Appendices for the Draft Environmental Assessment for an Air Tour Management Plan for Hawaiʻi Volcanoes National Park

List of Appendices

APPENDIX A

References

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APPENDIX B

List of Acronyms, Abbreviations, and Glossary

Acronyms and Abbreviations

The Act	National Parks Air Tour Management Act of 2000
ACS	American Community Survey
ADS-B	Automatic Dependent Surveillance-Broadcast
AEDT	Aviation Environmental Design Tool
AGL	Above Ground Level
ANSI	American National Standards Institute
APE	Area of Potential Effects
ATMP	Air Tour Management Plan
ATMP planning area	The area within which 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.
CCC	Civilian Conservation Corps
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH_4	Methane
CMZA	Coastal Zone Management Act
CO_2	Carbon Dioxide
dB	Decibels
dBA	Decibels (A-weighted scale)
DNL	Day-night Average Sound Level (denoted by the symbol L_{dn})
DOT	United States Department of Transportation
EA	Environmental Assessment
EJ	Environmental Justice
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FAA	Federal Aviation Administration
ft.	Feet
FSDO	Flight Standards District Office
GHG	Greenhouse Gas
H_2O	Water Vapor
Hawai'i Common Procedures Manual	2008 FAA Hawai'i Air Tour Common Procedures Manual
IOA	Interim Operating Authority
IPCC	Intergovernmental Panel on Climate Change
L_{10}	The L_{10} sound level (in decibels) is the sound level exceeded 10 percent of the day
L_{50}	The median or L_{50} sound level (in decibels) is the sound level exceeded 50 percent of the day
L_{Aeq}	Equivalent Continuous Sound Level
L_{dn}	Day-night Average Sound Level
L_{max}	The loudest sound level, in dBA, generated by the loudest event

L_{nat}	Natural ambient L_{50} as described in Lynch (2012) and Job (2018)
MBTA	Migratory Bird Treaty Act
MMPA	Marine Mammal Protection Act
MT	Metric Tons
N_2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHO	Native Hawaiian Organizations
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
O_3	Ozone
The Park	Hawai‘i Volcanoes National Park
PM	Particulate Matter
$PM_{2.5}$	Particulate matter with aerodynamic diameter of 2.5 micrometers and smaller
PM_{10}	Particulate matter with aerodynamic diameter of 10 micrometers and smaller
PMAD	Peak Month Average Day
SEA	Special Ecological Area
SHPD	State Historic Preservation Division
SO_2	Sulfur Dioxide
TCP	Traditional Cultural Properties
TPY	Tons per Year
U.S.C.	United States Code
USGS	United States Geological Survey
USFWS	United States Fish and Wildlife Service

APPENDIX C

List of Preparers

Appendix C lists the names of the principal persons contributing information to this draft EA.

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APPENDIX D

Distribution List

The agencies have sent the following agencies and parties copies of this draft EA and draft ATMP documents for participation in the NEPA process.

Federal Agencies

- National Park Service
- U.S. Fish and Wildlife Service Hakalau Forest National Wildlife Refuge
- USDA Forest Service Institute of Pacific Islands Forestry
- U.S. Department of the Interior, Office of Native Hawaiian Relations
- USGS Pacific Island Ecosystems Research Center

Hawai‘i State Agencies

- Department of Hawaiian Homelands
- Office of Hawaiian Affairs
- Department of Land and Natural Resources

Hawai‘i County and Local Agencies

- County of Hawaii

Community Organizations, Associations, Businesses, and Interest Groups

- Three Mountain Alliance
- The Nature Conservancy
- Historic Hawai‘i Foundation
- Na Kupuna Moku O Keawe
- Kalapana Fishing Council
- Kalauonaone O Puna Association
- Edith Kanaka‘ole Foundation
- Kamehameha Schools
- Kalapana ‘Ohana Association
- Maku‘u Farmers Association
- Naki'i Ke Aho
- Royal Hawaiian Academy of Traditional Arts
- The Mary Kawena Pūku‘i Na Ohana O Kalapana
- Cultural Preservation Society
- Keauhou Bird Conservation Center

Public Review

Copies of this draft EA are available for public review and comment. The full document is available via the following:

- NPS Planning, Environmental and Public Comment website: https://parkplanning.nps.gov/HawaiiVolcanoesATMP

APPENDIX E

Environmental Impact Analysis Methods

Draft Environmental Assessment for an Air Tour Management Plan for

Hawai'i Volcanoes National Park

Environmental Impact Analysis Methodologies

1.0 Introduction and Overview

The Federal Aviation Administration (FAA), in cooperation with the National Park Service (NPS) (the agencies), are working together to develop an Air Tour Management Plan (ATMP) for Hawai'i Volcanoes National Park (Park). In compliance with the National Environmental Policy Act (NEPA), the agencies prepared a draft Environmental Assessment (EA) for the Park's ATMP. The proposed action is to implement an ATMP for the Park and is described in Section 1.3 of the draft EA. This technical appendix describes the methodologies used for evaluating the potential for environmental impacts to occur from the alternatives considered in the draft EA.

The agencies have identified environmental impact categories that require detailed analysis in the draft EA due to the potential environmental impacts resulting from implementing the alternatives (refer to Section 1.5 of the draft EA for a discussion of the environmental impact categories not analyzed in detail). The methodologies in this document reflect the analysis that has been performed by environmental impact category for each of the alternatives. The results of these analyses are described in the Environmental Consequences sections of the draft EA. This methodology is based on the 2015 FAA 1050.1F Order and Desk Reference - *Environmental Impacts: Policies and Procedures,* and NPS NEPA policies and procedures (2015 NPS NEPA Handbook, 2015 NPS NEPA Handbook Supplemental Guidance - *Writing Impact Analysis Sections for EAs and EISs*).

Under the National Parks Air Tour Management Act of 2000 (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 feet (ft.) above ground level (ATMP planning area). Air tours outside of the ATMP planning area are not regulated under the ATMP. Unless otherwise noted, the study area for each environmental impact category is the ATMP planning area.

2.0 Environmental Baseline and Impact Analysis for the No Action Alternative

For all environmental impact categories described herein, impact analysis for each alternative discloses how environmental conditions would change relative to current conditions, which serves as the environmental baseline for this analysis. Impacts are analyzed relative to current conditions, so that they can be described and measured relative to a level for which data exists. Each analysis provides a comparative analysis between alternatives for each environmental impact category.

Existing conditions for air tour activity is defined as the three-year average of commercial air tours conducted over the Park from 2017-2019, along with operator-provided route and altitude information. Reporting data from 2013 and 2014 are considered incomplete as reporting protocols were not fully in place at that time and likely do not reflect actual flights. The agencies consider the 2017-2019, three-year average, existing conditions for the purposes of understanding both the existing number of commercial air tour flights over the Park and impacts from that activity. Flight numbers from a single year were not chosen as the existing condition because the three-year average accounts for both variation across years and takes into account the most recent years prior to the COVID-19 pandemic.

The 2020 COVID-19 pandemic resulted in atypical commercial air tour operations, 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.

The No Action Alternative represents a continuation of existing air tour conditions over the Park. 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] Flights up to IOA are not considered part of the No Action Alternative, as flights at these levels are not reasonably foreseeable based on reporting data. The affected environment for each environmental impact category discloses existing conditions of commercial air tours over the Park as it relates to resources within the study area for each category. Impact analysis for the No Action Alternative discloses the effects on the environment that would occur with existing conditions carried into the future. There are no designated routes under the No Action Alternative, but for the purpose of defining the No Action Alternative for analysis, route information provided by operators and flight tracking data is used to define the routes for this alternative. There are no altitude restrictions under the No Action Alternative beyond the FAA general restrictions/allowances and the guidelines in the 2008 FAA Hawai'i Air Tour Common Procedures Manual (HI Common Procedures Manual).[3]

3.0 Impacts Considered

The analysis considers direct, indirect, and cumulative effects of each alternative described in Chapter 2 of the draft EA. The methodologies used in considering these effects to environmental impact categories are described by category in Section 4.0 of this document.

3.1. Direct Effects

Direct effects are those caused by the alternative and occur at the same time and place as implementation of the alternative. Direct effects consider the change from current resource condition, which is described in the affected environment, on environmental resources within the study area resulting from implementation of that alternative.

3.2. Indirect Effects

Indirect effects are those which are caused by the alternative and occur later in time or are farther removed in distance but are still reasonably foreseeable.

It is reasonably foreseeable that 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 over the Park resulting from a reduction in air tours by conducting air tour operations outside of the ATMP planning area to the extent possible. In accordance with Section 1508.1(g)(2) of Council on Environmental Quality (CEQ) NEPA regulations, the agencies considered reasonably foreseeable actions that could occur as a result of the alternative in the indirect effects analysis for each environmental impact

[1] 49 U.S.C. § 40128(c)(2)(A)(i-ii)
[2] Federal Register, Vol. 70, No. 194, October 7, 2005, page 58778
[3] FAA DOCUMENT NUMBER: AWP13-136A

category. The indirect effects analyses consider potential shifts in air tour operations resulting from implementation of each alternative and the potential for displacement of air tours outside of the ATMP planning area due to a reduction in the number of authorized flights per year compared to existing conditions.

Consistent with the Section 1502.21 of CEQ NEPA regulations, the agencies have disclosed that specific air tour routes, altitudes, and numbers of tours are not available to assess impacts that would occur from air tours that are displaced outside the ATMP planning area, and the resultant environmental effects that would occur. In addition, because specific air tour routes are not available, it is not possible to identify all the other potential noise sources or sources of visual effects that might contribute to the acoustic or visual conditions if operators were to fly just outside the ATMP planning area. It is difficult to predict whether any displaced air tours would result in operations on alternative routes that could have effects within or outside the ATMP planning area. This is because the airspace outside of the ATMP planning area is uncontrolled airspace, and operators fly under Visual Flight Rules (VFR). VFR is based on the principle of "see and avoid," and does not require specific routes or altitudes, excepting weather minimums (*see* 14 Code of Federal Regulations (CFR) § 91.155).[4] Therefore, the exactness of routes and altitudes for air tours outside of the ATMP planning area flying VFR could vary depending on client demand, weather, fuel load, and other costs. *See* 40 CFR § 1502.21 (c)(1). Agencies are not required to conduct new scientific or technical research to analyze impacts and may rely on existing information to assess impacts. *See* 43 CFR § 1502.21(c).

For the purposes of disclosing the potential indirect effects of each alternative, the agencies have considered operator websites, the current availability of air tours over other lands outside the ATMP planning area, and the proximity of the operator's facilities to other airports or heliports. The analysis considers current and historical flight patterns, the prevalence of features outside the ATMP planning area that may attract air tours (such as known points of interest), and the potential for operators to fly along the perimeter of the ATMP planning area and/or above 5,000 ft. AGL to continue to observe features within the ATMP planning area. Indirect effects analyses consider the number of air tours proposed in each alternative and the likely displacement of air tours outside the ATMP planning area. The draft EA qualitatively discusses what potential shifts in air tour operations would mean for resources within or outside of the ATMP planning area to the extent that they are present.

3.3. Cumulative Effects

Cumulative effects are effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Based on local knowledge from NPS staff, the agencies have identified other ongoing and reasonably foreseeable actions to consider within each environmental impact category.

The cumulative effects analysis qualitatively considers the effects of each alternative along with any known past, present, or future actions that would contribute to environmental effects to resources in the ATMP planning area. The draft EA presents this analysis in a comparative manner across all

[4] https://www.faasafety.gov/files/gslac/courses/content/25/185/vfr%20weather%20minimums.pdf

alternatives and describes the context of the effect in terms of other environmental effects that are present or likely to occur within the ATMP planning area.

4.0 Analysis Methodology by Environmental Impact Category

The section presents the impact analysis methodologies used in development of the draft EA for each environmental impact category considered.

4.1. Noise and Noise-Compatible Land Use

The impact analysis for noise and noise-compatible land use discloses the noise generated from air tours under each alternative as modeled. The analysis also includes a comparison of the effects across alternatives. The methods used for the noise modeling are presented below and also described in the *Noise Technical Analysis,* Appendix F of the draft EA.

4.1.1. Noise Modeling

There are numerous ways to measure the potential impacts of noise from commercial air tours on the acoustic environment of a park, including intensity, duration, and spatial footprint of the noise. The ambient sound level data and air tour operational data are used as inputs into the FAA's Aviation Environmental Design Tool (AEDT) to compute the following metrics to be used for the noise technical analysis (Table 1).

Table 1. Primary metrics used for the noise technical analysis

Metric	**Relevance and citation**
Equivalent sound level, $L_{Aeq,\ 12\ hr}$	The logarithmic average of commercial air tour sound levels, in dBA[5], over a 12-hour day. The selected 12-hour period is 7:00 AM to 7:00 PM to represent typical daytime commercial air tour operating hours.
Day-night average sound level, L_{dn} (or DNL)	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 10:00 PM and 7:00 AM local time. Note: Both $L_{Aeq,\ 12hr}$ and DNL characterize: • Increases in both the loudness and duration of noise events • The number of noise events during specific time period (12 hours for $L_{Aeq,\ 12hr}$ and 24-hours for DNL)

[5] dBA (A-weighted decibels): Sound is measured on a logarithmic scale relative to the reference sound pressure for atmospheric sources, 20 µPa. 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.

	If there are no nighttime events, then $L_{Aeq, 12hr}$ is arithmetically three dBA higher than DNL as the events are averaged over 24 hours instead of 12 hours. 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.
Time Audible Natural Ambient	The total time (minutes) that aircraft noise levels are audible to an attentive listener with normal hearing under natural ambient conditions. The natural ambient is the sound level exceeded 50 percent of the time L_{50}, 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. Time audible does not indicate how loud the event is, only if it might be heard.
Time Above 35 dBA	The amount of time (in minutes) that aircraft sound levels are above a given threshold (i.e., 35 dBA). In quiet settings, outdoor sound levels exceeding this level degrade experience in outdoor performance venues (American National Standards Institute (ANSI), 2007). This level is also shown to cause blood pressure increases in sleeping humans (Haralabidis et al., 2008); as well as exceeding recommended maximum background noise level inside classrooms (ANSI S12.60/Part 1-2010).
Time Above 52 dBA	The amount of time (in minutes) that aircraft sound levels are above a given threshold (i.e., 52 dBA). 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, 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.
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.

4.1.2. Indirect Effects

The indirect effects analysis for noise and noise-compatible land use considers potential shifts in air tour operations resulting from implementation of an alternative within the ATMP planning area and the potential for displacement of air tours outside of the ATMP planning area due to a reduction in the number of authorized flights per year compared to existing conditions. FAA considers that noise levels are generally significant if aircraft activity under the alternative would increase noise by annual 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 would be exposed at or above the DNL 65 dB level due to a DNL 1.5 dB or greater increase, when compared to the existing conditions for the same timeframe. (FAA Order 1050.1F, Exhibit 4-1).

The analysis consists of two separate components:

- A noise analysis that, for the aircraft currently operating at the Park, assesses the activity threshold that would generate a noise exposure level at or above DNL 65 dB in a single location. Use of the DNL 65 dB threshold speaks to whether or not noise from air tours operating outside the ATMP planning area under the alternative would result in levels incompatible with noise-sensitive land use (i.e., DNL 65 dB), but the threshold of significance is a 1.5 dB or more increase at or above the resulting DNL 65 dB level as defined in FAA Order 1050.1F and 14 CFR Part 150.1.
    - The noise analysis considers the activity threshold two ways:
        - For the aircraft type with the loudest noise level, what is the activity level that would generate a noise level at or above DNL 65 dB?
        - For the aircraft types and fleet mix distribution within the 2017-2019 peak month average day (PMAD), what is the activity level that would generate a noise level at or above DNL 65 dB?
- An activity assessment that describes the potential number of aircraft operations that may occur at a given point outside the ATMP planning area over a 24-hour period due to a no air tour alternative or additional flights outside the ATMP planning area resulting from a decrease in annual operations.
    - The analysis assumed air tour operations would comply with applicable aviation safety regulations including minimum altitudes proscribed in the HI Common Procedures Manual.

The results of this analysis are described in the indirect effects analysis in the environmental consequences discussion of the draft EA for Noise and Noise-Compatible Land Use.

4.1.3. Cumulative Effects

The impacts analysis for cumulative effects to noise and noise-compatible land use discloses the likely changes to the ambient condition (not natural ambient, which is disclosed in the Affected Environment section of the draft EA) as modeled for each alternative. The qualitative discussion includes mention of whether the overall soundscape would become louder, quieter, or stay the same. The cumulative impact analysis includes the noise from air tours plus other noise sources. The section also provides discussion of differences between alternatives.

4.2. Air Quality and Climate Change

4.2.1. Air Quality Analysis

The EPA has established the National Ambient Air Quality Standards (NAAQS) (40 CFR Part 50) for six criteria air pollutants which can be harmful to human health and the environment.[6] Primary standards protect public health, including sensitive populations such as children and the elderly, while secondary stands protect public welfare, including visibility impairment and damage to animals, vegetation, and buildings. The six criteria pollutants are:

- Carbon monoxide (CO)
- Lead (Pb)
- Nitrogen dioxide (NO_2)
- Ozone (O_3)[7]
- Particulate matter: aerodynamic diameter ≤ 2.5 µm ($PM_{2.5}$)[8] and aerodynamic diameter ≤ 10 µm (PM_{10})
- Sulfur dioxide (SO_2)

The EPA designates geographic areas[9] based on their relation to the NAAQS by pollutant:

- Nonattainment Area: Areas of the country where air pollution levels persistently exceed one or more of the national ambient air quality standards.
- Attainment Area: any area that meets the standard for all criteria pollutants
- Maintenance Area: any area that was formerly in nonattainment status for one or more criteria pollutants, but currently meets the standard for all criteria pollutants

The General Conformity Rule (40 CFR Part 93) ensures that Federal actions do not cause or contribute to new violations of the NAAQS, worsen existing NAAQS violations, or delay attainment of the NAAQS. Federal agencies are required to work with state, tribal, and local governments in nonattainment or maintenance areas to ensure their actions conform to relevant air quality plans.[10]

4.2.2. Study Area and Data Sources

The study area for the air quality analysis corresponds with the ATMP planning area. The study area is compared with geographic information systems (GIS) data in EPA's Green Book[11] to confirm attainment status (attainment, nonattainment, or maintenance by pollutant). The FAA's AEDT is used to derive emission rates for aircraft used in air tours over the Park. The route lengths by aircraft type and number of annual operations by aircraft type are derived from operator reporting data.

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[6] NAAQS Table: https://www.epa.gov/criteria-air-pollutants/naaqs-table

[7] Nitrogen oxides (NOX) and volatile organic compounds (VOC) are considered precursors to ground-level ozone and may be closely monitored in areas with ozone concerns.

[8] Sulfur dioxide (SO_2), NOX, VOC, and ammonia are considered precursors to $PM_{2.5}$.

[9] Current Nonattainment Counties for All Criteria Pollutants: https://www3.epa.gov/airquality/greenbook/ancl.html

[10] General Conformity: https://www.epa.gov/general-conformity

[11] Nonattainment Areas for Criteria Pollutants (Green Book): https://www.epa.gov/green-book

4.2.3. Methodology for Analyzing Air Quality Impacts

The impact analysis for air quality consists of five steps:

1. **Calculate annual flight miles for each aircraft type operating over the ATMP planning area.**

Annual flight miles over the ATMP planning area are calculated for each aircraft type by multiplying the total number of air tour operations by each route flown over the ATMP planning area.

2. **Calculate emission rates for each aircraft used in air tours over the ATMP planning area.**

The latest version of FAA's AEDT is used to develop emission rates (pounds of emissions per mile flown) for each aircraft. Emission rates for non-jet engines (i.e., those most likely conducting air tours) are based on emission factors in AEDT, which are primarily derived from the EPA's AP-42: Compilation of Emission Factors. Although the AP-42 emission factors represent the best available data, they have not been updated since the 1990s and most aircraft engines in use today are likely to be cleaner due to less-polluting fuels and improvements in engine emissions controls. Therefore, the calculated emission rates should be considered a conservative estimate of emission rates for aircraft used in air tours.

3. **Calculate emissions from air tours over the ATMP planning area.**

For each aircraft type operating over the ATMP planning area, emissions (tons per year) are calculated by multiplying the annual flight miles (step 1) by the aircraft-specific emission factor (step 2). The sum of emissions across all aircraft types represents the total emissions (by alternative) for the ATMP planning area.

4. **If the ATMP planning area is located in EPA's nonattainment and/or maintenance areas, compare emissions with *de minimis* thresholds.**

To highlight the potential impacts to ambient air quality for all criteria pollutants, the emissions results are compared with the EPA's General Conformity *de minimis* thresholds for the most stringent[12] nonattainment areas. EPA's General Conformity *de minimis* thresholds represent a surrogate for impacts to ambient air quality. If emissions estimates for all pollutants in the ATMP planning area are below *de minimis* thresholds, the proposed air tours are expected to result in negligible impacts to air quality.

5. **If the ATMP planning area is located in EPA's attainment areas, disclose ATMP emissions to fulfill NEPA requirements.**

Per the requirements of NEPA, disclosure of both baseline emissions and any change in emissions (comparison between the No Action Alternative and the action alternatives) shall be provided in the draft EA to understand the potential consequences to air quality. Since the ATMP planning area is located in an area of the United States that is in attainment for all regulated pollutants, there are no regulatory thresholds to compare that indicate the potential air quality impacts of said emissions. Rather, the reported emissions provide a basis of acknowledgement as to what the proposed project

[12] The most stringent non-attainment areas (i.e., lowest de minimis thresholds) are categorized as "extreme" for ozone (VOCs or NOX) and "serious" for particulate matter (PM_{10}, $PM_{2.5}$, NOX, VOC, and SO_2; ammonia is not considered for aircraft emissions as they relate to ATMPs).

may contribute to the attainment air shed. For the purposes of ATMPs, only emissions changes from aircraft operations for each alternative are considered.

If adverse effects on air quality are predicted, the final step of the analysis is to determine whether:

- there are any practicable mitigation measures or alternatives that would avoid or reduce impacts to air quality; and
- a substantial need for action exists, and if other alternatives with less adverse impacts on air quality will still satisfy the purpose and need without resulting in exorbitant costs.

4.2.4. Climate Change Analysis

In February 2021, the CEQ rescinded the 2019 Draft NEPA Guidance on Consideration of Greenhouse Gas Emissions and is reviewing, for revision and update, the 2016 Final Guidance on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change. CEQ directs agencies to consider: (1) the potential effects of a proposed action on climate change as indicated by assessing greenhouse gas (GHG) emissions (e.g., to include, where applicable, carbon sequestration); and (2) the effects of climate change on a proposed action and its environmental impacts. Federal agencies are advised to use projected GHG emissions as a proxy for assessing an action's impact on climate change. The difference in GHG emissions between alternatives, as well as the total GHG emissions of the No Action Alterative, should be provided as part of the NEPA analysis. The 2016 CEQ guidance does not establish any particular quantity of GHG emissions as significant.

4.2.5. Study Area and Data Sources

The study area for GHG emissions reflects the ATMP planning area. FAA's AEDT is used to derive emission rates for aircraft used in air tours over the ATMP planning area. The route lengths by aircraft type and number of annual operations by aircraft type are derived from operator reporting data.

4.2.6. Methodology for Analyzing Greenhouse Gas Impacts

The GHG analysis includes the following four steps:

1. **Calculate annual fuel burn for each aircraft type operating over the ATMP planning area.**

Annual fuel burn (for use with fuel burn-based emission factors in step 2) are calculated from the annual flight miles using conversion factors given in FAA's AEDT. Annual flight miles over the ATMP planning area are calculated for each aircraft type by multiplying the total number of air tour operations by each route flown within the ATMP planning area.

2. **Calculate GHG emission factors for each aircraft used in air tours in the ATMP planning area.**

The latest version of AEDT is used to develop a CO_2 equivalents (CO_2e) emission factor in metric tons of emissions per gallon of fuel (MT CO_2/gal) for each aircraft. CO_2e emission factors in AEDT are calculated based on the quantity of aircraft fuel burned. Since the proposed action involves only aircraft operations, MT CO_2e will be assumed to be the same as the aircraft MT CO_2.[13]

3. **Calculate GHG emissions from air tours over the ATMP planning area.**

[13] FAA 1050.1F Desk Reference. February 2020. Section 3.3 Environmental Consequences – Climate.

For each aircraft type operating over the ATMP planning area, the CO_2e emissions (MT per year) are calculated by multiplying the annual fuel burn (step 1) by the aircraft-specific emission factor (step 2). The sum of emissions across all aircraft types represents the total emissions (by alternative) for the ATMP planning area.

GHG emission inventory results are not compared to the NAAQS nor any other significant criteria. The results are provided for informational purposes as a means of disclosing the project's potential effects on GHGs and climate change.

If an increase in GHG emissions is predicted, the final step of the analysis involves considering whether there are areas within the scope of the project where such emissions could be reduced through mitigation measures such as changes to more fuel-efficient aircraft, use of renewable fuels, and operational changes.

4.3. Biological Resources

The study area for biological resources includes the ATMP planning area. 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 has been analyzed accordingly.

The agencies have identified federally listed species, special status species, and any critical habitats within the Affected Environment discussion of the draft EA. For any species for which habitat does not encompass the entire ATMP planning area, habitat areas for these species are identified in order to connect data on effects of air tours, such as noise contours, to potential effects on species that utilize those areas. Based on the results of this review, the Park's natural resource managers and biologists have confirmed species within the ATMP planning area that have the potential to be affected by commercial air tours based on their knowledge of wildlife responses to commercial air tours.

For special status species and/or critical habitats which have the potential to be affected by commercial air tours, the agencies have performed a literature review for species-specific management guidelines such as recommended noise limits, time of year restrictions, aircraft standoff distances, or other mitigation measures that could be feasibly addressed by the ATMP parameters. The agencies have also sought technical assistance from the U.S. Fish and Wildlife Service for species-specific management guidelines and recommendations, the results of which have been integrated into the draft EA.

The draft EA includes a qualitative analysis of the effects to biological resources that could result from each alternative. The analysis discloses how ATMP operating parameters and the resultant resource conditions would change by comparing existing conditions to the parameters proposed for each alternative. For example, the draft EA identifies areas where noise levels would change, if routes had been shifted closer or further from sensitive habitat attributes, or if altitudes would increase or decrease as compared to existing conditions, and qualitatively discloses how that could affect biological resources. The analysis also discloses the effects of the use itself by analyzing the impacts of each alternative in the context of any documented management guidelines (as available). Based on this analysis, the agencies have also proposed an effect determination and will consult with the U.S. Fish and Wildlife Service and National Marine Fisheries Service in accordance with Section 7 of the Endangered Species Act.

4.4. Cultural Resources

The analysis methodology for cultural resources (inclusive of Historical, Architectural, Archeological and Cultural Resources) consists of evaluating the potential impacts of each alternative under consideration on cultural resources identified within the NEPA study area. Section 106 of the National Historic Preservation Act (NHPA Section 106) as set forth in 36 CFR Part 800 provides the framework for gathering the information needed to assess impacts on cultural resources under NEPA, per FAA's 1050.1F Desk Reference. 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. The APE may be revised and refined based on the preferred alternative or the consultation process. Cultural Resources within the APE are identified in the Affected Environment of the draft EA.

