reeve, 2008; Tomonari-Tuggle, 2013; Hodara Nelson et al., 2022). The Kīpahulu Historic District includes the Kapahu Living Farm, a complex of both wetland and dryland terraces used for farming kalo (taro), and used as an educational and cultural site by the East Maui community. The Kapahu Farm is still actively farmed today by the Kīpahulu 'Ohana through a Cooperative Agreement with the NPS.

Like the Kīpahulu Historic District, the National Register-eligible Puhilele Archeological Sites are located near the ocean at the southern edge of the Park and consist of terraces, platforms, alignments, and mounds used for agricultural, residential, ceremonial as well as temporary shelter for fishing. The Puhilele Archeological Sites represent pre-Contact/early historical residential compounds and dryland agricultural complexes and are eligible for listing in the National Register for their potential to yield information regarding the island's prehistory. One site is eligible because it embodies the distinctive characteristics of a type, period, or method of construction (Carson and Reeve, 2008).

The Ka'āpahu Archeological Sites consist of archeological sites recorded within Kālepa, 'Alelele, Lelekēa, and Kukui'ula Valleys, including traditional Native Hawaiian dryland agriculture terraces and clearings, larger irrigated pondfield complexes for the production of kalo (taro),

and habitation and ceremonial sites. Nineteenth century enclosures representing mixed residences and agriculture, including animal husbandry, are also present. All of the sites are recommended as significant for their potential to yield information. The complex of 18 archeological sites at 1,000 ft. elevation in dryland Naholoku Ahupua'a dates as early as the fifteenth to seventeenth centuries and is significant for its potential to yield information regarding Hawaiian prehistory and history, with at least three sites eligible for their architecture/design. These latter sites represent structures that embody the characteristics of pre-Contact and late pre-Contact/early historical residential compounds and smaller agricultural heiau (Hodara Nelson and Steffen, In prep.).

Similarly, the Nu'u Archeological Sites are eligible for listing in the National Register for their potential to yield information, with 19 sites also eligible for their design. These latter sites represent structures that embody the characteristics of pre-Contact and late pre-Contact/early historical residential compounds, dryland agricultural complexes, smaller agricultural heiau, petroglyph styles, a lithic tool manufacturing locale, and the remains of a nineteenth-century church complex (Tomonari-Tuggle et al., 2015). The Nu'u sites consist of pocket terraces, terraces, enclosures, cleared areas, modified outcrops, and mounds that represent an extensive traditional dryland agricultural complex for primarily sweet potato production, temporary shelters associated with agricultural activity, multiple permanent residential complexes, most of which date to the nineteenth century, specialized features/use areas for ceremony and lithic production.

The following sites are located outside the Park boundary, but within the APE. The information was obtained from the Hawai'i SHPD.

The unevaluated Nu'u-Waiu Complex, located just east of the aforementioned Nu'u Archeological Sites, consists of several archaeological sites, including enclosures, terraces and platforms, pits, pavements, house lots, walls, ko'a, trails, cairn, petroglyphs, a fishpond, rockshelters, and graves.

The APE also contains the unevaluated Nu'u Petroglyph Complex and the Nu'u Pictograph Complex, which cover 117 meters and consist of 157 petroglyphs and 40 pictographs of human forms, animal forms, and other images. The unevaluated Pictograph and Rock Shelter site consists of a single human pictograph figure painted with alaea (Hawaiian red salt) on a boulder near a rock shelter (Hawai'i SHPD).

Additional individual archaeological sites in the APE include various individually eligible and potentially eligible prehistoric and historic structures, including several heiau: the Hāwelewele Complex (Kailiili Heiau), Keakalauae Heiau, Lonoaea Heiau, Lono'o'ai'a Heiau (Hale O Kane Heiau), Naku'ula Complex, and Pu'umaka'a Heiau. Individual sites also consist of various wall sites that served different purposes, such as a C-Shaped Wall (SHPD ID 50-50-16-03979) located east of Pāhihi Gulch; Wall (SHPD ID 50-50-16-08663), which was built along the side of a steep

stream channel; Wall (SHPD ID 50-50-16-08664), which may have been constructed for drainage during the historic period; Wall (SHPD ID 50-50-16-03978), which likely served as a windbreak for a structure located in its lee; Wall (SHPD ID 50-50-17-08883), which was likely constructed to mark the boundaries of a neighboring parcel; and Walls (SHPD ID 50-50-16-01132), which may be the remains of a house site. Other individual sites include the remains of large Enclosures (SHPD ID 50-50-16-03980); a Mound (SHPD ID 50-50-16-08665) constructed of stacked stones that may have served as a historic cattle ramp; and Terraces (SHPD ID 50-50-16-01133) on the west side of the Kalepa Stream, which consists of two rectangular enclosures (Hawai'i SHPD).

Historical and Architectural Resources (including Cultural Landscapes and Prehistoric/Historic Structures)

A cultural landscape is a reflection of human adaptation and use of natural resources and is often expressed in the way land is organized and divided. Cultural landscapes are geographic areas associated with specific cultures or historical events, and they help illustrate how humans have adapted to and altered their surroundings. The NPS recognizes four cultural landscape categories: historic designed landscapes, historic vernacular landscapes, historic sites, and ethnographic landscapes. The Park contains cultural landscapes that are significant for their association with early park master planning during the 1930s including the work of the Civilian Conservation Corps (CCC), World War II development in the Park, and the post-War Mission 66 era of NPS park planning. The five designated cultural landscapes of the Park are the CCC Haleakalā Crater Trails Historic District Cultural Landscape, the Haleakalā Headquarters Historic District Cultural Landscape, the Haleakalā Highway Historic District Cultural Landscape, the Hosmer Campground and Picnic Area Cultural Landscape, and the Pu'unianiau Historic Site Cultural Landscape. Four of the cultural landscapes are historic designed landscapes; the Pu'unianiau Cultural Landscape is a historic site. All five cultural landscapes retain integrity to convey their historical significance.

The CCC Haleakalā Crater Trails Historic District Cultural Landscape was designed by NPS landscape architects and constructed by CCC enrollees between 1930 and 1941. It is significant for its association with early Park planning and for its embodiment of NPS Rustic Style architecture. It is also a representation of development completed through the CCC program, which ran from 1933 to 1942 and provided jobs for young men after the Great Depression. Several historic buildings and structures within the Park are significant for their architectural design. Resources contributing to the CCC Haleakalā Crater Trails Historic District Cultural Landscape embody the distinctive characteristics of NPS Rustic Style architecture, which was a common style of architecture used by the NPS in the early- to mid-twentieth century. The Kaupō Gap Trail, which extends north-to-south in the Kaupō Gap, is a contributing feature of the CCC Haleakalā Crater Trails Historic District. The trail may also be significant for its

association with Native Hawaiian culture, traditions, and sacred uses, but this aspect of its significance has not yet been evaluated.

Similarly, the Haleakalā Headquarters Historic District Cultural Landscape and Haleakalā Highway Historic District Cultural Landscape are both significant for their association with early Park planning and as examples of Mission 66-era development. Several of the Park's historic structures are significant for their association with early Park planning and for their association with the CCC. The highway that runs through the Haleakalā Highway Historic District Cultural Landscape was designed by the Bureau of Public Roads with input from the Park and NPS landscape architects.

The Hosmer Campground and Picnic Area Cultural Landscape is located just below the 7,000 ft. elevation in the Haleakalā Summit area of the Park and is the only drive-in campground in the area. Like the Haleakalā Headquarters Historic District Cultural Landscape and Haleakalā Highway Historic District Cultural Landscape, it is significant as an example of a Mission 66-era development. It is also significant for its experimental forestry plot that was planted by Ralph S. Hosmer in the early-twentieth century. The Hosmer Campground and Picnic Area Cultural Landscape and Haleakalā Highway Historic District Cultural Landscape are both significant as examples of Mission 66 architecture in the Park. Mission 66 was an NPS program that was intended to expand visitor services and modernize Park facilities in response to growing tourism following the end of World War II.

Additionally, the Pu'unianiau Historic Site Cultural Landscape, located near the northwest corner of the Park, is significant as a base camp used by the U.S. Army for the administration of the Red Hill Aircraft Warning Service Station at the Haleakalā Summit between 1941 and 1946.

The Park retains several prehistoric and historic structures that are listed in, or eligible for listing in, the National Register, including pre-Contact Native Hawaiian temples and house sites, and historic trails, roads, bridges, campgrounds, and historic districts. Many of these historic structures are contributing features to the cultural landscapes and districts detailed in this section.

The Hāna Belt Road, which runs through the southern areas of the Park but is under the jurisdiction of the County of Maui, is associated with the early development of East Maui in the early- to mid-twentieth century. The Hāna Belt Road achieves state and local significance in the areas of engineering, transportation, commerce, and social history. The construction of bridges and a road to Hāna between 1900 and 1947 remain along the route as an example of bridge engineering and construction in Hawai'i during the early twentieth century. The completion of an automobile route to Hāna in 1926 ended the community's isolation from the rest of Maui. The road opened East Maui to settlement, agricultural enterprises and tourism. The Hāna Belt Road is the best remaining intact example of the old belt road system in Hawai'i.

Cultural Resources List

There are 32 identified cultural resources within the APE, listed in Table 8 and depicted in Figure 13. The locations of some archaeological sites are considered sensitive information and are therefore not included in Figure 13. Descriptions of each can be found in Appendix G, *Cultural Resources Consultation and Summary*.

Table 8. National Register Listed, Eligible, and Potentially Eligible Properties within the APE and Section 4(f) Resources.

Property Name	Property Type	Eligibility Status
Civilian Conservation Corps (CCC) Haleakalā Crater Trails Historic District Cultural Landscape	Cultural Landscape	Eligible
Crater Historic District	District	Listed
C-Shaped Wall (SHPD ID 50-50-16-03979)	Site, Structure	Eligible
Enclosures (SHPD ID 50-50-16-03980)	Site, Structure	Eligible
Haleakalā Headquarters Historic District Cultural Landscape	Cultural Landscape	Eligible
Haleakalā Highway Historic District Cultural Landscape	Cultural Landscape	Eligible
Haleakalā Summit Traditional Cultural Property	TCP	Eligible
Hāna Belt Road	District	Listed
Hāwelewele Complex (Kailili Heiau)	Site, Structure	Unevaluated ²¹
Hosmer Campground and Picnic Area Cultural Landscape	Cultural Landscape	Eligible
Ka'āpahu Archeological Sites	Sites	Eligible
Keakalauae Heiau	Site, Structure	Unevaluated
Kīpahulu Historic District	District	Eligible
Lonoaea Heiau	Site, Structure	Unevaluated
Lono'ō'ai'a Heiau (Hale O Kane Heiau)	Site, Structure	Unevaluated
Mound (SHPD ID 50-50-16-08665)	Site, Structure	Eligible
Naholoku Archeological Sites	Sites	Eligible
Naku'ula Complex	Site, Structure	Unevaluated
Nu'u Archeological Sites	Sites	Eligible
Nu'u Petroglyph Complex	Site	Unevaluated
Nu'u Pictograph Complex	Site	Unevaluated
Nu'u-Waiu Complex, Hana	Site, Structure	Unevaluated
Pictograph and Rock Shelter (Marciel's Pictograph)	Site, Structure	Unevaluated
Puhilele Archeological Sites	Sites	Eligible
Pu'umaka'a Heiau	Site, Structure	Unevaluated
Pu'unianiau Historic Site Cultural Landscape	Cultural Landscape	Eligible
Terraces (SHPD ID 50-50-16-01133)	Site, Structure	Unevaluated

²¹ The FAA is treating identified but unevaluated properties as eligible for the National Register.

Property Name	Property Type	Eligibility Status
Wall (SHPD ID 50-50-16-08663)	Site, Structure	Eligible
Wall (SHPD ID 50-50-16-08664)	Site, Structure	Eligible
Wall (SHPD ID 50-50-16-03978)	Site, Structure	Eligible
Wall (SHPD ID 50-50-17-08883)	Site, Structure	Unevaluated
Walls (SHPD ID 50-50-16-01132)	Site, Structure	Unevaluated

Sources: NPS Cultural Resource Managers and Hawai'i State Historic Preservation Division staff.

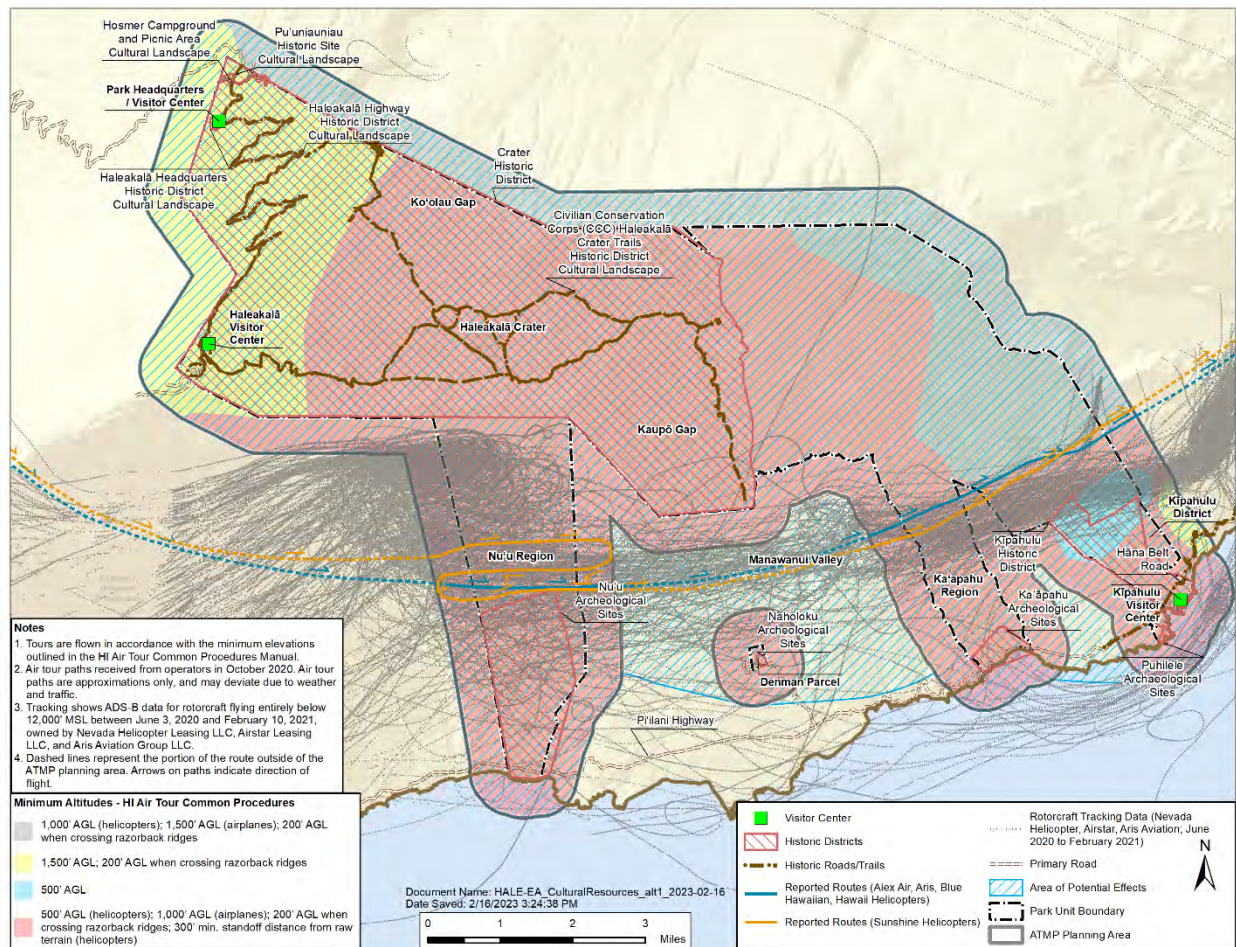


Figure 13. Affected Environment for Cultural Resources

3.4.2 Environmental Consequences

Cultural resources within the APE include historic, architectural, archeological and cultural resources, inclusive of ethnographic resources, TCPs, sacred sites, cultural landscapes, historic districts, and prehistoric and historic buildings and structures. Adverse impacts to these resources would occur if the alternative would alter the characteristics of a cultural resource that contribute to its significance in a manner that diminishes the integrity of the resource's

location, design, setting, materials, workmanship, feeling, or association. Commercial air tours, by their nature, have the potential to impact resources for which feeling and setting are contributing elements.

For all alternatives, the proposed action would not limit access to or change ceremonial use of Native Hawaiian sacred sites on federal lands. Sacred ceremonies or other Native Hawaiian activities which occur without notice to the NPS may be interrupted by noise, however, commercial air tours would have no effect on Native Hawaiian access. Additionally, the proposed action would not involve any ground disturbing or other activities that would adversely affect the physical integrity of sacred sites.

The agencies requested and received consulting party input on the potential effects of the alternatives on historic properties throughout the Section 106 process, including at the October 28, 2021, informational webinar, December 9, 2021, listening session, and the November 10, 2022, Section 106 Consulting Party meeting. Consulting parties provided comments during the meetings as well as in emails and written letters following the meetings, and the agencies took into consideration the input from the consulting parties in evaluating the effects of the preferred alternative on historic properties.

Alternative 1: No Action

Under the No Action Alternative, cultural resources within the APE would continue to be impacted by air tours, as noise and visual effects would impact the feeling and setting of those resources. As described in Section 2.2.1, Air Tours at or above Existing Levels, noise and visual impacts from existing air tours impact existing Native Hawaiian ethnographic resources, sacred sites and TCPs. Native Hawaiians have consistently noted that the persistent air tours over the Park unreasonably interfere with the silence needed to perform ceremonies conducted by Native Hawaiian practitioners at these sacred sites, some of which rely on hearing natural sounds. Under the No Action Alternative, these impacts to ethnographic resources would continue to occur. Reporting data from 2017-2019 indicates that on average, air tour aircraft fly over the APE approximately 14 times per day, and the maximum number of tours reported over the Park in one day during that period was 50 tours, creating the potential for multiple audible intrusions of Native Hawaiian ceremonial practices when the noise from those tours is audible. Based on the *Noise Technical Analysis* (see Appendix F, Figure 10), the entire Haleakalā Summit TCP may experience sound above 35 dBA, with the areas along the most heavily utilized flight paths (where the crater is visible) experiencing between 75 and 90 minutes above 35 dBA. The 12-hour equivalent sound level within the TCP would range from 9.5 dBA at Hosmer Point (modeled location point #1; the far northeast corner of the Park) to 45.6 dBA at approximately the 7,500 ft elevation of Nu'u (modeled location point #40).

Kūpuna, cultural practitioners, Native Hawaiians and kama'āina (the present residents in a place; a citizen; especially one of long standing) have repeatedly noted that overflights from

commercial air tours severely degrade the sacredness of Haleakalā and the sky above, detract from the sanctity of the mountain, and interrupt traditional practices, including fishing. Under the No Action Alternative, flights over significant features such as the Haleakalā Summit, including Kīpahulu Valley and Kaupō Gap, would continue to occur, resulting in visual and audible intrusions that detract from the sanctity of the Haleakalā Summit TCP.

Air tours within the APE may also impact the Park's historical, architectural, and archeological resources, including cultural landscapes, and prehistoric and historic structures when air tour noise and visual effects detract from the feeling and setting of those resources. As noted in Appendix G, *Cultural Resources Consultation and Summary*, the cultural resources that experience the most air tours flying directly over or near them under existing conditions are the Crater Historic District, Kīpahulu Historic District, Puhilele Archeological Sites, Hanā Belt Road, Nu'u Archeological Sites, Ka'āpahu Archeological Sites, Naholoku Archeological Sites, C-Shaped Wall (SHPD ID 50-50-16-03979), Enclosures (SHPD ID 50-50-16-03980), Hāwelewele Complex (Kailili Heiau), Keakalauae Heiau, Lonoaea Heiau, Lono'o'ai'a Heiau (Hale O Kane Heiau), Mound (SHPD ID 50-50-16-08665), Naku'ula Complex, Nu'u Petroglyph Complex, Nu'u Pictograph Complex, Nu'u-Waiu Complex, Hana, Pictograph and Rock Shelter (Marciel's Pictograph), Pu'umaka'a Heiau, Terraces (SHPD ID 50-50-16-01133), Wall (SHPD ID 50-50-16-08663), Wall (SHPD ID 50-50-16-08664), Wall (SHPD ID 50-50-16-03978), Wall (SHPD ID 50-50-17-08883), Walls (SHPD ID 50-50-16-01132), and the Haleakalā Summit TCP. Based on the significant characteristics that make them eligible for the National Register, all of these resources currently have their feeling or setting impacted by the noise and visual impacts of air tours. These effects would continue to occur under the No Action Alternative.

Alternative 2

Under Alternative 2, commercial air tour aircraft would not fly within the ATMP planning area. The elimination of commercial air tours from the ATMP planning area would reduce the noise and visual intrusions from impacting the feeling and setting of cultural resources within the APE and result in beneficial impacts, including ethnographic resources and sacred sites, TCPs, archeological resources, cultural landscapes, historic districts, and prehistoric and historic buildings and structures compared to current conditions.