Section 106 considers effects to properties (districts, sites, buildings, structures, or objects) that are listed in or eligible for listing in the National Register of Historic Places (National Register). The Section 106 process for the Park includes prehistoric or historic districts, sites, buildings, structures, and/or objects, as well as traditional cultural properties (TCPs) (inclusive of ethnographic resources and sacred sites) and cultural landscapes that have been previously documented in the APE or identified through consultation. NPS Management policies define five types of cultural resources for consideration – archeological resources, cultural landscapes, ethnographic resources, historic and prehistoric structures, and museum collections. Because of the nature of the alternatives (i.e., no ground disturbance or physical incursion), the cultural resource identification focuses on resources that could be affected visually or by noise from aircraft. The focus of cultural resources identification is on those resources for which feeling and setting contribute to the properties' significance, including TCPs and other properties of cultural and religious significance to Native Hawaiians, as identified by Kūpuna groups and other consulting parties with relevant expertise. This analysis in the draft EA considers potential beneficial and adverse impacts to all cultural resources within the APE, including resources identified by the Park that may not fall under the Section 106 process, if present.

Park staff have provided information about cultural resources located within the Park boundaries and the consulting parties have identified TCPs and sacred sites within the APE. Additional records have been gathered from the Hawai'i Cultural Resource Information System (HICRIS) and through a records request of the Hawai'i State Historic Preservation Division (SHPD) to identify any additional cultural resources within the APE. Historic property identification includes previously documented properties with no formal National Register evaluation as well as those previously listed or determined eligible for listing in the National Register. No additional survey will be conducted; unevaluated or undetermined properties will be treated as eligible for the purposes of Section 106 consultation and NEPA evaluation. Using this information, a list of cultural resources located within the APE is generated and those with unrestricted location data are mapped (any individual TCPs, sites of cultural or religious significance or boundaries of archeological districts included in the study area maps depict only general buffered areas to protect the location of sensitive sites).

The agencies have reviewed the alternatives and determined if any of the cultural resources within the APE may be affected by each alternative and evaluated the magnitude of those impacts. The analysis includes a qualitative assessment of how the ATMP operating parameters for each alternative may affect resource conditions compared to current conditions. The agencies use the time above 35 dBA

metric and 12-hour equivalent sound level metric from the *Noise Technical Analysis* to quantitatively assess potential noise impacts to cultural resources from Alternative 3 as compared to the No Action Alternative. Noise data is used to identify where audible impacts may increase, decrease, or be introduced. Time above 52 was used where noise increases are identified and modeled noise points can be associated with cultural resources. Point data does not include areas outside of the ATMP planning area that may be within the APE. As appropriate, maximum sound level and time audible metrics are also utilized for additional context on increases in noise intensity and/or duration and evaluation of whether impacts are adverse or beneficial to cultural resources where a quiet or natural setting contributes to the significance. Alternative 2 was not modeled, so the same data is not available for Alternative 2.

The impacts analysis considers the context and significant features of the resources as well as the nature of the impacts that may result from the action, including the intensity and severity of the impact. Effects to cultural resources would occur if implementation of the alternative would alter the characteristics of the resource that make it eligible for listing in the National Register or otherwise culturally significant. Examples of effects that adversely impact cultural resources are noted in 36 CFR 800.5(a). An adverse effect finding under Section 106 does not automatically trigger a significant impact under NEPA. The analysis of impacts will incorporate any measures developed through the Section 106 process to avoid, minimize or mitigate adverse effects. The relative effects to cultural resources are also qualitatively compared across all alternatives. The NEPA documentation will report consultation conducted as relevant to the delineation of the APE and affected environment. The results of Section 106 consultation and the FAA's proposed finding of effect will also be included for the preferred alternative when available. Relevant documentation of the Section 106 process will be included in the appendix for reference.

4.5. Wilderness

An evaluation of impacts to Wilderness character includes a qualitative analysis of how each alternative would affect the Natural and Solitude or Primitive and Unconfined Recreation qualities of Wilderness character.

The results of the biological resources analysis are utilized to identify Wilderness areas that may experience potential impacts to the natural quality of Wilderness character.

To identify potential impacts to solitude within Wilderness areas, the time audible natural ambient metric from the noise technical analysis is utilized.

The analysis also considers the change in Wilderness character between current conditions and each alternative, as well as provides qualitative comparison across all alternatives.

4.6. Visitor Use and Experience and Other Recreational Opportunities

The impact analysis for visitor use and experience and other recreational opportunities is analyzed for Park visitors and air tour clients. The visitor analysis focuses effects on visitor points of interest and how visitors use those areas, interpretive programs, and Park management objectives related to visitor use and experience, as identified in the Affected Environment of the draft EA. The Affected Environment also identifies Park management zones and objectives that would apply to the management of

commercial air tours. The environmental impact analysis quantitatively analyzes how the ATMP operating parameters and the resultant resource conditions for visitor use and experience would change by comparing existing conditions to the parameters proposed in the alternative. The analysis also utilizes the results of the noise technical analysis to identify potential impacts to visitor use and experience from the alternatives, including interpretive programs. As described in the *Noise Technical Analysis*, the time above 52 dBA metric represents the level at which one may reasonably expect interference with Park interpretive programs. The locations of Park interpretive programs and the corresponding time above 52 dBA are noted in order to identify impacts to interpretive programs that could occur. The analysis also considers the different noise sensitivities of the different types of Park visitor and visitor experiences (e.g., backcountry vs. front country), and how each of the alternatives could affect visitor use at those sites. For areas of the Park where visitors would have an expectation to hear natural sounds, the analysis includes a reference to the results of the time audible, natural ambient metric. In addition to considering noise effects on the Park visitor experience, the analysis considers how visual effects could influence visitor use and experience (see method description for visual effects below). The relative effects to Park visitors are also qualitatively compared across all alternatives.

The impact analysis for other recreational opportunities applies to persons recreating outside the Park but within the ATMP planning area through the experience of air tours. Although they are not considered Park visitors, commercial air tours offer a recreational experience for those who wish to view the Park from a different vantage point. Impacts to the availability of this experience within the ATMP planning area are considered by qualitatively analyzing how the opportunity to see the Park from an air tour within the ATMP planning area would change as a result of each alternative by comparing existing conditions to the parameters proposed under each alternative. This analysis primarily considers how routes and the number of tours authorized by each alternative could affect the availability of this experience within the ATMP planning area for air tour clients.

4.7. Environmental Justice and Socioeconomics

The study area for the environmental justice (EJ) analysis includes the county or counties that are within or partially within the Park and ½-mile of its boundary. As stated in the 1050.1F Desk Reference, the combination of all study areas for the other relevant impact categories represents the potential impact area for EJ, 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 the draft EA for a description of the study area limits. The analysis incorporates data presented at the county level and from U.S. Census block groups that are within and adjacent to the ATMP planning area.

U.S. Census data is used to identify the percentage of the populations within the counties that are low-income (as identified by poverty status) and minority pursuant to U.S. Department of Transportation (DOT) Order 5610.2(a), otherwise known as "EJ populations." For the purposes of this EJ analysis, FAA uses the minority and low-income definitions provided in DOT Order 5610.2a. The average of the county income and minority population percentages is compared to block group level data on income and race and ethnicity within the study area to determine if the population is an EJ community of concern. A minority census block group considered as an EJ community is a census block group with a minority population percentage greater than the average minority population percentage of the study area. Any census block group with a minority population greater than the average of the study area is designated as a census block group of EJ concern. A low-income population census block group

considered as an EJ community 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. Each census block group with a low-income population greater than the study area average is designated a census block group of EJ concern. State and local data has also been evaluated to confirm accuracy of findings.

The EJ analysis considers the ATMP operating parameters (i.e., locations of the commercial air tour routes, altitudes, and frequencies) under each alternative as well as the results of the analyses for Noise and Noise-Compatible Land Use, Air Quality, and Visual Effects, as well as the corresponding environmental effects of each alternative. The analysis identifies if each alternative would cause disproportionately high and adverse effects on low-income or minority populations within the study area. The definitions for disproportionately high and adverse effects provided in DOT Order 5610.2(a) is used to conduct the analysis. The significance of the impacts to EJ populations is determined by identifying the context, intensity, and relation the impact has to other environmental impact categories. Specifically, for each environmental impact category, the analysis identifies if an EJ population would sustain more of an impact than any other population segment. In doing so, the impacts to environmental impact categories are considered, as well as if the impacts would affect the EJ population in a way that the agencies determine is unique or significant to that population.

The socioeconomic analysis considers the effects the alternatives may have on local business activity. This could include businesses within the ATMP planning area that could be affected by noise or other effects of the ATMP, such as ranching operations, and will also evaluate effects of the alternatives on the commercial air tour industry and related businesses. Specifically, the draft EA analyzes how commercial air tour operators may support economic development by generating income for other ancillary tourism industry businesses. The draft EA describes how the number of flights authorized by each alternative compares to the existing level of air tours reported by each operator. The analysis notes that the competitive bidding process may redistribute the number of flights and income between individual operators in the future.

Given the nature of the alternatives, the agencies do not anticipate impacts to the housing, race, age, or population conditions of the ATMP planning area; therefore, effects to these socioeconomic characteristics within the ATMP planning area have not been analyzed.

As they occur, the draft EA will document efforts that the agencies performed to incorporate EJ principles throughout the ATMP development process, including opportunities for engagement with EJ populations throughout the ATMP planning area.

4.8. Visual Effects

In accordance with FAA's 1050.1F Desk Reference, visual effects deal broadly with the text to which the alternatives would either: 1) produce light emissions that create annoyance or interfere with activities; or 2) contrast with, or detract from, the visual resources and/or visual character of the existing environment. As air tours occur during daylight, the draft EA focuses on visual effects on visual resources and character and not light emissions. Visual effects on resources discussed in other sections of the draft EA are discussed in those sections and a cross-reference to the Visual Effects section is provided.

Visual resources may include structures or objects that identify 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 are located.

The study area for visual effects includes the Park and ½ mile buffer up to 5,000 ft. above ground level (AGL), which corresponds with the ATMP planning area. The study area for visual effects also includes areas within the cultural resources APE that are outside the ATMP planning area. The impact analysis focuses on analyzing effects to Park viewsheds and notable visual resources, as identified in the Affected Environment, which notes any aesthetic value and unique aspects within the Park. The analysis analyzes how the ATMP operating parameters (e.g., number of tours, location of the routes, altitudes, hovering, loitering, and/or circling, and other ATMP elements that could affect Park viewsheds) for each alternative and the resultant Park viewshed resource conditions would change by comparing existing conditions to the parameters proposed in the alternative. The relative effects to Park viewsheds are also compared across all alternatives. Impacts to visual resources and visual character relate to a decrease in the aesthetic quality of the Park resulting from air tours. According to FAA's 1050.1F Desk Reference, significance of impacts is determined based on the degree the action would have to affect the visual character of the area, taking into consideration the importance, uniqueness, and aesthetic value; the degree to which the action contrasts with the visual resources or character; and the degree to which views are obstructed.

4.9. Coastal Resources

The Coastal Zone Management Act (CZMA) (16 U.S.C. §§ 1451-1466) provides for management of US 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 state of HI administers a CZM program and has established objectives and their supporting policies (HI Revised Statutes § 205A-2) to help the HI CZM Program evaluate the consistency of proposed federal actions. The entire state of HI is considered a coastal zone under the HI CZM program. Therefore, the study area for coastal resources reflects the ATMP planning area.

The affected environment for this environmental impact category identifies resources within the study area that are relevant to the evaluation of the proposed action's consistency with the enforceable policies of the HI CZM program.

According to FAA's 1050.1F Desk Reference, the significance of impacts considers the degree to which the action would 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. As land acquisition, construction, or other ground disturbing activities would not occur because of the proposed action, the effects analysis for coastal resources focuses on an evaluation of the preferred alternative's consistency with the enforceable policies of the HI CZM Program, including their objectives and supporting policies (Hawai'i Revised Statutes § 205A-2). This analysis is provided in Appendix K, *CZMA Compliance*, and the conclusions summarized in the

Environmental Consequences section of the draft EA. The agencies will provide the consistency determination as well as a copy of the draft EA to the HI CZM Program Office concurrent with the release of the draft EA for public review and request their concurrence with the agencies' determination.

4.10. Department of Transportation Act Section 4(f) Resources

Section 4(f) is applicable to historic sites and publicly owned parks, recreation areas, and wildlife and waterfowl refuges of national, state, or local significance that may be impacted by transportation programs or projects carried out by the U.S. DOT and its operating administrations, including the FAA. The study area for considering Section 4(f) resources in the draft EA corresponds with the APE used for compliance with Section 106 of the NHPA.

Historic properties are identified as part of the Section 106 consultation process (see section above: Cultural Resources). Parks, recreational areas, and wildlife and waterfowl refuges are identified using public datasets from federal, state, and local sources. The study area for Section 4(f) analysis is the same as the APE identified as part of Section 106. Each resource that intersects the study area is included in the Section 4(f) analysis. A list of these properties as well as a short description, the approximate size, and Official(s) with Jurisdiction has been compiled, and the properties was mapped.

As land acquisition, construction, or other ground disturbance activities would not occur under the ATMP, the alternatives would not have the potential to cause a permanent use of a Section 4(f) resource. Therefore, analysis of potential impacts to Section 4(f) resources is limited to identifying impacts that could result in a constructive use. Evaluating potential impacts to Section 4(f) resources focuses on changes in aircraft noise exposure and visual effects resulting from implementing the alternative. A constructive use of a Section 4(f) resource would occur if there was a substantial impairment of the resource to the degree that the activities, features, or attributes of the site that contribute to its significance or enjoyment are substantially diminished. This could occur as a result of both visual and noise impacts. The FAA has evaluated the Section 4(f) resources for potential noise (including vibration) and visual impacts for the preferred alternative to determine if there will be substantial impairment to Section 4(f) resources due to the preferred alternative that would result in a constructive use.

The methodology for the noise impacts analysis will reflect that described for the Noise and Noise-Compatible Land Use resource category (see above). The methodology for the visual impacts analysis reflects that described under the Visual Effects resource category (see above). As noted, both resource analyses describe the effects of the alternative itself as well as the relative change from the environmental baseline.

Noise impacts on Section 4(f) resources are analyzed using location point data provided in the *Noise Technical Analysis*. Location points are used to model noise across multiple metrics (e.g., 12-hour Equivalent Sound Level, Time Above 52 dBA) at specific points of interest in the study area, including forests, geological features, and historic sites, and often correspond to Section 4(f) resources. For Section 4(f) resources without corresponding location point data, noise impacts are assessed using the closest location point(s). The range of time (in minutes) above 52 dB is reported for each Section 4(f) resource.

APPENDIX F

Noise Technical Analysis

Noise Technical Analysis: Hawai‘i Volcanoes National Park

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1. Introduction

The purpose of this report is to document the noise results used in the alternatives impact analysis discussed in the Air Tour Management Plan (ATMP) Draft Environmental Assessment (EA) for Hawai'i Volcanoes National Park (Park) and to document the inputs and assumptions used in the computer modeling of air tour aircraft activity. This information will provide the reader with the technical basis used to assess potential impacts to the following resource categories – Noise and Noise-Compatible Land Use; Biological Resources; Department of Transportation Act Section 4(f) Resources; Cultural Resources; Environmental Justice and Socioeconomics; Visitor Use and Experience; and Wilderness.

Humans perceive sound as an auditory sensation created by pressure variations that move through a medium such as water or air. Sound is measured in terms of amplitude and frequency. Amplitude, which refers to the sound pressure level or intensity, is the relative strength of sound waves which humans perceive as loudness or volume and is measured in decibels (dB). Decibels work on a logarithmic scale, such that an increase of 10 dB causes a doubling of perceived loudness and represents a ten-fold increase in sound level. The A-weighted decibel scale (dBA) is commonly used to describe sound levels because it reflects the frequency range to which the human ear is most sensitive.[1] Thus 20 dBA would be perceived as twice as loud as 10 dBA, 30 dBA would be perceived as 4 times louder than 10 dBA, 40 dBA would be perceived as 8 times louder than 10 dBA, etc. The dBA scale from zero to 110 covers most of the range of everyday sounds, as shown in Figure 1. Note that sound levels in protected natural areas, such as the Park, are often lower than those of the 'common' outdoor areas shown, in the range of 20-30 dBA.

[1] dBA (A-weighted decibels): Sound is measured on a logarithmic scale relative to the reference sound pressure for atmospheric sources, 20 µPa. 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 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.

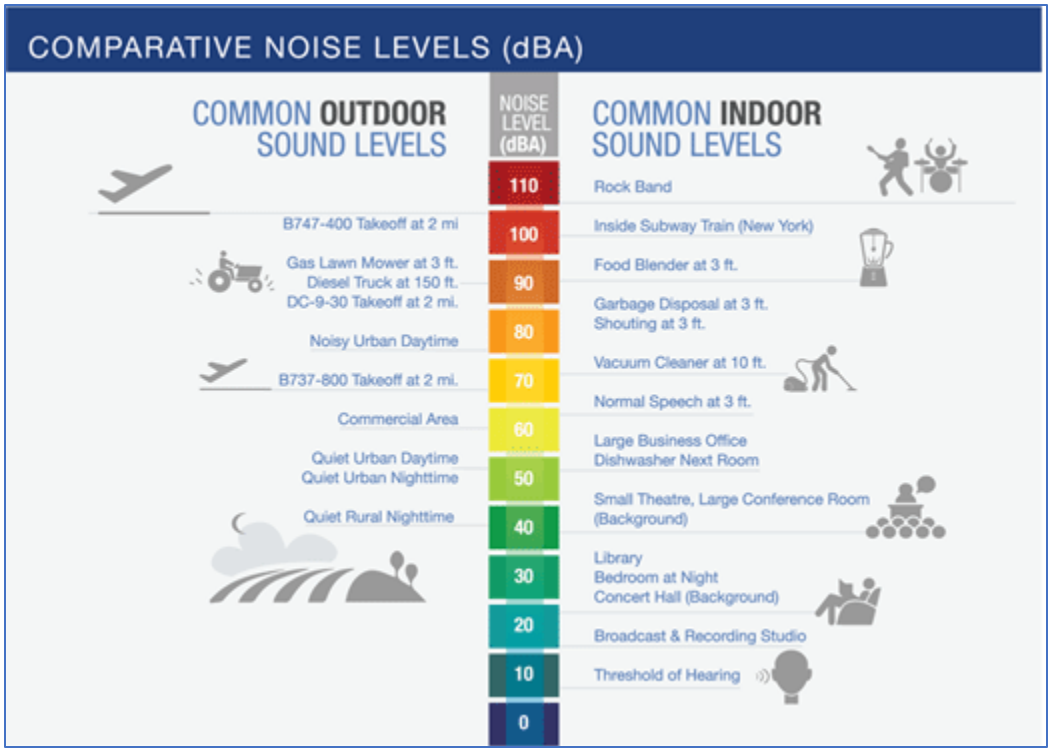

Figure 1. Comparative Sound Levels[2]

Section 2 discusses the noise metrics. Section 3 discusses the affected environment and ambient soundscape. Section 4 discusses the noise model method and inputs while Section 5 discusses outputs. Sections 6 and 7 provide detailed noise results for each alternative. Section 8 discusses indirect effects.

2. Modeled Noise Metrics

There are numerous ways to measure the potential impacts of noise from commercial air tours on the acoustic environment of a park, including intensity, duration, and spatial footprint of the noise. The affected environment and impact analysis disclose noise metrics consistent with both Federal Aviation Administration (FAA) and National Park Service (NPS) noise guidance. The FAA noise evaluation is based on guidance under FAA Order 1050.1F and uses the yearly Day Night Average Sound Level (DNL) metric; the cumulative noise energy exposure from aircraft over 24 hours. The NPS considers various different metrics to analyze impacts to park resources and values from noise, including equivalent sound level, 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 functional effects of noise and park management objectives (e.g., 35 and 52 dBA), and maximum sound level. These metrics are discussed further in Table 1.

[2] *Source https://www.faa.gov/regulations_policies/policy_guidance/noise/basics/*

Table 1. Primary metrics used for the noise analysis

Metric	Relevance and citation
Equivalent sound level, $L_{Aeq, 12\ hr}$	The logarithmic average of commercial air tour sound levels, in dBA, over a 12-hour day. The selected 12-hour period is 7:00 AM to 7:00 PM to represent typical daytime commercial air tour operating hours.
Day-night average sound level, L_{dn} (or DNL)	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 between 10:00 PM and 7:00 AM local time. Note: Both $L_{Aeq, 12hr}$ and DNL characterize: • Increases in both the loudness and duration of noise events • The number of noise events during specific time period (12 hours for $L_{Aeq, 12hr}$ and 24-hours for DNL) If there are no nighttime events, then $L_{Aeq, 12hr}$ is arithmetically three dBA higher than DNL.
Time Audible Natural Ambient L_{50}	The total time (minutes) that aircraft noise levels are audible to an attentive listener with normal hearing under natural ambient conditions. The median natural ambient is the sound level exceeded 50 percent of the time (L_{50}), 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. Time audible does not indicate how loud the event is, only if it might be heard.
Time Above 35 dBA	The amount of time (in minutes) that aircraft sound levels are above a given threshold (i.e., 35 dBA) In quiet settings, outdoor sound levels exceeding 35 dBA degrade experience in outdoor performance venues (American National Standards Institute (ANSI), 2007). This level is also shown to cause blood pressure increases in sleeping humans (Haralabidis et al., 2008); as well as exceeding recommended maximum background noise level inside classrooms (ANSI S12.60/Part 1-2010).
Time Above 52 dBA	The amount of time (in minutes) that aircraft sound levels are above a given threshold (i.e., 52 dBA) This metric represents the level at which one may reasonably expect interference with Park interpretive programs. 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, Office of Noise Abatement and Control, 1974).

Metric	Relevance and citation
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 and ambient conditions. L_{max} does not provide any context of frequency, duration, or timing of exposure.

3. Affected Environment

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 is the combination of all the acoustic resources within a given area. This includes natural sounds and cultural sounds, as well as non-natural human-caused sounds. Soundscape can be defined as the human perception of those physical sound resources.

Natural sounds are also part of the biological or other physical resource components of the Park. Some common naturally occurring sounds in the Park are surf action at the shoreline, winds spilling across volcanic flows or rustling leaves, native Hawaiian birds calling and singing, rain falling on tree canopies, and crickets vocalizing in the rain forest. Some of the Park's most notable sounds include those related to volcanic activity such as the hissing and crackling of new lava flows, clinking of glass-like surfaces of active lava flows, booming methane explosions or, more rarely, the roar of fountaining events.

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 of the naturally occurring sounds of the Park, as well as the quiet associated with still nights and certain seasons. 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 Management Policies, 4.9 Soundscape Management).

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, 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. Human-generated noise within the Park is typically concentrated in areas of high visitor use.

To characterize the natural and existing ambient, detailed sound level measurements were conducted at 22 locations across the Park from 2002-2003, resulting in the identification of ten acoustic zones representing regions with similar acoustic conditions (Table 2) (Lee et al., 2016). These acoustic sampling zones were chosen to be representative of the natural ecological zones or broad ecosystems of the Park and ATMP planning area.[3] Median daytime natural ambient sound levels (L_{50}) ranged from 20

[3] 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.

dBA in backcountry areas to 54 dBA along the shoreline (Lee et al., 2016); median daytime existing ambient sound levels for these areas exhibit similar variability, ranging from 20 dBA to 54 dBA. The median or L_{50} sound level (in decibels) is the sound level exceeded 50 percent of the day.

Additional sound level data were collected at four locations in the Kahuku Unit in 2013 to assist with air tour management planning and to determine ambient sound levels (Beeco and Pipkin, 2018). The locations were chosen to best assess noise impacts to sites at varying elevations and habitats within the Kahuku Unit. It was found that the Kahuku Unit is dominated by natural sounds impacted very little by anthropogenic noise. All four sites had nearly untouched natural soundscapes with no more than 0.3 dBA added to the ambient sound level from anthropogenic sound sources. Locations at higher elevations were found to be particularly quiet. Results indicated that the natural ambient sound levels (L_{nat}) [4] during the monitoring period ranged from 16.8 to 27.7 dBA during the daytime. These results were used to assign ambient data for computer modeling to this area.

Table 2. Ambient sound levels measured in Hawai'i Volcanoes National Park in 2002-2003

Acoustic Sampling Area	Daytime Natural Ambient, L_{50} (dBA)	Daytime Existing Ambient, L_{50} (dBA)	Description
Zone 1 (Shoreline)	47-54	47-54	Highest natural ambient sound levels in the Park, similar to light traffic noise. Natural sounds in this zone are surf, strong winds, and birds. Human sounds include noise from vehicles and, when applicable, visitors at the lava viewing area at the end of the road and commercial air tour aircraft on the coastline.
Zone 2 (Coastal Lowlands)	28-33	28-33	Gently sloped lands immediately above the shoreline zone, this zone has low natural ambient sound levels. Sounds originate from strong trade winds blowing through the grasses that dominate the vegetation of much of this zone and insects. Human sounds include aircraft activity and vehicle noise.
Zone 3 (Sparsely Vegetated Region of Coastal Lowlands)	20-33	20-37	This zone is dominated by low scattered native ʻōhiʻa scrub or nearly barren, recent lava flows. Wind blowing through low trees and shrubs and over volcanic landforms is the dominant natural sound. Human sounds include human activity, aircraft activity and vehicle sounds.
Zone 4 (Montane Rainforest)	34	33	Sources of natural sounds in this zone include chirps of native crickets, bird vocalization, and frequent rains falling on the continuous canopy of

[4] It should be noted that different techniques have been used to calculate natural ambient, resulting in two different descriptor notations. 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).

Acoustic Sampling Area	Daytime Natural Ambient, L_{50} (dBA)	Daytime Existing Ambient, L_{50} (dBA)	Description
			vegetation. Human sounds include aircraft activity and vehicle sounds.
Zone 5 (Mauna Loa montane/subalpine)	22-35	23-35	Broad elevational area from 4,000-8,000 feet (ft.) on the slopes of Mauna Loa, dominated by a wide range of vegetation types including forest, small grasslands, shrublands, and lava flows. Human sounds include aircraft activity and vehicle sounds.
Zone 6 (Arid Dry ʻŌhiʻa Woodlands)	28-33	30-33	Located on the leeward slopes of Kīlauea above the coastal lowlands. Dominant natural sounds in this region include wind blowing through tree canopies and insects. Human sounds are from aircraft activity.
Zone 7 (Alpine Areas)	No data	No data	This zone was not studied during the initial study period in the early 2000s due to inclement weather, so data from other zones (Zone 3) was applied to this zone for noise modeling based on NPS guidance.
Zone 8 (Natural Sounds of the Young Rainforest)	30-43	31-43	Located along the wet, eastern edge of Kīlauea Caldera and the east rift zone of Kīlauea. Natural sounds include rain falling on the canopy, insects, and vocalizations from high populations of native forest birds. Human sounds include human activity, vehicles sounds (from Highway 11) and aircraft activity.
Zone 9 (New Lava Flows)	25-29	29-33	Located adjacent to the young rain forest on the east rift of Kīlauea. Natural sounds include lava flows, bird vocalizations, insects, wind, and rocks falling on the slopes of cinder cones or walls of pit craters. Noise attributed to aircraft activity is the dominant human sound, along with vehicle sounds.
Zone 10 (Kahuku Pastures)	No data	No data	Natural sounds at this site include wind, birds, insects. Human sounds were heard less than 1% of the time and include aircraft and vehicles. This zone was not a part of the Park when the sample study was being conducted, so data from other zones (Zone 3) was applied to this zone for noise modeling based on NPS guidance.

Ambient Map Data

From the detailed data collected in 2002-2003, an ambient "map" of the natural soundscape[5] of the ATMP planning area was developed to be used in computer modeling (Figure 2). Lee et al., 2016

[5] Natural Ambient/Soundscape (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.

provides further technical detail on the acoustical monitoring and development of the ambient map used in the computer modeling.

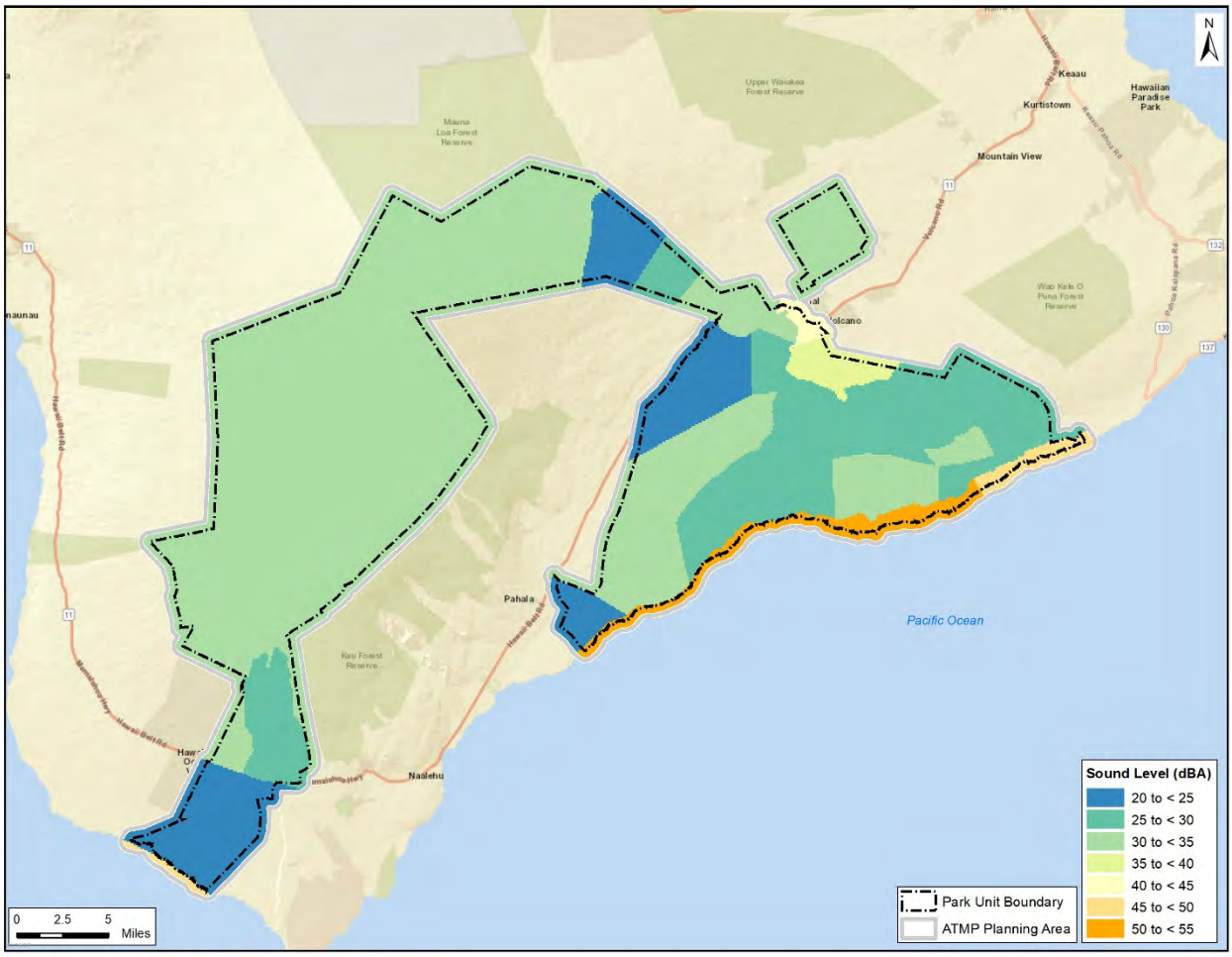

Figure 2. Ambient map – Natural Ambient L_{50}.

The contribution of aircraft noise during the sound level measurements provides a snapshot in time and is not necessarily a representative characterization of the existing ambient under current conditions (as described in the No Action Alternative and in Section 3). The existing ambient under current conditions was determined by adding the noise exposure due to existing air tours (Figure 8), modeled using the FAA Aviation Environmental Design Tool (AEDT) version 3e (see Section 4), to the Existing Ambient without Air Tours shown in Figure 3. The Existing Ambient without Air Tours 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. The result of this process is the Cumulative Existing Ambient (Figure 4).

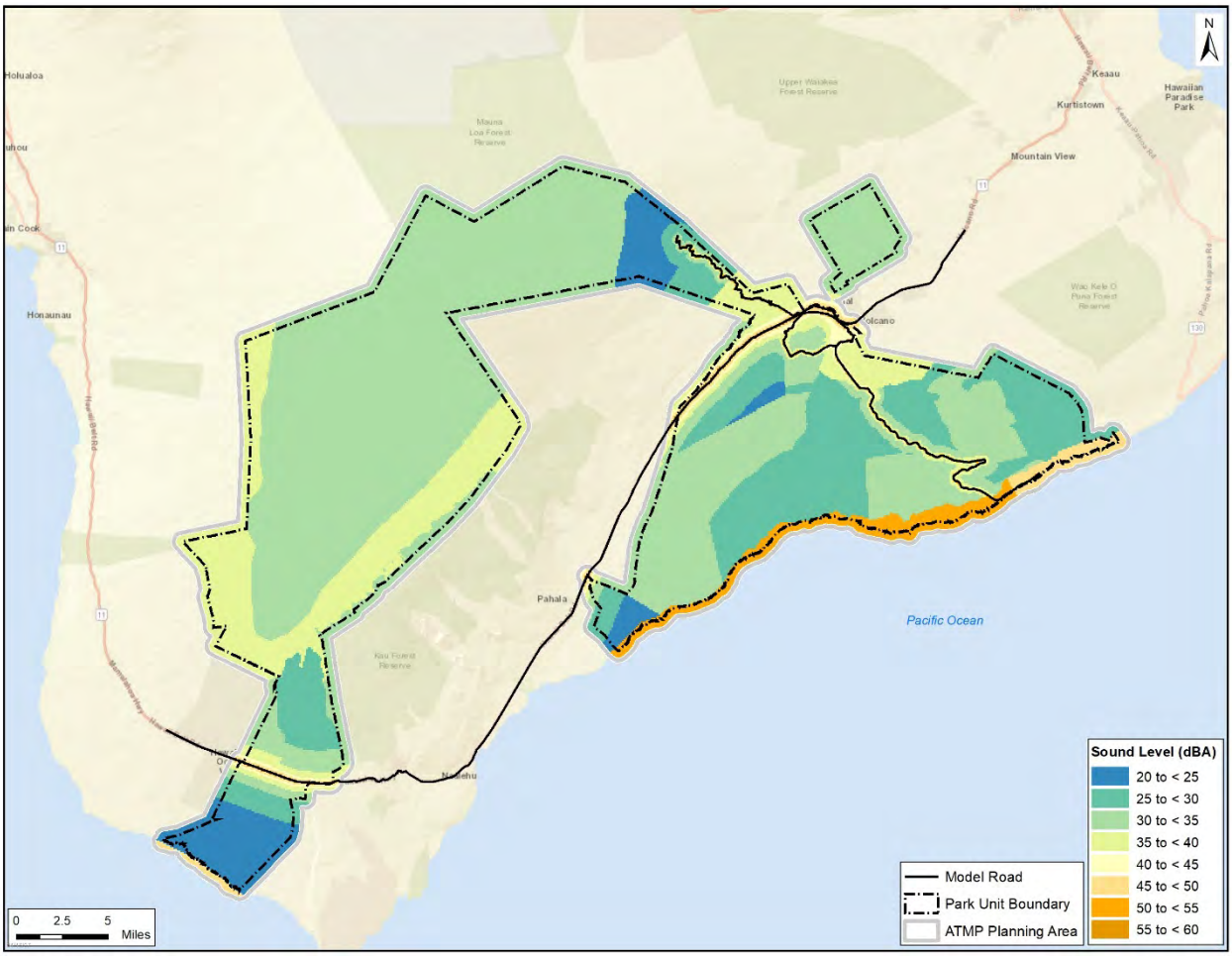

Figure 3. Ambient map – Existing Ambient without Air Tours L_{50} [6]

[6] Because it is not feasible to carry out field data collection efforts in all areas of a park, the effect of localized sound sources, such as from roadways, were modeled using the Federal Highway Administration's Traffic Noise Model® (TNM). Details of modeled roadway sound sources can be found in Lee et al., 2016.

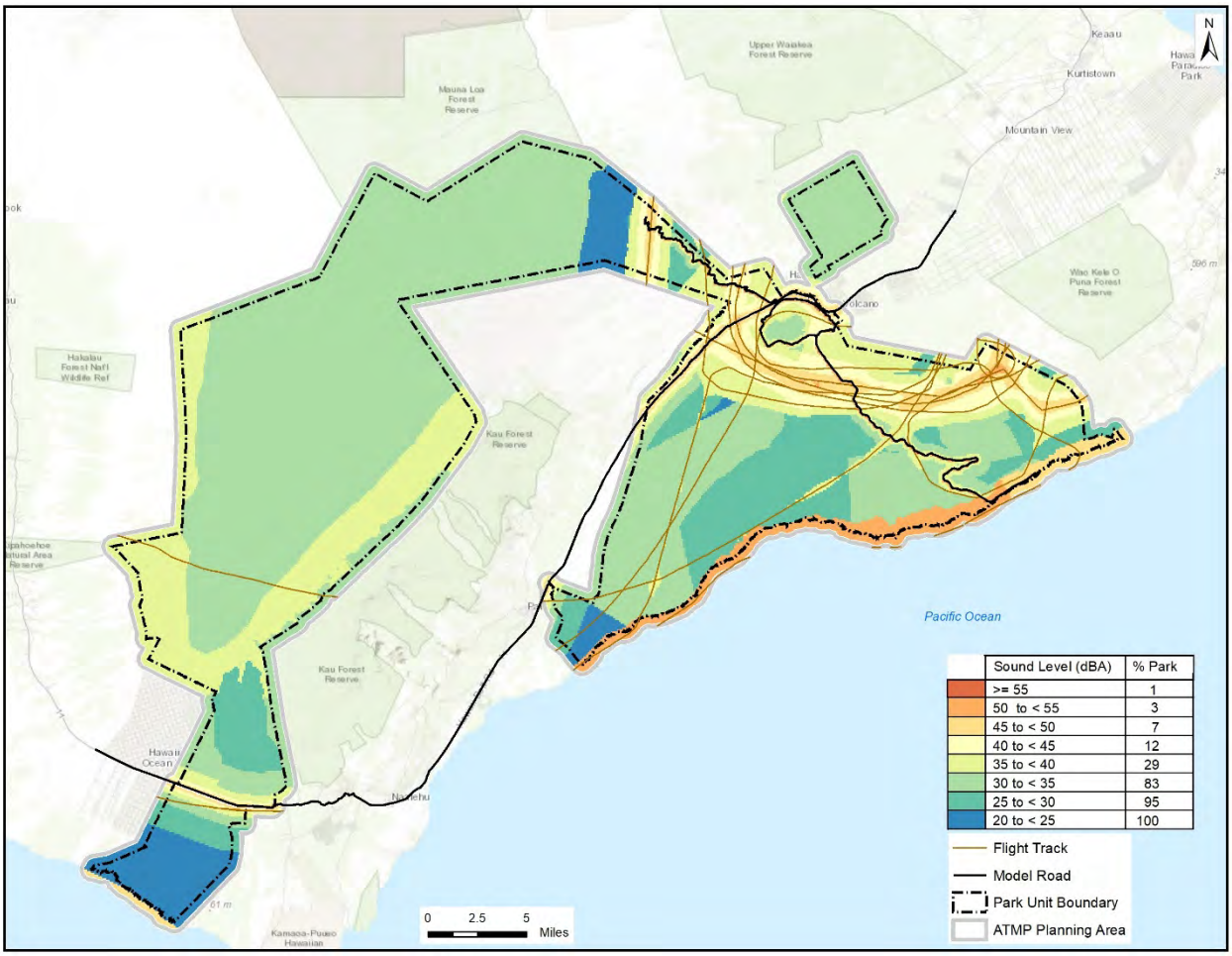

Figure 4. Cumulative Existing Ambient for Current Conditions

4. Noise Model Method

The FAA's AEDT, Version 3e (Lee et al., 2022) is the FAA-approved computer program for modeling noise under Appendix A of FAA's Part 150 Airport Noise Compatibility Planning (14 Code of Federal Regulations (CFR) sec. A150.103(a)). Requirements for aircraft noise modeling are defined in FAA Order 1050.1F, Environmental Impacts: Policies and Procedures, and in Federal Aviation Regulations (FAR) 14 CFR Part 150, Airport Noise Compatibility Planning.

The noise model requires detailed information regarding the aircraft source, operational, and flight route information, as well as other information[7] to compute various noise metrics that can be used to assess the potential impacts of noise from commercial air tours on the acoustic environment of a park.

[7] The noise model accounts for a number of effects over the propagation path between the aircraft source and receptor. Attenuation due to line-of-sight blockage from terrain features is computed utilizing terrain data obtained from U.S. Geological Survey along with algorithms documented in SAE Aerospace Information Report (AIR) 6501. Atmospheric absorption is based on the 2012-2021 average temperature of 78 degrees Fahrenheit and 67% relative humidity and computed according to SAE-ARP-5534.

Aircraft Data

The aircraft types and flight routes used for modeling the No Action Alternative are shown in Table 3 and Figure 5; the aircraft types and flight routes specified for Alternative 3 are shown in Table 4, Table 5, and Figure 6. The Alternative 3 routes were modeled as a single continuous route.

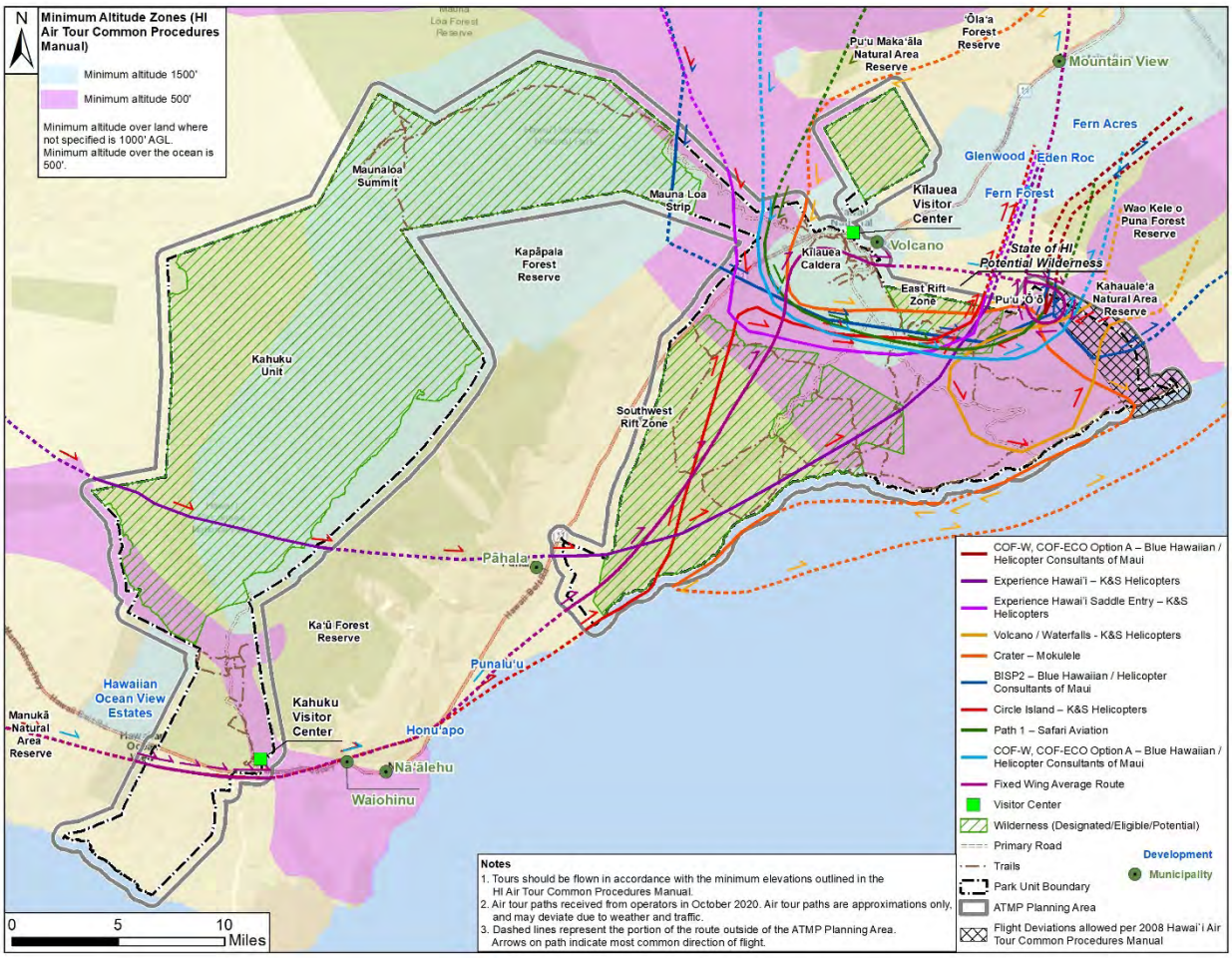

Figure 5. Air Tour Routes for modeling the No Action Alternative

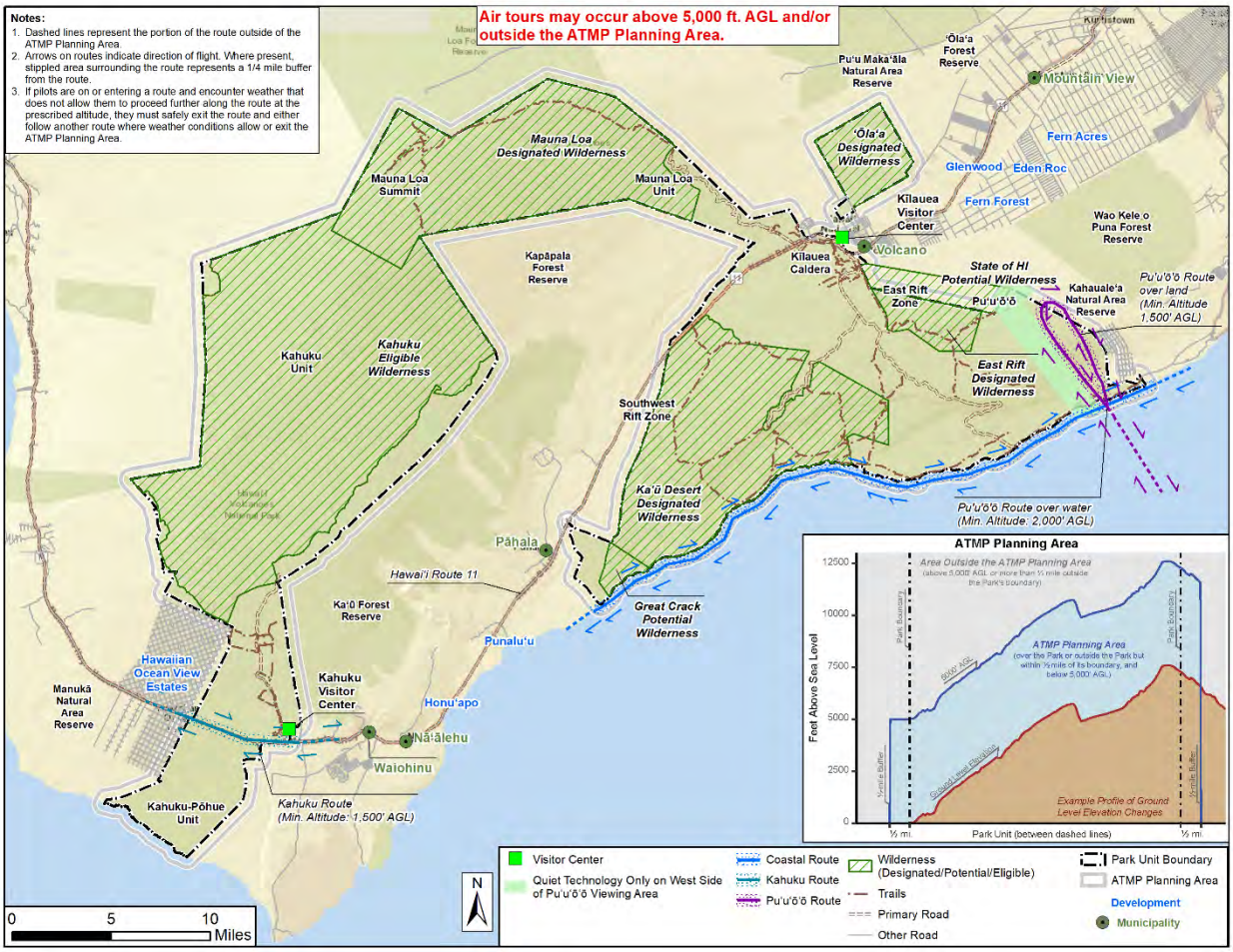

Figure 6. Air Tour Routes for Alternative 3

A unique noise modeling profile was developed for each aircraft and route combination based on typical aircraft climb rates, descent rates, power settings and speeds during the different phases of flight (cruise, climb, and descent).

The analysis for the No Action Alternative is based on a peak month, average day[8] (PMAD) of commercial air tour activity. For the three-year average of commercial air tour activity from 2017-2019, the PMAD was identified in terms of number of operations, and then further assessed for the type of aircraft and route flown to determine if it is a reasonable representation of the commercial air tour activity over the ATMP planning area. For the ATMP planning area, the PMAD was identified as summarized in Table 3. The process of averaging and apportioning a peak month of flights to daily flights can result in a fractional number. Altitudes were modeled according to the minimum altitudes

[8] As required by FAA policy, the FAA typically represents yearly conditions as the Average Annual Day (AAD). However, it was determined that a peak month, average day (PMAD) representation of the operations would more adequately allow for disclosure of any potential impacts. PMAD has therefore been used as a conservative representation of assessment of AAD conditions.

identified in the 2008 FAA Hawai'i Air Tour Common Procedures Manual (Hawai'i Common Procedures Manual)[9].

Table 3. Aircraft and Number of Operations for the No Action Alternative (2017-2019 PMAD)

Aircraft	Route	Peak month average day Number of Flights
Aerospatiale SA-350D	BISP2 – Blue Hawaiian	1.0
Aerospatiale SA-350D	Path 1 – Safari Aviation	4.7
Aerospatiale SA-350D	COFW/COFECO/Option A – Blue Hawaiian	5.3
Eurocopter EC-130	BISP2 – Blue Hawaiian	12.0
Eurocopter EC-130	102V_A – Sunshine Helis	2.8
Eurocopter EC-130	COFW/COFECO/Option A – Blue Hawaiian	17.1
Cessna 208	Fixed-Wing Average – Big Island Air	0.2
Bell 407	Circle Island - K&S Helicopters	1.1
Bell 407	Experience Hawaii – K&S Helicopters	1.1
Bell 407	Experience Hawaii with Saddle Entry – K&S Helicopters	1.1
Bell 407	Volcano/Waterfalls – K&S Helicopters	1.1
Cessna 208	Crater – Mokulele	1.0
Total		**48.5**

Alternative 3 contains provisions for both a standard day and a quiet technology-only day. The aircraft types and number of operations used to model this alternative are summarized in Table 4 and Table 5.

Table 4. Aircraft and Number of Operations for Alternative 3, Standard Day

Aircraft	Route	Daily Number of Flights
Aerospatiale SA-350D	Proposed Route	1
Eurocopter EC-130	Proposed Route	3
Cessna 208	Proposed Route	1
Total		**5**

Table 5. Aircraft and Number of Operations for Alternative 3, Quiet Technology-only Day

Aircraft	Route	Daily Number of Flights
Eurocopter EC-130	Proposed Route	5

[9] FAA DOCUMENT NUMBER: AWP13-136A

Total		**5**

5. Model Output

Two types of analyses were performed using FAA's AEDT, Version 3e: 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. The NPS provided a list of 46 location points, geographically located both within and outside[10] the ATMP planning area, where noise levels were to be evaluated. These locations are listed in Table 6 and indicated as blue dots in Figure 7.

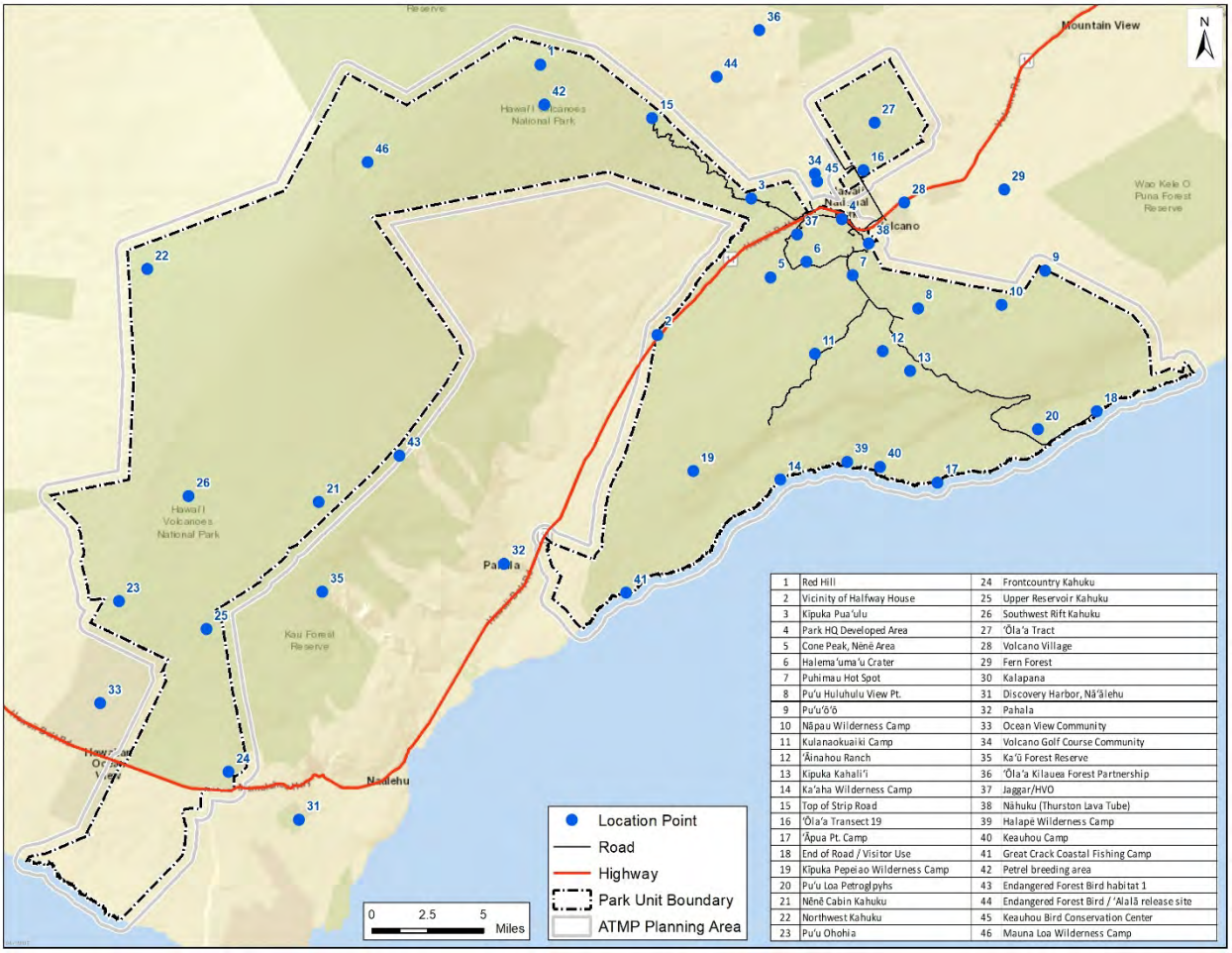

Figure 7. Location Points modeled for Hawai'i Volcanoes National Park

[10] The routes, altitudes and numbers of air tours outside the ATMP planning area are unknown. This is because directly outside of the park is uncontrolled airspace, and operators fly under Visual Flight Rules (VFR). For the purposes of disclosing the potential effects on locations outside the ATMP planning area, routes within the ATMP planning area were extrapolated based on available information. Additionally, ambient data are not available outside the ATMP planning area and thus time audible results were not computed.