Alternative 3

The authorized flight path under Alternative 3 would not fly directly over many of the Park's sacred sites and ethnographic resources, including many significant features of the Haleakalā Summit TCP, and the Park's National Register listed and eligible resources, including the Crater Historic District, Kīpahulu Historic District, Hanā Belt Road, Nu'u Archeological Sites, Ka'āpahu Archeological Sites, and Naholoku Archeological Sites (refer to Figure 14). Alternative 3 would overall reduce noise and visual impacts that could detract from the feeling and setting of these resources. Some points in the Kīpahulu Historic District, Puhilele Archeological Sites, and

Ka'āpahu Archeological Sites and near the Keakalauae Heiau, Lonoaea Heiau, Lono'o'ai'a Heiau (Hale O Kane Heiau), Mound (SHPD ID 50-50-16-08665), Pictograph and Rock Shelter (Marciel's Pictograph), Pu'umaka'a Heiau, Terraces (SHPD ID 50-50-16-01133), Wall (SHPD ID 50-50-16-08663), Wall (SHPD ID 50-50-16-08664), Wall (SHPD ID 50-50-17-08883), and Walls (SHPD ID 50-50-16-01132) may experience a slight increase in noise intensity from existing conditions as more flights may fly this path than currently fly over those areas. However, as further explained below, not all of these resources have settings where quiet or natural sounds are significant and the duration flights may be heard would be reduced due to the higher minimum altitudes and other restrictions under Alternative 3.

Under Alternative 3, the *Noise Technical Analysis* (Appendix F, Figure 13) indicates that on days when air tours occur, portions of the APE would experience noise above 35 dBA for up to 45 minutes a day, with most portions of the APE experiencing noise above 35 dBA for less than 15 minutes a day. Compared to the No Action Alternative, the time above 35 dBA under Alternative 3 would be reduced by up to 61 minutes (see modeled location point #40, Nu'u 7,500 ft. elevation). Only at one point, #24 (Waimoku Falls), would time above 35 dBA be greater under Alternative 3 (2 minutes). The noise footprint as measured in time above 35 dBA for Alternative 3 potentially affects 42% less of the Park.

The 12-hour equivalent sound level ($L_{Aeq, 12 \text{ hr}}$) would be between 35 and 40 dBA for portions of the APE along the proposed flight path of Alternative 3, with small areas increasing above 40 dBA but below 45 dBA (Appendix F, Figure 11). As a whole, the noise footprint for Alternative 3 as measured by $L_{Aeq, 12 \text{ hr}}$ would impact 16% less of the Park. Compared to the No Action Alternative, the average $L_{Aeq, 12 \text{ hr}}$ under Alternative 3 would be lower for the interior regions of the Park but may be higher in coastal regions. Noise at a point (#25) near Ka'āpahu Archeological Sites, Keakalauae Heiau, Mound (SHPD ID 50-50-16-08665), Terraces (SHPD ID 50-50-16-01133), Wall (SHPD ID 50-50-16-08663), Wall (SHPD ID 50-50-16-08664), and Walls (SHPD ID 50-50-16-01132) would increase 2.5 dBA in $L_{Aeq, 12 \text{ hr}}$, and a point (#26) near the Lonoaea Heiau, Lono'o'ai'a Heiau (Hale O Kane Heiau), Pictograph and Rock Shelter (Marciel's Pictograph), and Pu'umaka'a Heiau would slightly increase 0.2 dBA in $L_{Aeq, 12 \text{ hr}}$.

The 12-hour equivalent sound level ($L_{Aeq, 12 \text{ hr}}$) at a point (#22) near Puhilele Archaeological Sites and Wall (SHPD ID 50-50-17-08883) would increase 7.4 dBA, and points closest to the proposed flight path within the Kīpahulu Historic District would increase as much as 6.4 dBA (#37). This is an average across a 12-hour time period and is not necessarily indicative of noise levels at any specific point in time. Point #22 would experience a decrease in time above 35 dBA by 3.8 minutes (from 35.8 to 32 minutes) but would have 6.4 additional minutes of noise above 52 dBA (from 1.8 to 8.2 minutes). Point #37 would experience a decrease in time above 35 dBA by 4.9 minutes (from 35.8 to 39 minutes) but would have 7 additional minutes of noise above 52 dBA (from 2.2 to 9.3 minutes). The increases in minutes above 52 dBA would be minimal, and they would be spread across the operating hours depending on when the flights occur. The

maximum sound level at point #22 would increase by 6.3 dBA (from 57.3 dBA to 63.6 dBA L_{Amax}); the maximum sound level at point #37 would increase by 4.3 dBA (from 60.7 dBA to 65 dBA L_{Amax}). These levels are similar to the sound level of a large business office. Increases in noise of ± 5 dB would be obvious to an observer but are considered less than twice as loud as current conditions.

Of the historic properties in the vicinity of points #22 and #37, the Haleakalā TCP, Puhilele Archaeological Sites, and Kīpahulu Historic District have a quiet setting and/or natural sounds as significant characteristics. While these locations would experience an increase in noise intensity, they are near the coast where the median natural ambient sound level is between 45 and 50 dBA and the time the air tours are audible would decrease by over 100 minutes compared to current conditions (from 187.1 to 85.5 minutes at point #22 and 183.7 to 79.9 minutes at point #37). Therefore, overall impacts would be reduced in duration.

Because noise is modeled using conservative assumptions and implementing the ATMP under Alternative 3 would result in limiting the number of flights to half of the three-year average of flights flown from 2017-2019 using a single route and the same aircraft to fly at higher altitudes, noise impacts are expected to overall be reduced under Alternative 3. Alternative 3 would not introduce new audible elements into the APE because air tours are currently occurring in this area; the undertaking limits the number of annual (2,412) and daily (16) flights that could occur within the ATMP planning area, which would reduce the number of air tour operations within the ATMP planning area and corresponding noise effects to cultural resources within the APE. These annual and daily limits also reduce or maintain the likelihood that an air tour would interrupt Native Hawaiian traditional practices such as ceremonies, fishing, or farming, as well as the sanctity of the Haleakalā Crater as compared to existing conditions. Furthermore, Alternative 3 would impose time-of-day restrictions and would limit flights to certain days of the week. Because Alternative 3 would result in minimal changes to noise levels on historic properties compared to current conditions and would decrease the time that air tours are audible at historic properties in the APE, the undertaking would not diminish the integrity of any historic property's significant historic features.

Historic properties may also see an increase in flights in the coastal area due to the shifting of flights; however, overall flights will decrease, altitudes will increase, and visual impacts are anticipated to decrease. Noise and visual impacts of existing air tour operations are already present in the APE. Although the proposed flight path will shift the bulk of air tour operations to the south and will expose some historic properties to increased noise and visual impacts, any increases in noise and visual impacts will be limited due to the increased minimum altitudes and reduction in the overall number of air tours in the ATMP planning area. Furthermore, air tours are transitory in nature, and any noise and visual impacts to historic properties will be temporary. Therefore, Alternative 3 will not result in any adverse effects to historic properties in the APE.

The agencies continued consultation under Section 106 with an evaluation of the effects of Alternative 3, as the preferred alternative, on historic properties. A letter was sent on March 27, 2023, to the Hawai'i SHPD and all consulting parties outlining the Section 106 process, including a description of the undertaking, delineation and justification of the APE, identification of historic properties and an evaluation and proposed finding of effects. The FAA proposed a finding of no adverse effect to historic properties (36 CFR § 800.5(b)) for the ATMP undertaking. See Appendix G, *Cultural Resources Consultation and Summary*, for more information.

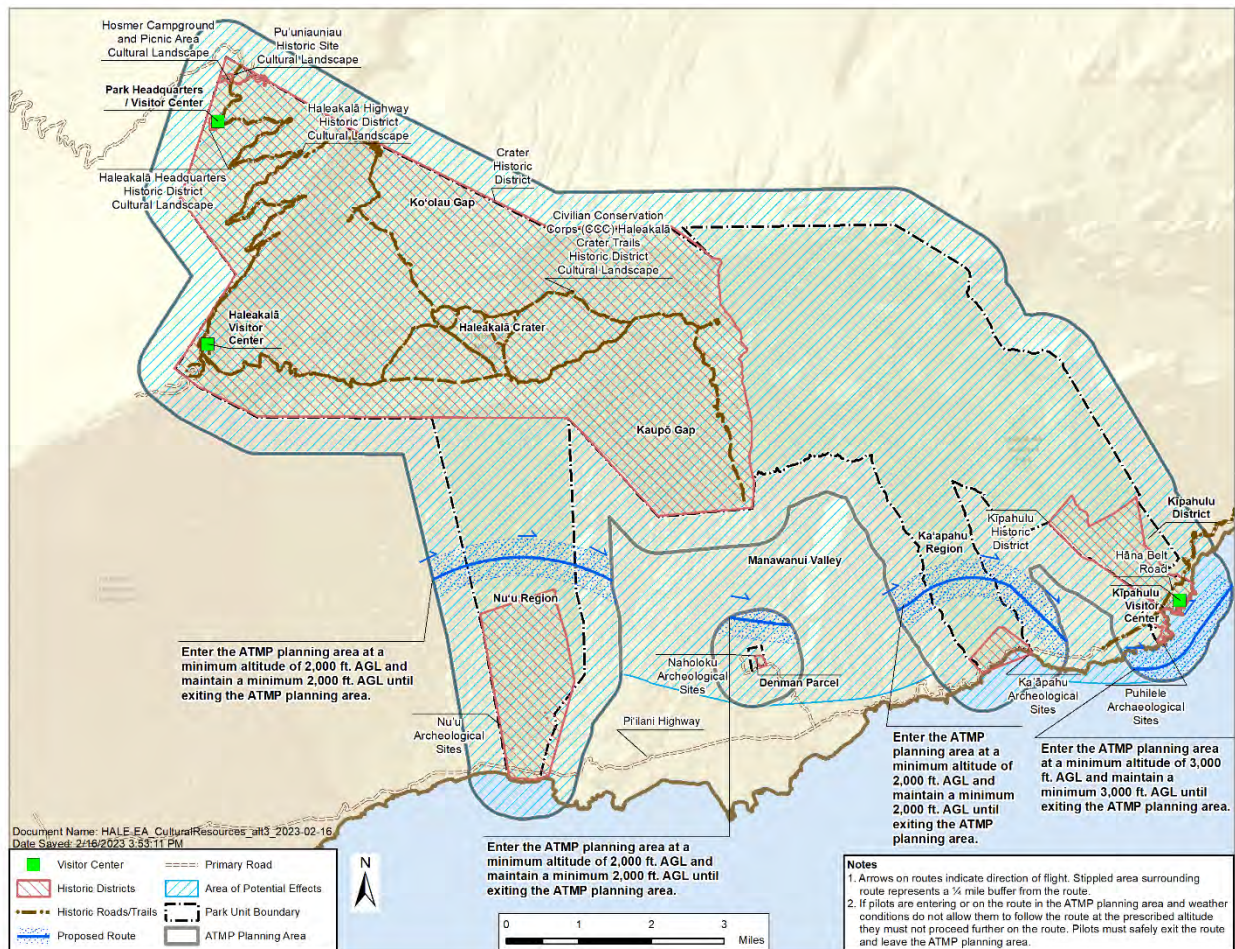


Figure 14. Cultural Resources Environmental Consequences for Alternative 3

Indirect and Cumulative Effects

Indirect Effects: Indirect effects to cultural resources could occur as a result of noise and visual effects caused by air tours flying outside of the ATMP planning area, including those over the ATMP planning area at or above 5,000 ft. AGL. As noted in Section 3.1.2, Indirect and Cumulative Effects for Noise and Noise-Compatible Land Use, indirect noise impacts would have the potential to occur under Alternatives 2 and 3 as these alternatives could result in the

displacement of air tours outside the ATMP planning area. The No Action Alternative is not expected to result in indirect effects to cultural resources within the APE. It is difficult to predict with specificity if, where, and to what extent any displaced air tours would result in impacts in different and/or new areas. The preciseness of routes and altitudes for air tours flown on displaced routes are generally subject to Visual Flight Rules and may vary greatly. Under Alternatives 2 and 3, it is reasonably foreseeable that operators would continue to fly to points of interest on the island outside of the ATMP planning area where they already fly or fly routes over or around the Park similar to existing flight paths but outside of the ATMP planning area, which are areas encompassed by the APE. Air tour operators are likely to continue to fly some air tours along the perimeter of the ATMP planning area since Haleakalā Crater and other Park features would be visible from some areas outside the ATMP planning area. Therefore, under Alternatives 2 and 3, some indirect impacts to cultural resources that are in the areas within and surrounding the Crater Historic District and Haleakalā Summit TCP could occur if flights were displaced to outside the APE. Under Alternative 3, it is also reasonably foreseeable that operators would fly a direct path between the route segments in the ATMP planning area authorized under Alternative 3.

If operators choose to fly above the ATMP planning area, they would likely keep to an altitude close to but just above 5,000 ft. AGL, as higher flights would provide limited value to a sightseeing operation. Flights close to the crater at or above 5,000 ft. AGL are unlikely due to the elevation and safety requirements for unpressurized aircraft. Supplemental oxygen use is required in unpressurized aircraft flying over 10,000 ft. MSL for more than 30 minutes (14 CFR § 135.89, § 135.157); therefore, it is unlikely air tours would fly higher for extended periods of time. Flights in this area and at other areas of lower elevation may continue along similar paths to existing conditions but at or above 5,000 ft. AGL. Therefore, Alternatives 2 and 3 could result in some noise and visual effects to cultural resources at the high elevation points of the Park to the north with views towards the ocean or in the southern areas of the APE where flights are more likely to occur as the elevations are lower. However, any flights above or along the perimeter of the ATMP planning area would likely be reduced from the existing number of flights due to the ATMP restrictions and would therefore result in a reduction of noise and visual impacts to the Crater Historic District and Haleakalā Summit TCP. For flights at or above 5,000 ft. AGL, the increase in altitude would also likely decrease impacts on ground level resources as compared to current conditions.

Since Alternative 2 prohibits flights within the APE (whereas Alternative 3 limits them to no more than 2,412 flights per year in addition to other operating parameters as specified in Section 2.6) Alternative 2 could result in more indirect impacts to cultural resources within the APE than Alternative 3.

Cumulative Effects: Other ongoing sources of noise within the APE include Park maintenance and management actions such as administrative flights or the use of mechanized equipment for

maintenance or fencing activities (see Section 3.1.1, Affected Environment for Noise and Noise-Compatible Land Use for more information on the existing ambient for current conditions).

Ongoing visual impacts within the APE include general aviation flights, overflights by commercial airlines, military flights, and approximately 96 administrative flights per year such as those used for maintenance or search and rescue efforts, which would likely continue in the same frequency and manner under any of the alternatives, as they occur independently of air tours.

Ongoing management actions, including wildlife predator control and management; forest bird monitoring and avian malaria monitoring; ground and aerial herbicide spray operations for invasive plant control; installation and replacement of fencing to exclude ungulates; manual removal of invasive plants, and native plant outplantings throughout the APE all have the potential to impact the Haleakalā Summit TCP and cultural resources within the APE through introduction of noise and visual impacts, which impact the feeling and setting of the Haleakalā Summit TCP and cultural resources. In some cases, these activities detract from the opportunity for traditional cultural practices because mechanized equipment is necessary for the activity. However, these activities enhance the cultural and natural resources of the Park by protecting and potentially restoring habitat for Native Hawaiian plants and animals, which are significant to the Native Hawaiian people and traditional cultural practices.

The potential for cumulative noise and visual effects of these actions along with those from commercial air tours would be the greatest under the No Action Alternative. The cumulative effects would be fewer for Alternative 3, which limits the number of air tours that would occur as compared to the No Action Alternative, and the fewest under Alternative 2 as there would be no tours permitted within the ATMP planning area. As mentioned, changes in environmental conditions in the APE that may ensue from global climate change include increasing temperatures, decreasing precipitation, increasing storm intensities, and increasing variability in weather patterns (Thomas et al., 2004; Frazier and Giambelluca, 2017). These changes have the potential to affect cultural resources such as the availability of freshwater, which is crucial for traditional Native Hawaiian farming practices. Changes from climate change also threaten to impact archeological site integrity through erosion and increased risk of catastrophic flooding. Other ongoing threats and impacts to cultural resources include visitors traveling off-trail, and overcrowding, especially during the sunset hours at the Park. Ongoing present and future Park management actions by the NPS would continue to occur under any of the alternatives.

3.5 Wilderness

While Wilderness is not an impact category the FAA traditionally examines, the NPS has agency-wide (see 2006 NPS Management Policies, Chapter 6, and Director's Order 41, 2013) and Park-specific guidelines for managing designated Wilderness areas within the national park system.

The Wilderness Act of 1964 is the primary federal legislation regulating the management of Wilderness areas. As a managing agency, the NPS is required to preserve Wilderness character. NPS Management Policies, Section 6.1 (2006) states,

The purpose of Wilderness in the national parks includes the preservation of Wilderness character and Wilderness resources in an unimpaired condition and, in accordance with the Wilderness Act, Wilderness areas shall be devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historical use.

NPS manages the Wilderness for the following qualities of Wilderness character:²²

- **Untrammeled:** unhindered and free from the actions of modern human control or manipulation.
- **Natural:** ecological systems are substantially free from the effects of modern civilization.
- **Undeveloped:** retaining primeval character and influence without permanent improvements or modern human occupation.
- **Solitude or Primitive and Unconfined Recreation:** ability to provide outstanding opportunities for solitude or a primitive and unconfined type of recreation.
- **Other features of value:** Wilderness preserves other features of value that are of scientific, educational, scenic, or historical value.

Since commercial air tours do not land within the Park, the undeveloped quality of Wilderness is not discussed here. Additionally, the authorization of commercial air tours is not an intentional manipulation of the environment and therefore, the untrammeled quality of Wilderness is also not discussed here. Cultural and ethnographic resources within the Wilderness are discussed in Section 3.4, Cultural Resources; therefore, the other features of value have not been discussed in this section.

The study area for Wilderness is the Haleakalā Wilderness which is designated and defined within the Park boundary by federal statute.

3.5.1 Affected Environment

The Haleakalā Wilderness is described as “a place of extreme contrasts in terrain, ecology, climate, and scenery” shaped by volcanic, geologic, and erosional forces (NPS, 2015a). Approximately 24,719 acres, or 74 percent, of the Park is federally designated Wilderness. The Wilderness area includes the majority of the Haleakalā Crater, Manawainui, and the Kīpahulu

²² <https://www.nps.gov/subjects/wilderness/wilderness-character.htm>

Biological Reserve, which protects one of the most intact rainforest ecosystems in the Hawaiian Islands.

The Haleakalā Crater, unlike its name suggests, is a summit depression created by erosional forces during a long period of dormancy when streams in the Koʻolau and Kaupō valleys converged to create a large crater-like depression that was later partially filled by renewed volcanic activity. The Haleakala Crater drops to 3,000 ft. from an elevation 10,023 ft. above sea level at Puʻu ʻUlaʻula to the Haleakalā Crater floor. The floor of the Haleakalā Crater spans approximately 7.5 miles in length and 2.5 miles in width (NPS, 2015b). There are several opportunities for solitude and recreation in the Haleakalā Crater and the Haleakalā Summit.

The Park has a high level of biological diversity with natural processes continuing to take place, largely unaffected by humans. The Upper Kīpahulu Valley features a protected native Hawaiian intact rainforest, the Kīpahulu Biological Reserve, that is used for scientific study. Extensive management activities are focused on protection and management of these natural resources. This reserve is closed to the public to protect its biodiversity (NPS, 2015b).

The Park's Foundation Document states:

Natural sounds, panoramic views, and dark night skies greatly contribute to Haleakalā's unique sense of place. Ambient sound levels in the Haleakalā Crater are so low that they approach the threshold of human hearing, and the crater and summit offer world-renowned stargazing opportunities. Visitors flock to the summit to witness spectacular sunrises over the Park's natural landscape- this and other views in the Park are supported by its excellent air quality. In addition to being highly desired values for visitors, dark skies and natural soundscapes are vital components of a healthy, intact biological community. Each plays an important role in wildlife communication and behavior. The preservation of natural sounds, viewsheds, and dark night skies is also critical to effective Wilderness management. (NPS, 2015b)

Because natural sound is such an integral part of Wilderness character, any noise which is audible may detract from Wilderness character. Haleakalā Crater has one of the quietest (i.e., lowest decibels) natural ambient conditions (as low as 10 dBA (Wood, 2015)) of all national park system units (Lynch, 2012; Wood, 2015). Due to the extremely low ambient sound levels in the Haleakalā Crater, even relatively low-level noise can be heard at great distances. As shown in the *Noise Technical Analysis* (Appendix F, Figure 7 and Table 6), the natural ambient conditions in the majority of the Wilderness range from 20-25 decibels, with areas in the eastern portion of the Wilderness measuring at 30-35 decibels for natural ambient condition. As described in Section 3.1.1, Affected Environment for Noise and Noise-Compatible Land Use, human-generated noise sources within the study area include wheeled vehicles on roads, such as passenger vehicles and tour buses, and cyclists, and aircraft overflights consisting of high-altitude commercial jet aircraft, occasional NPS flights for research or other Park purposes,

commercial air tour operations, and private general aviation aircraft. There are no roads within Wilderness areas, so the noise from wheeled vehicles that extends into Wilderness areas is limited. In Wilderness areas, such as the Haleakalā Crater, low intensity noise, including noise below 35 decibels, detracts from Wilderness character. Refer to Figure 15 for a depiction of existing air tour conditions and the affected environment for Wilderness at the Park.