Table 6. Location Points modeled for Hawai'i Volcanoes National Park

Location	Longitude (decimal degrees)	Latitude (decimal degrees)	Natural Ambient L_{50} (dBA)
1. Red Hill	19.530080	-155.463806	30-35
2. Vicinity of Halfway House	19.354498	-155.383443	20-25
3. Kīpukapuaulu	19.443013	-155.319367	30-35
4. Park HQ Developed Area	19.429500	-155.257024	40-45
5. Cone Peak, Nēnē Area	19.391809	-155.306063	20-25
6. Halema'uma'u Crater	19.401895	-155.281344	25-30
7. Puhimau Hot Spot	19.393122	-155.249878	35-40
8. Pu'uhuluhulu View Pt.	19.371587	-155.204829	25-30
9. Pu'u'ō'ō	19.395983	-155.117809	25-30
10. Nāpau Wilderness Camp	19.373704	-155.147660	25-30
11. Kulanaokuaiki Camp	19.342075	-155.275604	25-30
12. 'Āinahou Ranch	19.343754	-155.229135	25-30
13. Kīpuka Kahāli'i	19.330945	-155.210557	25-30
14. Ka'aha Wilderness Camp	19.260423	-155.299501	50-55
15. Top of Strip Road	19.495138	-155.387203	20-25
16. 'Ōla'a Transect 19	19.461362	-155.242431	30-35
17. 'Āpua Pt. Camp	19.258268	-155.191981	50-55
18. End of Road / Visitor Use	19.304565	-155.082882	45-50
19. Kīpuka Pepeiao Wilderness Camp	19.266049	-155.359056	25-30
20. Pu'uloa Petroglyphs	19.292883	-155.123081	25-30
21. Nēnē Cabin Kahuku	19.245769	-155.615353	30-35
22. Northwest Kahuku	19.396874	-155.732880	30-35
23. Pu'u Ohohia	19.181269	-155.751963	30-35
24. Frontcountry Kahuku	19.070518	-155.676666	25-30
25. Upper Reservoir Kahuku	19.163253	-155.691977	25-30
26. Southwest Rift Kahuku	19.249415	-155.704322	30-35
27. 'Ōla'a Tract	19.492338	-155.234663	30-35
28. Volcano Village*	19.440378	-155.214365	N/A
29. Fern Forest*	19.448609	-155.145953	N/A
30. Kalapana*	19.486885	-154.907556	N/A
31. Discovery Harbor, Nā'ālehu*	19.039437	-155.628610	N/A
32. Pahala*	19.205774	-155.488392	N/A
33. Ocean View Community*	19.114855	-155.764518	N/A
34. Volcano Golf Course Community*	19.458975	-155.275586	N/A
35. Ka'ū Forest Reserve*	19.187431	-155.612783	N/A
36. 'Ōla'a Kīlauea Forest Partnership*	19.552280	-155.313631	N/A
37. Jaggar/HVO	19.419586	-155.287864	25-30
38. Nāhuku (Thurston Lava Tube)	19.413692	-155.238797	40-45
39. Halapē Wilderness Camp	19.271900	-155.253700	50-55
40. Keauhou Camp	19.268650	-155.231190	50-55
41. Great Crack Coastal Fishing Camp	19.187000	-155.405000	50-55
42. Petrel Breeding Area	-	-	20-25
43. Endangered Forest Bird Habitat 1	-	-	30-35
44. Endangered Forest Bird / 'Alalā Release Site*	-	-	N/A
45. Keauhou Bird Conservation Center*	19.454000	-155.274000	N/A
46. Mauna Loa Wilderness Camp	19.466470	-155.582010	30-35

* Location point is outside the ATMP planning area.

6. Noise Model Results / Environmental Consequences

This section provides figures and tables showing the detailed noise results, organized by alternative. Presented first within each alternative are the noise contour result maps for three metrics: 12-hour equivalent sound level (Figure 8 and Figure 11), time audible natural ambient (Figure 9 and Figure 12) and time above 35 dBA (Figure 10 and Figure 13), followed by tabular results (Table 7, Table 8, and Table 9) for the location points for each of the five acoustic metrics modeled. The noise contour map legends include the percentage of the total park area covered by each contour level.

Alternative 1 (No Action Alternative)

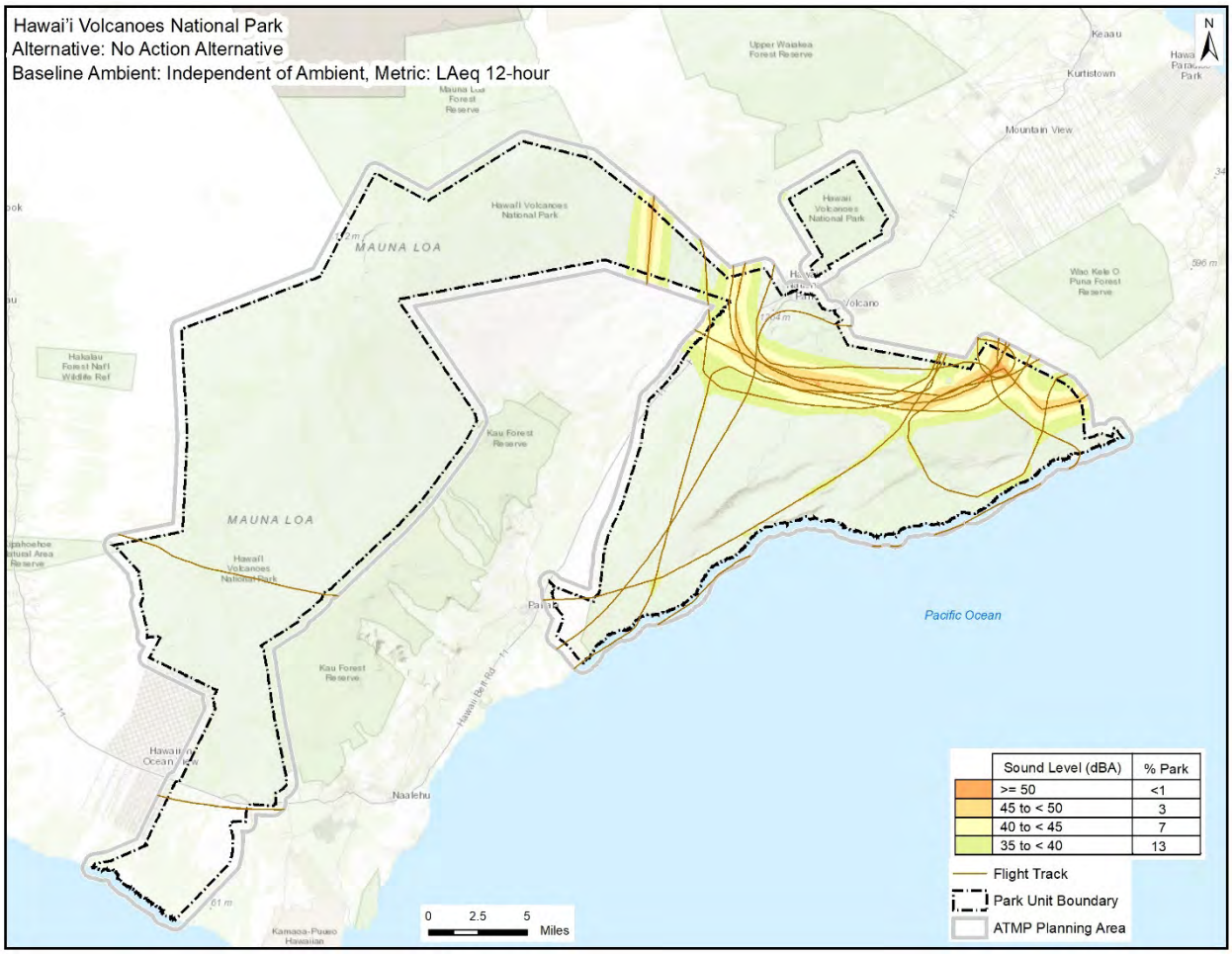

Figure 8. 12-hour equivalent sound level ($L_{Aeq,12h}$) map for the No Action Alternative

As there are no nighttime events, DNL will be 3 dB less than the 12-hour equivalent sound level.

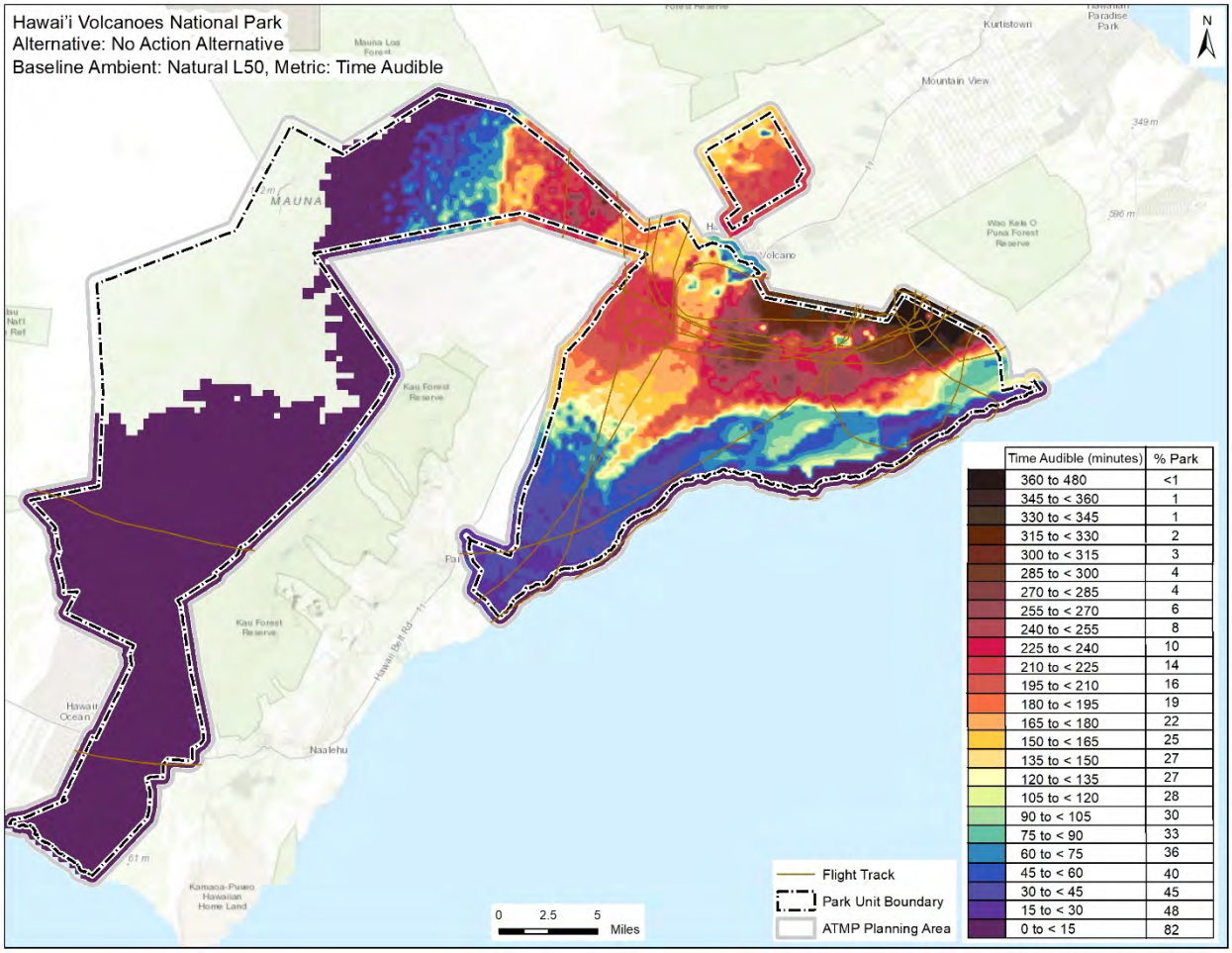

Figure 9. Time audible (for natural ambient) map for the No Action Alternative

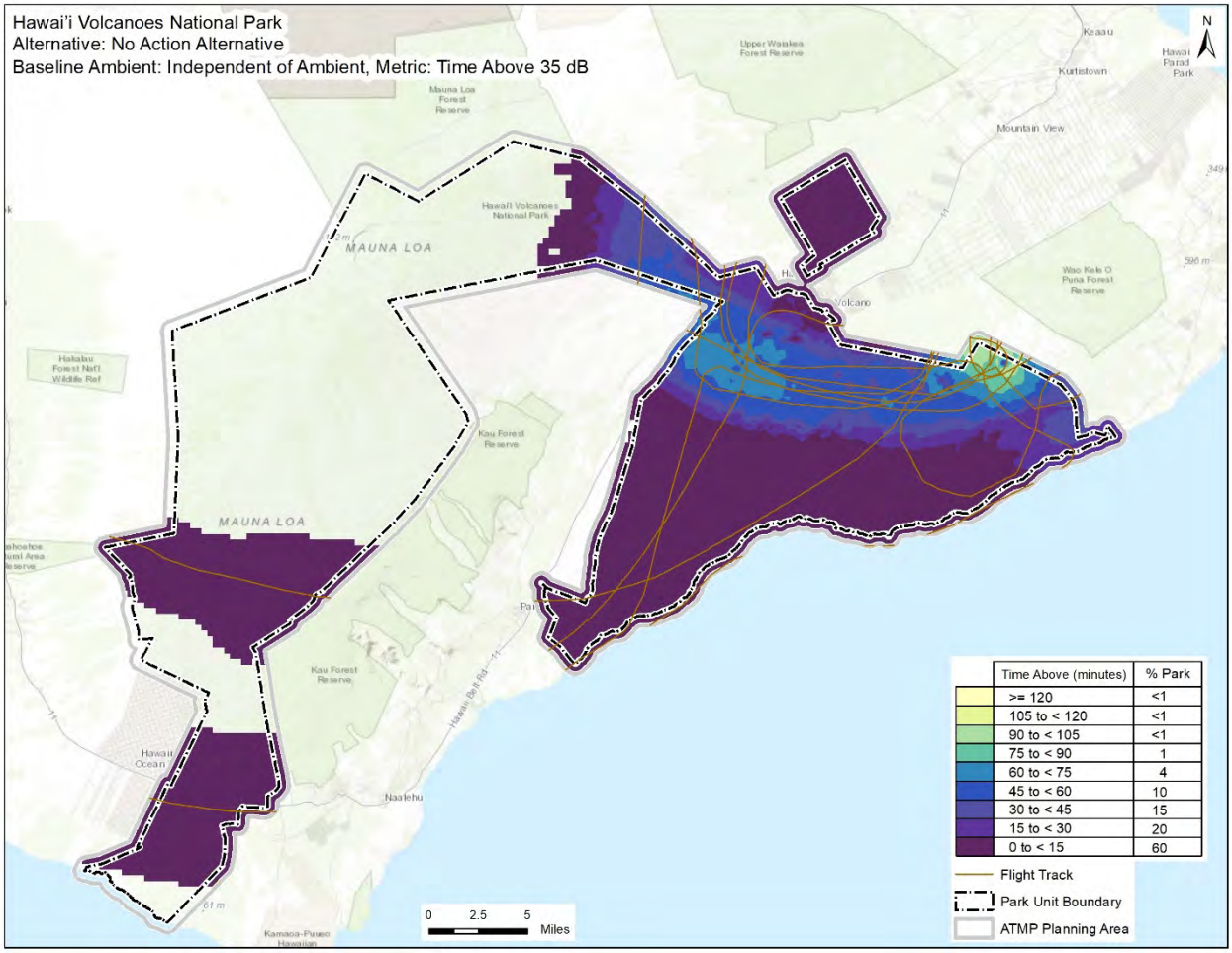

Figure 10. Time Above 35 dBA map for the No Action Alternative

Table 7. Location point results–- No Action Alternative

Location	12-Hour Equivalent Sound Level (dBA)†	Time Audible for Natural Ambient (minutes)	Time Above 35 dBA (minutes)	Time Above 52 dBA (minutes)	Maximum Sound Level (dBA)
1. Red Hill	10.3	30.6	0.0	0.0	32.3
2. Vicinity of Halfway House	19.9	164.3	0.8	0.0	38.7
3. Kīpukapuaulu	42.3	150.0	21.0	6.9	70.4
4. Park HQ Developed Area	23.5	88.1	4.5	<0.1	62.1
5. Cone Peak, Nēnē Area	46.8	218.9	58.0	18.9	72.0
6. Halemaʻumaʻu Crater	32.2	163.0	51.8	0.2	54.1
7. Puhimau Hot Spot	15.1	75.4	0.1	0.0	50.2
8. Puʻuhuluhulu View Pt.	27.7	73.1	9.7	0.5	57.5
9. Puʻuʻōʻō	43.0	402.9	98.2	17.0	67.2
10. Nāpau Wilderness Camp	38.4	269.2	43.0	6.8	62.1
11. Kulanaokuaiki Camp	31.9	223.6	46.3	0.7	58.6
12. ʻĀinahou Ranch	33.4	280.9	47.5	0.5	55.3
13. Kīpuka Kahāliʻi	29.0	259.6	18.7	0.3	54.3
14. Kaʻaha Wilderness Camp	33.9	2.1	3.5	1.1	66.7
15. Top of Strip Road	42.1	247.3	34.2	12.9	64.5
16. ʻŌlaʻa Transect 19	17.3	192.7	0.5	0.0	43.7
17. ʻĀpua Pt. Camp	24.4	1.1	1.8	0.3	58.5
18. End of Road / Visitor Use	31.5	9.4	12.6	0.8	64.7
19. Kīpuka Pepeiao Wilderness Camp	28.6	34.1	4.9	0.7	58.8
20. Puʻuloa Petroglyphs	29.0	57.5	4.6	0.9	59.2
21. Nēnē Cabin Kahuku	10.8	5.6	0.5	0.0	36.7
22. Northwest Kahuku	0.0	0.0	0.0	0.0	4.5
23. Puʻu Ohohia	0.0	0.0	0.0	0.0	21.9
24. Frontcountry Kahuku	16.8	10.2	1.8	<0.1	52.2
25. Upper Reservoir Kahuku	3.6	8.5	0.0	0.0	33.2
26. Southwest Rift Kahuku	10.9	5.3	0.7	0.0	38.6
27. ʻŌlaʻa Tract	17.4	101.4	2.7	0.0	41.4
28. Volcano Village*	16.9	N/A	0.8	0.0	43.6
29. Fern Forest**	29.4	N/A	13.6	0.5	55.1
30. Kalapana**	8.4	N/A	0.0	0.0	24.6
31. Discovery Harbor, Nāʻālehu*	13.4	N/A	1.3	0.0	46.3
32. Pahala*	28.5	N/A	3.0	0.8	59.7
33. Ocean View Community*	4.0	N/A	0.1	0.0	36.8
34. Volcano Golf Course Community*	24.0	N/A	7.7	0.2	55.4
35. Kaʻū Forest Reserve*	19.9	N/A	2.5	0.0	49.3
36. ʻŌlaʻa Kīlauea Forest Partnership*	31.5	N/A	8.3	1.5	59.6
37. Jaggar/HVO	28.2	242.3	26.6	0.2	66.4
38. Nāhuku (Thurston Lava Tube)	24.6	59.1	3.9	<0.1	68.8
39. Halapē Wilderness Camp	20.4	0.0	1.8	0.1	53.0
40. Keauhou Camp	21.7	0.0	2.2	0.2	54.1
41. Great Crack Coastal Fishing Camp	29.0	0.8	2.9	0.9	60.7
42. Petrel Breeding Area	10.8	43.6	0.0	0.0	28.4
43. Endangered Forest Bird Habitat 1	4.5	9.8	0.0	0.0	26.0

Location	12-Hour Equivalent Sound Level (dBA)†	Time Audible for Natural Ambient (minutes)	Time Above 35 dBA (minutes)	Time Above 52 dBA (minutes)	Maximum Sound Level (dBA)
44. Endangered Forest Bird / ʻAlalā Release Site*	26.0	N/A	12.1	0.0	47.6
45. Keauhou Bird Conservation Center*	24.3	N/A	8.4	0.2	54.5
46. Mauna Loa Wilderness Camp	0.0	0.0	0.0	0.0	10.5

† As there are no nighttime events, DNL will be 3 dB less than the 12-hour equivalent sound level.

* Location point is outside the ATMP planning area.

Alternative 3 Standard Day

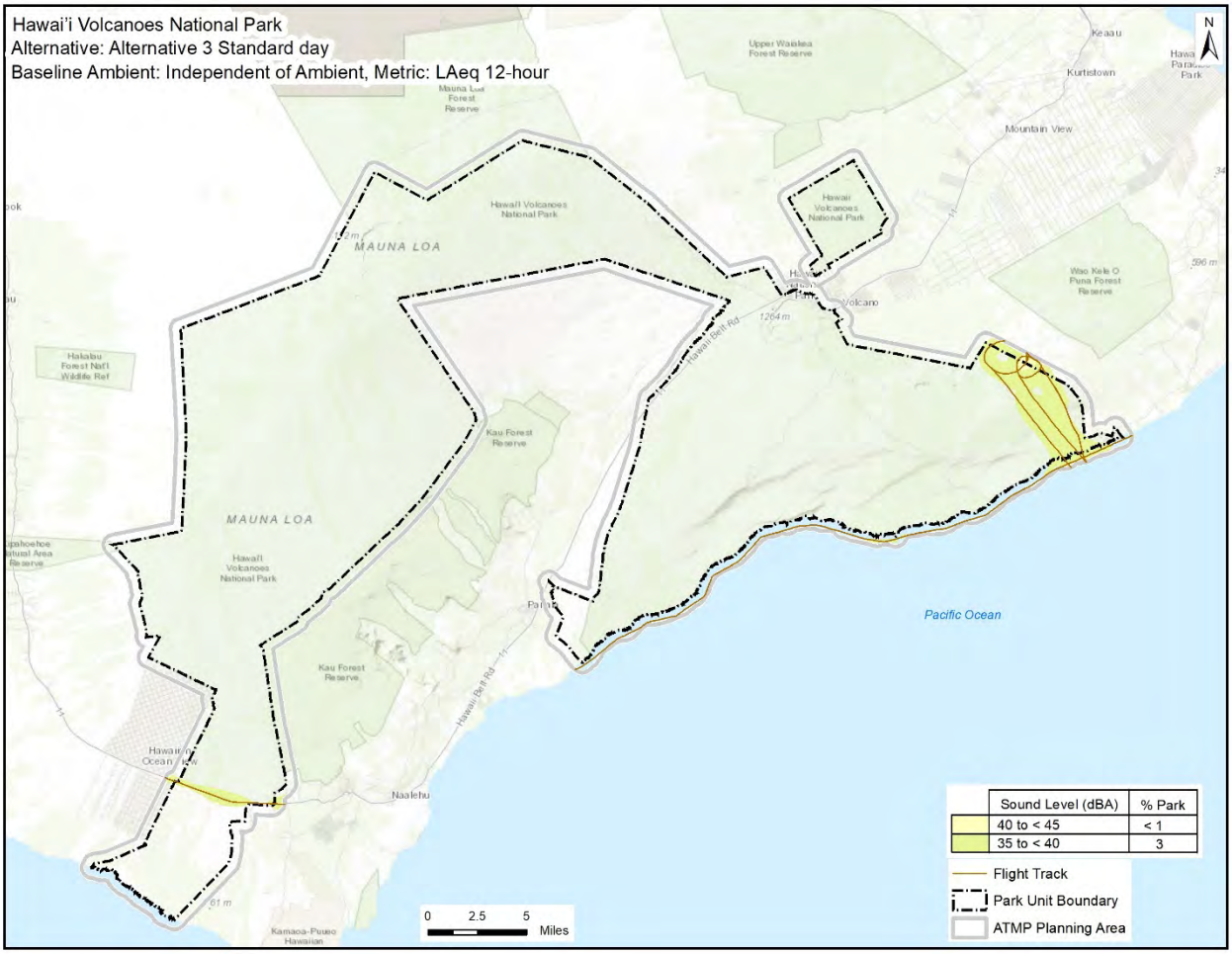

Figure 11. 12-hour equivalent sound level ($L_{Aeq,12h}$) map for Alternative 3 Standard Day

As there are no nighttime events, then DNL would be 3 dB less than the 12-hour equivalent sound level. If air tours are restricted to operating between 9:00 AM and 5:00 PM (i.e., 8 hours), then the 8-hour equivalent sound level would be 1.8 dBA greater than the 12-hour equivalent sound level.