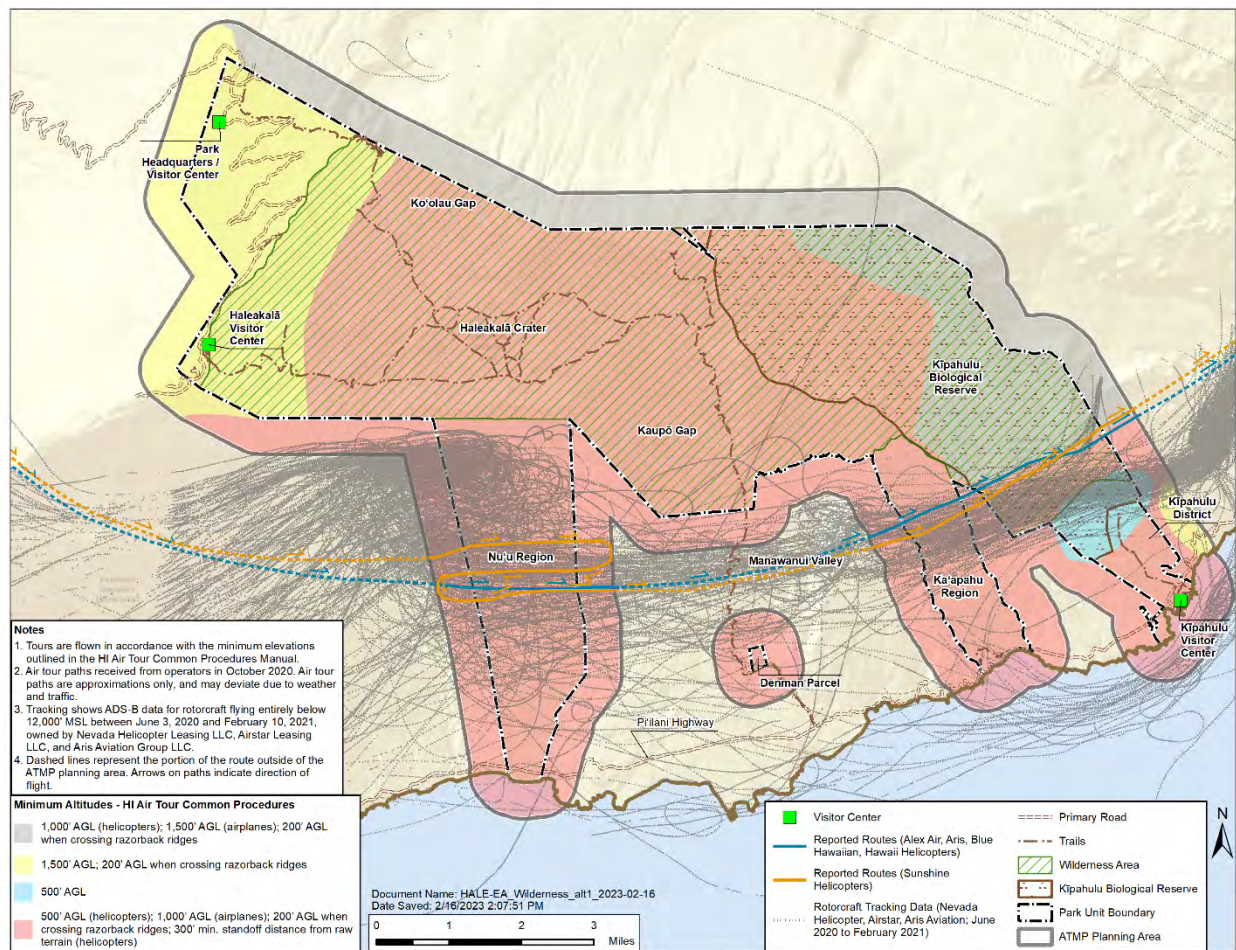


Figure 15. Affected Environment for Wilderness

Natural

A natural wilderness is one where ecological systems are substantially free from the effects of modern civilization. The natural quality is preserved when indigenous species and ecological processes are intact. When the effects of modern civilization impact wilderness, the natural quality is degraded. Haleakalā Wilderness has been severely affected by the introduction of non-native species, which have led to the extinction or severe outcompeting and decline of many native species.

The interwoven and diverse plant communities of the Haleakalā Wilderness support several native and endemic animal species, many of which are now threatened or endangered (NPS, 2015b). Native Hawaiian species have evolved to occupy a range of specialized niches without some of the defenses found in other parts of the world, making for a particular susceptibility to non-native introductions. Birds are the primary wildlife species within the Park and, like native plants at Haleakalā, native bird species have evolved to occupy a range of specialized niches. For threatened and endangered birds, such as the ‘ua‘u, nēnē, ‘ākohekohe and kiwīkiu (Maui Parrotbill), the Wilderness provides integral habitat and refuge from predators. Important pollinators, such as Hawaiian yellow-faced bees and nocturnal residents such as the ‘ōpe‘ape‘a (Hawaiian Hoary Bat), benefit from and contribute to this diversity as well (NPS, 2015a). The upper Kīpahulu Valley, which includes the Kīpahulu Biological Reserve, provides refuge for some of the most unique native plant communities in Hawai‘i and is closed to the public to protect its biodiversity (NPS, 2015b). Biological resources within these areas occur as described in Section 3.3.1, Affected Environment for Biological Resources.

Prior to rigorous management, feral ungulates overgrazed, trampled, and severely disturbed the Haleakalā Crater and wet forest landscapes, permanently altering vegetative communities and significantly impacting ground-nesting birds. Invasive mammalian predators negatively impact the natural quality of Wilderness, particularly populations of native bird species that have not evolved with this type of pressure. Avian diseases, such as avian malaria spread by introduced insects, have additionally taken a toll on native bird distribution and survival (NPS, 2015a), thus negatively impacting the natural character of Wilderness in the Park.

Solitude

The ability to experience solitude is an integral component of Wilderness character. In preserving this Wilderness quality, the NPS places importance on considering the value of maintaining these places where present and future generations have the opportunity to feel free, at peace, and self-reliant, and observe landscapes without modern human effects. There are several opportunities for solitude and unconfined recreation within the Haleakalā Wilderness.

Visitors access Wilderness through three primary trailheads, the Keonehe‘ehe‘e (Sliding Sands) Trail, Kaupō Trail, and the Halemau‘u Trail. The Haleakalā Crater includes enclaves with both visitor and management cabins, and horse pastures to support visitor activities. Trails and recreational infrastructure like cabins allow access to more remote areas of the Haleakalā Wilderness but are still visible to visitors and may degrade the solitude quality. Sights and sounds of other visitors, along with restrictions for off-trail travel and entry restrictions may impact solitude and opportunities for unconfined recreation when visiting Haleakalā Wilderness. The acoustic conditions at the trails are, as mentioned above, naturally very low which makes noise more noticeable. Presence of aircraft can also degrade the solitude quality when visible from Wilderness and obstructing a viewshed.

3.5.2 Environmental Consequences

Section 2(a) of the Wilderness Act states that Wilderness areas “shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as Wilderness, and so as to provide for the protection of these areas, the preservation of their Wilderness character.” The NPS manages Wilderness to enhance Wilderness character consistent with the Wilderness Act and NPS Management Policies and generally manages for the natural, untrammeled, undeveloped, solitude and unconfined recreation, and other features of value qualities of Wilderness character. Commercial air tours over the Park may impact the opportunity for solitude or the natural qualities of Wilderness character. Aircraft that land in Wilderness detract from the undeveloped quality of Wilderness. Because commercial air tours do not land in Wilderness or the Park, the undeveloped quality of Wilderness is not considered here.

Keeping it Wild 2, An Updated Interagency Strategy to Monitor Trends in Wilderness Character Across the National Wilderness Preservation System, 2015 (Landres et al., 2015) notes that wilderness has traditionally been associated with protecting ecological systems from human impacts (Sutter, 2004) (p.39). Therefore, “the natural quality is preserved when there are only indigenous species and natural ecological conditions and processes” taking place or by the restoration of those ecological conditions (p.11). “Natural quality is preserved when Wilderness ecological systems are substantially free from the effects of modern civilization” (p.34). The natural quality of Wilderness may be impacted by actions both outside and inside Wilderness (p.34). Effects on the natural quality are determined by determining the effects from human actions on ecological systems (p.34).

Solitude includes attributes such as “separation from people and civilization, inspiration (an awakening of the senses, connection with the beauty of nature and the larger community of life), and a sense of timelessness (allowing one to let go of day-to-day obligations, go at one’s own pace, and spend time reflecting)” (p. 51). A review of research suggests that solitude encapsulates a range of experiences, including privacy, being away from civilization, inspiration, self-paced activities, and a sense of connection with times past (Borrie and Roggenbuck, 2001).” Generally, solitude improves when sights and sounds of human activity are remote. Commercial air tours can represent both a sight and sound of human activity and therefore detract from this quality of Wilderness character.

Alternative 1: No Action

While existing air tours currently avoid flying directly over most of the Haleakalā Wilderness, the noise and visibility from air tours over other portions of the ATMP planning area that are approximately ¼-mile from the Haleakalā Wilderness still affect the Wilderness and its Wilderness character, especially in the southern portion of the crater and in the areas of Manawainui and the Kīpahulu Biological Reserve. Under the No Action Alternative, the existing

flight routes, altitudes, number of tours per year, and other parameters described in Section 2.4, Alternative 1 (No Action Alternative) would likely continue to occur. The NPS has determined that persistent noise within Haleakalā Wilderness under the No Action Alternative would unreasonably interfere with the opportunity for solitude and would detract from the undeveloped and natural qualities of Wilderness. The No Action Alternative would continue to adversely impact Wilderness character, as air tour noise within and near Wilderness detracts from the opportunity for solitude, natural quality, and other features of value within the Haleakalā Wilderness as described below.

Natural Quality

Air tours at existing levels detracts from the natural quality of Wilderness character, which would continue under the No Action Alternative. Specifically, air tour noise currently affects natural resources that are present within the Haleakalā Wilderness, including native forest birds, many of which are threatened and endangered. Noise may affect these species by making it more difficult to forage, mate, or avoid predation, (refer to Section 3.3.2, Environmental Consequences for Biological Resources for more information on noise impacts). Ongoing air tour noise may result in temporal shifts in songbird vocalization (Gallardo Cruz et al., 2021). Air tour noise also interferes with the NPS's ability to conduct acoustical bird surveys, part of management actions to help detect and save forest birds from extinction. The *Noise Technical Analysis* (Appendix F, Figure 10) shows that on days when air tours occur, noise above 35 dBA would occur for less than 90 minutes a day in the Haleakalā Wilderness. Some portions of the Haleakalā Wilderness, namely the Kīpahulu Biological Reserve and adjacent lands, are the only habitat for remaining populations of some native forest bird species. In this area, noise above 35 dBA would occur for up to 75 minutes a day. The potential for impacts to native birds (including those facing extinction) that would continue to occur under the No Action Alternative would greatly detract from the natural quality of the Haleakalā Wilderness.

Opportunity for Solitude

The presence of noise and visual intrusion of commercial air tours is a human activity that detracts from the opportunity to experience solitude in Wilderness. Noise from commercial air tours disrupts Wilderness visitors seeking an opportunity for solitude within the Haleakalā Wilderness and would continue to occur under the No Action Alternative. The *Noise Technical Analysis* (Appendix F, Figure 9) provides context for the noise effects that would occur under the No Action Alternative and that would detract from the opportunity for solitude within the Haleakalā Wilderness. This analysis shows that on days when air tours occur (an average of 345 days a year based on air tour reports from 2017 – 2019), the maximum time that air tours could be audible within the Haleakalā Wilderness exceeds 225 minutes a day (non-contiguous), and 100% of the Wilderness would experience audible air tour noise. Current commercial air tours occur near the southern and eastern areas of Wilderness with noise above 35 dBA, as shown in

the *Noise Technical Analysis* (Appendix F, Figure 10), extending into the Keonehe'ehe'e (Sliding Sands) Trail, Kaupō Trail, and the Halemau'u Trail.

Alternative 2

Under Alternative 2, commercial air tour aircraft would not fly within the ATMP planning area, which would offer the greatest protection to Wilderness. Compared to current conditions, this would enhance Wilderness character by reducing the intensity of noise and number of noise events over Wilderness areas. There would be direct beneficial impacts to the natural quality of Wilderness and the opportunities for solitude under Alternative 2.

Alternative 3

Alternative 3 would not allow air tours to be conducted over the Haleakalā Wilderness (see Figure 16) and would authorize a route that is farther from Wilderness (approximately 1.5 miles) as compared to those flown under existing conditions. Compared to current conditions, this would enhance Wilderness character by reducing the intensity of noise, footprint of noise, and number of noise events over Wilderness areas. There would be direct beneficial impacts to the natural quality of Wilderness and opportunities for solitude under Alternative 3. However, noise from air tours over other portions of the ATMP planning area could still affect the Haleakalā Wilderness under this alternative, as described below.

Natural Quality

Impacts to the natural quality of Wilderness character would be less than the No Action Alternative because the intensity and duration of air tour noise would be less, which would likely result in fewer disturbances to forest birds. The *Noise Technical Analysis* (see Appendix F, Figure 13) shows that on days when air tours occur, noise above 35 dBA would occur for less than 30 minutes a day in the Haleakalā Wilderness, including in the Kīpahulu Biological Reserve. These impacts detract from the natural quality of Wilderness in some discrete locations where air tour noise would reach native forest bird habitat, although it would represent a reduction in impacts compared to current conditions.

Opportunity for Solitude

Impacts to opportunities for solitude would be less than the No Action Alternative because the intensity and duration of air tour noise and visibility would be less, which would result in less impact to this quality of Wilderness character. The *Noise Technical Analysis* (Appendix F, Figure 12) shows that on days when air tours occur, the maximum time that air tours could be audible within the Haleakalā Wilderness exceeds 105 minutes a day (non-contiguous), and 100% of the Wilderness would experience audible air tour noise. This noise detracts from the opportunity for solitude as it introduces sounds of human activity and therefore detracts from this quality of Wilderness character, although it would be less than current conditions.

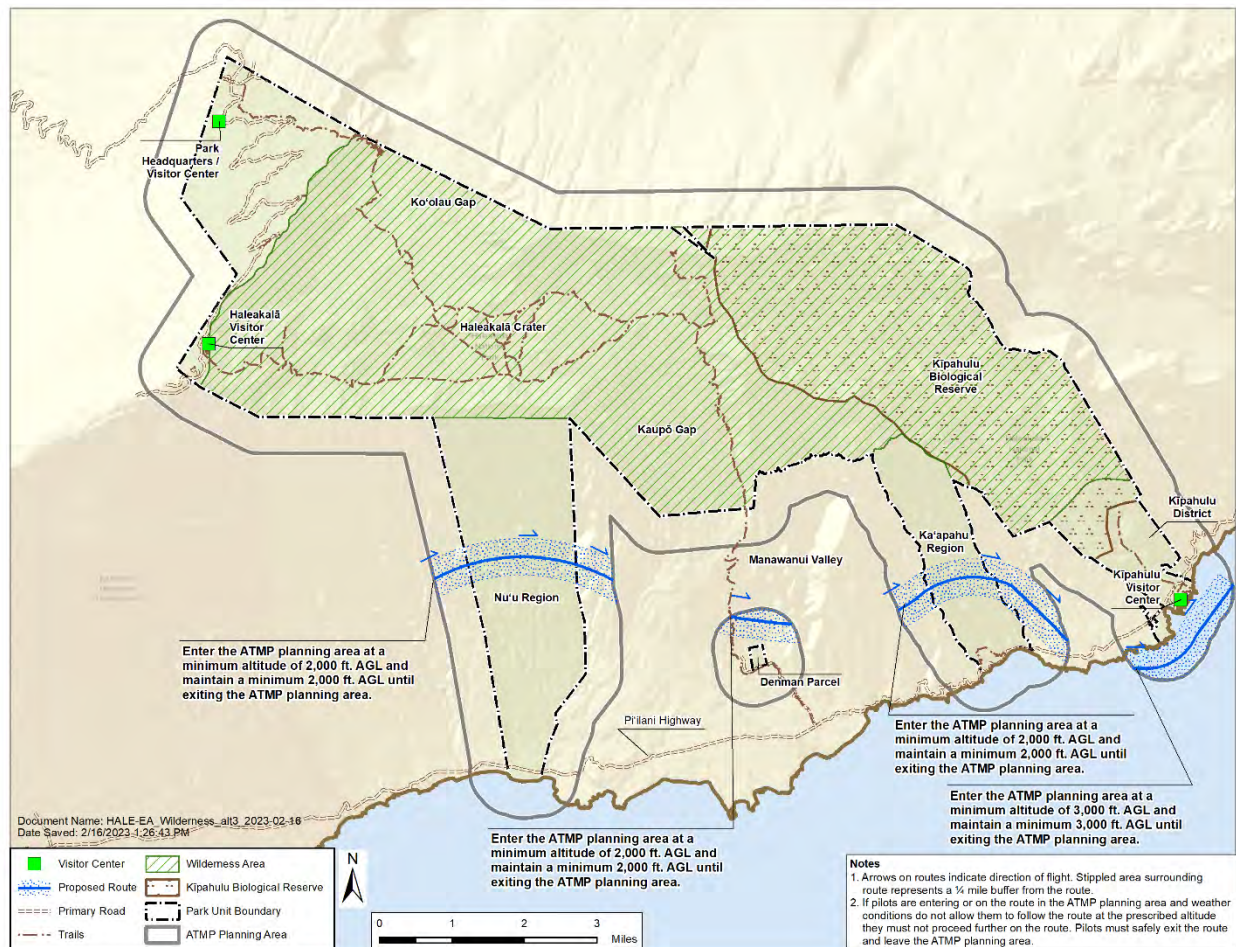


Figure 16. Wilderness Environmental Consequences for Alternative 3

Indirect and Cumulative Effects

Indirect Effects: Under the No Action Alternative, commercial air tour operations within the ATMP planning area would generally remain consistent with existing conditions, thus there are no indirect impacts that would be expected to occur under this alternative.

Alternatives 2 and 3 limit the number of flights per year as compared to existing conditions and would therefore have the potential to result in some displacement of air tours outside the ATMP planning area, including over the ATMP planning area at or above 5,000 ft. AGL. Air tours occurring outside the ATMP planning area, if any, may result in noise that could affect Wilderness character quality to the extent that Wilderness is present in areas near where those air tours would be occurring. Operators may choose to fly along existing flight paths but at or above 5,000 ft. AGL; however, the increase in altitude would likely decrease impacts on ground level resources as compared to current conditions. Flights close to the crater at or above 5,000 ft. AGL are unlikely due to the elevation and safety requirements for unpressurized aircraft. Supplemental oxygen use is required in unpressurized aircraft flying over 10,000 ft MSL for

more than 30 minutes (14 CFR § 135.89, § 135.157); therefore, it is unlikely air tours would fly higher for extended periods of time. Flights in this area and at other areas of lower elevation may continue along similar paths to existing conditions but at or above 5,000 ft. AGL. Air tour operators would also be likely to continue to fly some air tours along the perimeter of the ATMP planning area since Haleakalā Crater and other Park features would be visible from some areas outside the ATMP planning area. Therefore, under Alternatives 2 and 3, some indirect impacts to both the natural quality and opportunities for solitude could occur to the Haleakalā Wilderness if flights were displaced to outside the ATMP planning area, and the resultant noise was experienced in Wilderness areas. Since Alternative 2 prohibits flights within the ATMP planning area whereas Alternative 3 limits them to no more than 2,412 flights per year within the ATMP planning area in addition to other operating parameters as specified in Section 2.7, Summary Comparison of the ATMP Alternatives, Alternative 2 could result in more indirect impacts to Wilderness than Alternative 3 as some tours would still be permitted within the ATMP planning area under Alternative 3.

Cumulative Effects: Solitude in the Haleakalā Wilderness is impacted by approximately 96 administrative flights per year, commercial helicopter air tours, hikers, campers, and day-use visitors, and administrative use of motorized equipment which audibly and visibly affect the primitive Wilderness experience. Under the No Action Alternative these conditions would continue, resulting in limited opportunities to experience solitude in the Wilderness. Under Alternatives 2 and 3 all activities that currently impact solitude would continue, but impacts from commercial air tours would be less frequent since air tours would be prohibited from flying directly over Wilderness areas below 5,000 ft. AGL. Therefore, the No Action Alternative would result in no cumulative change in the opportunity to experience solitude, while Alternatives 2 and 3 would likely result in a net beneficial effect to the opportunity for solitude.

The Park is currently implementing wildlife predator and ungulate control, forest bird monitoring, and ground and aerial herbicide spray operations for invasive plant control in the Haleakalā Wilderness. Additional ongoing or planned activities include fencing to exclude ungulates, manual removal of invasive plants, and native plant outplantings. These activities detract in some cases from the opportunity for solitude but enhance the natural quality of Wilderness and are necessary for the restoration of native forest birds.²³ Mosquito surveys and monitoring of avian malaria prevalence have been conducted within the Park in the past and

²³ Haleakalā National Park uses mechanized equipment with quiet technology to manage federally threatened and endangered species in Wilderness in support of the purpose of the Park, the preservation of Wilderness character under the Wilderness Act, and to comply with the requirement to conserve threatened and endangered species under Section 7(a) of the ESA. The purpose of the Park is, “For the inspiration of current and future generations, Haleakalā National Park protects a wild volcanic landscape with a wide array of fragile and diverse native ecosystems, including plant and animal species found nowhere else on earth. Our stewardship perpetuates the unique and continuing connections between Hawaiian culture and this sacred and evolving land.” Foundation Document for Haleakalā National Park, 2015, page 5.

recently by the U.S. Geological Survey and the NPS. The NPS is currently evaluating a proposal to reduce the prevalence of avian malaria through the suppression of invasive mosquitoes using the incompatible insect technique which would improve the natural quality of Wilderness but potentially add additional noise in the upper Kīpahulu Valley. Under all alternatives, the NPS would continue current management actions and respond to future needs and conditions to improve the natural quality of the Wilderness, while minimizing adverse impacts on the opportunity for solitude. Under the No Action Alternative, noise from commercial air tours would continue to detract from the natural quality of Wilderness, but under Alternatives 2 and 3 the natural quality may experience some overall improvement since commercial air tours would be prohibited over the Haleakalā Wilderness. However, Alternative 3 would offer less overall net benefit to the natural quality than Alternative 2. Ongoing present and future Park management actions by the NPS would continue to occur under any of the alternatives.

3.6 Visitor Use and Experience and Other Recreational Opportunities

While visitor use and experience is not an impact category the FAA traditionally examines, NPS has agency wide (see 2006 NPS Management Policies, Section 8.2) and Park-specific guidelines (Haleakalā National Park Foundation Document) for managing visitors within the national park system. This section also examines impacts to air tour customers.

3.6.1 Affected Environment

Trends in Visitation and Visitor Demographics

Between 2017 and 2019, the Park averaged 1.05 million visitors annually. Most visitors enter the Park in vehicles or tour buses. The scenery, recreation and wildlife draw large numbers of visitors to the Park each year. Within the Park, the Summit District (which includes the lands west of the Kīpahulu Biological Reserve) sees approximately 3-4 times as much visitation as the Kīpahulu District. Visitors to the Summit District are primarily interested in experiencing the iconic sunrise or sunset over Haleakalā Crater, hiking and horse-riding, and camping or staying at historic cabins. Visitors use the Keonehe'ehe'e (Sliding Sands) Trail, which begins near the visitor's center parking lot, Haleman'u and Kaupo Trails, to traverse the Haleakalā Crater and view the pu'u (cinder cones) on the Haleakalā Crater floor.

The Kīpahulu District is located in a remote area of Maui and offers opportunities to learn about Native Hawaiian culture and experience the lush landscape of the wet forest community. Despite its isolated location, visitors to the Kīpahulu District are primarily drawn to attractions such as the pools at 'Ohe'o Gulch, the Pīpīwai Trail, views of waterfalls and the ocean, and Hawaiian cultural experiences. Main attractions for visitors in the Kīpahulu District include explorations of the pools of 'Ohe'o Gulch (85.1%), swimming in the pools (48.6%), and hiking to Waimoku Falls (44.4%) (Lawson et al., 2008). The Kīpahulu Biological Reserve is closed to entry for visitors, as it is an area used for research and protection of sensitive biological resources.

Figure 17 depicts key visitor facilities and points of interest within the ATMP planning area.

Visitor Experience

The character and quality of the visitor experience influences perception of natural areas, providing a unique encounter with a place that differentiates it from other areas. Public enjoyment of resources is a fundamental purpose of all national parks (NPS, 2006). Visitors come to the Park to participate in a range of recreational activities, including viewing sunrise and sunset, hiking, swimming, bicycling, horseback riding, attending ranger programs, scenic driving, stargazing and astronomy, birdwatching, and camping. The enabling legislation that created the Park—H.R. 9525, Public, No. 171, Chapter 264—states that, “...the tracts of land on the island of Hawaii and on the island of Maui...shall be perpetually dedicated and set apart as a public park or pleasure ground for the benefit and enjoyment of the people of the United States...” Within the Park, visitors may access overlooks and the Haleakalā Visitor Center via Crater Road (Haleakalā Highway). Driving and sightseeing along this heavily traveled road is the most common activity for visitors to the Summit District (NPS, 2015).

Key visitor facilities within the Park include the following:

- **Park Headquarters Visitor Center**, located just inside the northwestern Park entrance. The center has restrooms and a picnic area.
- **Haleakalā Visitor Center**, located near the summit of Haleakalā Crater. The center has restrooms and interpretive exhibits on the natural, geologic, and cultural heritage of Haleakalā.
- **The Kīpahulu Visitor Center**, located on the Kīpahulu coast near the pools of ‘Ohe‘o. The center has restrooms, picnic tables, and a Hawai‘i Pacific Parks Association sales area. The center offers interpretive exhibits on the cultural and natural heritage of the Kīpahulu area and cultural demonstrations.
- **Car Accessible Campgrounds** at Hosmer Grove (50-person capacity) and Kīpahulu (100-person capacity) (NPS, 2010b).
- **Wilderness Campgrounds** at Palikū and Hōlua, both 25-person capacity (NPS, 2010b).
- **Wilderness Cabins** (3) at Hōlua (minimum hike of 3.7 miles), Kapalaoa (5.5 miles) and Palikū (9.3 miles) (NPS, 2010b).

The Park is open daily year-round with varying daily and season hours. Generally, the Park Headquarters Visitor Center is open from 8:30 AM to 4:30 PM; the Haleakalā Visitor Center from 6:00 AM to 3:00 PM in the summer and from 6:30 AM to 4:00 PM in the winter; and the Kīpahulu Visitor Center from 9:00 AM to 5:00 PM.

Park lands are managed according to four management zones (NPS, 1995):

- **Natural Zone:** This zone encompasses nearly all of the lands within the Park, including the Upper Kīpahulu Valley, lower Kīpahulu Valley above the 800 ft. contour line, Haleakalā Crater, and West Crater Rim areas. This zone includes all designated Wilderness areas.
- **Research/Special Use Subzone:** The lands within the Kīpahulu Biological Reserve have been designated as a Special Use Subzone for research within the Natural Zone for their ecological significance. This area is closed to public entry due to its fragility.
- **Cultural Zone:** This zone encompasses the Kīpahulu coastal area up to the 800 ft. contour line.
- **Development Zone:** This zone includes developed areas of the Park, including visitor centers, roads, parking areas, overlooks, and maintenance facilities.

Park staff and volunteers provide a variety of in person interpretive and educational programs throughout the year including cultural demonstrations, informational talks, and guided walks. These programs may occur at various locations in the Park but are most frequently provided in the vicinity of visitor centers and along nearby Park trails. Interpretive and educational programs at Kīpahulu and Haleakalā Visitor Centers may be disrupted by noise occurring near these areas when noise results in speech interference or at lower levels when birdwatchers and guided groups are listening for bird song (refer to Table 3 in Section 3.1.2).

Similarly, visitors hiking, sightseeing and birdwatching likely experience noise occurring throughout the day. Noise is most disruptive in the Kīpahulu District at the Waimoku Falls and along southern areas of the Park.

Other Recreational Opportunities

This category applies to persons recreating within the ATMP planning area through the experience of air tours. An average of 24,120 air tour customers per year are currently able to experience the Park from another viewpoint.²⁴ Currently, flight routes for commercial air tours fly over the western portion of the Park near the Haleakalā Crater, then descend towards Kīpahulu and Waimoku Falls, crossing over the Park at various points near these areas. Commercial air tours operate at a minimum altitude of 1,000 ft. AGL, with the exception of flyovers of the Kīpahulu District, where a minimum altitude of 500 ft. AGL is maintained. The air tour experience often varies depending on weather conditions and the desires of the air tour client (i.e., length of flight, geographic features of special interest, etc.). Viewing Haleakalā

²⁴ The estimated 24,120 people who took commercial air tours of the Park is based on reported air tours from 2017-2019 (4,824), multiplied by an estimated 5 passenger seats per aircraft. The number of customers likely overestimates the actual number since it assumes every passenger seat is occupied.

is usually only a portion of the typical air tour around East Maui. Air tour visitation represents less than 2% of Park visitation from the same timeframe.

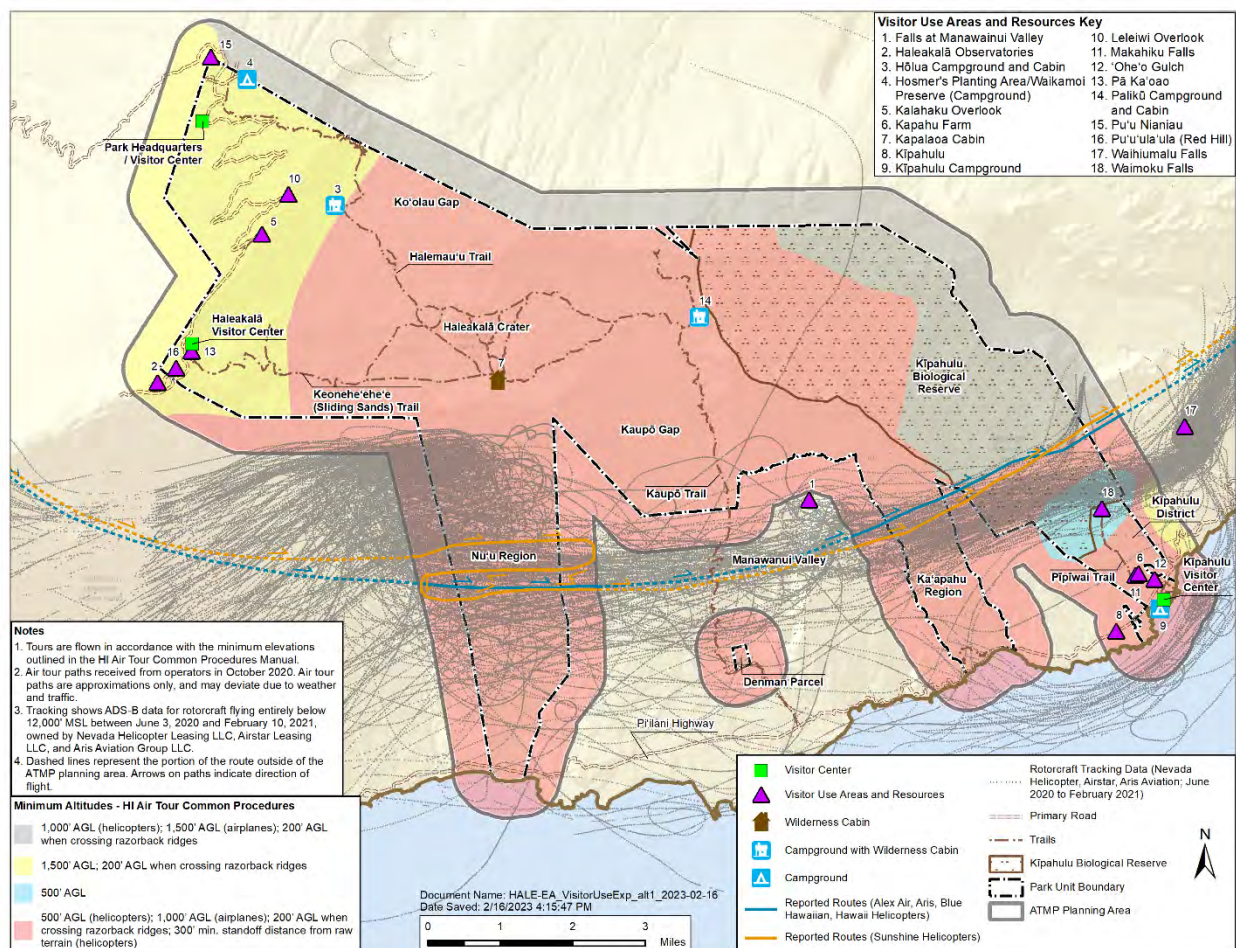


Figure 17. Affected Environment for Visitor Use and Experience

3.6.2 Environmental Consequences

The NPS allows visitor uses that are appropriate to the purpose for which the Park was established and can be sustained without causing unacceptable impacts to Park resources or values. Unacceptable impacts are impacts that, individually or cumulatively, would unreasonably interfere with Park programs or activities including interpretive programs, or the atmosphere of peace and tranquility, or the natural soundscape maintained in Wilderness and natural, historic, or commemorative locations within the Park (NPS, 2006).

Effects of commercial air tours on Park visitor experience have been well documented over many years, and one example is the *Report on the Effects of Aircraft Overflights on the National Park System* (Department of Interior/NPS, 1995). The primary effect of commercial air tours is the introduction of noise into the acoustic environment of the Park. Numerous studies have

identified the value and importance of soundscapes as one of the motivations for visiting parks (Haas and Wakefield, 1998; McDonald et al., 1995; Merchan et al., 2014; Miller et al., 2018), including in a cross-cultural context (Miller et al., 2018). Other studies have focused specifically on the effects of aircraft on the visitor experience both in parks and protected areas, and a laboratory setting, indicating that aircraft noise negatively impacts the visitor experience (Anderson et al., 2011; Ferguson, 2018; Mace et al., 2013; Rapoza et al., 2015).

Some Park visitors may hear noise from commercial air tours, which may disrupt visitors or degrade the visitor experience at the Park by disturbing verbal communications and masking the sounds of nature. For example, noise from commercial air tours may disrupt visitors during interpretive and educational programs at the Park or while hiking, camping or participating in other activities. Visitors respond differently to noise from commercial air tour overflights – noise may be more acceptable to some visitors than others. Visitors in backcountry and Wilderness areas often find commercial air tours more intrusive than visitors in developed and frontcountry areas where noise from commercial air tours may not be as audible (Rapoza et al., 2015; Anderson et al., 2011).

The environmental consequences for non-air tour recreation opportunities is addressed in Section 3.10, Department of Transportation (DOT) Act Section 4(f) Resources.

Alternative 1: No Action

Under existing conditions, air tours are concentrated over the Park’s Kīpahulu District and near the Haleakalā Summit, which would likely continue under the No Action Alternative. As noted in Section 3.6.1, interpretive programs are offered at each of the Park’s visitor centers, which would be impacted by air tours under this alternative as the noise from air tours would result in speech interference. Based on the *Noise Technical Analysis* (Appendix F, Table 6), the nearest modeled location points to each visitor center and its corresponding output for the time above 52 dBA metric are provided in Table 9.

Table 9. Time Above 52 dBA for Park Visitor Centers and Corresponding Location Points Under the No Action Alternative.

Location	Nearest Modeled Location Point	Distance between Location Point and Visitor Center	Time above 52 dBA
Park Headquarters Visitor Center	#1: Hosmer Grove	4,350 ft.	0 minutes
Haleakalā Visitor Center	#4: Haleakalā Visitor Center	0 ft.	0 minutes
Kīpahulu Visitor Center	#37: Measurement Site ST10 (‘Ohe‘o Coastal)	350 ft.	2.2 minutes

This table shows that under the No Action Alternative, while speech interference would not be anticipated to occur at the Park Headquarters or Haleakalā Visitor Centers, it would impact interpretive programs at the Kīpahulu Visitor Center for approximately two minutes a day, which may impede visitors from enjoying and learning about existing Park resources.

Natural quiet is a foundational resource for the Park and a primary reason for visitation, and air tours disrupt natural quiet throughout the Park which affects the visitor experience for activities such as hiking, bird watching, and the ability to hear natural sounds such as bird song which value natural quiet. This would continue to occur under the No Action Alternative. The time audible natural ambient metric provides context for the total time that aircraft noise levels would be audible to an attentive listener with normal hearing under natural ambient conditions. Based on the *Noise Technical Analysis* more than half (53%) of the ATMP planning area would experience audible air tour noise for more than 120 minutes a day (non-contiguous) under this alternative, and 100% of the ATMP planning area would experience audible air tour noise at some point during a day that commercial air tours occurred. Since the vast majority of the Park is designated as a Natural management zone (“Natural Zone”) (which includes all designated Wilderness areas) where visitors would generally expect to hear natural sounds prevail during their visit, noise from commercial air tours under this alternative would result in impacts to visitor experience. While time above 52 dBA at discrete locations is limited, the current level of air tours diminishes visitor opportunities to learn about and be inspired by Park resources and values and the NPS has determined that it unreasonably interferes with Park programs, activities, the atmosphere of peace and tranquility, and the natural soundscapes in Wilderness (see 2006 NPS Management Policies, Section 1.4.7.1). Audibility of natural sounds or natural quiet is important to visitor experience at the Park since natural quiet is a fundamental resource of the Park (NPS, 2015a). Because the natural ambient sound level of the Park is so low, the persistence of noise across the park under current conditions interferes with visitor’s ability to enjoy natural quiet almost daily (Rapoza et al., 2015). Most impacts to visitor experience under this alternative, which would occur Park-wide with the exception of the Park’s developed areas, are related to the intrusion of audible air tour noise where visitors would expect natural sounds to prevail during their visit to the Park. Some visitors noted during public scoping that the existing level of air tours could reasonably deter visitors who are seeking more quiet from visiting the Park, which would continue to occur under the No Action Alternative.

Commercial air tours offer a recreational experience for those who wish to view the Park from a different vantage point. Commercial air tour pilots may provide education to commercial air tour customers about the region, its history, and geology. Because the number of commercial air tours under the No Action Alternative would be consistent with the average number of flights from 2017-2019, there would be no or minimal changes anticipated to the availability of this recreational experience under this alternative.

Alternative 2

Under Alternative 2, commercial air tours would not fly within the ATMP planning area which would eliminate this source of noise from the ATMP planning area for up to 1.05 million Park visitors each year. Therefore, there would be a direct beneficial impact to Park visitor use and experience since the intensity and presence of noise from commercial air tours would be less than under the No Action Alternative. Alternative 2 offers the greatest protection of visitor use and experience.

However, Alternative 2 would not allow commercial air tours within the ATMP planning area, so air tour customers (up to an average of 24,120 passengers per year) who wished to would not be able to view the Park from an aerial vantage point that would be available from tours conducted within the ATMP planning area. This would be an adverse effect on those seeking that experience within the ATMP planning area.

Alternative 3

Alternative 3 would permit air tours to be conducted along a designated route and altitudes (see Figure 18). The authorized route avoids flying directly over or close to areas of primary importance for visitor use and experience, including the Haleakalā Crater and Summit District, Waimoku Falls, Kīpahulu District, and Kīpahulu Visitor Center, which would limit the noise effects of commercial air tours in these visitor use areas.

The results for the time above 52 dBA metric from the *Noise Technical Analysis* (Appendix F, Table 8) provide context for impacts to interpretive programs that would occur under Alternative 3. These results are summarized in Table 10.

Table 10. Time Above 52 dBA for Park Visitor Centers and Corresponding Location Points Under Alternative 3.

Location	Nearest Modeled Location Point	Distance between Location Point and Visitor Center	Time above 52 dBA
Park Headquarters Visitor Center	#1: Hosmer Grove	4,350 ft.	0 minutes
Haleakalā Visitor Center	#4: Haleakalā Visitor Center	0 ft.	0 minutes
Kīpahulu Visitor Center	#37: Measurement Site ST10 (‘Ohe‘o Coastal)	350 ft.	9.3 minutes

This analysis shows that under Alternative 3, while speech interference would not be anticipated to occur at the Park Headquarters or Haleakalā Visitor Centers, it could impact

interpretive programs at the Kīpahulu Visitor Center for up to 9.3 minutes a day, which may impede visitors from enjoying and learning about existing Park resources.

In areas of the Park managed as a Natural Zone, where visitors would expect to hear natural sounds, including the Haleakalā Crater or Special Use Subzones including the Kīpahulu Biological Reserve, the *Noise Technical Analysis* indicates that under Alternative 3, the maximum time that air tours could be audible by an attentive visitor would be less than 105 minutes a day in an area representing less than 1% of the ATMP planning area, and more than half (54%) of the ATMP planning area would experience audible air tour noise for at least 60 non-sequential minutes a day, including in the Haleakalā Crater. This noise may detract from the visitor experience, particularly in areas where visitors would expect to hear natural sounds. However, the majority of time during the day would be free of air tour noise so visitors would not hear them. In addition, Alternative 3 includes two days (Wednesday and Sunday) where air tours would not be permitted within the ATMP planning area, so these would provide an entire day where Park visitors would not experience noise from air tours in this area.