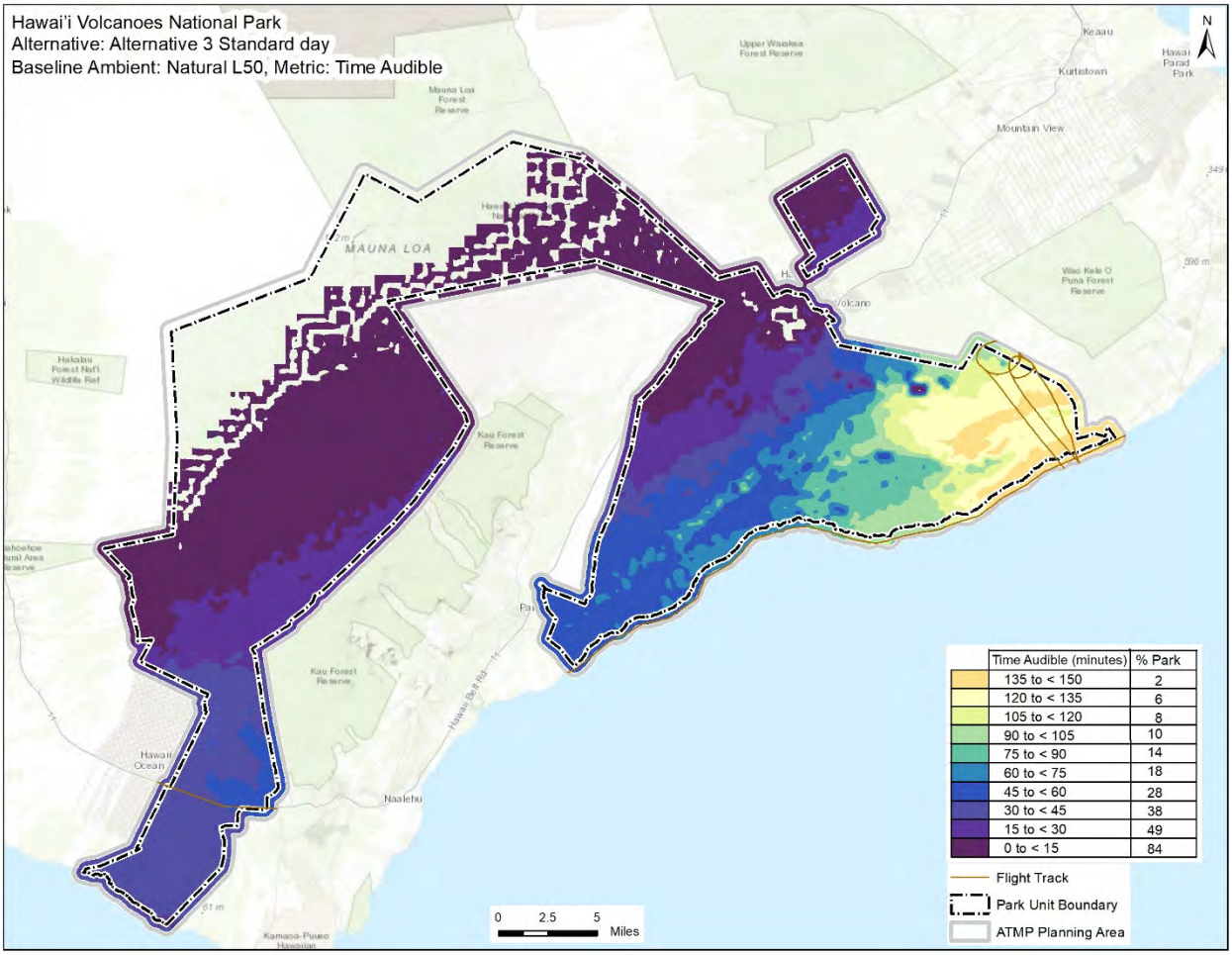

Figure 12. Time Audible (for natural ambient) map for Alternative 3 Standard Day

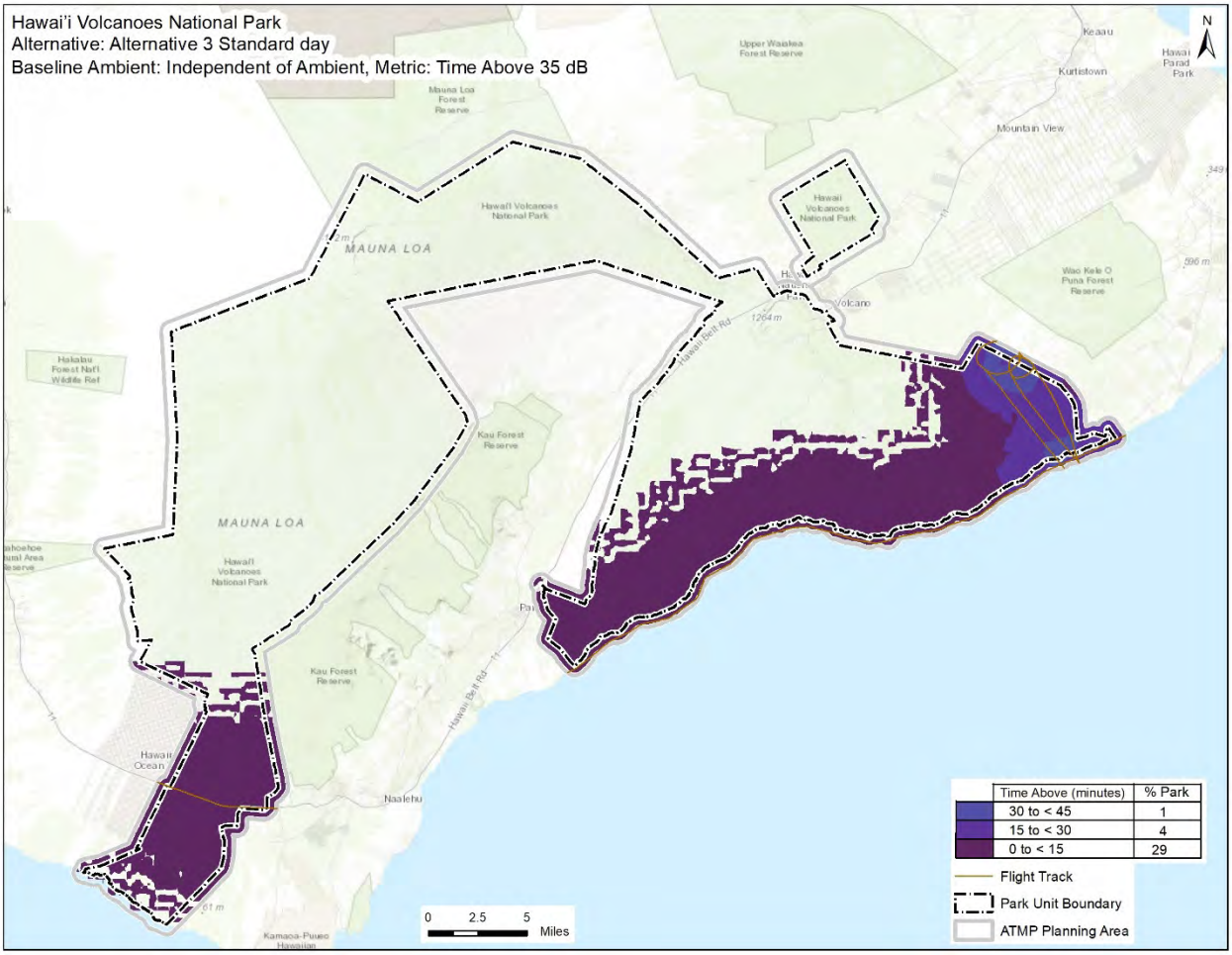

Figure 13. Time Above 35 dBA map for Alternative 3 Standard Day

Table 8. Location point results for Alternative 3 Standard Day

Location	12-Hour Equivalent Sound Level (dBA)[†]	Time Audible for Natural Ambient (minutes)	Time Above 35 dBA (minutes)	Time Above 52 dBA (minutes)	Maximum Sound Level dBA
1. Red Hill	0.0	0.0	0.0	0.0	9.5
2. Vicinity of Halfway House	0.0	12.1	0.0	0.0	16.6
3. Kīpukapuaulu	0.0	11.1	0.0	0.0	15.3
4. Park HQ Developed Area	0.0	15.1	0.0	0.0	17.6
5. Cone Peak, Nēnē Area	0.0	13.8	0.0	0.0	16.8
6. Halemaʻumaʻu Crater	0.0	11.5	0.0	0.0	17.1
7. Puhimau Hot Spot	0.0	0.0	0.0	0.0	6.5
8. Puʻuhuluhulu View Pt.	0.0	0.0	0.0	0.0	11.5
9. Puʻuʻōʻō	38.1	101.5	27.3	5.8	61.5
10. Nāpau Wilderness Camp	20.3	92.2	3.4	0.0	38.7
11. Kulanaokuaiki Camp	0.0	33.5	0.0	0.0	23.3
12. ʻĀinahou Ranch	7.5	93.8	0.0	0.0	27.8
13. Kīpuka Kahāliʻi	7.5	87.6	0.0	0.0	28.2
14. Kaʻaha Wilderness Camp	30.7	62.2	7.3	1.4	62.3
15. Top of Strip Road	0.0	0.0	0.0	0.0	11.4
16. ʻŌlaʻa Transect 19	0.0	15.6	0.0	0.0	18.0
17. ʻĀpua Pt. Camp	33.2	94.2	8.0	2.1	63.7
18. End of Road / Visitor Use	32.5	140.6	23.9	1.5	60.9
19. Kīpuka Pepeiao Wilderness Camp	8.7	51.5	0.0	0.0	34.1
20. Puʻuloa Petroglyphs	25.1	130.9	8.8	0.0	51.2
21. Nēnē Cabin Kahuku	0.0	17.6	0.0	0.0	20.2
22. Northwest Kahuku	0.0	0.0	0.0	0.0	0.0
23. Puʻu Ohohia	0.0	15.0	0.0	0.0	21.2
24. Frontcountry Kahuku	30.1	46.6	10.9	0.7	56.9
25. Upper Reservoir Kahuku	2.9	25.9	0.0	0.0	26.5
26. Southwest Rift Kahuku	0.0	8.2	0.0	0.0	17.7
27. ʻŌlaʻa Tract	0.0	2.3	0.0	0.0	14.3
28. Volcano Village*	1.2	N/A	0.0	0.0	20.5
29. Fern Forest*	7.3	N/A	0.0	0.0	28.2
30. Kalapana*	0.0	N/A	0.0	0.0	19.7
31. Discovery Harbor, Nāʻālehu*	24.4	N/A	7.2	0.0	52.3
32. Pahala**	9.9	N/A	0.0	0.0	33.7
33. Ocean View Community*	19.3	N/A	2.7	0.0	46.9
34. Volcano Golf Course Community**	0.0	N/A	0.0	0.0	16.4
35. Kaʻū Forest Reserve**	6.2	N/A	0.0	0.0	29.9
36. ʻŌlaʻa Kīlauea Forest Partnership*	0.0	N/A	0.0	0.0	11.8
37. Jaggar/HVO	0.4	35.8	0.0	0.0	21.5
38. Nāhuku (Thurston Lava Tube)	0.0	20.8	0.0	0.0	16.8
39. Halapē Wilderness Camp	30.0	60.6	7.2	1.2	60.7
40. Keauhou Camp	29.3	88.6	7.7	0.8	58.7
41. Great Crack Coastal Fishing Camp	32.7	48.0	7.2	2.0	63.2
42. Petrel Breeding Area	0.0	0.0	0.0	0.0	7.5
43. Endangered Forest Bird Habitat 1	1.5	28.5	0.0	0.0	24.9
44. Endangered Forest Bird / ʻAlalā	0.0	N/A	0.0	0.0	13.6

Location	12-Hour Equivalent Sound Level (dBA)†	Time Audible for Natural Ambient (minutes)	Time Above 35 dBA (minutes)	Time Above 52 dBA (minutes)	Maximum Sound Level dBA
Release Site*					
45. Keauhou Bird Conservation Center*	0.0	N/A	0.0	0.0	16.6
46. Mauna Loa Wilderness Camp	0.0	0.0	0.0	0.0	3.0

† As there are no nighttime events, DNL would be 3 dB less than the 12-hour equivalent sound level. If air tours are restricted to operating between 9:00 AM and 5:00 PM (i.e., 8 hours), then the 8-hour equivalent sound level would be 1.8 dBA greater than the 12-hour equivalent sound level.

* Location point is outside the ATMP planning area.

Alternative 3 Quiet Technology-only Day

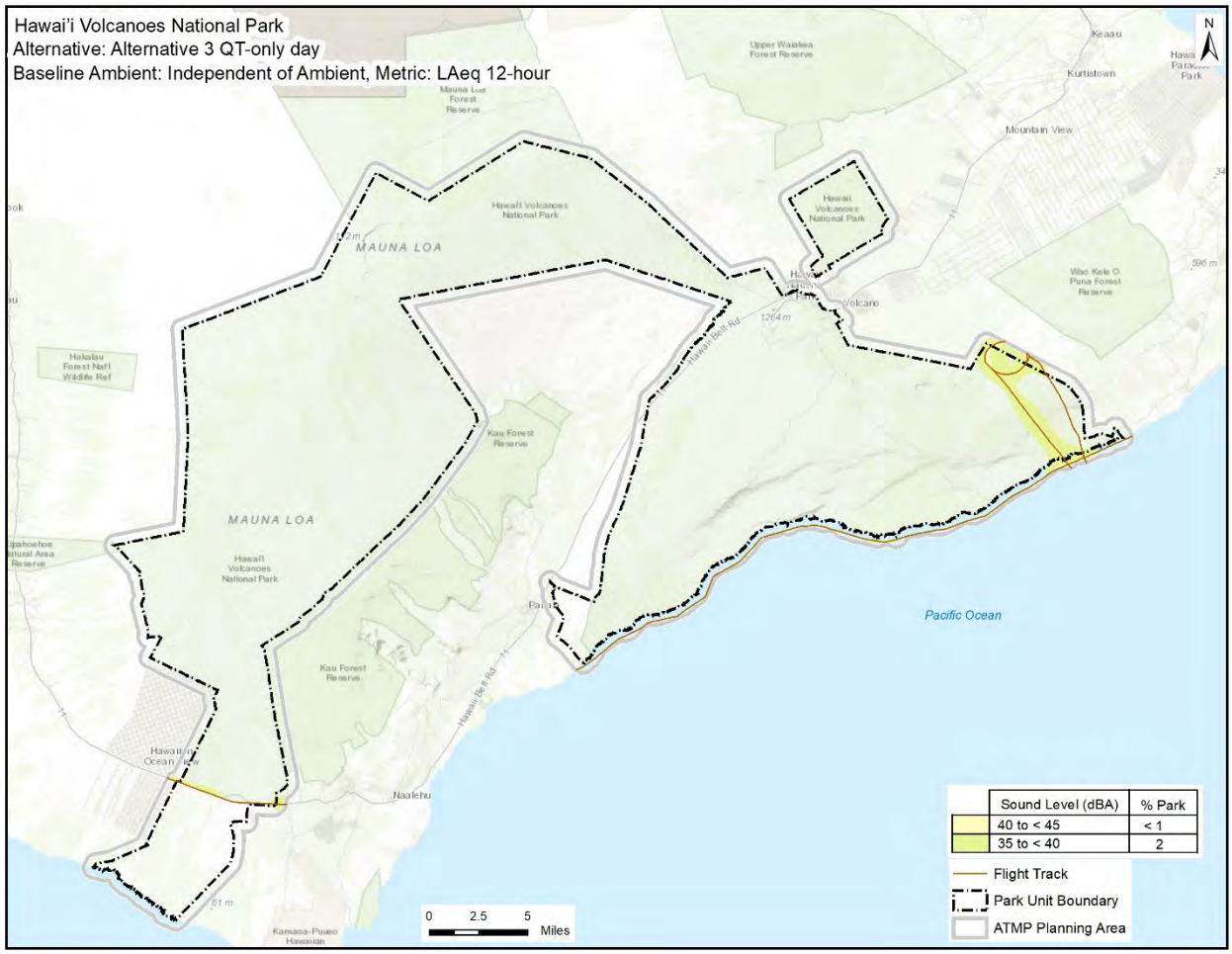

Figure 14. 12-hour equivalent sound level ($L_{Aeq,12h}$) map for Alternative 3 Quiet Technology-only Day

As there are no nighttime events, then DNL would be 3 dB less than the 12-hour equivalent sound level. If air tours are restricted to operating between 9:00 AM and 5:00 PM (i.e., 8 hours), then the 8-hour equivalent sound level would be 1.8 dBA greater than the 12-hour equivalent sound level.

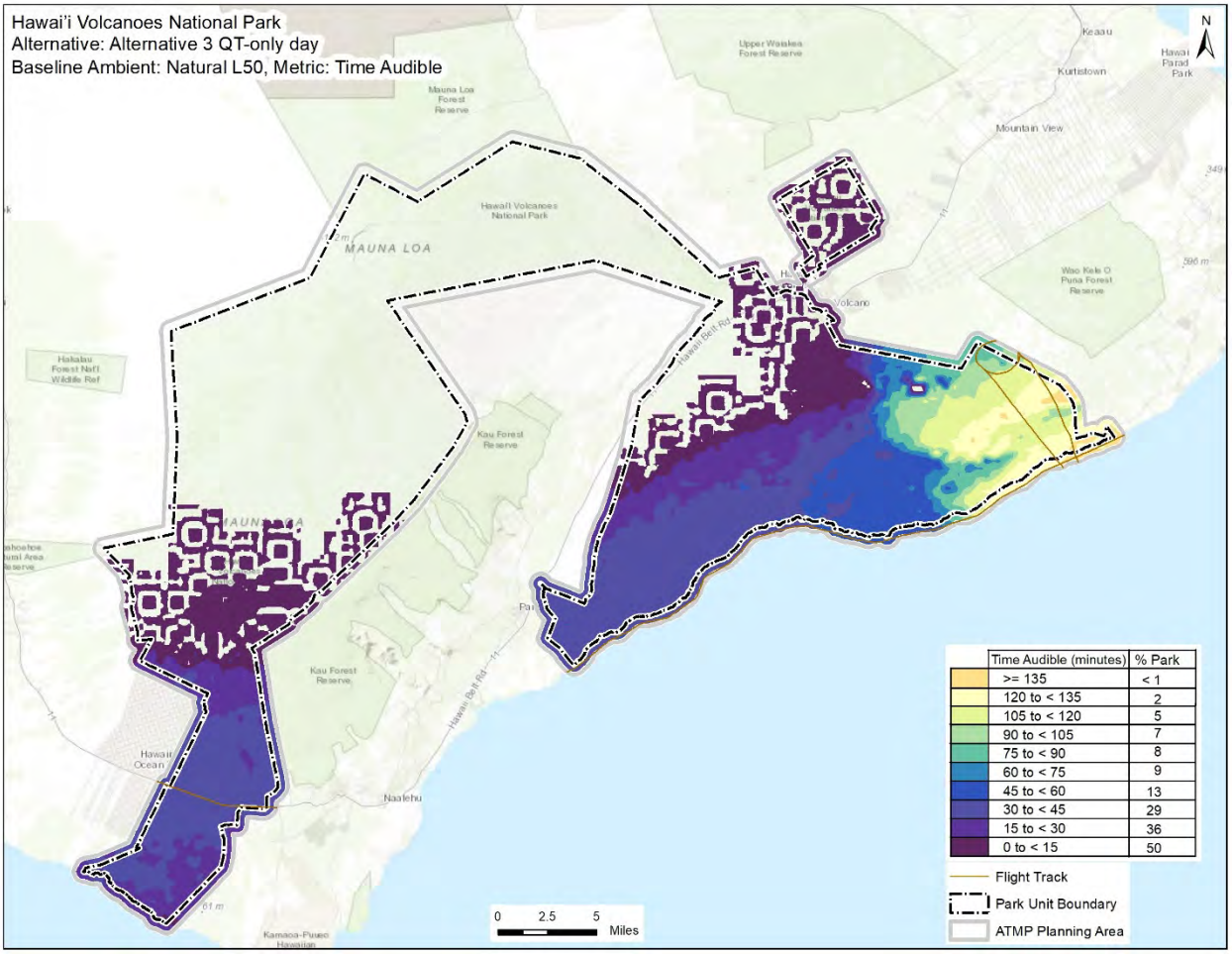

Figure 15. Time Audible (for natural ambient) map for Alternative 3 Quiet Technology-only Day

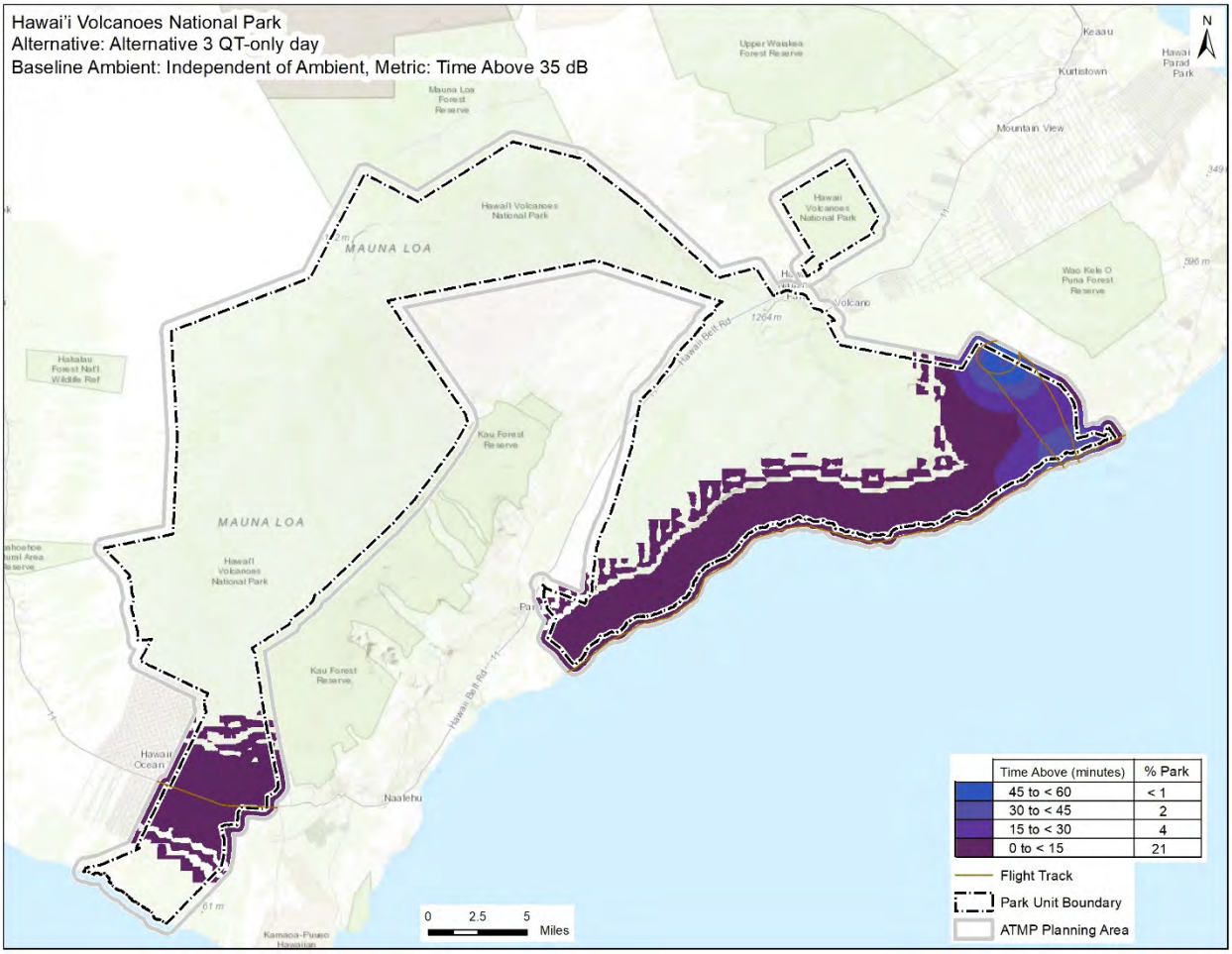

Figure 16. Time Above 35 dBA map for Alternative 3 Quiet Technology-only Day

Table 9. Location point results for Alternative 3 Quiet Technology-only Day

Location	12-Hour Equivalent Sound Level (dBA)[†]	Time Audible for Natural Ambient (minutes)	Time Above 35 dBA (minutes)	Time Above 52 dBA (minutes)	Maximum Sound Level dBA
1. Red Hill	0.0	0.0	0.0	0.0	0.4
2. Vicinity of Halfway House	0.0	0.0	0.0	0.0	3.6
3. Kīpukapuaulu	0.0	0.0	0.0	0.0	7.8
4. Park HQ Developed Area	0.0	0.0	0.0	0.0	11.1
5. Cone Peak, Nēnē Area	0.0	0.0	0.0	0.0	8.2
6. Halemaʻumaʻu Crater	0.0	0.0	0.0	0.0	10.2
7. Puhimau Hot Spot	0.0	0.0	0.0	0.0	0.3
8. Puʻuhuluhulu View Pt.	0.0	0.0	0.0	0.0	6.1
9. Puʻuʻōʻō	40.2	80.6	41.6	9.7	61.5
10. Nāpau Wilderness Camp	21.9	81.0	4.0	0.0	37.4
11. Kulanaokuaiki Camp	0.0	7.3	0.0	0.0	11.2
12. ʻĀinahou Ranch	6.9	51.5	0.0	0.0	21.1
13. Kīpuka Kahāliʻi	5.7	45.2	0.0	0.0	19.4
14. Kaʻaha Wilderness Camp	31.0	39.9	10.4	1.6	57.0
15. Top of Strip Road	0.0	0.0	0.0	0.0	2.9
16. ʻŌlaʻa Transect 19	0.0	0.0	0.0	0.0	11.1
17. ʻĀpua Pt. Camp	32.9	53.0	11.1	2.5	58.3
18. End of Road / Visitor Use	32.5	128.6	27.0	1.4	55.4
19. Kīpuka Pepeiao Wilderness Camp	8.0	35.6	0.0	0.0	24.9
20. Puʻuloa Petroglyphs	24.1	109.1	9.7	0.0	45.1
21. Nēnē Cabin Kahuku	0.0	0.0	0.0	0.0	8.6
22. Northwest Kahuku	0.0	0.0	0.0	0.0	0.0
23. Puʻu Ohohia	0.0	0.0	0.0	0.0	12.6
24. Frontcountry Kahuku	29.9	37.7	13.0	0.0	52.0
25. Upper Reservoir Kahuku	0.0	5.5	0.0	0.0	19.6
26. Southwest Rift Kahuku	0.0	0.0	0.0	0.0	9.1
27. ʻŌlaʻa Tract	0.0	0.0	0.0	0.0	4.6
28. Volcano Village*	2.7	3.9	0.0	0.0	14.2
29. Fern Forest*	8.6	N/A	0.0	0.0	22.1
30. Kalapana*	0.0	N/A	0.0	0.0	6.8
31. Discovery Harbor, Nāʻālehu*	24.3	N/A	8.0	0.0	46.7
32. Pahala*	7.8	N/A	0.0	0.0	23.0
33. Ocean View Community*	16.1	N/A	0.9	0.0	35.8
34. Volcano Golf Course Community*	0.0	N/A	0.0	0.0	9.2
35. Kaʻū Forest Reserve*	0.0	N/A	0.0	0.0	17.1
36. ʻŌlaʻa Kīlauea Forest Partnership*	0.0	N/A	0.0	0.0	3.5
37. Jaggar/HVO	1.6	5.4	0.0	0.0	14.4
38. Nāhuku (Thurston Lava Tube)	0.0	0.0	0.0	0.0	10.0
39. Halapē Wilderness Camp	29.9	36.5	10.0	1.2	55.2
40. Keauhou Camp	28.7	51.5	10.3	0.4	52.8
41. Great Crack Coastal Fishing Camp	32.3	35.2	10.1	2.3	57.8
42. Petrel Breeding Area	0.0	0.0	0.0	0.0	0.0
43. Endangered Forest Bird Habitat 1	0.0	0.0	0.0	0.0	11.1

Location	12-Hour Equivalent Sound Level (dBA)†	Time Audible for Natural Ambient (minutes)	Time Above 35 dBA (minutes)	Time Above 52 dBA (minutes)	Maximum Sound Level dBA
44. Endangered Forest Bird / ʻAlalā Release Site*	0.0	N/A	0.0	0.0	5.5
45. Keauhou Bird Conservation Center*	0.0	N/A	0.0	0.0	9.5
46. Mauna Loa Wilderness Camp	0.0	0.0	0.0	0.0	0.0

† As there are no nighttime events, DNL would be 3 dB less than the 12-hour equivalent sound level. If air tours are restricted to operating between 9:00 AM and 5:00 PM (i.e., 8 hours), then the 8-hour equivalent sound level would be 1.8 dBA greater than the 12-hour equivalent sound level.