When compared to current conditions, Alternative 3 would result in fewer negative impacts to visitor experience in most areas of the Park. Specifically, under Alternative 3, approximately 60% of the ATMP planning area would experience a potential reduction in audibility of air tours between 37 and 194 minutes, which would improve the visitor experience in areas where visitors would be less likely to hear air tour noise during their visit, including areas managed as a Natural Zone (most areas of the Park). The largest reductions in time audible natural ambient (90-95%) would occur over current conditions at Kalahaku Overlook and Haleakalā Visitor Center, both within the Summit District. The smallest reductions over current conditions in time audible natural ambient (40-50%) would be at Waimoku Falls and Lelekea Stream Bridge. Compared to the No Action Alternative, the time above 52 dBA under Alternative 3 would be up to 24 minutes (100%) less, which corresponds with fewer potential instances of speech interference from air tour noise. However, Alternative 3 would result in more time above 52 dBA at the Kīpahulu Visitor Center than the No Action Alternative, which would correspond with more impacts to interpretive programs in this location.

Alternative 3 would limit the availability of air tours for those who wish to view the Park from an aerial vantage point to no more than 2,412 tours per year. This could mean that some people who wished to do so would not be able to take an air tour during their visit if operators had already reached their annual or daily allocations.

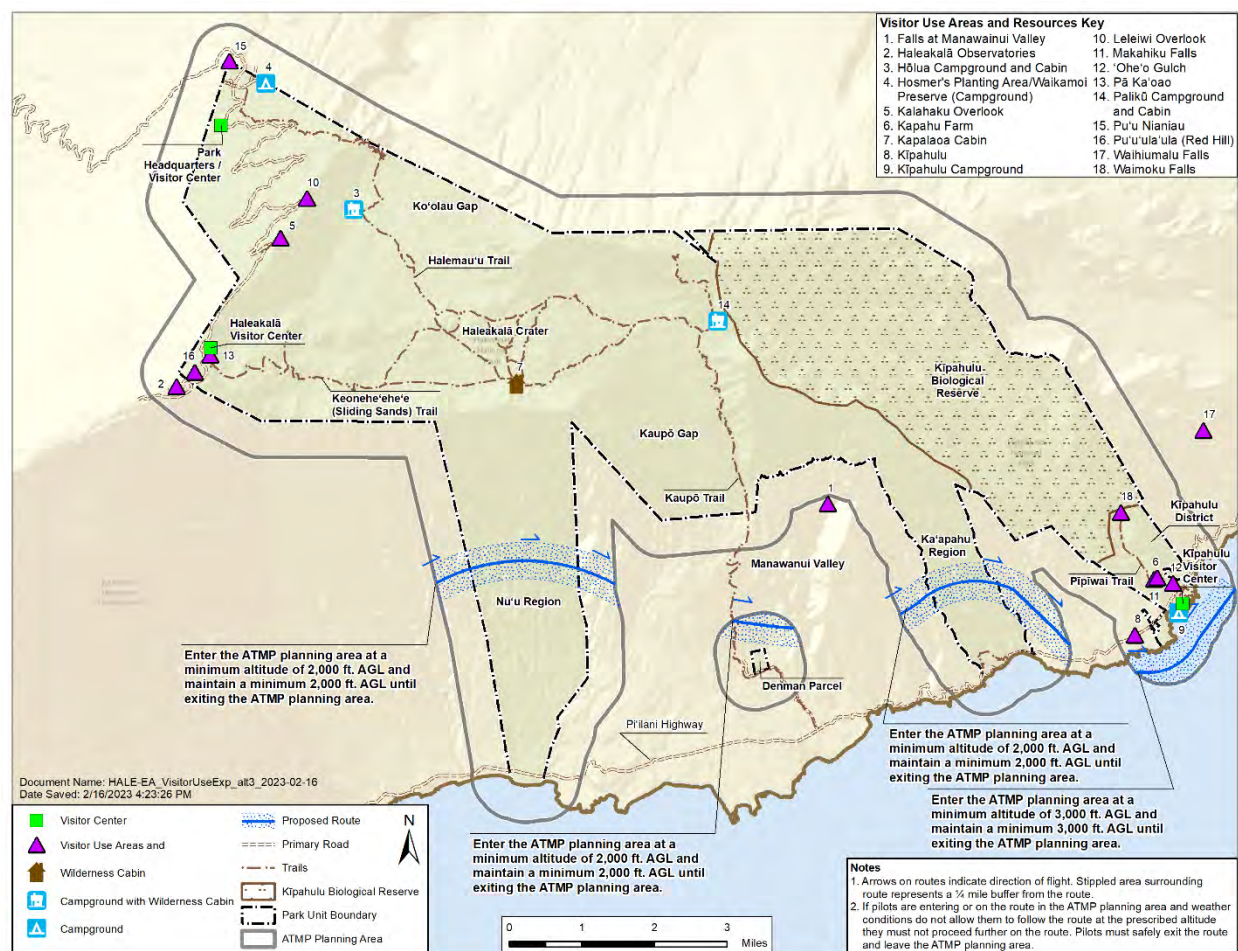


Figure 18. Visitor Use and Experience Environmental Consequences for Alternative 3

Indirect and Cumulative Effects

Indirect Effects: Under the No Action Alternative, commercial air tour operations within the ATMP planning area would generally remain consistent with existing conditions, thus there are no indirect impacts that would be expected to occur under this alternative.

Alternatives 2 and 3 would limit the number of flights per year as compared to existing conditions and would therefore have the potential to result in some displacement of air tours outside the ATMP planning area, including over the ATMP planning area at or above 5,000 ft. AGL. As described in Section 3.1.2, Indirect and Cumulative Environmental Consequences for Noise and Noise-Compatible Land Use, air tours occurring outside the ATMP planning area, if any, may result in noise in other areas near those flights, which could affect the visitor experience at sites to the extent that they are present near the location of those air tours. Operators may choose to fly along existing flight paths but at or above 5,000 ft. AGL; however, the increase in altitude would likely decrease impacts on ground level resources as compared to current conditions. Flights close to the crater at or above 5,000 ft. AGL are unlikely due to the

elevation and safety requirements for unpressurized aircraft. Supplemental oxygen use is required in unpressurized aircraft flying over 10,000 ft. MSL for more than 30 minutes (14 CFR § 135.89, § 135.157); therefore, it is unlikely air tours would fly higher for extended periods of time. Flights in this area and at other areas of lower elevation may continue along similar paths to existing conditions but at or above 5,000 ft. AGL. Air tour operators would also be likely to continue to fly some air tours along the perimeter of the ATMP planning area since Haleakalā Crater and other Park features would be visible from some areas outside the ATMP planning area. Therefore, under Alternative 2, some indirect impacts to visitor experience and points of interest within or near the Summit District could occur if flights were displaced to outside the ATMP planning area. Since Alternative 2 prohibits flights within the ATMP planning area whereas Alternative 3 limits them to no more than 2,412 flights per year in addition to other operating parameters as specified in Section 2.6, Alternative 2 could result in more indirect impacts to visitor experience than Alternative 3.

Cumulative Effects: Under existing conditions, approximately 96 helicopter flights per year are necessary to carry out Park management actions including maintenance, resource management, search and rescue and other operations. The noise from these administrative flights occasionally disrupts visitors. Because these flights generally occur throughout the Park, do not occur on all days of the year, and are not concentrated in any one area, they are not a source of consistent disruption on the visitor experience. These flights are anticipated to continue to facilitate resource stewardship projects and scientific research under any of the selected alternatives. Other noise from building maintenance and construction activities occasionally disrupts visitors, but these activities are temporary and short-term in nature. Alternative 3 would result in less cumulative noise that could affect the visitor experience in the ATMP planning area than the No Action Alternative, given the reduced number of flights, designated routes, and other ATMP parameters. However, it could allow for more cumulative noise impacting visitor use and experience than Alternative 2, where air tours would not be authorized in the ATMP planning area. Ongoing present and future Park management actions by the NPS would continue to occur under any of the alternatives.

3.7 Environmental Justice and Socioeconomics

As mandated by EO 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, dated February 11, 1994), “each federal agency shall make achieving environmental justice part of its mission by identifying and addressing as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.” In addition to EO 12898, DOT Order 5610.2c, Final Order to Address Environmental Justice in Low-Income and Minority Populations requires the FAA to incorporate environmental justice (EJ) principles in project development and provide meaningful public involvement opportunities to

minority and low-income populations, known as “EJ populations.” For the purposes of this EJ analysis, the FAA uses the minority and low-income definitions provided in DOT Order 5610.2c.

Socioeconomics is an umbrella term used to describe aspects of a project that are either social or economic in nature, or a combination of the two. A socioeconomic analysis evaluates how elements of the human environment such as population, employment, housing, and public services might be affected by the proposed action and alternative(s) (FAA, 2020). The CEQ regulations for implementing NEPA, 40 CFR 1500, direct economic analyses of federal actions that will affect local or regional economies. The policies and rationale associated with including an evaluation of socioeconomic impacts in the NEPA process are found in Section 1.4.7.1 of NPS Management Policies (2006). The factors of socioeconomics discussed in this draft EA include the tourism industry. U.S. Census Bureau data was used to evaluate social and economic factors of the study area.

The combination of all the other relevant impact categories represent the potential EJ impact, because EJ impacts may be realized in conjunction with impacts to any other impact category. Refer to each environmental impact category’s respective section in this draft EA for a description of the study area limits and Figure 19 for a depiction of the study area used for the EJ and socioeconomic analyses. The analysis incorporates data presented at the county level and from census block groups that are within and adjacent to the study area. Data from the block group level is compared to county level data to determine populations of EJ concern.

3.7.1 Affected Environment

Environmental Justice

The most recent minority and low-income information was analyzed through 2020 U.S. Census Bureau data sets. U.S. Census Bureau data is collected in five descending groupings corresponding to geographic area. The groupings are as follows: state, county, tract, block group, and block. Block group is the smallest unit for which income and poverty level information is available. Block level data is the smallest unit for which race and minority information is available. The agencies used data from the American Community Survey (ACS) to determine socioeconomic and racial characteristics of the population. AEDT version 3e was used to screen for Potential Environmental Justice Populations. The analysis includes selecting a unit of analysis and comparing it to an appropriate reference community. If the percentage of minority or low-income populations in the unit of analysis exceed the reference community threshold, then those geographic units are populations of EJ concern. In this case, the agencies identified block level data within the study area (unit of analysis) and compared that data to the county (appropriate reference community). Data from the block group level was then compared to county level data to determine populations of EJ concern.

For this analysis, a minority census block group of EJ concern is a census block group (unit of analysis) with a minority population percentage greater than the average minority population

percentage in the county (reference community). The average percentage of minority populations at the block group level residing within the study area is 66% (ACS, 2016-2020). Therefore, every census block group with a percentage of minority population greater than the average minority population of approximately 66% is designated a census block group of EJ concern. For this analysis, a low-income population census block group of EJ concern is a census block group with a greater percentage of low-income population than the average percentage of low-income population in the study area. The average percentage of low-income populations at the block group level residing in the study area was 9% (ACS, 2016-2020). Therefore, every census block group with a low-income population greater than 14% is designated a census block group of EJ concern.

Figure 19 (ACS, 2016-2020) depicts locations of EJ concern by block group within the study area. As depicted in Figure 19, most of the study area includes EJ populations. Table 11 (ACS, 2016-2020) shows the minority and low-income data for Maui County and block groups within the study area.

Table 11. Minority and Low-income Population Data within Maui County and the Study Area

Area	Population	Minority	Low-Income
Maui County	157,272	110,375	13,290
Block Groups within Study Area	7,596	4,131	767

Source: ACS, 2016-2020

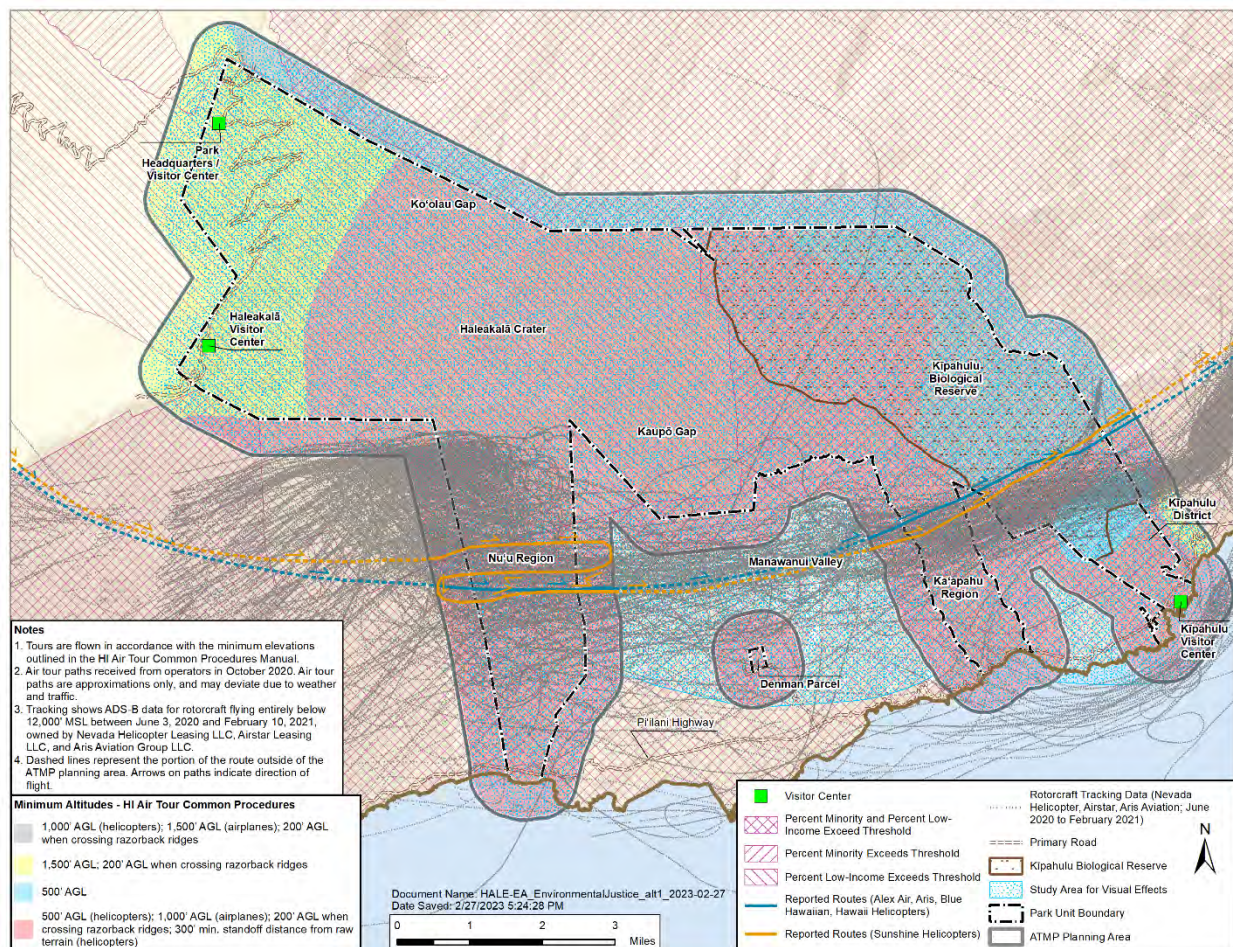


Figure 19. Affected Environment for Environmental Justice

Socioeconomics

This section describes the socioeconomic conditions that may be affected by the ATMP alternatives. Socioeconomic impacts of ATMP alternatives include the potential impacts commercial air tour operations have on two interest groups: 1) local residents living in close proximity to the Park, who may be affected by both the number of air tours and the manner in which they are conducted and 2) air tour operators in Hawai'i, specifically the six commercial air tour operators with IOA for the Park and their employees, and the associated tourism industry. The factors of socioeconomic discussed in this draft EA include: population demographics, industry, employment and income.

Industry

Twenty-three percent (23%) of all Maui residents work in arts, entertainment, recreation, and accommodation and food services compared to 16% of all Hawai'i residents. Educational services, health care, and social services account for 17% of employment in Maui County but

accounts for 21% of employment in the State of Hawai'i. Approximately 11% of the Maui County workforce works in retail as does the state's workforce (US Census Bureau, 2021). The tourism industry is Maui County's leading sector. The Park plays a major role in the tourism industry of Maui County and Hawai'i. In 2021, visitors spent a total of approximately \$61 million at the Park and added a value of approximately \$50.3 million to the local economy. The total labor income generated by this spending equaled approximately \$27.3 million (NPS, 2022).

Other industry within the study area includes cattle ranches. In 2021, ranch farmworkers accounted for 80 jobs in the State of Hawai'i, representing approximately 1.5% of the state's employment (Bureau of Labor Statistics, 2021).

Commercial Air Tours

Commercial air tour operators currently fly an average of 4,824 air tours per year (based on 2017-2019 reporting) over the Park. There is a \$25 fee for commercial air tours entering Park airspace. In 2019, air tours that operated over the Park generated a revenue of \$112,225 for the NPS. Approximately 80% of the revenue generated from commercial air tours over the Park is used for projects at the Park. The remaining 20% is dispersed to other NPS sites that do not collect user fees.²⁵ As per the Federal Lands Recreation Enhancement Act,²⁶ a majority of the revenues are used for facility improvement and ecosystem enhancement projects within the Park.

The annual number of commercial air tours over the Park has been on a downward trend since 2000. In 2002, the number of air tours over the Park totaled 10,771. In 2019, that number dropped to 4,889 (Haleakalā National Park, 2020). The air tour industry employs pilots, mechanics, office administrators, and other types of jobs to conduct business. In 2021, 800 individuals worked in the air transportation industry in Maui County (which includes both the air tour industry plus commercial airlines and airport employees), representing approximately 1.2% of the county's total employment (Hawai'i Department of Business, Economic Development and Tourism, 2021). In addition to people directly employed by air tour operators, others are indirectly involved with the industry including hotels, tour booking agents, and advertising and marketing professionals. Employment supported by the air tour industry provides income to workers and indirectly provides revenue to local businesses as a result of employee and operator spending.

²⁵ <https://www.nps.gov/aboutus/fees-at-work.htm>

²⁶ The Omnibus Budget Reconciliation Act of 1993.

3.7.2 Environmental Consequences

In accordance with FAA Order 1050.1F the following factors were considered to determine if the action would have a disproportionately high and adverse impact to an EJ population, i.e., a low-income or minority population:

- significant impacts in other environmental impact categories; or
- impacts on the physical or natural environment that affect an EJ population in a way that the FAA determines are unique to the EJ population and significant to that population.

This assessment is provided for each alternative below. As shown in Figure 19, minority and low-income populations of EJ concern are present throughout nearly the entire study area. Specific impacts associated with each alternative are discussed in more detail below.

For socioeconomic impacts, FAA considers the following factors when evaluating the severity of impacts which include the potential to:

- induce substantial economic growth in an area, either directly or indirectly (e.g., through establishing projects in an undeveloped area);
- disrupt or divide the physical arrangement of an established community;
- cause extensive relocation when sufficient replacement housing is unavailable;
- cause extensive relocation of community businesses that would cause severe economic hardship for affected communities;
- disrupt local traffic patterns and substantially reduce the levels of service of roads serving an airport and its surrounding communities; or
- produce a substantial change in the community tax base.

The analysis below reflects the results of the impact analysis for noise, visual, and air quality effects as they are the impact categories that would be reasonably expected to affect EJ populations, though impact conclusions for other environmental impact categories are reflected in other sections of this draft EA.

Alternative 1: No Action

Under existing conditions, based on flight tracking data, the heaviest concentrations of commercial air tours fly over EJ communities. Reporting data from 2017-2019 indicates that residents in these areas have the potential, on average, for exposure to commercial air tour aircraft approximately 14 times per day, and the maximum number of air tours reported within the ATMP planning area during this time period was 50 tours in a single day. Based on reported

data, the existing air tours occur between 7 AM and 5 PM. The altitudes vary between 500 – 1,500 ft. AGL.

Air tours are concentrated within the Park’s Kīpahulu District and south of the Haleakalā Summit. Block groups within these areas are comprised of low income and minority populations of EJ concern, or “EJ populations.”²⁷ Therefore, EJ populations currently experience the noise, air quality, and visual effects associated with air tours under current conditions as described in more detail below.

The noise impacts of the No Action Alternative evaluated in Section 3.1, Noise and Noise-Compatible Land Use indicate that the No Action Alternative would not result in noise impacts that would exceed 65 dB DNL. The DNL is expected to be below 50 dB under the No Action Alternative.

For air quality impacts (see Section 3.2, Air Quality and Climate Change), the No Action Alternative would not cause pollutant concentrations to exceed one or more of the NAAQS for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations. The total amount of annual GHG emissions resulting from commercial air tours over the Park is 267 MT CO₂.