* Location point is outside the ATMP planning area

7. Comparison of Alternatives by Metric

This section provides tables showing the detailed noise results, organized by metric for each of the five acoustic metrics modeled. These tables allow for comparison across the alternatives. High-level observations of the differences between alternatives by metric include:

- 12-hour Equivalent Sound Level (Table 10 and Table 13):
    - Compared to the No Action Alternative, the average sound levels under Alternative 3 would be lower for the regions of the Park near Halemaʻumaʻu Crater and the Kīlauea Visitor Center (see points 3, 4, 5, 11, and 15) but may be higher in coastal regions (see results for points 24, 31, 33, 39, 40, 41).
    - The noise footprint for Alternative 3 potentially affects 10% less of the park on standard days, and 11% less on quiet technology-only days.
- Time Audible Natural Ambient (Table 11 and Table 14):
    - Compared to the No Action Alternative, the overall time audible noise footprint for Alternative 3 potentially would be 2% larger than the No Action Alternative due to higher aircraft altitudes under Alternative 3. For the quiet technology-only day the overall time audible noise footprint potentially is 32% smaller than the No Action Alternative. The approximately 25% of the Park where time audible exceeds 150 minutes would no longer exceed this threshold on both standard and quiet technology-only days.
    - The largest reductions would be at point 9 (Puʻuʻōʻō, 301 minutes) and point 15 (Top of Strip Road, 247 minutes).
    - However, increases in time audible would occur at 14 locations (14, 17, 18, 19, 20, 21, 23, 24, 25, 26, 39, 40, 41, and 43).
- Time Above 35 (Table 12 and Table 15):
    - Compared to the No Action Alternative, the time above 35 dBA under Alternative 3 would be up to 70 minutes less (see point 9, Puʻuʻōʻō).
    - However, time above 35 dBA would be greater under Alternative 3 at ten locations (up to 11 minutes).
    - The noise footprint for Alternative 3 (standard day) potentially affects 31% less of the ATMP planning area and 39% less for Alternative 3 quiet technology-only day.
- Time Above 52 (Table 16):
    - Compared to the No Action Alternative, the time above 52 dBA under Alternative 3 would be up to 19 minutes less (see point 5 Cone Peak, Nēnē Area).
    - Time above 52 dBA would be only slightly greater (up to 2.2 minutes) under Alternative 3 at 7 locations (points 14, 17, 18, 24, 39, 40 and 41).
- Maximum Sound Level (Table 17):
    - Compared to the No Action Alternative, the maximum sound levels under Alternative 3 would be significantly lower (more than 20 dBA) in 27 locations in areas surrounding near Halemaʻumaʻu Crater and the Kīlauea Visitor Center.
    - Standard day maximum sound levels may be greater at points such as 33 (Ocean View Community; 10 dBA greater), 39 (Halapē Wilderness Camp; 8 dBA greater), and 31

(Discovery Harbor, Nāʻālehu; 6 dBA greater), as well as 17, 24, and 40 (all 5 dBA greater). These increases, however, would be potentially mitigated under quiet technology-only days as the maximum sound levels would be 5-10 dB lower than on standard days.

Table 10. Comparison of contour results for 12-hour Equivalent Sound Level

12-hour Equivalent Sound Level Contour Results		% Park for No Action	% Park for Alternative 3 Standard Day	% Park for Alternative 3 Quiet Technology-only Day
	50 to < 55	<1	0	0
	45 to < 50	3	0	0
	40 to < 45	7	<1	<1
	35 to < 40	13	3	2

Table 11. Comparison of contour results for Time Audible for Natural Ambient

Time Audible for Natural Ambient Contour Results		% Park for No Action	% Park for Alternative 3 Standard Day	% Park for Alternative 3 Quiet Technology-only Day
	360 to 480	<1	0	0
	345 to < 360	1	0	0
	330 to < 345	1	0	0
	315 to < 330	2	0	0
	300 to < 315	3	0	0
	285 to < 300	4	0	0
	270 to <285	4	0	0
	255 to < 270	6	0	0
	240 to < 255	8	0	0
	225 to < 240	10	0	0
	210 to < 225	14	0	0
	195 to < 210	16	0	0
	180 to < 195	19	0	0
	165 to < 180	22	0	0
	150 to < 165	25	0	0
	135 to < 150	27	2	<1
	120 to < 135	27	6	2
	105 to < 120	28	8	5
	90 to < 105	30	10	7
	75 to < 90	33	14	8
	60 to < 75	36	18	9
	45 to < 60	40	28	13
	30 to < 45	45	38	29
	15 to < 30	48	49	36
	0 to < 15	82	84	50

Table 12. Comparison of contour results for Time Above 35 dBA

Time Above 35 dBA Contour Results	% Park for No Action	% Park for Alternative 3 Standard Day	% Park for Alternative 3 Quiet Technology-only Day
>=120	<1	0	0
105 to < 120	<1	0	0
90 to < 105	<1	0	0
75 < 90	1	0	0
60 to < 75	4	0	0
45 to < 60	10	0	<1
30 to < 45	15	1	2
15 to < 30	20	4	4
0 to < 15	60	29	21

Table 13. Comparison of location point results for 12-hour Equivalent Sound Level (dB(A))

Location	No Action	Alternative 3, Standard Day	Alternative 3, Quiet Technology-only Day
1. Red Hill	10.3	0.0	0.0
2. Vicinity of Halfway House	19.9	0.0	0.0
3. Kīpukapuaulu	42.3	0.0	0.0
4. Park HQ Developed Area	23.5	0.0	0.0
5. Cone Peak, Nēnē Area	46.8	0.0	0.0
6. Halemaʻumaʻu Crater	32.2	0.0	0.0
7. Puhimau Hot Spot	15.1	0.0	0.0
8. Puʻuhuluhulu View Pt.	27.7	0.0	0.0
9. Puʻuʻōʻō	43.0	38.1	40.2
10. Nāpau Wilderness Camp	38.4	20.3	21.9
11. Kulanaokuaiki Camp	31.9	0.0	0.0
12. ʻĀinahou Ranch	33.4	7.5	6.9
13. Kīpuka Kahāliʻi	29.0	7.5	5.7
14. Kaʻaha Wilderness Camp	33.9	30.7	31.0
15. Top of Strip Road	42.1	0.0	0.0
16. ʻŌlaʻa Transect 19	17.3	0.0	0.0
17. ʻĀpua Pt. Camp	24.4	33.2	32.9
18. End of Road / Visitor Use	31.5	32.5	32.5
19. Kīpuka Pepeiao Wilderness Camp	28.6	8.7	8.0
20. Puʻuloa Petroglyphs	29.0	25.1	24.1
21. Nēnē Cabin Kahuku	10.8	0.0	0.0
22. Northwest Kahuku	0.0	0.0	0.0
23. Puʻu Ohohia	0.0	0.0	0.0
24. Frontcountry Kahuku	16.8	30.1	29.9
25. Upper Reservoir Kahuku	3.6	2.9	0.0
26. Southwest Rift Kahuku	10.9	0.0	0.0
27. ʻŌlaʻa Tract	17.4	0.0	0.0
28. Volcano Village*	16.9	1.2	2.7
29. Fern Forest*	29.4	7.3	8.6
30. Kalapana*	8.4	0.0	0.0
31. Discovery Harbor, Nāʻālehu*	13.4	24.4	24.3
32. Pahala*	28.5	9.9	7.8
33. Ocean View Community*	4.0	19.3	16.1
34. Volcano Golf Course Community*	24.0	0.0	0.0
35. Kaʻū Forest Reserve*	19.9	6.2	0.0
36. ʻŌlaʻa Kīlauea Forest Partnership	31.5	0.0	0.0
37. Jaggar/HVO	28.2	0.4	1.6
38. Nāhuku (Thurston Lava Tube)	24.6	0.0	0.0
39. Halapē Wilderness Camp	20.4	30.0	29.9
40. Keauhou Camp	21.7	29.3	28.7
41. Great Crack Coastal Fishing Camp	29.0	32.7	32.3
42. Petrel Breeding Area	10.8	0.0	0.0
43. Endangered Forest Bird Habitat 1	4.5	1.5	0.0
44. Endangered Forest Bird / ʻAlalā Release Site*	26.0	0.0	0.0
45. Keauhou Bird Conservation Center*	24.3	0.0	0.0
46. Mauna Loa Wilderness Camp	0.0	0.0	0.0

* Location point is outside the ATMP planning area.

Table 14. Comparison of location point results for Time Audible for Natural Ambient (minutes)

Location	No Action	Alternative 3, Standard Day	Alternative 3, Quiet Technology-only Day
1. Red Hill	30.6	0.0	0.0
2. Vicinity of Halfway House	164.3	12.1	0.0
3. Kīpukapuaulu	150.0	11.1	0.0
4. Park HQ Developed Area	88.1	15.1	0.0
5. Cone Peak, Nēnē Area	218.9	13.8	0.0
6. Halemaʻumaʻu Crater	163.0	11.5	0.0
7. Puhimau Hot Spot	75.4	0.0	0.0
8. Puʻuhuluhulu View Pt.	73.1	0.0	0.0
9. Puʻuʻōʻō	402.9	101.5	80.6
10. Nāpau Wilderness Camp	269.2	92.2	81.0
11. Kulanaokuaiki Camp	223.6	33.5	7.3
12. ʻĀinahou Ranch	280.9	93.8	51.5
13. Kīpuka Kahāliʻi	259.6	87.6	45.2
14. Kaʻaha Wilderness Camp	2.1	62.2	39.9
15. Top of Strip Road	247.3	0.0	0.0
16. ʻŌlaʻa Transect 19	192.7	15.6	0.0
17. ʻĀpua Pt. Camp	1.1	94.2	53.0
18. End of Road / Visitor Use	9.4	140.6	128.6
19. Kīpuka Pepeiao Wilderness Camp	34.1	51.5	35.6
20. Puʻuloa Petroglyphs	57.5	130.9	109.1
21. Nēnē Cabin Kahuku	5.6	17.6	0.0
22. Northwest Kahuku	0.0	0.0	0.0
23. Puʻu Ohohia	0.0	15.0	0.0
24. Frontcountry Kahuku	10.2	46.6	37.7
25. Upper Reservoir Kahuku	8.5	25.9	5.5
26. Southwest Rift Kahuku	5.3	8.2	0.0
27. ʻŌlaʻa Tract	101.4	2.3	0.0
28. Volcano Village*	N/A	N/A	N/A
29. Fern Forest*	N/A	N/A	N/A
30. Kalapana*	N/A	N/A	N/A
31. Discovery Harbor, Nāʻālehu*	N/A	N/A	N/A
32. Pahala*	N/A	N/A	N/A
33. Ocean View Community*	N/A	N/A	N/A
34. Volcano Golf Course Community*	N/A	N/A	N/A
35. Kaʻū Forest Reserve*	N/A	N/A	N/A
36. ʻŌlaʻa Kīlauea Forest Partnership*	N/A	N/A	N/A
37. Jaggar/HVO	242.3	35.8	5.4
38. Nāhuku (Thurston Lava Tube)	59.1	20.8	0.0
39. Halapē Wilderness Camp	0.0	60.6	36.5
40. Keauhou Camp	0.0	88.6	51.5
41. Great Crack Coastal Fishing Camp	0.8	48.0	35.2
42. Petrel Breeding Area	43.6	0.0	0.0
43. Endangered Forest Bird Habitat 1	9.8	28.5	0.0
44. Endangered Forest Bird / ʻAlalā Release Site*	N/A	N/A	N/A
45. Keauhou Bird Conservation Center*	N/A	N/A	N/A
46. Mauna Loa Wilderness Camp	0.0	0.0	0.0

* Location point is outside the ATMP planning area.

Table 15. Comparison of location point results for Time Above 35 dBA (minutes)

Location	No Action	Alternative 3, Standard Day	Alternative 3, Quiet Technology-only Day
1. Red Hill	0.0	0.0	0.0
2. Vicinity of Halfway House	0.8	0.0	0.0
3. Kīpukapuaulu	21.0	0.0	0.0
4. Park HQ Developed Area	4.5	0.0	0.0
5. Cone Peak, Nēnē Area	58.0	0.0	0.0
6. Halemaʻumaʻu Crater	51.8	0.0	0.0
7. Puhimau Hot Spot	0.1	0.0	0.0
8. Puʻuhuluhulu View Pt.	9.7	0.0	0.0
9. Puʻuʻōʻō	98.2	27.3	41.6
10. Nāpau Wilderness Camp	43.0	3.4	4.0
11. Kulanaokuaiki Camp	46.3	0.0	0.0
12. ʻĀinahou Ranch	47.5	0.0	0.0
13. Kīpuka Kahāliʻi	18.7	0.0	0.0
14. Kaʻaha Wilderness Camp	3.5	7.3	10.4
15. Top of Strip Road	34.2	0.0	0.0
16. ʻŌlaʻa Transect 19	0.5	0.0	0.0
17. ʻĀpua Pt. Camp	1.8	8.0	11.1
18. End of Road / Visitor Use	12.6	23.9	27.0
19. Kīpuka Pepeiao Wilderness Camp	4.9	0.0	0.0
20. Puʻuloa Petroglyphs	4.6	8.8	9.7
21. Nēnē Cabin Kahuku	0.5	0.0	0.0
22. Northwest Kahuku	0.0	0.0	0.0
23. Puʻu Ohohia	0.0	0.0	0.0
24. Frontcountry Kahuku	1.8	10.9	13.0
25. Upper Reservoir Kahuku	0.0	0.0	0.0
26. Southwest Rift Kahuku	0.7	0.0	0.0
27. ʻŌlaʻa Tract	2.7	0.0	0.0
28. Volcano Village*	0.8	0.0	0.0
29. Fern Forest*	13.6	0.0	0.0
30. Kalapana*	0.0	0.0	0.0
31. Discovery Harbor, Nāʻālehu*	1.3	7.2	8.0
32. Pahala*	3.0	0.0	0.0
33. Ocean View Community*	0.1	2.7	0.9
34. Volcano Golf Course Community*	7.7	0.0	0.0
35. Kaʻū Forest Reserve*	2.5	0.0	0.0
36. ʻŌlaʻa Kīlauea Forest Partnership*	8.3	0.0	0.0
37. Nāhuku (Thurston Lava Tube)	26.6	0.0	0.0
38. Jaggar/HVO	3.9	0.0	0.0
39. Halapē Wilderness Camp	1.8	7.2	10.0
40. Keauhou Camp	2.2	7.7	10.3
41. Great Crack Coastal Fishing Camp	2.9	7.2	10.1
42. Petrel Breeding Area	0.0	0.0	0.0
43. Endangered Forest Bird Habitat 1	0.0	0.0	0.0
44. Endangered Forest Bird / ʻAlalā Release Site*	12.1	0.0	0.0
45. Keauhou Bird Conservation Center*	8.4	0.0	0.0
46. Mauna Loa Wilderness Camp	0.0	0.0	0.0

* Location point is outside the ATMP planning area.

Table 16. Comparison of location point results for Time Above 52 dBA (minutes)

Location	No Action	Alternative 3, Standard Day	Alternative 3, Quiet Technology-only Day
1. Red Hill	0.0	0.0	0.0
2. Vicinity of Halfway House	0.0	0.0	0.0
3. Kīpukapuaulu	6.9	0.0	0.0
4. Park HQ Developed Area	<0.1	0.0	0.0
5. Cone Peak, Nēnē Area	18.9	0.0	0.0
6. Halemaʻumaʻu Crater	0.2	0.0	0.0
7. Puhimau Hot Spot	0.0	0.0	0.0
8. Puʻuhuluhulu View Pt.	0.5	0.0	0.0
9. Puʻuʻōʻō	17.0	5.8	9.7
10. Nāpau Wilderness Camp	6.8	0.0	0.0
11. Kulanaokuaiki Camp	0.7	0.0	0.0
12. ʻĀinahou Ranch	0.5	0.0	0.0
13. Kīpuka Kahāliʻi	0.3	0.0	0.0
14. Kaʻaha Wilderness Camp	1.1	1.4	1.6
15. Top of Strip Road	12.9	0.0	0.0
16. ʻŌlaʻa Transect 19	0.0	0.0	0.0
17. ʻĀpua Pt. Camp	0.3	2.1	2.5
18. End of Road / Visitor Use	0.8	1.5	1.4
19. Kīpuka Pepeiao Wilderness Camp	0.7	0.0	0.0
20. Puʻuloa Petroglyphs	0.9	0.0	0.0
21. Nēnē Cabin Kahuku	0.0	0.0	0.0
22. Northwest Kahuku	0.0	0.0	0.0
23. Puʻu Ohohia	0.0	0.0	0.0
24. Frontcountry Kahuku	<0.1	0.7	0.0
25. Upper Reservoir Kahuku	0.0	0.0	0.0
26. Southwest Rift Kahuku	0.0	0.0	0.0
27. ʻŌlaʻa Tract	0.0	0.0	0.0
28. Volcano Village*	0.0	0.0	0.0
29. Fern Forest*	0.5	0.0	0.0
30. Kalapana*	0.0	0.0	0.0
31. Discovery Harbor, Nāʻālehu*	0.0	0.0	0.0
32. Pahala*	0.8	0.0	0.0
33. Ocean View Community*	0.0	0.0	0.0
34. Volcano Golf Course Community*	0.2	0.0	0.0
35. Kaʻū Forest Reserve*	0.0	0.0	0.0
36. ʻŌlaʻa Kīlauea Forest Partnership*	1.5	0.0	0.0
37. Jaggar/HVO	0.2	0.0	0.0
38. Nāhuku (Thurston Lava Tube)	<0.1	0.0	0.0
39. Halapē Wilderness Camp	0.1	1.2	1.2
40. Keauhou Camp	0.2	0.8	0.4
41. Great Crack Coastal Fishing Camp	0.9	2.0	2.3
42. Petrel Breeding Area	0.0	0.0	0.0
43. Endangered Forest Bird Habitat 1	0.0	0.0	0.0
44. Endangered Forest Bird / ʻAlalā Release Site*	0.0	0.0	0.0
45. Keauhou Bird Conservation Center*	0.2	0.0	0.0
46. Mauna Loa Wilderness Camp	0.0	0.0	0.0

* Location point is outside the ATMP planning area.

Table 17. Comparison of location point results for Maximum Sound Level (dB(A))

Location	No Action	Alternative 3, Standard Day	Alternative 3, Quiet Technology-only Day
1. Red Hill	32.3	9.5	0.4
2. Vicinity of Halfway House	38.7	16.6	3.6
3. Kīpukapuaulu	70.4	15.3	7.8
4. Park HQ Developed Area	62.1	17.6	11.1
5. Cone Peak, Nēnē Area	72.0	16.8	8.2
6. Halemaʻumaʻu Crater	54.1	17.1	10.2
7. Puhimau Hot Spot	50.2	6.5	0.3
8. Puʻuhuluhulu View Pt.	57.5	11.5	6.1
9. Puʻuʻōʻō	67.2	61.5	61.5
10. Nāpau Wilderness Camp	62.1	38.7	37.4
11. Kulanaokuaiki Camp	58.6	23.3	11.2
12. ʻĀinahou Ranch	55.3	27.8	21.1
13. Kīpuka Kahāliʻi	54.3	28.2	19.4
14. Kaʻaha Wilderness Camp	66.7	62.3	57.0
15. Top of Strip Road	64.5	11.4	2.9
16. ʻŌlaʻa Transect 19	43.7	18.0	11.1
17. ʻĀpua Pt. Camp	58.5	63.7	58.3
18. End of Road / Visitor Use	64.7	60.9	55.4
19. Kīpuka Pepeiao Wilderness Camp	58.8	34.1	24.9
20. Puʻuloa Petroglyphs	59.2	51.2	45.1
21. Nēnē Cabin Kahuku	36.7	20.2	8.6
22. Northwest Kahuku	4.5	0.0	0.0
23. Puʻu Ohohia	21.9	21.2	12.6
24. Frontcountry Kahuku	52.2	56.9	52.0
25. Upper Reservoir Kahuku	33.2	26.5	19.6
26. Southwest Rift Kahuku	38.6	17.7	9.1
27. ʻŌlaʻa Tract	41.4	14.3	4.6
28. Volcano Village*	43.6	20.5	14.2
29. Fern Forest*	55.1	28.2	22.1
30. Kalapana*	24.6	19.7	6.8
31. Discovery Harbor, Nāʻālehu*	46.3	52.3	46.7
32. Pahala*	59.7	33.7	23.0
33. Ocean View Community*	36.8	46.9	35.8
34. Volcano Golf Course Community*	55.4	16.4	9.2
35. Kaʻū Forest Reserve*	49.3	29.9	17.1
36. ʻŌlaʻa Kīlauea Forest Partnership*	59.6	11.8	3.5
37. Jaggar/HVO	66.4	21.5	14.4
38. Nāhuku (Thurston Lava Tube)	68.8	16.8	10.0
39. Halapē Wilderness Camp	53.0	60.7	55.2
40. Keauhou Camp	54.1	58.7	52.8
41. Great Crack Coastal Fishing Camp	60.7	63.2	57.8
42. Petrel Breeding Area	28.4	7.5	0.0
43. Endangered Forest Bird Habitat 1	26.0	24.9	11.1
44. Endangered Forest Bird / ʻAlalā Release Site*	47.6	13.6	5.5
45. Keauhou Bird Conservation Center*	54.5	16.6	9.5
46. Mauna Loa Wilderness Camp	10.5	3.0	0.0

* Location point is outside the ATMP planning area.

8. Indirect Effects of Potential Displacement of Air Tours outside of the ATMP Planning Area

For alternatives that limit the number of flights per year to a level below existing conditions (11,376 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 displaced air tours would occur.

Indirect effects to ATMP planning area

Displaced air tours above the ATMP planning area (above 5,000 ft. above ground level (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 of 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.

Indirect effects outside the ATMP planning area

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, a conservative, screening-level noise analysis was conducted. The analysis considers the air tour aircraft types currently operating at the Park, and assesses the activity threshold that would generate noise at or above DNL 65 dB. For the purposes of this illustration only, the analysis assumes a hypothetical, worst-case scenario where all operations occur at a low altitude (500 ft. AGL for helicopters and 1,000 ft. AGL for fixed-wing aircraft) on a common route outside the ATMP planning area. The noise analysis considers aircraft activity in two ways:

- For the aircraft type with the loudest noise level, what is the activity level that would generate a noise level at or above DNL 65 dB?
- For the aircraft types and fleet mix distribution within the 2017-2019 PMAD, what is the activity level that would generate a noise level at or above DNL 65 dB?

Analysis for aircraft with loudest noise level

The aircraft with the loudest noise level[11] currently operating at the park is the Bell 407. For overflight operations at 500 ft. AGL, the number of operations over a 12-hour period to exceed a DNL 65 dB level is 494 (see Table 18). Other aircraft operating at the Park are the Aerospatiale SA350D, Eurocopter EC-130 and the Cessna 208. The number of operations over a 12-hour period to exceed a DNL 65 dB level for these aircraft are 1,654, 11,534, and 3,855 respectively.

Table 18. Overflight sound exposure levels and number of daily fights of each aircraft type that would generate a noise exposure level at or above DNL 65 dB

Aircraft	Altitude, AGL (ft)	Overflight Sound Exposure Level (dB)	# daily flights for DNL to exceed 65
B407	500	87.4	494
SA350D	500	82.2	1,654
EC130	500	73.7	11,534
Cessna 208	1000	78.5	3,855

Analysis for the aircraft types and fleet mix distribution within the 2017-2019 reporting data

This analysis compares the number of PMAD operations and peak day operations, since they could occur outside the ATMP planning area as a result of Alternatives 2 and 3, to the number of daily flights it would take to exceed DNL 65 dB. Based on the fleet mix assessed for the PMAD, it would take at least 2,478 operations at low altitude over a 12-hour period to exceed a DNL 65 dB level (see Table 19). This activity level represents an increase in daily operations of 2,429 compared to the PMAD (49 operations) and an increase of 2,388 compared to the peak day (90 operations). This, coupled with the likely dispersal of air tours outside the boundary for the reasons discussed previously, indicates that it would be highly unlikely that air tours that are displaced to outside the boundary under these Alternatives would generate noise at or above DNL 65 dB.

Table 19. Number of daily fights of each aircraft type that would generate a noise exposure level at or above DNL 65 dB for the aircraft types and fleet mix distribution within the 2017-2019 PMAD

Aircraft	Altitude, AGL (ft)	Overflight Sound Exposure Level (dB)	# daily flights in 2017-2019 PMAD	2017-2019 PMAD Fleet Distribution %	# daily flights for DNL to exceed 65
B407	500	87.4	5	10.2%	253
SA350D	500	82.2	11	22.5%	557
EC130	500	73.7	32	65.3%	1,617
Cessna 208	1000	78.5	1	2.0%	51
	Total		**49**	**100%**	**2,478**

[11] The determination of loudest is based on the aircraft with the highest overflight sound exposure level at 500 ft. within the noise-power-distance data that form the basis of FAA's AEDT. Sound exposure level describes the cumulative noise exposure from a single overflight. It is represented by the total A-weighted sound energy during the overflight, normalized to a 1-second interval.

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Appendix G: Cultural Resources Consultation and Summary

Historic Property List

Section 106 Consultation Correspondence

List of Historic Properties in the APE and Description of Historic Characteristics

Property Name	Property Type	Eligibility Status	Significant Characteristics
1790 Footprints	District, Site	Listed	The 1790 Footprints are scattered sets of footprints of men, women, and children and hoofprints of hogs in hardened, cement-like ash that may have been laid down during the 1790 phreatic explosions of the Kīlauea volcano. The footprints are significant for their potential association with the warriors of Keoua Kuahuʻula, a high Hawaiian chief, who passed through the Kaʻu Desert during the 1790 eruption of Kīlauea. They are also significant for their potential to yield information for this historic period. Significant characteristics for the site include its location, cement-like ash, and the size, spacing, and configuration of the footprints.
ʻĀinahou Ranch House and Gardens (Cultural Landscape)	Cultural Landscape	Listed	The ʻĀinahou Ranch House and Gardens is significant for its association with Herbert C. Shipman, a Big Island rancher, horticulturist, philanthropist, and conservationist. It is also significant as an example of a Craftsman/Bungalow style of architecture in Hawaiʻi. The period of significance extends from 1941, when Shipman constructed the house as a safe haven from possible Japanese invasion during World War II, to 1971. Although the plant species on the property are more limited than during the period of significance, the landscape still retains several plant varieties, and the landscape design and association with agriculture contributes to the property's significance. Other significant characteristics include the property's Craftsman bungalow style, intact materials, and Japanese-influenced design.
ʻĀinapō Trail	Structure	Listed	The ʻĀinapō Trail was a 34-mile-long trail that served as the customary route to the summit of Mauna Loa from the prehistoric period until 1916. The trail was engineered to ensure availability of shelter, drinking water, and firewood between the nearest permanent settlement and the summit crater; it was often used during summit eruptions to honor Pele, the goddess of volcanoes, with chants and offerings. The U.S. Army constructed a new trail to the summit for volcanologists headquartered at Kīlauea in 1916, which led to diminished usage of the ʻĀinapō Trail. The trail is significant for its prehistoric and historic use as the main route to the summit, for its engineering, and for its potential to yield information. The trail's alignment, association with the summit of Mauna Loa, and secluded, natural setting are all significant characteristics.
Ala Waiʻi Parcel	TBD	Unevaluated[1]	The Ala Waiʻi Parcel has not been formally evaluated, but it contains known significant archeological resources (PuʻuUlaʻula) within the parcel as well as traditional fishing areas. Potential significant characteristics of the sites include extant material culture remains,

[1] For the purposes of Section 106, the FAA is treating identified but unevaluated properties as eligible for the National Register of Historic Places.

Property Name	Property Type	Eligibility Status	Significant Characteristics
			natural sounds, quiet setting for traditional practices, an association with the ocean and surrounding landscape.
Boles Field (Kīlauea Airfield Study Areas)	Site	Eligible	Boles Field was named after the Park's first superintendent, Thomas R. Boles, and was constructed on the bluff between Uwēkahuna and the Kīlauea Military Camp in 1925. Boles Field was constructed after the previous landing field, built in 1923, was destroyed by the eruption of Halemaʻumaʻu. Soon after construction, Boles Field was found to be dangerously short, but it was used over the next 15 years. It was also used as a location for military trucks and heavy equipment during World War II. It is significant for its association with aviation and World War II history on the island; significant characteristics include the site's location and configuration as a landing field.
Chain of Craters Road	Structure	Unevaluated	Chain of Craters Road was constructed starting in 1927. The first iteration of the road was opened in 1928 with the original alignment connecting 8 craters to Makaopuhi Crater. The road was lengthened into the Kalapana Extension in 1960, opening in 1964. The Mauna Ulu eruptions of 1969-1974 covered portions of the original alignment, which was rebuilt in 1979. The road was again damaged by eruptions in 1983. During the Kīlauea eruptions of 2014, the road was again extended into the Kalapana extension as an emergency access road. It is one of the primary roadways in the Park connecting the summit to the coastal area. Potential significant characteristics of the property include the road's alignment and its association with several craters, the summit, and the coast.
Crater Rim Drive	District, Structure	Listed	Crater Rim Drive is a 10.6-mile scenic main road within the Park that loops around the caldera rim and onto the caldera floor. The road passes through a variety of natural settings within the Park, including forests, high scrub desert, and lava fields. It is significant for its association with the early development of the Park, for its association with the Civilian Conservation Corps (CCC) program and NPS rustic style, and as an engineering feat that was designed around the Park's natural landscape. The road's alignment and design, natural setting, and association with the caldera and the CCC are all significant characteristics of the district.
Crater Rim Drive Historic District	District, Cultural Landscape	Listed	The Crater Rim Drive Historic District encompasses approximately 5,000 acres in and around the Kīlauea Caldera and contains Crater Rim Drive and its associated surrounding developments. It is significant for its association with the CCC program and early Park development between the periods of 1916 and 1942. It is also architecturally significant for its distinctive NPS Rustic-style architecture and naturalistic landscape architecture. Significant characteristics of the district include Crater Rim Drive's alignment and the district's natural setting, landscape design, rustic architecture, and association with the CCC.

Property Name	Property Type	Eligibility Status	Significant Characteristics
Great Crack Parcel	TBD	Unevaluated	The Great Crack has not been formally evaluated, but it contains known potentially significant archeological resources and traditional fishing areas. Potential significant characteristics of the sites include any extant material culture remains and an association with the ocean and surrounding landscape.
Hale Ōhiʻa Tract Historic District	District	Listed	The Hale Ōhiʻa Tract Historic District is a small subdivision in Volcano Village containing historic buildings and structures that is marked by two large lava rock pillars. It is significant for its association with the development of the area of summer retreats in the early-twentieth century. Significant characteristics of the district include its varied, intact concentration of architecture, stone pillars, narrow roadway, and association with Volcano Village as a summer retreat.
Hawaiʻi Volcanoes National Park	TCP	Eligible	The entirety of Hawaiʻi Volcanoes National Park is significant as a Traditional Cultural Property (TCP) for its association with Native Hawaiian culture, traditions, and sacred uses. This includes the physical manifestations of the volcano, the forested areas as well as the soundscape and the airspace. Many Native Hawaiian cultural practitioners also come to Kīlauea for ceremonies, hoʻokupu, and paying tribute to the deity Pelehonuamea. The exceptional stillness and serenity of the TCP are significant characteristics that allow Native Hawaiians to continue conducting traditional ceremonies that require a quiet setting.
Hilina Pali Road	District	Listed	Hilina Pali Road is a secondary road in the Park road system that was built by the CCC between 1933 and 1942 and extends westerly from Chain of Craters Road for approximately 8.35 miles in a descent towards an overlook with a historic shelter overlooking the coastline. The road has several developed areas that are connected to the roadway containing a total of over 69 acres. It is significant for its association with the CCC and early Park development, as well as for its distinctive design and construction, including its use of NPS Rustic-style architecture. Significant characteristics of the district include the road's alignment and design, its viewshed of the surrounding landscape, rustic design, descent towards the Hilina Pali overlook, and location near the coastline.
Historical Corral and Chute	Structure	Eligible	The Historical Corral and Chute is significant for its association with the agricultural history of the Kahuku Ranch. Significant characteristics include the structure's materials and association with the Kahuku Ranch.
Historic Trails	Structures	Eligible	The majority of the trails in the Park are historic, ranging in age from ancient trails, trails associated with cattle ranching, historical Park trails, CCC era trails, and trails related to Thomas Jaggar and the Buffalo Soldiers (Mauna Loa Trail). Significant characteristics of various

Property Name	Property Type	Eligibility Status	Significant Characteristics
			historic trails throughout the Park include their locations, alignments, viewsheds, natural setting, natural sounds, and surrounding landscapes.
Johnston Summer Residence (aka Hale Ōhiʻa Cottages, Uluwena)	Building	Listed	The Johnston Summer Residence, constructed in 1931, consists of a main house, maid's quarters, and two-story carriage house with a landscaped Japanese garden. It is significant for its association with the development of Volcano Village as a summer retreat and as an example of the Queen Anne style. The residence's Queen Anne features (including its asymmetrical layout, complex roof form, fishscale shingles, turret and bay windows), association with summer tourism in the area, and surrounding landscape designed to hide the property from the street are all significant characteristics of the property.
Kahuku Ranch Base Camp	Site	Eligible	The Kahuku Ranch Base Camp Historic Site spans over 5 acres and is part of the larger Kahuku Ranch. It is significant for the U.S. military's use of the ranch between 1939 to 1947 for strategic operations during World War II. The site's significant characteristics include its rolling, pastoral landscape and location near Mauna Loa.
Kahuku Ranch Cultural Landscape	District, Cultural Landscape	Eligible	The Kahuku Ranch Cultural Landscape is locally significant for its association with the patterns of development in the cattle industry on the Island of Hawaiʻi and is particularly representative of the transition point in ranching history from land-responsive methods of cattle operations to more intensive infrastructure development and range management to support ranching operations in the first half of the twentieth century. The period of significance begins in 1912 when Kahuku underwent the first development as a part of the Parker Ranch and ends in 1947 when this initial phase of development was completed, and the ranch was sold to James W. Glover. This period reflects the establishment of the foundation of modern cattle ranching on the island. The Parker-era Kahuku represents the integration of early ranching practices, of large pastures and open ranges, and the first efforts to operate the ranch through infrastructural development and range management. Significant characteristics include the rolling, pastoral landscape and association with cattle ranching.
Kahuku Shrines	Site	Eligible	The entire archeological complex of the Kahuku Shrines is significant in its named association with the 16th/17th century ruling chief ʻUmi-a-Līloa. Although the ties of this chief to specific features within the complex are tenuous, there are sufficient other regional associations with camps, trails, and temples in the high elevation area that support this evaluation. The Kahuku shrine also embodies the distinctive characteristics of Emory's Necker-style marae and those of shrines on Mauna Kea and Haleakalā. Further, the complex exhibits distinctive construction methods of stacked and set slabs on edge and end that are not typically found in such concentrations in low elevation areas and thus may represent an alpine/sub-alpine

Property Name	Property Type	Eligibility Status	Significant Characteristics
			construction style. Additionally, the ʻUmi Caverns complex offers an opportunity to examine the convergence of high elevation land use, transportation, and ceremonial activities. Significant characteristics of the complex include its high elevation, quiet setting, and distinctive construction methods and style.
Kahuku-ʻĀinapō Trail	Structure	Eligible	The Kahuku-ʻĀinapō Trail is a segment of an "old trail system" that was used in historic times for driving cattle between various cattle ranching operations associated with Parker Ranch (ca. 1912-1947). Stop over locations includes various ranches in route including Kapāpala Ranch, Keahou Ranch, Humuula Sheep Station, and Puʻuʻōʻō Ranch. The trail is significant as it contributes to broad patterns of history and has the potential to yield information. Significant characteristics of the trail include its alignment and its association with and location near various ranches.
Kahuku-Pōhue Parcel Archaeological Sites	Site	Eligible	The Kahuku-Pōhue Parcel contains a total of 60 sites made up of hundreds of archeological features and ethnographic resources that have the potential to yield information on Hawaiian history and prehistory. The parcel contains four resources that have architectural/engineering significance, including the traditional Hawaiian village at Kahakahakea, which was designed around the local topography. Sites also include a quarry, habitation features, shrines, and trail segments associated with the traditional practice of commuting between residences. Significant characteristics of the site include extant material culture remains, their configuration and materials, Kahakahakea's landscape design, natural sounds, quiet setting for traditional practices, the surrounding topography, and trail alignments and their association with residences.
Kalapana Fishing and Homesteading Rights (TCP)	TCP	Eligible	The Kalapana Fishing and Homesteading Rights area is a TCP significant for its association with Native Hawaiian culture and traditions. It is located within the Puna-Kaʻū Historic District and is contributing to the district. Pursuant to the act of June 20, 1938 (52 Stat. 781; 16 U.S.C. 391b and 396a) Native Hawaiian residents of the villages adjacent to the Kalapana extension area added to the Park by the above act and visitors under their guidance are granted the exclusive privileges of fishing or gathering seafood from parklands (above the high waterline) along the coastline of such extension area. These persons may engage in commercial fishing under proper State permit. Significant characteristics of the TCP include its use and association with the ocean and coastline, quiet setting for traditional practices, and its natural coastal sounds and setting.

Property Name	Property Type	Eligibility Status	Significant Characteristics
Kīlauea Administration and Employee Housing Historic District (Cultural Landscape)	District, Cultural Landscape	Eligible	The Kīlauea Administration and Employee Housing Historic District encompasses a collection of small-scale, rustic houses and buildings along the northeast edge of the Kīlauea Caldera. Most of the buildings and landscape features were built by CCC crews and designed following a series of master plans developed from 1931 to 1941 by the NPS Landscape and Engineering Division. The period of significance for the district is between 1927 and 1942, and it is significant for its association with the CCC and early Park planning and for its NPS Rustic-style architecture and landscape design. Significant characteristics of the district include the configuration and rustic design of the buildings, its location near the caldera, landscape design, and association with the CCC.
Kīlauea Crater	Site	Listed	Kīlauea Crater is located within the summit depression of Kīlauea Volcano, one of the earth's most active volcanoes. It is significant for its association with Native Hawaiian culture and tradition centered around the goddess Pele. It is also significant as a focal point of tourism and scientific study within the Park. The crater is used for traditional practices. Significant characteristics of the site include its quiet setting that allows Native Hawaiians to continue conducting traditional ceremonies.
Kīlauea Landing Field (Kīlauea Airfield Study Areas)	Site	Eligible	Kīlauea Landing Field was a military landing field that was built in 1923 at the request of the US Army Hawaiian Department. It was the first airfield constructed on the Island of Hawai'i and used to photograph the Caldera for the first time from the air. The field was destroyed by the eruption of Halema'uma'u in the following year and was replaced by Boles Field. Kīlauea Landing Field is significant for its association with Hawaiian aviation history, military history, aerial photography, and the 1924 eruption of Kīlauea. The site's significant characteristics include its association with and location near Kīlauea.
Kilauea Military Camp Historic District (Cultural Landscape)	District, Cultural Landscape	Eligible	The Kilauea Military Camp Historic District was established in 1916 and encompasses approximately 50 acres of land. It served as the location for training the local National Guard members and also served as a rest and relaxation facility for the military. During World War II, the camp was used as a Japanese internment and prisoner-of-war camp. It is significant for its association with the military history of the area as well as for its planning and design. Significant characteristics of the district include its architecture and landscape design.
Kīpuka Ka'ōpapa	Site	Eligible	Kīpuka Ka'ōpapa is a significant archeological resource and is a vestige of the Ka'ū Agricultural Field Systems, an expansive area of intensive agriculture that was built as early as the 1400s. The site is made up of a complex network of rock walls, mounds and structures and is eligible for having information potential into past traditional agricultural practices. The site's stone

Property Name	Property Type	Eligibility Status	Significant Characteristics
			materials, extant structures and features and their configurations, natural sounds, and the agricultural landscape are all significant characteristics.
Kīpukakī	Site	Unevaluated	Kīpukakī has not been formally evaluated, but it is considered an ʻŌiwi holy place of worship. Potential significant characteristics include the natural soundscape including birds singing and the sound of leaves in the wind.
Lithic Block Quarry	Site	Eligible	The Lithic Block Quarry is a traditional ancient stone tool production site that is significant for its potential to yield information regarding production practices. It has been mapped with 277 individual workshops where fine-grained basalt rocks were shaped into stone tools by Native Hawaiians after the late-1600s. Significant characteristics include the extant remains of lithic production and the site's geology and location.
Mauna Loa Road	District	Listed	Mauna Loa Road, constructed between 1934 and 1962, is a secondary road through the Park that has several developments along its route. It is significant for its association with the CCC and for its NPS Rustic-style design. Significant characteristics include the road's alignment and location near the Kīlauea Crater and Mauna Loa and the district's rustic architecture and landscape design.
Mokuʻāweoweo Caldera	Site	Eligible	Mokuʻāweoweo Caldera is located at the summit of Mauna Loa and is considered a sacred place and ethnographic resource to many Native Hawaiians. Significant characteristics of the site include its quiet setting that allows Native Hawaiians to continue conducting traditional ceremonies.
Nāhuku (Thurston Lava Tube) Cultural Landscape	District, Cultural Landscape	Eligible	The Nāhuku (Thurston Lava Tube) Cultural Landscape is significant for its role in the development of tourism at Hawaiʻi Volcanoes National Park and the Hawaiian Islands. The identification of the lava tube in 1912 and its popularity as a visitor destination drew attention to the site as the Park was being established. The Thurston Lava Tube complex is also significant in the history of volcanology, allowing scientists and visitors to experience the effects of volcanic activity at close range. Furthermore, features of the Thurston Lava Tube complex are significant for the association with the history of NPS design and construction and the NPS Rustic style. Certain features, such as stone walls and steps, constructed with native materials, are associated with the work of the CCC. Other improvement campaigns are related to Mission 66 goals. The Thurston Lava Tube complex is also contributing to the National Register-nominated Crater Rim Drive Historic District. Significant characteristics of the district include its rustic architecture, natural design, association with the CCC and Mission 66, and association with tourism.

Property Name	Property Type	Eligibility Status	Significant Characteristics
Nāmakanipaio Cabin Camp District	District	Eligible	The Nāmakanipaio Cabin Camp District is a campground built in the 1960s that contains rustic cabins, camp sites, comfort stations, and picnic areas. It is significant due to its construction and design as part of the Mission 66 program and as a rare example of Hawaiian Mission 66-style architecture. Significant characteristics of the district include its rustic design and its association with camping and the Mission 66 program.
1877 Volcano House (Old Volcano House No. 42)	Building	Listed	The 1877 Volcano House (Old Volcano House No. 42) is a one-story building built in 1877 that formerly served as a hotel for visitors of Kīlauea Volcano. It is significant for its association with tourism and visitation within the Park and as an early representation of Western architecture in the area.
Piʻi Mauna Dump Site	Site	Unevaluated	The Piʻi Mauna Dump Site has not been formally evaluated, but it is a historic-age dump site encompassing approximately 450 square meters that contains a large rubble pile of old concrete, red clay fire bricks, boulders, metal fragments, and ceramics. Potential significant characteristics include the extant material culture remains.
Puna-Kaʻū Historic District	District	Listed	The Puna Kaʻū Historic District encompasses over 300 sites including village complexes, temple sites, cave shelters, petroglyph fields, and coastal trails. These sites are significant for their potential to yield information regarding Native Hawaiian socio-political religious systems, land use, and arts. The district encompasses land that is used for traditional practices. Significant characteristics include extant material culture and structure remains, trail alignments, natural sounds, quiet setting for traditional practices, and other evidence of prehistoric and historic land use.
Punaluʻu Heiau	Site	Unevaluated	The Punaluʻu Heiau is a Native Hawaiian temple constructed of heavy lava slabs. It is potentially significant for its association with Native Hawaiian rituals and culture. Potential significant characteristics include the heiau's materials and natural sounds and setting.
Punaluʻu Springs	Site	Unevaluated	The Punaluʻu Springs, also referred to as "Queen's Bath," is the location of a natural spring associated with Native Hawaiian culture. It was covered by lava flows in the 1980s and 1990s. Potential significant characteristics include the site's natural sounds and setting.
Puʻuloa Petroglyphs	Cultural Landscape	Eligible (and contributing feature to the Puna-Kaʻū Historic District)	Puʻuloa is a very sacred and religious place for many of the people of Hawaiʻi and has been used ritually for over 500 years. It is the largest petroglyph field in the state. There are more than 23,000 petroglyph images, mostly *poho* (cupules, or depressions) in which a portion of the umbilical cord of a newborn was placed to ensure a long life. Motifs of circles, other geometric designs, as well as cryptic designs of human representations known as anthropomorphisms, canoe sails, and even feathered cape motifs can all be found in this dense concentration. Significant characteristics of the cultural landscape include the

Property Name	Property Type	Eligibility Status	Significant Characteristics
			petroglyph designs and configurations and the site's natural sounds and quiet setting for traditional practices.
Rain Shed, Building 43	Building	Eligible	The Rain Shed, Building 43 is eligible for its design and engineering. The water collection system is an example of how water supplies were developed in areas lacking wells and how the collection technology changed over time. The water collection system was an essential element in the development of the Park. Significant characteristics of the building include its extant historic materials from the period of significance, such as its corrugated metal siding and roof, and its engineering.
Volcano Residential District	District	Eligible	The Volcano Residential District encompasses several residences in Volcano Village, located just east of the Park, that were constructed prior to World War II. The district is significant for its architecture and design. Significant characteristics of the district include its location and near Hawai'i Volcanoes National Park, its architecture, and its secluded and forested setting.
Whitney Seismograph Vault No. 29	Building	Listed	The Whitney Seismograph Vault No. 29 is an underground room constructed in 1912 that housed the study of volcanic and seismic activity at Kīlauea and Mauna Loa by American scientists between 1912 and 1961. The above-ground portion of the vault consists of a free-standing, reinforced concrete pier. The building is significant for its association with the history of the study of volcanic and seismic activity in the area. Significant characteristics of the vault include its location and association with Kīlauea.
Wilkes Campsite	Site	Listed	Wilkes Campsite is the location and remains of an 1840-1841 expedition by American scientists on the summit of Mauna Loa. It is significant for its association with military history and the history of scientific study on the island as well as for its association with Lieutenant Charles Wilkes, the leader of the expedition. It is also significant in the areas of transportation and engineering. The campsite's secluded location at Mauna Loa, volcanic setting, and extant remains of the campsite are all significant characteristics.
World War II Scrape Mounds (Kīlauea Airfield Study Areas)	Site	Eligible	The World War II Scrape Mounds were the result of efforts by the CCC and the U.S. military to destroy the two airfields and any other potential landing site for Japanese military aircraft after the Pearl Harbor attack. The features were generally caused by a 1.5-meter bulldozer bucket that was used to create mounds and depressions across the landscape. The mounds are significant due to their association with the CCC personnel efforts to deny use to the airfields, World War II in Hawai'i, and their information potential. Significant characteristics include the extant remains of the scrape mounds and depressions.

United States Department of the Interior
NATIONAL PARK SERVICE
Natural Resource Stewardship & Science
Natural Sounds and Night Skies Division

U.S. Department of Transportation
Federal Aviation Administration

United States Department of Transportation
FEDERAL AVIATION ADMINISTRATION
Office of Policy, International Affairs & Environment
Office of Environment and Energy

NATIONAL PARKS AIR TOUR MANAGEMENT PROGRAM

March 29, 2021

Re: Initiation of consultation under Section 106 of the National Historic Preservation Act for the development of Air Tour Management Plans at Hawai'i Volcanoes and Haleakalā National Parks

Suzanne Case
Chairperson and State Historic Preservation Officer
State Historic Preservation Division
1151 Punchbowl Street, Suite 555
Honolulu, HI 96813

Dear Ms. Case:

The Federal Aviation Administration (FAA) and the National Park Service (NPS) (collectively, the agencies) are developing Air Tour Management Plans (ATMPs) for 23 parks including Hawai'i Volcanoes and Haleakalā National Parks. ATMPs apply to commercial air tours flown at or below 5,000 feet above ground level in and within ½ mile of a park boundary. The agencies have determined that development of an ATMP qualifies as an "undertaking" subject to Section 106 of the National Historic Preservation Act (NHPA). The purpose of this letter is to initiate Section 106 consultation with your office in accordance with 36 CFR 800.3(c), and solicit any initial comments you may have about the proposed undertaking.

In response to a May 1, 2020 court order, the agencies are working to complete all of the ATMPs by August 31, 2022.[1] The ATMPs are being developed in accordance with the National Parks Air Tour Management Act (NPATMA). NPATMA directs the agencies to either enter into voluntary agreements with air tour operators or establish ATMPs for national parks and adjacent tribal lands where commercial air tour operations are conducted or proposed, subject to certain exceptions not relevant here.

The FAA is acting as the lead federal agency overseeing compliance with Section 106 of the NHPA for this undertaking. The FAA will be coordinating its review under Section 106 with its compliance with the National Environmental Policy Act (NEPA). Each ATMP will be unique and therefore, each ATMP will be assessed individually under Section 106 and NEPA. We look forward to meaningful consultation on the air tours and their overall effect on historic properties.

[1] For more information about the court order and proposed plan, see: https://www.faa.gov/about/office_org/headquarters_offices/arc/programs/air_tour_management_plan/

There will be no ground disturbance, construction or demolition associated with this undertaking. Air tours have been operating in Hawai'i Volcanoes and Haleakalā National Parks for over 20 years. Since 2005, these air tours have been conducted pursuant to interim operating authorizations (IOAs) as provided in NPATMA. The agencies are creating ATMPs to replace IOAs.

In accordance with 36 CFR 800.3 and NPATMA, the agencies have identified and initiated consultation with Native Hawaiian organizations, individuals, and other consulting parties who have an interest or ancestral connections to one or more of the parks (See Attachment A). We would welcome your assistance in identifying additional consulting parties along with meaningful ways to engage the public. Information regarding ATMPs is available through a dedicated web site located at: https://www.faa.gov/about/office_org/headquarters_offices/arc/programs/air_tour_management_plan/. During the next phase of consultation, we will seek your input regarding the Area of Potential Effect and the identification of historic properties.

We will follow up with you in the next month. Should you wish to receive additional information regarding this undertaking, please contact Cathy Nadals at ATMPTeams@dot.gov or (202) 267-0746.

Sincerely,

Raquel Girvin
Regional Administrator
Western-Pacific Region
Federal Aviation Administration

Rhonda K. Loh
Park Superintendent
Hawai'i Volcanoes National Park
National Park Service

Natalie B. Gates
Park Superintendent
Haleakalā National Park
National Park Service

cc: Dr. Alan S. Downer via HICRIS

Attachment A: List of Consulting Parties

ATTACHMENT A

CONSULTING PARTIES LIST

Organizations
Office of Hawaiian Affairs
O Ka'u Kakou
Department of Land and Natural Resources
Office of Native Hawaiian Relations, US Department of Interior
Historic Hawai`i Foundation
Na Kupuna Moku O Keawe
The Nature Conservancy of Hawai`i
Kalapana Fishing Council
Kalauonaone O Puna Association
Edith Kanaka'ole Foundation
Kamehameha Schools
Kalapana ʻOhana Association
Makuʻu Farmers Association
Kona Hawaiian Civic Club
National Trust for Historic Preservation
Naki'i Ke Aho
Na Ohana O Kalapana
Royal Hawaiian Academy of Traditional Arts
The Mary Kawena Pūkuʻi Cultural Preservation Society
Advisory Council on Historic Preservation
The Nature Conservancy
Department of Hawaiian Home Lands
County of Hawaii
Kalapana Community Organization
Aha Moku o Kahikinui
Aha Moku o Kaupo
Aha Moku o Maui Inc.
Ali'i 'Ai Moku O Kahekili Royal Order of Kamehameha I
Brian Kaniela Nae'ole Na'auao
George K. Cypher 'Ohana
Na Koa Ikaika Ka Lahui Hawai'i
Nekaifes 'Ohana
Waiehu Kou Phase 3 Assoc.
Kaupo Community Association
Kipahulu 'Ohana

Kumu A`o
Wananalua Congregational Church
Friends of Haleakalā National Park
Leeward Haleakalā Watershed Restoration Partnership

Individuals
Kauilani Almeida
Gladys Brigham
Bobby Camara
Greg Herbst
Leialoha Ilae-Kaleimamahu
Piilani Kaawaloa
Mr. Sam Kahookaulana
Mr. Brian Kaniela Naeʻole Naauao
Kekuhi Keliikanakaole
Gladys Konanui
Larry Kuamo'o
Julie Leialoha
Earl Louis
Violet Makuakane
JoniMae Makuakane-Jarrell
Demetrius Olivera
John Replogle
Mabel Wilson
Nona and Herb Wilson
Paulette K. Ke
Jessie Ke
Clifford Hashimoto
Daisy Lind
Tweetie Lind
Kahu Dane Maxwell
Kahu Lyons Naone
Terry Poaipuni
Angela Tavares
Ma'ano Smith
Dana Hall
Kiʻope Raymond
Jade Alohalani Smith
Donna Sterling

U.S. Department of Transportation
Federal Aviation Administration

United States Department of Transportation
FEDERAL AVIATION ADMINISTRATION
Office of Policy, International Affairs & Environment
Office of Environment and Energy

NATIONAL PARKS AIR TOUR MANAGEMENT PROGRAM

February 21, 2023

Re: Response to Comments on the Development of an Air Tour Management Plan for Hawai'i Volcanoes National Park Pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations at 36 CFR Part 800 (HICRIS Project 2021PR00353)

Kiersten Faulkner
Historic Hawai'i Foundation
The Dole Cannery
680 Iwilei Rd., Dole Office Bldg. Tower, Suite 690
Honolulu, HI 96817

Dear Kiersten Faulkner:

The Federal Aviation Administration (FAA), in coordination with the National Park Service (NPS), seeks to continue consultation with your office under Section 106 of the National Historic Preservation Act (NHPA) regarding the development of an Air Tour Management Plan (ATMP) for Hawai'i Volcanoes National Park (the Park). The Federal Aviation Administration (FAA) hosted a consulting party meeting on November 21, 2022, for the development of an Air Tour Management Plan (ATMP) for the Park, pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations at 36 CFR Part 800. The purposes of the meeting were to discuss the identification of historic properties that may be affected by the implementation of the ATMP, identify the area of potential effects (APE), and explain how the agency would assess effects on historic properties within the proposed APE (**Attachment 1**). At the meeting, and via email on November 22, 2022, the FAA requested consulting parties provide written comments for the agency's consideration regarding the ATMP's APE, the identification of cultural resources, and the potential effects of the undertaking on cultural resources. This letter serves as the FAA's response to comments it received from consulting parties and provides recent revisions to the APE and requests assistance identifying cultural resources within the revised APE.

The FAA received and reviewed comments from eight consulting parties, including the Historic Hawai'i Foundation and the Park's Kūpuna consultation group. The FAA considered the comments from the consulting parties in revising the APE and also sought input from the Hawai'i State Historic Preservation Division (SHPD). On January 24, 2023, the SHPD offered no objections to the revised APE, but noted that

their office looked forward to receiving and reviewing the agencies' responses to the consulting parties' comments. **Attachment 2** summarizes consulting parties' comments and provides the FAA's response.