Under the No Action Alternative, impacts to viewsheds would primarily occur within the Kīpahulu District, including Waimoku Falls and coastal viewsheds. Impacts would continue to occur to visual resources under the No Action Alternative as air tours would affect the nature of the visual character of the area and would continue to contrast the scenic vistas and natural areas in the Park. The visual resources of the Park would still be viewable at times of the day when commercial air tours were not present within the study area (on average, air tours were conducted within the study area 14 times per day) (see Section 3.8, Visual Effects).

In summary, the No Action Alternative would not result in disproportionately high and adverse noise, air quality, or visual effects to EJ populations.

Under the No Action Alternative, the number of commercial air tours conducted by operators would vary from year to year, but would likely be consistent with the number of tours reported in the timeframe from 2017-2019. Therefore, the amount of income generated for air tour operators and other ancillary businesses as well as employment would likely be consistent with income generated during that timeframe. The No Action Alternative would not induce

²⁷ Note that while residential use of the Park is limited to that provided by NPS temporary housing, the block groups encompassing the Park also encompass areas outside of the Park. Because block groups are the smallest unit of analysis for which data is available to identify EJ populations, these geographic areas inside and outside the Park have been lumped together as containing EJ populations, but the Park does not contain residential settlements other than temporary NPS housing.

substantial economic growth, disrupt or divide physicality of community, cause extensive relocation, disrupt traffic patterns, or produce a substantial change in the community tax base.

Alternative 2

Under Alternative 2, commercial air tours would not fly within the ATMP planning area. Therefore, there would be direct beneficial impacts on noise, air quality, and viewsheds within the study area as a result of the elimination of commercial air tours in the ATMP planning area (see Sections 3.1, Noise and Noise-Compatible Land Use; 3.2, Air Quality and Climate Change; and 3.8, Visual Effects). Alternative 2 would result in a reduction in noise, air quality, and visual impacts compared to those currently occurring under existing conditions, therefore, this alternative may result in a benefit to EJ populations within the study area, and Alternative 2 would not result in disproportionately high and adverse noise, air quality, or visual impacts to EJ populations.

Because Alternative 2 would prohibit air tours from flying within the ATMP planning area, air tour operators and other ancillary businesses would not be able to generate income from conducting tours in this area. Additionally, the NPS would not collect a fee as no air tours would enter the Park's airspace. There could be some economic benefit under this alternative to businesses within the study area that benefit from quieter noise levels and/or the absence of human-caused sounds. This may include Park visitation, or it could include agricultural operations that occur in the study area that would experience less disturbance from human-caused sounds.

Alternative 2 would not induce substantial economic growth, disrupt or divide physicality of community, cause extensive relocation, or disrupt traffic patterns. Alternative 2 could result in some impacts to employment or the amount of income that air tour operators and other ancillary businesses could generate from conducting air tours within the ATMP planning area. However, the air transportation industry represents 1.4% of Maui County's total employment, and the limits on air tours within the ATMP planning area would not preclude operators from making up this revenue generation in other ways such as using their aircraft for other business ventures or conducting air tours elsewhere within the region (see below for a discussion of indirect socioeconomic effects). Therefore, it is unlikely that Alternative 2 would result in large socioeconomic impacts associated with changes to the community's tax base.

Alternative 3

Alternative 3 would permit air tours to be conducted along a designated route and altitudes (refer to Figure 20) within the ATMP planning area. The authorized route for this alternative crosses the Nu'u area downslope of the Haleakalā Crater, above the Denman Parcel and through the Ka'āpahu area south of the Kīpahulu Biological Reserve, and offshore from the Kīpahulu District. Compared to the No Action Alternative, Alternative 3 would result in fewer direct noise, air quality, and visual impacts as described for each impact category below.

In consideration of the noise impacts of Alternative 3, (Section 3.1, Noise and Noise-Compatible Land Use), the DNL analysis indicates that Alternative 3 would not result in noise in excess of 65 dB DNL. The resultant DNL for Alternative 3 is expected to be below 45 dB.

For air quality impacts (see Section 3.2, Air Quality and Climate Change), Alternative 3 would not cause pollutant concentrations to exceed one or more of the NAAQS for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations. The total change in annual GHG emissions for Alternative 3 as compared to the No Action Alternative is modeled to result in a reduction of 158 MT CO₂ within the ATMP planning area.

For visual impacts, Alternative 3 would provide protection to Park viewsheds, including those overlooking the Haleakalā Crater and within the Kīpahulu District (see Section 3.8, Visual Effects). The limited duration and reduced number of air tours that would occur under Alternative 3 as compared to the No Action Alternative would result in fewer impacts to viewsheds than those under existing conditions, including those viewsheds that may be used by EJ populations. Alternative 3 would protect the visual character of the Park and its viewsheds, including the importance, uniqueness, and aesthetic value of the affected visual resources. Other than times of day when commercial air tours were present within the ATMP planning area, this alternative would not contrast with the visual resources and/or visual character in the study area or obstruct views of the visual resources.

In summary, Alternative 3 would not result in disproportionately high and adverse noise, air quality, or visual impacts to EJ populations. The same socioeconomic effects stated under Alternative 2 would occur under Alternative 3, but those effects would be fewer (including the potential for impacts associated with changes to the community's tax base), as some air tours would still occur within the ATMP planning area. Alternative 3 would not induce substantial economic growth, disrupt or divide physicality of community, cause extensive relocation, or disrupt traffic patterns.

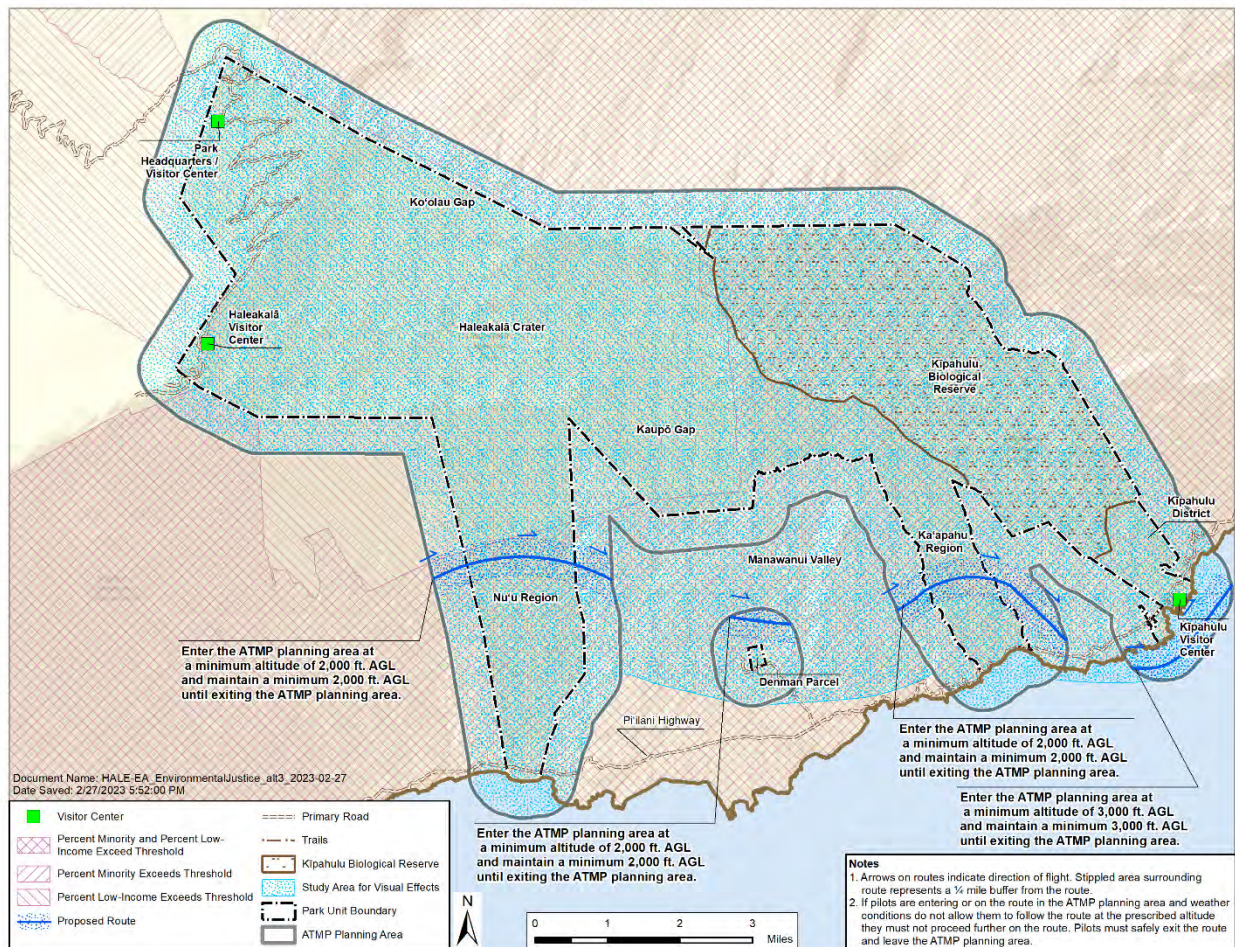


Figure 20. Environmental Justice Environmental Consequences for Alternative 3

Indirect and Cumulative Effects

Indirect Effects: Under the No Action Alternative, commercial air tour operations within the ATMP planning area would remain consistent with existing conditions, thus there are no indirect impacts that would be expected to occur under this alternative. There are no indirect impacts to EJ populations that would be expected to occur under this alternative, nor would this alternative be expected to result in indirect socioeconomic impacts as there would be no change to existing conditions.

The limited number of flights permitted by Alternatives 2 and 3 could limit the potential future economic growth for commercial air tour operators and other ancillary businesses. Because of the capital investment air tour operators have in aircraft, facilities, and equipment, operators could seek to make up lost revenue from air tours within the study area by conducting air tour operations outside of the ATMP planning area to the extent possible, including over the ATMP planning area at or above 5,000 ft. AGL. Operators may also choose to retire, surrender their operating certificates, or use their aircraft for other businesses or operations such as search and

rescue, fire protection, resource mapping and assessment, and flight for life operations. Therefore, although Alternatives 2 and 3 would limit the opportunities for air tour operators and ancillary businesses to generate revenue from tours conducted within the ATMP planning area, these alternatives would not preclude operators from making up this revenue generation in other ways such as using their aircraft for other business ventures or conducting air tours elsewhere within the region.

Under Alternatives 2 and 3, it is challenging to predict with specificity if, where, and to what extent any air tours that were displaced to outside the ATMP planning area would result in indirect noise, air quality, or visual impacts to EJ populations. Operations that may occur outside the ATMP planning area as a result of Alternative 2 and/or reduction in annual operations under Alternative 3, may shift where noise, air quality emissions, and visual effects occur, but the effects are not likely to change substantially as compared to current conditions. Therefore, adverse indirect impacts to EJ populations are not expected to occur. Therefore, disproportionately high or adverse indirect noise, air quality, or visual impacts to EJ populations are not expected to occur.

Cumulative Effects: The cumulative effects to EJ populations reflect those analyzed in other sections of this draft EA for noise, air quality, and visual effects. In summary, ongoing present and future Park management actions by the NPS within the ATMP planning area including approximately 96 administrative helicopter flights per year may contribute noise and air quality emissions that would continue to negatively affect the acoustic environment and air quality within the ATMP planning area. Those effects would be greatest under the No Action Alternative and fewest under Alternative 2 based on the number of flights authorized per year. Other sources of ongoing visual impacts that may affect EJ populations within the study area include general aviation flights, overflights by commercial airlines, military flights, and administrative flights such as those used for maintenance or search and rescue efforts, which would continue in the same frequency and manner under any of the alternatives, as they occur independently of air tours. The cumulative effects to viewsheds, including those experienced by EJ populations, would be greatest under the No Action Alternative and fewest under Alternative 2 based on the number of flights authorized per year. Ongoing present and future Park management actions by the NPS would continue to occur under any of the alternatives.

3.8 Visual Effects

Visual resources include buildings, sites, TCPs, and other natural or manmade landscape features that are visually important or have unique characteristics. In addition, visual resources can include the cohesive collection of various individual visual resources that can be viewed at once or in concert from the area surrounding the site of the alternatives. Visual character refers to the overall visual makeup of the existing environment where the alternatives would be located. For example, areas in close proximity to densely populated areas generally have a

visual character that could be defined as urban, whereas less developed areas could have a visual character defined by the surrounding landscape features, such as open grass fields, forests, mountains, or deserts, etc. Visual effects generally describe the extent to which the proposed action or alternatives would either produce light emissions that create annoyance or interfere with activities; or contrast with, or detract from, the visual resources and/or the visual character of the existing environment. Although there are no federal special purpose laws or requirements specific to light emissions and visual effects, there are special purpose laws and requirements that may be relevant, such as those relating to cultural resources or Section 4(f) resources. Additionally, NPS Management Policies (2006) Section 1.4.6 provides that scenic views and vistas are Park resources that are subject to protection under the NPS Organic Act.

The study area for visual effects includes the ATMP planning area as well as areas within the cultural resources APE that are outside of the ATMP planning area. Refer to Figure 21 for a depiction of the study area used for the visual effects analysis.

3.8.1 Affected Environment

The Park is characterized by its contrasting mountain, crater and coastal environments, offering visitors distinct experiences of the Park's visual resources. As discussed in Section 3.6, Visitor Use and Experience, a major attraction for visiting the Park is to experience the scenery and landscape of the Park. As 74% of the Park is Congressionally designated Wilderness, the natural areas and features provide an aesthetic and visual character unique to the Park. Viewsheds are a fundamental resource and value of the Park and panoramic views within the Park greatly contribute to the unique sense of place of Haleakalā (NPS, 2015a). Within the Park, visual resources include the Haleakalā Crater, Haleakalā Summit, sunrise and sunset vistas, waterfalls, forest canopy, the ocean, and the nighttime sky. These natural resources are also tied to visitor use and cultural resources. The Summit District, which includes the lands west of the Kīpahulu Biological Reserve, is a viewshed offering visitors views of the Haleakalā Crater, sunrises and sunsets over the Park's natural landscape, and stargazing opportunities. Several overlooks are available in the Summit District along Haleakalā Highway, including Kalahaku Overlook and Leleiwi Overlook. The Haleakalā Visitor Center can offer visitors views throughout the Haleakalā Crater and beyond to the neighboring Hawai'i Island, with views of eruption plumes or snow-capped mountains when conditions allow. The Kīpahulu District provides visitors with views of the Waimoku waterfalls, 'Ohe'o pools, the coastline, ocean and other attractions. These visual points of interest are depicted on Figure 21. Other structures and sites that are tied to cultural resources are often present within these viewsheds and are discussed in greater detail in Section 3.4, Cultural Resources.

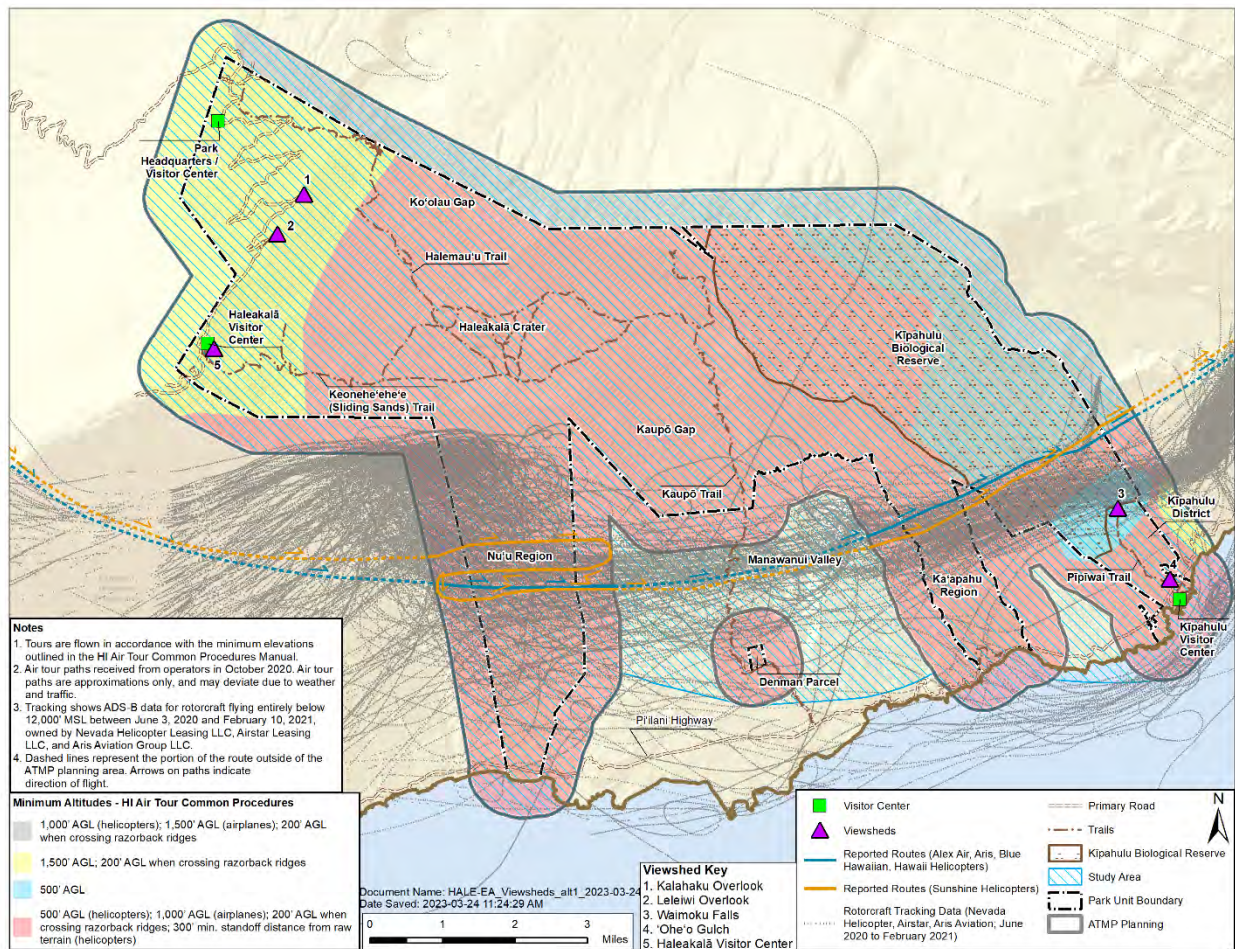


Figure 21. Affected Environment for Visual Effects

3.8.2 Environmental Consequences

Studies indicate that aircraft noise in national parks can impact human perceptions of aesthetic quality of viewsheds (Weinzimmer et al., 2014; Benfield et al., 2018). Visitors may notice aircraft overflights because of the accompanying noise. Aircraft are particularly noticeable in the natural, Wilderness character of the Haleakalā backcountry and from the high elevation crater overlooks.

Impacts to visual resources and visual character relate to a decrease in the aesthetic quality of the Park resulting from air tours. FAA Order 1050.1F provides factors to consider in evaluating the severity of impacts, including the extent that the action would have the potential to:

- Affect the nature of the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources;
- Contrast with the visual resources and/or visual character in the study area; and

- Block or obstruct the views of visual resources, including whether these resources would still be viewable from other locations.

Alternative 1: No Action

Reporting data from 2017-2019 indicates that visitors have the potential, on average, to see commercial air tour aircraft approximately 14 times per day, and the maximum number of tours reported over the Park during this time period was 50 tours. Based on reported data, the existing air tours occur between 7 AM and 5 PM. The altitudes reporting near Park viewsheds are 500 ft. AGL for helicopters and 1,000 ft. AGL for airplanes, so the aircraft are visible to visitors at the Park including those in the crater, at the Haleakalā Visitor Center, and at points of interest in the Kīpahulu District such as Waimoku Falls. Refer to Figure 21 for a depiction of existing air tour conditions in the context of visual points of interest and viewsheds within the study area.

Under existing conditions, based on flight tracking data, the heaviest concentrations of commercial air tours are flown over or near Park viewsheds all along the leeward shore of the Park, near the crater rim, and in the Kīpahulu District, including Waimoku Falls and coastal viewsheds. Under this alternative visitors in these areas would continue to experience visual impacts associated with commercial air tours. Commercial air tours may block visitors from seeing a viewshed or detract from natural or cultural scenery. Commercial air tours may be especially distracting when the visitor is at an overlook or other area where a specific visual experience is expected. Under the No Action Alternative, viewsheds within the study area could be impacted by commercial air tours for up to 50 times a day. Since the Park consists primarily of a natural landscape, the encroachment of commercial air tour aircraft on these viewsheds would continue to detract from the visitor's opportunity to observe these scenic natural resources and would block the view of unique visual resources within the Park of scenic vistas and natural areas contrast with commercial air tours when commercial air tours are present (on average approximately 14 times per day). However, greater Maui provides opportunities to view similar natural landscape features and viewsheds as those found within the study area, and the visual resources of the Park would still be viewable at times of the day when commercial air tours were not present within the ATMP planning area.

Alternative 2

Under Alternative 2, commercial air tour aircraft would not fly within the ATMP planning area. Therefore, commercial air tours within the ATMP planning area would no longer detract from visual resources within the study area. Visual resources would experience direct beneficial impacts throughout the Park under Alternative 2 and visual character would improve compared to current conditions. Alternative 2 would provide the greatest protection to Park viewsheds across the three alternatives.

Alternative 3

Under Alternative 3, some Park viewsheds could experience temporary impacts when commercial air tours are flying within the ATMP planning area, and those instances would be limited to viewsheds where aircraft could be seen along the designated route and altitudes (refer to Figure 22). Visitors would have the potential to see commercial air tour aircraft up to 16 times per day and no more than 2,412 times per year. Commercial air tours along the authorized route could be visible from the Park's coastal areas, but they would avoid most other scenic points of interest or overlooks within the study area, including Waimoku Falls and the Summit District. Impacts to Park viewsheds would be reduced as compared to current conditions because commercial air tour aircraft would be limited to offshore portions of the ATMP planning area near the Kīpahulu District where fewer Park viewsheds are located. Air tours within the ATMP planning area over the Summit District would not be permitted under 5,000 ft. AGL, so viewsheds in this area would not experience impacts from air tours within the ATMP planning area, including viewpoints along Haleakalā Highway overlooking the Haleakalā Crater.

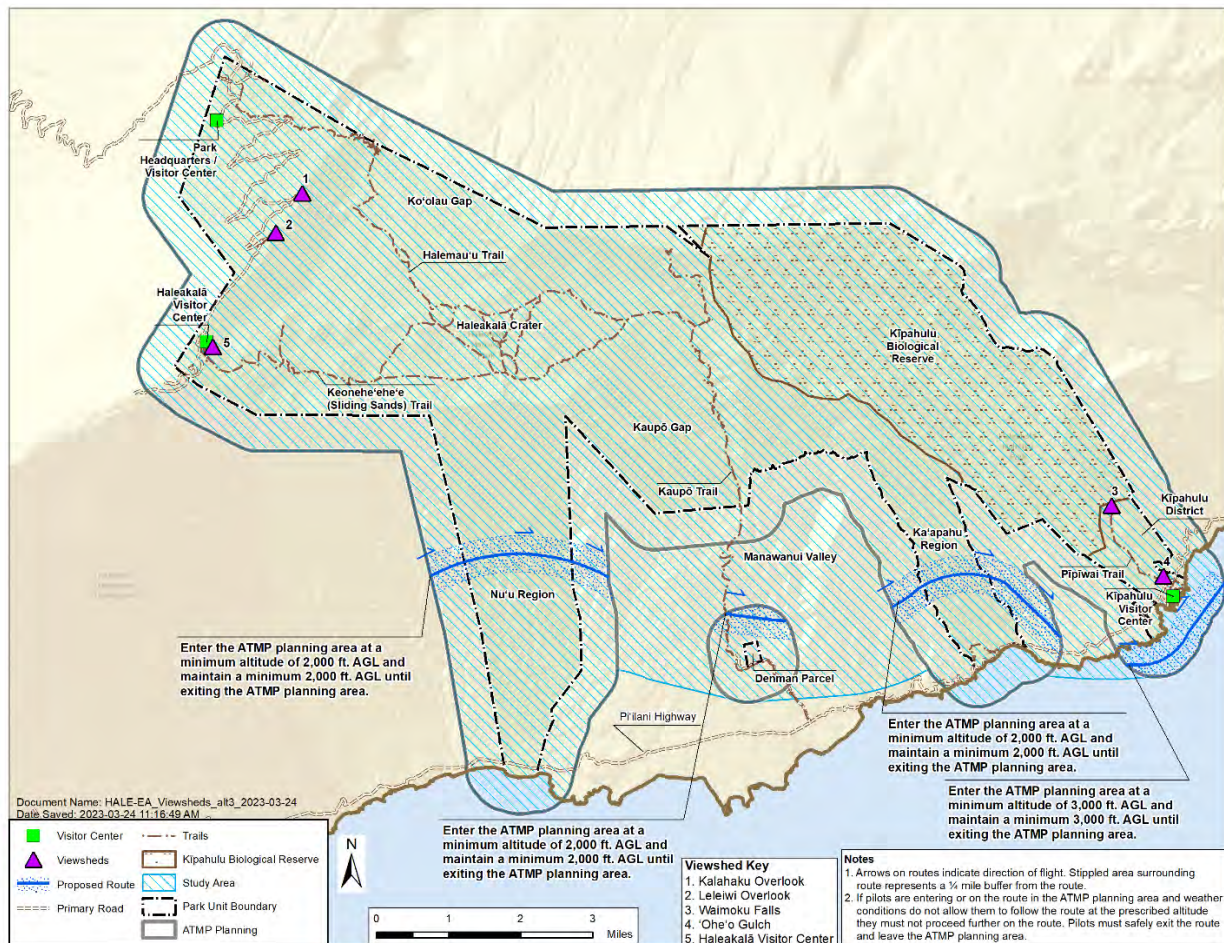


Figure 22. Visual Effects Environmental Consequences for Alternative 3

Indirect and Cumulative Effects

Indirect Effects: Under the No Action Alternative, commercial air tour operations within the ATMP planning area would likely remain consistent with existing conditions, thus there are no indirect impacts that would be expected to occur under this alternative.

Under Alternatives 2 and 3, since commercial air tour operations would be limited or prohibited within the ATMP planning area, it could result in the displacement of tours outside this area, including over the ATMP planning area at or above 5,000 ft. AGL. Operators may choose to fly along existing flight paths at or above 5,000 ft. AGL which could make them more visible to visitors at higher elevations than they currently are (for example visitors at 7,000 ft. elevation would be at the same eye level as an air tour flying 5,000 ft. AGL over an area at 2,000 ft. elevation); however, the increase in altitude could also decrease impacts on ground level resources as compared to current conditions. Flights close to the crater at or above 5,000 ft. AGL are unlikely due to the elevation and safety requirements for unpressurized aircraft. Supplemental oxygen use is required in unpressurized aircraft flying over 10,000 ft. MSL for

more than 30 minutes (14 CFR § 135.89, § 135.157); therefore, it is unlikely air tours would fly higher for extended periods of time. Flights in this area and at other areas of lower elevation may continue along similar paths to existing conditions but at or above 5,000 ft. AGL. Air tour operators are also likely to continue to fly some air tours along the perimeter of the ATMP planning area since Haleakalā Crater and other Park features would be visible from some areas outside the ATMP planning area. Therefore, under Alternative 2, some indirect impacts to viewsheds near the Summit District could occur to the extent that they are present if flights were displaced to outside the ATMP planning area. Since Alternative 2 prohibits flights within the ATMP planning area whereas Alternative 3 limits them to no more than 2,412 flights per year in addition to other operating parameters as specified in Section 2.6, Alternative 2 could result in more indirect impacts to viewsheds than Alternative 3.

Cumulative Effects: Other sources of ongoing visual impacts within the study area include general aviation flights, overflights by commercial airlines, military flights, and approximately 96 yearly administrative flights such as those used for resource protection or search and rescue efforts, which would likely continue in the same frequency and manner under any of the alternatives, as they occur independently of air tours.

The cumulative visual effects of these ongoing flights along with those from commercial air tours under the No Action Alternative would have the greatest potential for impacts within the study area. The cumulative effects would be fewer for Alternative 3 which limits the number of air tours that would occur as compared to the No Action Alternative, and the fewest under Alternative 2 as there would be no tours permitted within the ATMP planning area. Ongoing present and future Park management actions by the NPS would continue to occur under any of the alternatives.

3.9 Coastal Resources

The Coastal Zone Management Act (CZMA) (16 U.S.C. §§ 1451-1466) provides for management of U.S. coastal resources, including the Great Lakes, to help coastal states balance conservation and restoration of natural resources with community development to develop their economies and support ecosystems. The CZMA provides a framework, funding, and technical assistance to address coastal issues including wetland management, public access, coastal hazards, and water quality. The CZMA includes requirements for ensuring that activities conducted or authorized by federal agencies are consistent with approved state coastal zone management programs. These consistency requirements, as interpreted in NOAA's implementing regulations (15 CFR Part 930), apply to activities that would have reasonably foreseeable effects on land or water uses or natural resources in a coastal zone.

The State of Hawai'i administers a CZM program and has established objectives and their supporting policies (Hawai'i Revised Statutes § 205A-2) to help the Hawai'i CZM Program evaluate the consistency of proposed federal actions. As part of this evaluation, the agencies

have prepared documentation describing the preferred alternative's consistency with each objective and policy of the Hawai'i CZM program (see Appendix K, *CZMA Compliance*). The agencies have requested a federal consistency review by the Hawai'i CZM Program Office simultaneous with the release of this draft EA for public review and comment.

The entire State of Hawai'i is considered a coastal zone under the CZM program for the State of Hawai'i. Therefore, the study area for coastal resources is the ATMP planning area.

3.9.1 Affected Environment

Because the entire State of Hawai'i is considered a coastal zone, the affected environment includes the entire ATMP planning area as discussed above.

3.9.2 Environmental Consequences

Impacts to coastal resources may occur in the form of physical effects associated with land use (such as construction), changes in water quality from pollutants or runoff, or effects to biological resources that utilize coastal resources. FAA Order 1050.1F provides factors to consider in evaluating the severity of impacts, including the extent that the action would have the potential to:

- Be inconsistent with the relevant state coastal zone management plan(s);
- Impact a coastal barrier resources system unit (and the degree to which the resource would be impacted);
- Pose an impact to coral reef ecosystems (and the degree to which the ecosystem would be affected);
- Cause an unacceptable risk to human safety or property; or
- Cause adverse impacts to the coastal environment that cannot be satisfactorily mitigated.

The agencies analyzed the potential for direct, indirect, and cumulative impacts on coastal resources in the relevant environmental impact categories for all three alternatives in this draft EA. This analysis can be found in Noise and Noise Compatible Land Use (Section 3.1), Biological Resources (Section 3.3), Cultural Resources (Section 3.4), Visitor Use and Experience and Other Recreational Opportunities (Section 3.6), Environmental Justice and Socioeconomics (Section 3.7), Visual Effects (Section 3.8), and DOT Act Section 4(f) Resources (Section 3.10).

The agencies only prepared a consistency determination for the preferred alternative (Alternative 3), and have evaluated Alternative 3's consistency with the enforceable policies of the Hawai'i CZM Program, including their objectives and supporting policies (Hawai'i Revised

Statutes § 205A-2). The agencies' analysis is in Appendix K, *CZMA Compliance*, and the conclusions from that analysis are summarized below.

The agencies have evaluated Alternative 3 and have found that its implementation would not interfere with the Hawai'i CZM objective for:

- recreational resources, which is to provide coastal recreational opportunities accessible to the public;
- historic resources, which is to protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture;
- scenic and open space resources, which is to protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources;
- coastal ecosystems, which is to protect valuable coastal ecosystems, including reefs, beaches, and coastal dunes, from disruption and minimize adverse impacts on all coastal ecosystems;
- economic uses, which is to provide public or private facilities and improvements important to the State's economy in suitable locations;
- coastal hazards, which is to reduce hazard to life and property from coastal hazards;
- managing development, which is to improve the development review process, communication, and public participation in the management of coastal resources and hazards
- public participation, which is to stimulate public awareness, education, and participation in coastal management

Alternative 3 would be undertaken in a manner consistent to the maximum extent practicable with the enforceable policies of the Hawai'i CZM Program with respect to recreational resources, historic resources, scenic and open space resources, coastal ecosystems, economic uses, coastal hazards, managing development, and public participation. The policies for beach and coastal dune protection and marine and coastal resources are not applicable to the proposed action and have therefore not been evaluated as part of this assessment. Refer to Appendix K, *CZMA Compliance* for the agencies' analysis.

The agencies have provided the consistency determination in Appendix K, *CZMA Compliance* as well as a copy of this draft EA to the Hawai'i CZM Program Office concurrent with the release of this draft EA for public review, and have requested their concurrence with this determination.

3.10 Department of Transportation (DOT) Act Section 4(f) Resources

Section 4(f) of the Department of Transportation Act of 1966, which was recodified and renumbered as Section 303(c) of 49 U.S.C., provides that the Secretary of Transportation will not approve any program or project that requires the use of any publicly owned land from a public park, recreational area, or wildlife and waterfowl refuge of national, state or local significance; or land from an historic site of national, state or local significance, as determined by the officials having jurisdiction over the land, unless i) there is no feasible and prudent alternative to the use of such land, and ii) such program or project includes all possible planning to minimize harm resulting from such use. Where federal lands are administered for multiple uses, the federal official having jurisdiction over the lands shall determine whether the subject lands are in fact being used for park, recreational, wildlife, waterfowl, or historical purposes. National Wilderness areas may serve similar purposes and shall be considered subject to Section 4(f) unless the controlling agency specifically determines that, for Section 4(f) purposes, the lands are not being used.

Appendix B of FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures* describes the FAA's procedures for complying with Section 4(f). Federal Highway Administration/Federal Railroad Administration/Federal Transit Administration regulations and policy are not binding on the FAA; however, the FAA may use them as guidance to the extent relevant to aviation projects.²⁸ According to FAA Order 1050.1F, significance of impacts is determined based on if the action involves more than a minimal physical use of a Section 4(f) resource or constitutes a "constructive use" based on an FAA determination that the aviation project would substantially impair the Section 4(f) resource.

The study area for considering Section 4(f) resources in this draft EA corresponds with the APE used for compliance with Section 106 of the NHPA. Refer to Figure 23 for a depiction of the Section 4(f) study area.

3.10.1 Affected Environment

Section 4(f) resources including parks, recreational areas, and wildlife and waterfowl refuges were identified using public datasets from federal, state, and local sources. Historic properties were identified as part of the Section 106 consultation process (see Section 3.4, Cultural Resources). Each resource that intersected the study area (i.e., some portion of the property fell within the study area) was included in the Section 4(f) analysis (see Appendix I).

Table 12 shows Section 4(f) parks, recreational areas, and wildlife and waterfowl refuges identified in the study area, and Section 3.4.1, Affected Environment for Cultural Resources and Appendix G lists historic resources that qualify under Section 4(f). Except in unusual circumstances, Section 4(f) protects only those historic sites that are listed in or eligible for

²⁸ See 1050.1F Desk Reference, Section 5-3.

listing in the National Register.²⁹ Figure 23 shows a map of the Section 4(f) resources analyzed in this chapter within the study area.

Table 12. Section 4(f) Resources.

Property Name	Property Type
Haleakalā National Park	National Park
Kīpahulu Point Park	County Park
Nakula Natural Area Reserve	State Reserve
Hāna Forest Reserve	State Forest Reserve
Kahikinui Forest Reserve	State Forest Reserve
Kīpahulu Forest Reserve	State Forest Reserve
Koʻolau Forest Reserve	State Forest Reserve
Kula Forest Reserve	State Forest Reserve
Hanawī Natural Area Reserve	State Forest Reserve
Alpine Wildlife Sanctuary	State Reserve
Kamehamehame Forest Reserve	State Forest Reserve
Kīpahulu Biological Reserve	National Reserve
State Resource Management Area (SRMA)	SRMA
Nuʻu Refuge	Nature Refuge

Sources: USGS Protected Areas Database of the United States, Hawaiʻi Division of State Parks, Hawaiʻi Department of Land and Natural Resources Office of Conservation and Coastal Lands, Hawaiʻi Division of Forestry and Wildlife.

²⁹ If a historic site is not National Register-listed or eligible, a state or local official may formally provide information to FAA to indicate that a historic site is locally significant. The responsible FAA official may then determine it is appropriate to apply Section 4(f). See FAA Order 1050.1F for further detail.

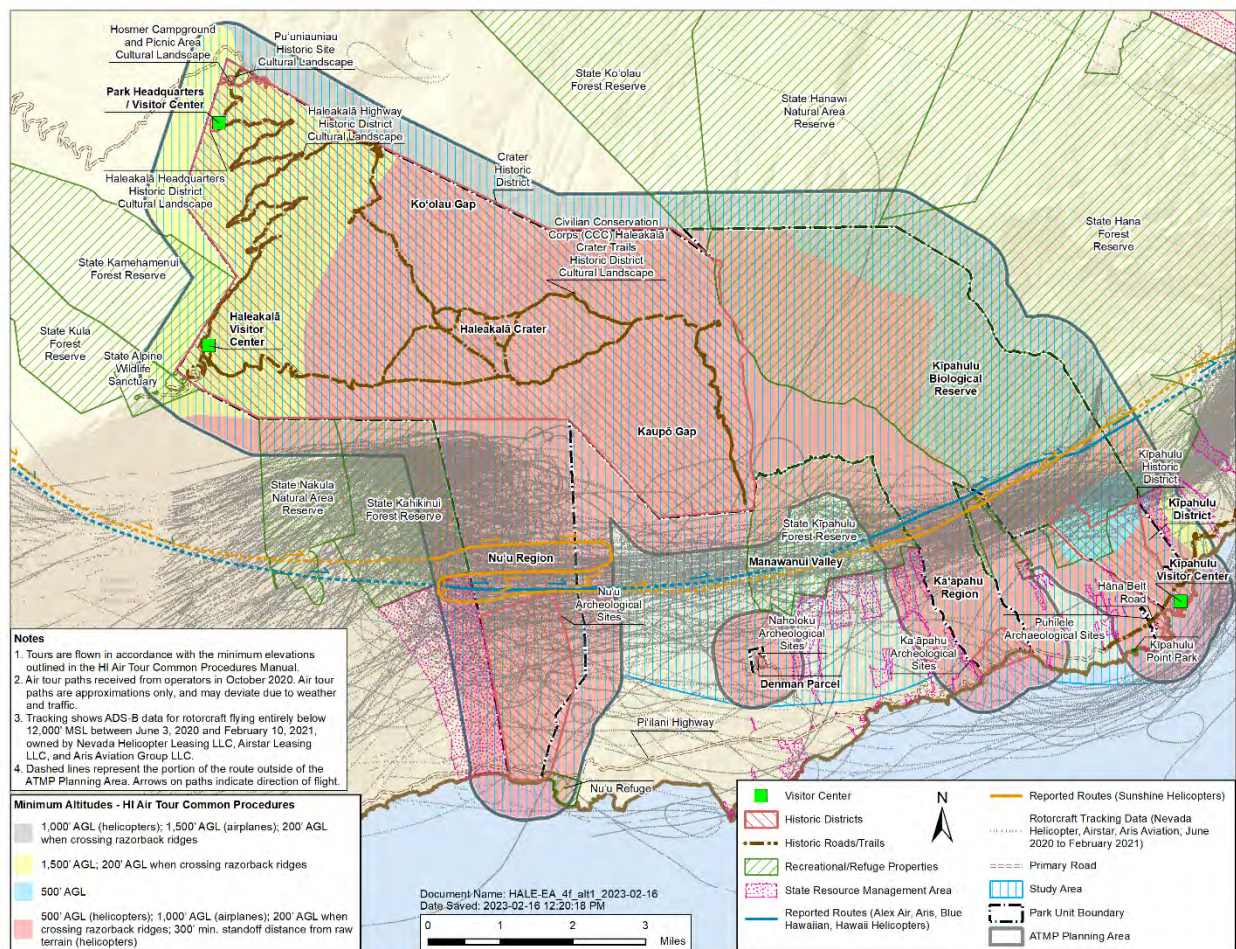


Figure 23. Affected Environment for Section 4(f) Properties

3.10.2 Environmental Consequences

In the context of Section 4(f) resources, the term “use” refers to both physical constructive impacts to Section 4(f) resources. A physical use involves the physical occupation or alteration of a Section 4(f) resource, while constructive use occurs when a proposed action results in substantial impairment of a resource to the degree that the activities, features, or attributes of the resource that contribute to its significance or enjoyment are substantially diminished. In consideration of potential impacts that could result in substantial impairment to Section 4(f) resources in the study area, the analysis is limited to identifying impacts that could result in a constructive use, as the alternatives would not have the potential to cause direct impacts to a Section 4(f) resource. Potential impacts to Section 4(f) resources from commercial air tours may include noise from aircraft within the acoustic environment, as well as visual impacts.

The FAA considered the potential for constructive use of Section 4(f) resources under all alternatives but focused the Section 4(f) analysis on the preferred alternative (Alternative 3). In accordance with FAA Order 1050.1F, the FAA determined through an initial assessment if the

alternatives would result in use of any of the properties to which Section 4(f) applies. As noted in Section 2.4, Alternative 1 (No Action Alternative), the No Action Alternative provides a basis for comparison within this draft EA but is not a selectable alternative because it does not meet the purpose and need for the ATMP (refer to Section 1.4, Purpose and Need). Furthermore, the FAA consulted with the NPS on the potential for substantial impairment to Section 4(f) resources that would occur under the No Action Alternative, and the NPS determined that the No Action Alternative cannot be mitigated to avoid or prevent unacceptable impacts to Park resources including those that unreasonably interfere with ceremonies conducted by Native Hawaiian practitioners at cultural sites, Park programs, activities, the atmosphere of peace and tranquility, and the natural soundscapes in Park's Wilderness areas. The FAA did not advance the No Action Alternative for detailed Section 4(f) analysis as it is not considered a selectable alternative. Effects to Section 4(f) resources under Alternative 2 would be expected to be similar or less than those under Alternative 3 as there would be no air tours authorized in the ATMP planning area under this alternative. Therefore, the Section 4(f) analysis does not analyze the potential for constructive use of Section 4(f) resources in detail under Alternative 2. Detailed analysis of Section 4(f) resources is provided for Alternative 3 (preferred alternative).

In order to assess noise impacts to Section 4(f) resources, the land use compatibility guidelines in 14 CFR Part 150 assist with determining whether a proposed action would constructively use a Section 4(f) resource. These guidelines rely on the DNL, which is considered the best measure of impacts to the quality of the human environment from exposure to noise. The FAA acknowledges that the land use categories in 14 CFR Part 150 may not be sufficient to determine the noise compatibility of Section 4(f) properties (including, but not limited to, noise sensitive areas within national parks and wildlife refuges), where a quiet setting is a generally recognized purpose and attribute. The FAA has consulted with the NPS and included supplemental noise metrics in the Section 4(f) analysis for the alternatives (see Section 3.1.2, Environmental Consequences for Noise and Noise-Compatible Land Use). Visual impacts are assessed in accordance with the framework identified in Section 3.8, Visual Effects.

The FAA evaluated the preferred Alternative 3 for potential impacts to Section 4(f) resources. The noise analysis in Section 3.1.2, Environmental Consequences, indicates that the resultant DNL due to Alternative 3 is expected to be below DNL 45 dB and would not cause any reportable noise as there would be no expected increase or change in noise as a result of this alternative.

Under Alternative 3, there would be a reduction in the number of commercial air tours and routes as compared with existing conditions. Refer to Figure 24 for a depiction of air tour routes under Alternative 3 in the context of Section 4(f) properties. Because the number of authorized flights under Alternative 3 would be less than existing conditions, evaluation of NPS supplemental metrics show that impacts to Section 4(f) resources would be less than impacts currently occurring:

- On days when commercial air tours would occur, noise levels above 35 dBA (an indicator used by NPS to assess the potential for degradation of the natural sound environment) would occur for less than 15 minutes in 58% of the study area, less than 30 minutes in 25% of the study area, and less than 45 minutes in small portions (3%) in the southeast area of the study area (see Figure 13 in Appendix F, *Noise Technical Analysis*).
- On days when commercial air tours would occur, noise levels above 52 dBA (which is associated with speech interference) are not anticipated to exceed 10 minutes in the study area based on an analysis of location point data. Location points (provided by NPS) are specific points of interest geographically located across the entire Park where noise levels were evaluated (see Appendix I, *Section 4(f) Analysis* for a summary of the reported ranges of time above 52 dBA for location points within 1.5 miles of each Section 4(f) property).

In addition, Alternative 3 would limit the operation of commercial air tours to between 11 AM-2 PM any day of the week except Sunday and Wednesday, or other restricted periods, or would extend operations until 4 PM if authorized by the agencies for operators that have converted to quiet technology aircraft. These time restrictions provide times when visitors seeking solitude may experience the Section 4(f) resources without disruptions from commercial air tours. The altitudes required by Alternative 3, which would increase the minimum altitude by 500 – 2,500 ft. depending on location within the ATMP planning area as compared to existing conditions, would reduce the maximum noise levels at sites directly below the air tour routes.

As a result, FAA concludes there would be no substantial impairment³⁰ on Section 4(f) resources in the study area from noise-related effects under Alternative 3. This conclusion supports the FAA's determination that Alternative 3 would not constitute constructive use of Section 4(f) resources in the study area. This Section 4(f) determination for historic properties is based on 14 CFR Part 150 Appendix A and is also consistent with the Section 106 no adverse effect determination for Alternative 3 (see Section 3.4 Cultural Resources).

The FAA also considered the potential for vibrational impacts on Section 4(f) resources under Alternative 3. A review of the potential for vibrational impacts on sensitive structures such as geological resources, historic buildings, parklands, and forests suggests that the potential for damage resulting from helicopter overflights is minimal, as the fundamental blade passage frequency is well above the natural frequency of these structures. Additionally, the vibration amplitude of these overflights at the altitudes prescribed in Alternative 3 would be well below

³⁰ Substantial impairment would occur when impacts to section 4(f) lands are sufficiently serious that the value of the site in terms of its prior significance and enjoyment are substantially reduced or lost.

recommended limits.^{31, 32} Vibrational impacts are not anticipated to affect surrounding parkland and State Forest areas given that aircraft overflights do not contain vibrational energy at levels which would affect outdoor areas or natural features and there is no substantial change from existing conditions.

Recognizing that some types of Section 4(f) resources may be affected by visual effects of commercial air tours, the FAA and the NPS considered the potential for the introduction of visual elements that could substantially diminish the significance or enjoyment of Section 4(f) resources in the study area. Alternative 3 would limit the number of commercial air tours per year to 2,412 flights and would limit those routes to a single flight path over the Park, which would result in fewer air tours occurring in areas of the study area, and therefore, fewer Section 4(f) properties, from which a commercial air tour could be visible. Alternative 3 would not introduce visual elements or result in visual impacts that would substantially diminish the activities, features or attributes of a Section 4(f) resource. Therefore, there would be no constructive use from visual impacts of Section 4(f) resources.

³¹ Hanson, C.E., King, K.W., et al., "Aircraft Noise Effects on Cultural Resources: Review of Technical Literature," NPOA Report No. 91-3 (HMMH Report No.290940.04-1), September 1991.

³² Volpe National Transportation Systems Center, Department of Transportation, 2014. Literature Review: Vibration of Natural Structures and Ancient/Historical Dwellings, Internal Report for National Park Service, Natural Sounds and Night Skies Division, August 21, 2014.



likely be experienced in the areas within or surrounding the Summit District since the Haleakalā Crater would still be visible from air tours conducted just outside the ATMP planning area in this location. Section 4(f) resources are present in these areas and could experience indirect visual effects if air tours were visible from those resources. However, the FAA and the NPS are unable to predict with specificity if, where, and to what extent any displaced air tours would result in visual impacts in different and/or new areas, including Section 4(f) resources.

Cumulative Effects: The cumulative effects to Section 4(f) properties reflect those analyzed in the sections for noise and visual effects. Ongoing present and future Park management actions by the NPS within the ATMP planning area including approximately 96 administrative helicopter flights per year may contribute noise that would continue to negatively affect the acoustic environment of Section 4(f) properties within the study area. Other sources of ongoing visual impacts that may affect Section 4(f) properties within the study area include general aviation flights, overflights by commercial airlines, military flights, and administrative flights such as those used for maintenance or search and rescue efforts, which would likely continue under Alternative 3, as they occur independently of air tours.

Section 4(f) Recommended Finding

In summary, the FAA has preliminarily determined that there would be no constructive use to Section 4(f) properties under Alternative 3 because noise and visual impacts from commercial air tours under this alternative would not constitute a substantial impairment of Section 4(f) resources in the study area. As part of the draft ATMP and draft EA development, the FAA consulted with the NPS and through the release of the draft ATMP and draft EA, consulted with the NPS and other officials with jurisdiction over Section 4(f) resources in the study area regarding FAA's preliminary finding of no substantial impairment, and hence, the FAA's proposed no constructive use determination. The FAA has sent letters to each Section 4(f) property's official with jurisdiction with this preliminary finding concurrent with the release of this draft EA for public review. Refer to Appendix I, *Section 4(f) Analysis*, for additional details on this coordination.

3.11 Summary of Environmental Consequences

Table 13 summarizes the environmental consequences described above for each of the alternatives considered across each environmental impact category.

Table 13. Summary of Environmental Consequences of the ATMP Alternatives.

Environmental Impact Category	Alternative 1 (No Action)	Alternative 2	Alternative 3 (Preferred)
Noise and Noise-Compatible Land Use	<ul style="list-style-type: none"> 12-hr equivalent sound level: maximum <50 dBA; <40 dBA in 20% of ATMP planning area. DNL: <50 dB 	<ul style="list-style-type: none"> 365 days per year without air tours within the ATMP planning area and would reduce noise in the most noise sensitive regions of the 	<ul style="list-style-type: none"> 12-hr equivalent sound level: maximum <45 dBA; 35 to <40 dBA in 6% of ATMP planning area.

Environmental Impact Category	Alternative 1 (No Action)	Alternative 2	Alternative 3 (Preferred)
	<ul style="list-style-type: none"> • Time audible natural ambient: maximum exceeds 225 minutes per day; >120 minutes per day in 53% of ATMP planning area; audible in 100% of ATMP planning area. • Time above 35 dBA: maximum 75-90 minutes per day in <1% of ATMP planning area; >30 minutes per day in 45% of ATMP planning area. • Maximum time above 52 dBA: 23.6 minutes across all locations; <1 minute at 61% of locations. • Maximum sound level in ATMP planning area: 68.7 dBA at location #40. • No indirect effects expected. 	<p>Park.</p> <ul style="list-style-type: none"> • Indirect noise impacts may occur due to air tours displaced to outside the ATMP planning area. 	<ul style="list-style-type: none"> • DNL: <45 dB • Time audible natural ambient: maximum <105 minutes per day in <1% of ATMP planning area; 60 minutes per day in 54% of ATMP planning area. • Time above 35 dBA: maximum 30-45 minutes per day in 3% of ATMP planning area; 0.1 minutes per day in 58% of ATMP planning area. • Maximum time above 52 dBA: 9.3 minutes across all locations; <1 minute at 73% of locations. • Maximum sound level in ATMP planning area: 65.0 dBA at location #37. • Indirect noise impacts may occur due to air tours being displaced to outside the ATMP planning area; would be fewer indirect impacts than Alternative 2.
Air Quality and Climate Change	<ul style="list-style-type: none"> • Criteria pollutants: 0.103 TPY • GHG emissions: 267 MT of CO₂ per year • Would not cause NAAQS exceedance or increase the frequency or severity of any existing violations. • No indirect effects expected. 	<ul style="list-style-type: none"> • Reduction in criteria pollutants: 0.103 TPY • Reduction in GHG emissions: 267 MT CO₂ • Would not cause NAAQS exceedance or increase the frequency or severity of any existing violations. • Indirect impacts may occur due to air tours outside the ATMP planning area if winds transport emissions to within the ATMP planning area, and some areas not currently exposed to emissions from air tours (outside the ATMP planning area) may be exposed to emissions. • Highly unlikely that air tours displaced to outside the ATMP planning area would result in air quality impacts or change the current attainment status of the Park. 	<ul style="list-style-type: none"> • Reduction in criteria pollutants: 0.064 TPY • Reduction in GHG emissions: 158 MT CO₂ • Would not cause NAAQS exceedance or increase the frequency or severity of any existing violations. • Indirect impacts may occur due to air tours outside the ATMP planning area if winds transport emissions to within the ATMP planning area, and some areas not currently exposed to emissions from air tours (outside the ATMP planning area) may be exposed to emissions. • Highly unlikely that air tours displaced to outside the ATMP planning area would result in air quality impacts or change the current attainment status of the Park.

Environmental Impact Category	Alternative 1 (No Action)	Alternative 2	Alternative 3 (Preferred)
Biological Resources	<ul style="list-style-type: none"> Commercial air tour noise would continue to affect wildlife within the ATMP planning area and interfere with wildlife research activities. Time above 35 dBA: 75 minutes in portions of ATMP planning area. Not expected to result in indirect effects to wildlife. 	<ul style="list-style-type: none"> Direct beneficial effects to biological resources are expected. No direct impacts to biological resources within the ATMP planning area, but could result in some indirect impacts due to air tour displacement outside the ATMP planning area. 	<ul style="list-style-type: none"> Annual (2,412) and daily (16) limits of air tour operations; a single flight route; and min. altitude of 2,000 ft. AGL over land and 3,000 ft. AGL over water to protect land and marine species and their habitats. Time above 35 dBA: <15 minutes in most areas within the ATMP planning area, <45 minutes in 3% of the ATMP planning area. Could result in indirect effects to wildlife due to air tour displacement outside the ATMP planning area.
Cultural Resources	<ul style="list-style-type: none"> Cultural resources would continue to be impacted by air tours, as noise and visual effects would impact the feeling and setting of cultural resources. Time above 35 dBA: 75-90 minutes per day in portions of ATMP planning area. Not expected to result in indirect effects to cultural resources within the APE. 	<ul style="list-style-type: none"> Would reduce the noise and remove visual intrusions from the setting of cultural resources within the APE. Could result in some indirect impacts to cultural resources within the APE, primarily in the lower portions of the Haleakalā Summit TCP, if flights were displaced to outside the APE. 	<ul style="list-style-type: none"> Would reduce noise and visual impacts that could detract from the feeling and setting of cultural resources within the APE. Annual (2,412) and daily (16) limits for air tour operations within the APE would reduce the likelihood that an air tour would interrupt Native Hawaiian traditional practices such as ceremonies and the sanctity of the Haleakalā Crater. Time above 35 dBA: 15-45 minutes per day in portions of ATMP planning area. Could result in air tour displacement outside the APE but would likely result in fewer indirect effects to cultural resources.
Wilderness	<ul style="list-style-type: none"> Air tour noise within and near the Wilderness detracts from the natural quality and opportunity for solitude. Time above 35 dBA: <90 minutes a day in the Haleakalā Wilderness; 75 minutes a day in portions of Haleakalā Wilderness including Kīpahulu 	<ul style="list-style-type: none"> Offers the greatest protection of Wilderness, since commercial air tours would not be able to fly over Wilderness. Could result in indirect impacts to Wilderness areas associated with the sights and sounds of air tours if tours were 	<ul style="list-style-type: none"> Protects Wilderness character due to the placement of routes further from Wilderness areas and increase in altitudes, but would diminish the natural quality of Wilderness in some discrete locations where air tour noise would reach native forest bird

Environmental Impact Category	Alternative 1 (No Action)	Alternative 2	Alternative 3 (Preferred)
	<p>Biological Reserve and adjacent lands.</p> <ul style="list-style-type: none"> No indirect effects expected. 	<p>displaced to outside the ATMP planning area.</p>	<p>habitat, and also would detract from opportunities for solitude where air tour noise would be audible to Wilderness visitors.</p> <ul style="list-style-type: none"> Time above 35 dBA: <30 minutes a day Haleakalā Wilderness Time audible in Wilderness >105 minutes a day in Wilderness. Could result in some indirect impacts to Wilderness areas if tours were displaced to outside the ATMP planning area and the sights and sounds of those tours affected Wilderness areas.
Visitor Use and Experience and Other Recreational Opportunities	<ul style="list-style-type: none"> Impacts to interpretive programs at the Kīpahulu Visitor Center due to sound levels from air tours resulting in speech interference and inability to hear natural sounds. Most impacts to visitor experience, which would occur Park-wide with the exception of the Park's developed areas, are related to the intrusion of audible air tour noise where visitors would expect natural sounds to prevail during their visit to the Park. Maintains the current availability of air tours for those that wanted to view the Park from an aerial vantage point. 53% of the ATMP planning area would experience audible air tour noise at some point in the day. Audible air tour noise >120 minutes a day. Time above 52 dBA: <2.5 minutes per day at the Kīpahulu Visitor Center. 	<ul style="list-style-type: none"> Offers the greatest protection of visitor use and experience and experience for the greatest number of visitors, but eliminates air tours within the ATMP planning area. Air tours occurring outside the ATMP planning area may result in noise in other areas near those flights which could affect the visitor experience. Indirect impacts to visitor experience and points of interest within or near the Summit District could occur if flights were displaced to outside the ATMP planning area. 	<ul style="list-style-type: none"> Indirect impacts to visitor experience and points of interest within or near the Summit District could occur if flights were displaced to outside the ATMP planning area. Annual (2,412) and daily (16) limits on air tour operations within the ATMP planning area; a single flight route; and min. altitude of 2,000 ft. AGL over land and 3,000 ft. AGL over water within ATMP planning area to protect to visitor use and experience. Reduction of audible air tour noise between 37-194 minutes in 60% of the ATMP planning. 54% of the ATMP planning area would experience audible air tour noise for at least 60 non-sequential minutes a day. Audible air tour noise <105 minutes a day <1% of the ATMP planning area. Time above 52 dBA: <9.5 minutes per day at the Kīpahulu Visitor Center.

Environmental Impact Category	Alternative 1 (No Action)	Alternative 2	Alternative 3 (Preferred)
	<ul style="list-style-type: none"> No indirect effects expected. 		
Environmental Justice and Socioeconomics	<ul style="list-style-type: none"> Would not result in disproportionately high and adverse impacts to EJ populations or impact those populations in ways that are unique to those EJ populations. DNL: <50 dB 267 MT CO₂ PMAD = 14 air tours 	<ul style="list-style-type: none"> Would not result in disproportionately high and adverse impacts to EJ populations or impact those populations in ways that are unique to those EJ populations. Could impact employment or the amount of income that air tour operators and other ancillary businesses generate from conducting air tours within the ATMP planning area. 	<ul style="list-style-type: none"> Annual (2,412) and daily (16) limits on air tours; a single flight route; and min. altitude of 2,000 ft. AGL over land and 3,000 ft. AGL over water within ATMP planning area would reduce impacts. Would not result in disproportionately high and adverse impacts to EJ populations or impact those populations in ways that are unique to those EJ populations. DNL: <45 dB 158 MT CO₂ Could impact employment or the amount of income that air tour operators and other ancillary businesses generate from conducting air tours within the ATMP planning area; impacts could be less than Alternative 2.
Visual Effects	<ul style="list-style-type: none"> Air tours would continue to impact viewsheds primarily within the Kīpahulu District, including Waimoku Falls and coastal viewsheds. No indirect effects expected. 	<ul style="list-style-type: none"> Would provide the greatest protection to Park viewsheds and would benefit visual resources and visual character within the Park. Indirect impacts to viewsheds could occur if flights were displaced to outside the ATMP planning area. 	<ul style="list-style-type: none"> Annual (2,412) and daily (16) limits on air tours; a single flight route; and min. altitude of 2,000 ft. AGL over land and 3,000 ft. AGL over water within ATMP planning area would reduce likelihood of visual impacts. Indirect impacts to viewsheds could occur if flights were displaced to outside the ATMP planning area.
Coastal Resources	<ul style="list-style-type: none"> Not a selectable alternative, and therefore would not be appropriate for the agencies to prepare a consistency determination. Impacts to coastal resources would reflect those analyzed in other sections of this draft EA for the No Action Alternative for Noise and Noise Compatible Land Use 	<ul style="list-style-type: none"> Impacts to coastal resources would reflect those analyzed in other sections of this draft EA for Alternative 2 for Noise and Noise Compatible Land Use (Section 3.1), Biological Resources (Section 3.3), Cultural Resources (Section 3.4), Visitor Use and Experience and Other Recreational Opportunities 	<ul style="list-style-type: none"> Would not result in impacts to coastal resources. Impacts to coastal resources would reflect those analyzed in other sections of this draft EA for Alternative 3 for Noise and Noise Compatible Land Use (Section 3.1), Biological Resources (Section 3.3), Cultural Resources (Section 3.4), Visitor Use and

Environmental Impact Category	Alternative 1 (No Action)	Alternative 2	Alternative 3 (Preferred)
	(Section 3.1), Biological Resources (Section 3.3), Cultural Resources (Section 3.4), Visitor Use and Experience and Other Recreational Opportunities (Section 3.6), Environmental Justice and Socioeconomics (Section 3.7), Visual Effects (Section 3.8), and DOT Act Section 4(f) Resources (Section 3.10).	(Section 3.6), Environmental Justice and Socioeconomics (Section 3.7), Visual Effects (Section 3.8), and DOT Act Section 4(f) Resources (Section 3.10).	Experience and Other Recreational Opportunities (Section 3.6), Environmental Justice and Socioeconomics (Section 3.7), Visual Effects (Section 3.8), and DOT Act Section 4(f) Resources (Section 3.10). <ul style="list-style-type: none"> • Would be undertaken in a manner consistent to the maximum extent practicable with the enforceable policies of the Hawai'i CZM Program.
DOT Act Section 4(f) Resources	<ul style="list-style-type: none"> • FAA consulted with NPS, who determined that the No Action Alternative would result in substantial impairment to Section 4(f) resources. 	<ul style="list-style-type: none"> • No substantial impairment of Section 4(f) resources in the study area. • No "constructive use" to any Section 4(f) properties. 	<ul style="list-style-type: none"> • Annual (2,412) and daily (16) limits on air tours; a single flight route; and min. altitude of 2,000 ft. AGL over land and 3,000 ft. AGL over water within ATMP planning area would reduce likelihood of impacts. • No substantial impairment of Section 4(f) resources in the study area. • No "constructive use" to any Section 4(f) properties.