Description of the Undertaking

Consistent with the National Parks Air Tour Management Act of 2000 (Act), the proposed ATMP for the Park would regulate commercial air tours over the Park or within a half-mile outside the boundary of the Park, referred to as the ATMP planning area. Further background information regarding the history of commercial air tours over the Park, the authority under which they are currently conducted, and the area to be regulated under the ATMP is available in the February 2022 Scoping Newsletter, prepared by the FAA and the NPS (together, the agencies) is available at the following link:

- Hawai'i Volcanoes National Park: https://parkplanning.nps.gov/HawaiiVolcanoesATMP

The proposed ATMP would authorize or prohibit commercial air tour operations over the Park in accordance with the conditions included in the preferred alternative. The agencies are working to select the preferred alternative for the ATMP. The preferred alternative selected will be the undertaking for the Park. The current draft action alternatives are shown in the table below, and a summary of the elements in each alternative being considered can be found in **Attachment A**. Maps of the revised alternatives under consideration were previously provided to your office in the invitations to the November 21, 2022, consulting party meeting.

Potential Undertakings for Hawai'i Volcanoes National Park

Alternative 2 – No Air Tours in the Planning Area
Revised Public Scoping Alternative 4 – Reduction of Air Tours

Revised Area of Potential Effects

The 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 FAA and NPS establishment of the ATMP does not require land acquisition, construction, or ground disturbance, and the FAA anticipates no physical effects to historic properties. The FAA is therefore focusing its assessment on the potential introduction of visual or audible elements resulting from the undertaking that could diminish the integrity of any identified historic properties.

In establishing the proposed APE, the FAA sought to include areas where any historic property present could be affected by the introduction of noise from or sight of commercial air tours as a result of the implementation of the ATMP. The FAA will consider the number and altitude of commercial air tours over historic properties in these areas to further assess the potential for visual effects and any incremental change in noise levels that may result in alteration of the characteristics of historic properties qualifying them for listing in the National Register of Historic Places (NRHP).

Under Alternative 2 (no air tours) it is expected that operators would continue to fly to points of interest on the island outside of the ATMP planning area or continue routes over the Park similar to existing conditions but above 5,000 feet (ft.) above ground level (AGL). Under Alternative 2 (no air tours) and Revised Public Scoping Alternative 4 (reduction of air tours), it is reasonably foreseeable that operators would fly just outside of the ATMP planning area surrounding the volcanoes in order to view Kīlauea

crater or any active lava. While operators currently fly along most of the eastern edge of the ATMP planning area and along the flight paths proposed under Revised Public Scoping Alternative 4, automatic dependent surveillance-broadcast (ADS-B) systems data[1] of flight paths shows an absence of existing flights in a small area to the southwest of the ʻŌlaʻa Forest tract. It is reasonably foreseeable that if operators are unable to fly within the ATMP planning area, the implementation of the ATMP may result in more flights in this area as they may be able to hover and view the crater.

Therefore, the FAA proposes an APE comprised of the ATMP planning area (the Park and areas outside the Park but within ½ mile of its boundary) and a small area to the southwest of the ʻŌlaʻa Forest tract between it and the main Park as depicted in **Attachment B.** This APE encompasses the reasonably foreseeable areas where operators may fly given the implementation of the ATMP and therefore the areas within which the undertaking may directly or indirectly cause alterations in the character or use of historical properties within the APE if any such properties exist. The APE extends vertically from ground level to above 5,000 ft. AGL with no upper ceiling to encompass areas where historic properties may be affected by operators flying above the ATMP planning area. In the event that 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 flights at higher altitudes would provide limited value to a sightseeing operation.

Review Request

The FAA requests assistance in identifying cultural resources within the revised APE by March 10, 2023. Specifically, please provide any additional information you may have on historic properties that may exist within the revised APE that have not yet been identified for which setting or feeling are significant characteristics. Please send information responsive to this request to Judith.Walker@faa.gov, copying the ATMP team at ATMPTeam@dot.gov

Should you have any questions regarding this letter or its attachments, please contact me at 202-267-4185 or Judith.Walker@faa.gov and copy the ATMP team at ATMPTeam@dot.gov.

Sincerely,

Judith Walker
Federal Preservation Officer
Senior Environmental Policy Analyst
Environmental Policy Division (AEE-400)
Federal Aviation Administration

CCs: Dr. Alan Downer, Deputy State Historic Preservation Officer, Hawaiʻi SHPD
Stephanie Hacker, Archaeologist, Hawaiʻi SHPD

Enclosure:

[1] *ADS-B systems periodically transmits aircraft location data in real-time.*

Attachment 1 – November 21, 2022, Section 106 Consulting Party Meeting Presentation Regarding the Development of an ATMP for Hawai‘i Volcanoes National Park

Attachment 2 – Response to Comments on the Development of an ATMP for Hawai‘i Volcanoes National Park

Attachment 3 – Summary of Alternatives for an ATMP for Hawai‘i Volcanoes National Park

Attachment 4 – Revised APE Map for an ATMP for Hawai‘i Volcanoes National Park

Attachment 5 – Revised Historic Property Identification List for Hawai‘i Volcanoes National Park

ATTACHMENT 1

NOVEMBER 21, 2022, SECTION 106 CONSULTING PARTY MEETING PRESENTATION REGARDING THE DEVELOPMENT OF AN ATMP FOR HAWAIʻI VOLCANOES NATIONAL PARK

Section 106 Consulting Party Meeting for Hawai‘i Volcanoes National Park Air Tour Management Plan

November 21, 2022

NPS Photo

Agenda

- Oli
- Housekeeping
- Introductions
- Provide Project Overview
- Development of Area of Potential Effects
- Identification of Historic Properties
- Review Proposed Alternatives
- Discuss Agencies' Assessment of Effects
- Next Steps
- Request Input from Consulting Parties

Oli

E Hō Mai

Composed by: Edith Kanakaʻole

E Hō Mai

E hō mai (i) ka ʻike mai luna mai ē	Grant us the knowledge from above
ʻO nā mea huna noʻeau o nā mele ē	Concerning the hidden wisdom of songs,
E hō mai	Grant,
E hō mai	Grant,
E hō mai ē (a)	Grant us these things

Repeat 3x

Edith K. Kanakaʻole composed this *oli* (chant) for her hula school, *Hālau 0 Kekuhi.* Students would perform the chant to ask for guidance from their ancestors for the undertaking that lay ahead.

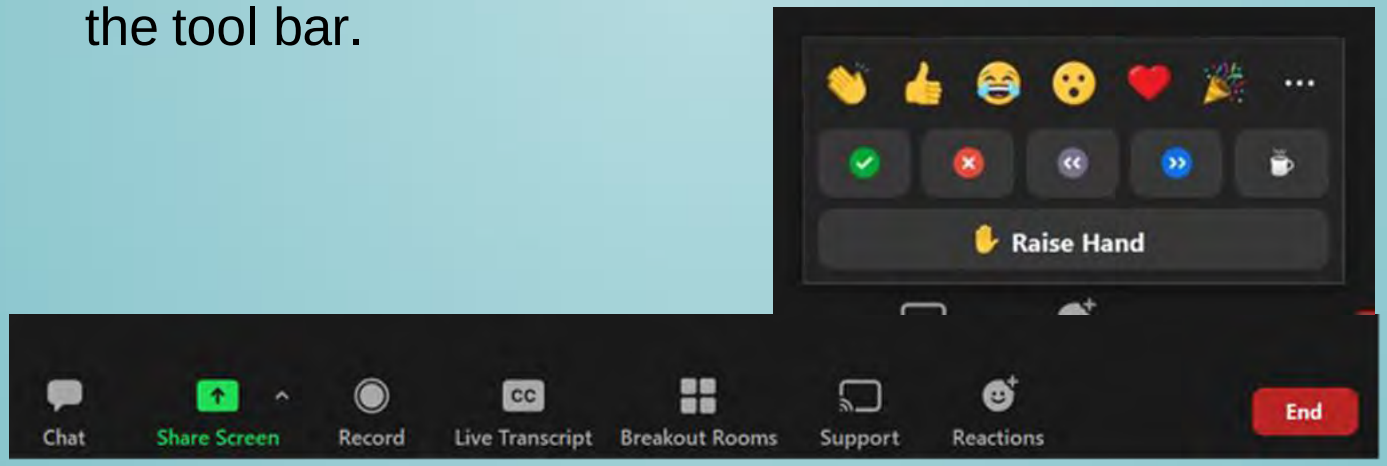
Today, this oli is used to start an event or gathering in order to ask for guidance and direction with the endeavor at hand.

Housekeeping

- Please **mute your mic** except when talking, this improves the sound quality for all.

- Please type your full name in chat box to identify yourself if your name does not appear in Zoom.

- If you have any questions/comments please use the "Raise Hand" icon or submit your comment in the chat box.
  - The raise your hand icon can found under "Reactions" on the tool bar.



Introductions – Federal Agencies

Federal Aviation Administration

- Judith Walker – Federal Preservation Officer
- Keith Lusk – Program Manager

National Park Service, Hawai‘i Volcanoes National Park

- Rhonda Loh - Superintendent
- Danielle Foster- Environmental Protection Specialist
- Summer Roper Todd - Archeologist & Cultural Resources Program Manager
- Charone O'Neil-Naeole – Hawaiian Community Liaison

Introductions – Consulting Parties

- Native Hawaiian Organizations
- Kūpuna
- Hawai‘i State Historic Preservation Division (SHPD)
- Adjacent Land Managers
- Operators

NPATMA Overview

- Enacted April 5, 2000
- Requires an ATMP or Voluntary Agreement
- The agencies have chosen to develop an ATMP for this park
- Required FAA to grant Interim Operating Authority (IOA) for existing commercial air tour operations
  - Based on the number of flights conducted in the 12-month period prior to enactment of NPATMA (or average of three prior years)
  - Granted 26,664 IOA to 10 operators for Hawai‘i Volcanoes
  - IOA was published in the Federal Register in 2005
- Established the National Parks Overflights Advisory Group (NPOAG) to provide advice and guidance to the agencies from personnel with aviation, environmental, and tribal interests.

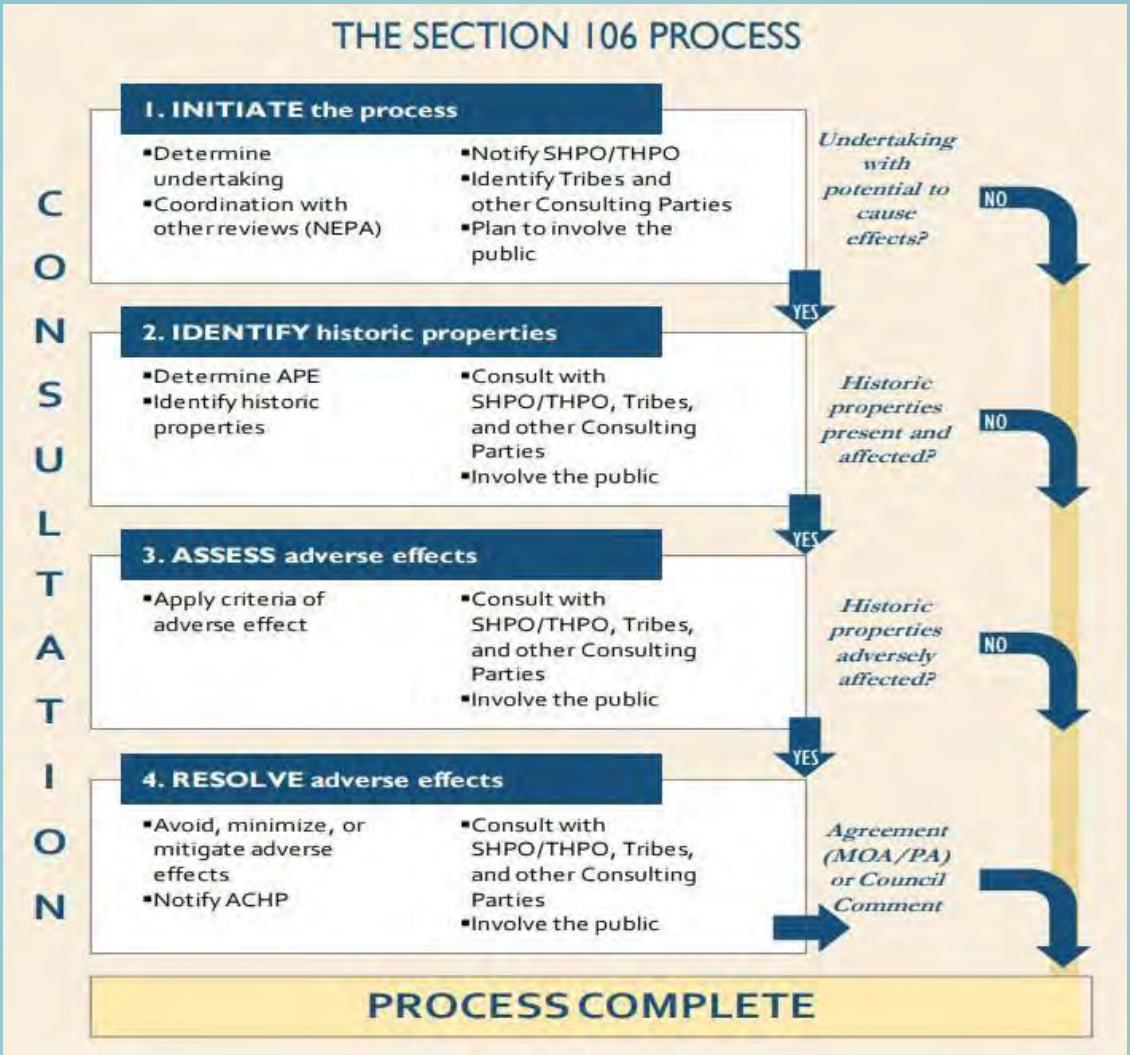
Project Overview

- **Purpose:** comply with National Parks Air Tour Management Act (NPATMA) and other applicable laws, consistent with the Plan and Schedule for Completion of Air Tour Management Plans (ATMPs) at 23 Parks under Court Order
- **Need:** NPATMA requires the FAA, in cooperation with the NPS, to develop an ATMP for Parks with applications to conduct commercial air tours.
- **Objective of the ATMP:** under NPATMA - develop acceptable and effective measures to mitigate or prevent the significant adverse impacts, if any, of commercial air tour operations on the natural and cultural resources, traditional cultural properties (TCPs), sacred sites and ceremonial areas, wilderness character, and visitor experiences

Project Overview

- Undertaking- development of an ATMP for the Park
- ATMP would regulate commercial air tours over the Park or within a half-mile buffer during which the aircraft flies below 5,000 ft. AGL
- Three alternatives are being considered for the ATMP at the Park
- Consultation under Section 106 was re-initiated in 2021 and is ongoing
- Both the FAA and NPS must prepare National Environmental Policy Act (NEPA) documentation and sign the decision document for the ATMP
  - The FAA is acting as the lead agency overseeing compliance with NEPA and Section 106 consultation under the National Historic Preservation Act (NHPA), with the NPS serving as a cooperating agency
  - An Environmental Assessment (EA) will be prepared for the Park

Steps of the Section 106 Process



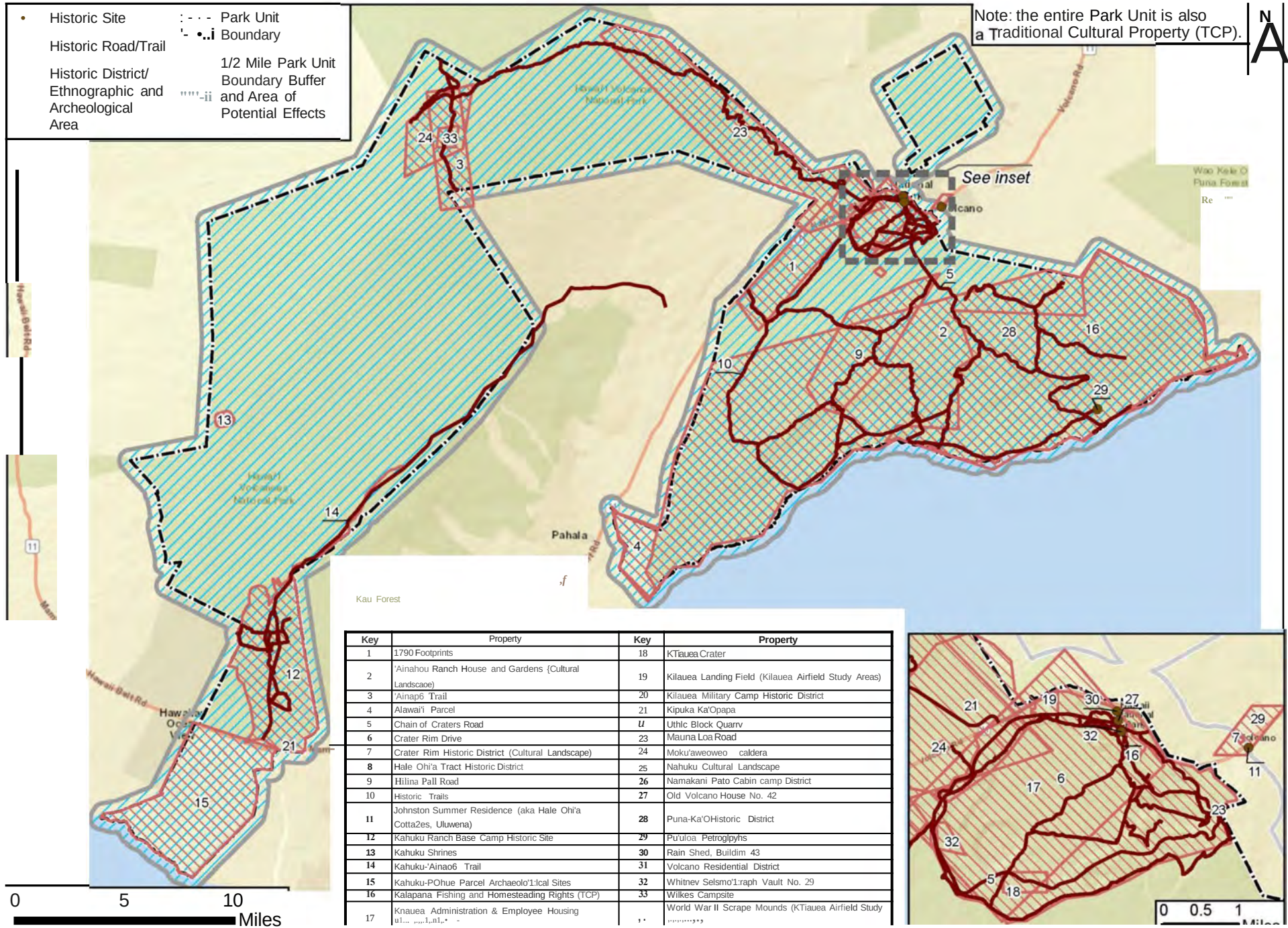
Graphic from *NEPA and NHPA: A Handbook for Integrating NEPA and Section 106*

Development of Area of Potential Effects

Area of Potential Effects (APE) is defined as *"the geographic area or areas within which an undertaking may directly or indirectly cause alteration in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking."* 36 CFR 800.16(d)

- The APE is based on the undertaking and its potential impacts to cultural resources in accordance with 36 CFR 800.
- Potential impacts include the introduction of audible or visual elements

Area of Potential Effects with Historic Properties at Hawai'i Volcanoes National Park



Key	Property	Key	Property
1	1790 Footprints	18	KTiauea Crater
2	'Ainahou Ranch House and Gardens {Cultural Landscaoe)	19	Kilauea Landing Field (Kilauea Airfield Study Areas)
3	'Ainap6 Trail	20	Kilauea Military Camp Historic District
4	Alawai'i Parcel	21	Kipuka Ka'Opapa
5	Chain of Craters Road	*u*	Uthlc Block Quarrv
6	Crater Rim Drive	23	Mauna Loa Road
7	Crater Rim Historic District (Cultural Landscape)	24	Moku'aweoweo caldera
8	Hale Ohi'a Tract Historic District	25	Nahuku Cultural Landscape
9	Hilina Pall Road	26	Namakani Pato Cabin camp District
10	Historic Trails	27	Old Volcano House No. 42
11	Johnston Summer Residence (aka Hale Ohi'a Cotta2es, Uluwena)	28	Puna-Ka'OHistoric District
12	Kahuku Ranch Base Camp Historic Site	29	Pu'uloa Petroglpyhs
13	Kahuku Shrines	30	Rain Shed, Buildim 43
14	Kahuku-'Ainao6 Trail	31	Volcano Residential District
15	Kahuku-POhue Parcel Archaeolo'1:lcal Sites	32	Whitnev Selsmo'1:raph Vault No. 29
16	Kalapana Fishing and Homesteading Rights (TCP)	33	Wilkes Campsite
17	Knauea Administration & Employee Housing		World War II Scrape Mounds (KTiauea Airfield Study

Preliminary Identification of Historic Properties

For identifying historic properties within the APE, the FAA and NPS consider the:

- views of consulting parties, planning, research, and studies
- the magnitude and nature of the undertaking
- the nature and extent of potential effects on historic properties, and the use of traditional cultural properties associated with cultural practices, customs or beliefs that continue to be practiced today

Current Identification Efforts include:

- data pulled from NPS and the Hawai‘i State Historic Preservation Division’s (SHPD) Hawai‘i Cultural Resource Information System identified 41 above-ground historic properties within the APE, which includes a TCP, the entire boundary of the park, and several cultural landscapes

Preliminary Identification of Historic Properties

- Traditional Cultural Property (TCP) defined as entire park boundary
- ʻĀinahou Ranch
- 1790 Footprints
- Wilkes Campsite
- Whitney Vault
- Kīlauea Crater
- Old Volcano House No. 42 (1877 Volcano House)
- Hilina Pali Road
- Mauna Loa Road
- ʻĀinapō Trail
- Puna-Ka'ū Historic District
- Puʻuloa Petroglyphs
- Crater Rim Drive National Register
- Kahuku Ranch Base Camp Historic Site
- Boles Field (Kīlauea Airfield Study areas)
- Kīlauea Landing Field (Kīlauea Airfield Study areas)
- World War II Scrape Mounds (Kīlauea Airfield study areas)
- Historic Trails
- Mokuʻāweoweo Caldera
- Kahuku-Pōhue parcel
- Alawai'i parcel
- Great Crack
- Kilauea Military Camp Historic District
- Lithic Block Quarry
- Crater Rim Historic District
- Kīlauea Administration and Employee Housing Historic District
- Historical Corral and Chute
- Kahuku Shrines
- Kalapana Fishing and Homesteading Rights
- Nāhuku Cultural Landscape
- Namakani Paio Cabin Camp District
- Rain shed, building 43
- Kipuka Kaopapa- Kaʻū Agricultural Field Systems
- Kahuku Ranch Cultural Landscape
- Kahuku-ʻĀinapō Trail
- Volcano Residential District
- Chain of Crater Road
- Hale Ōhiʻa Tract Historic District
- Johnston Summer Residence (aka Hale Ōhiʻa cottages, Uluwena)
- Punaluʻu Heiau
- Punaluʻu Springs

Questions or Comments?

Existing Air Tour Operations – Hawai‘i Volcanoes National Park

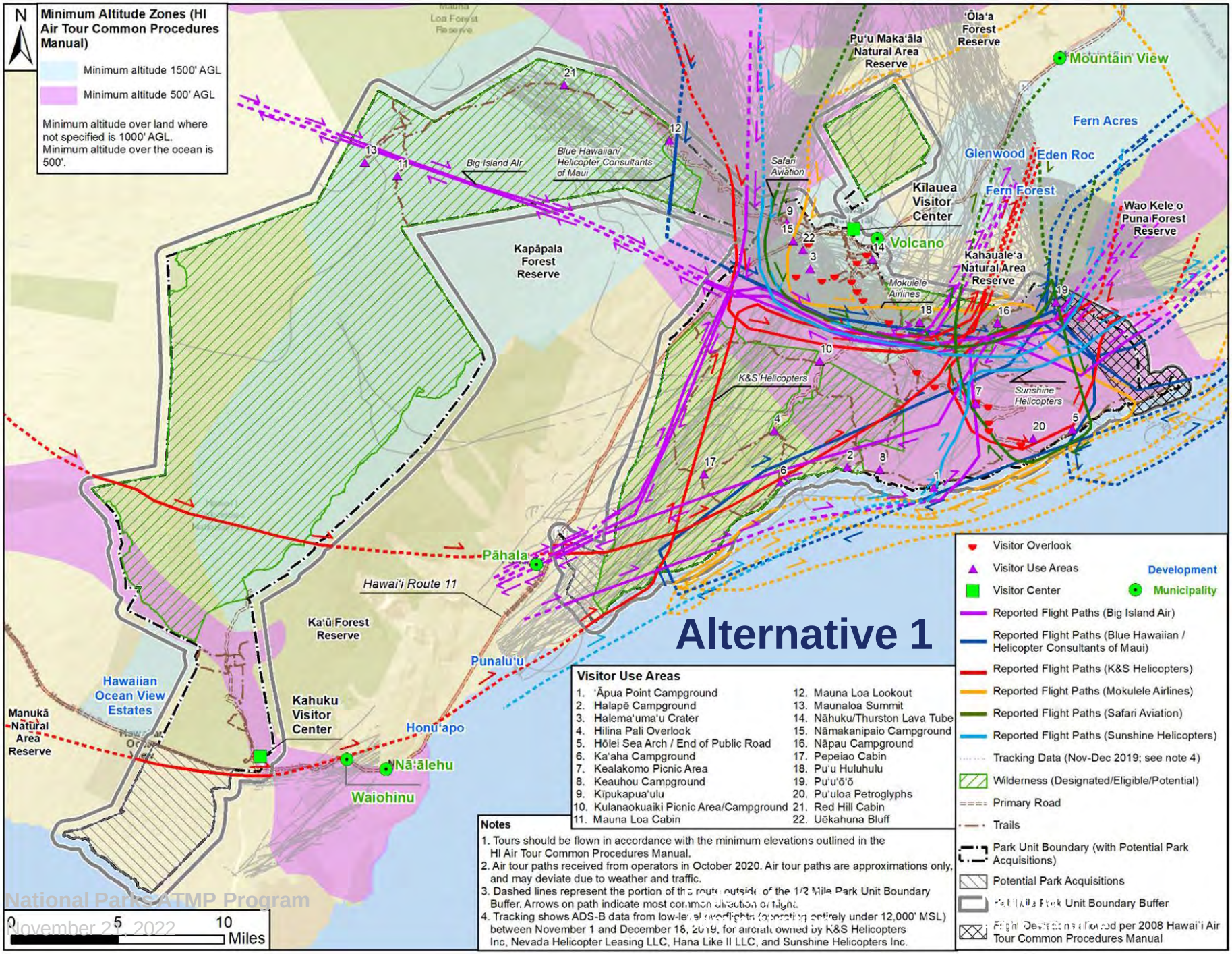
Operator	Aircraft Type	2017 Reported Tours	2018 Reported Tours	2019 Reported Tours	3-year Reported Average No. of Air Tours (2017-2019)	Interim Operating Authority (IOA)
Above itAll Inc. (Sporty'sAcademy Hawai'i, Hawai'i Island Hoppers,Hawai'i Airventures, Benchmark Flight Center)	no data	0	0	0	0	3,878
Big Island Air Inc.	fixed wing	102	7	0	36	1,643
Hawai'i Helicopters Inc. (Helicopter Consultants of Maui, Inc.)	helicopter	139	50	67	85	141
Helicopter Consultantsof Maui Inc. (Hawai'i Helicopter, Blue Hawaiian Helicopters)	helicopter	12,300	6,059	7,325	8561	12,413
K&S Helicopters (Paradise Helicopters)	helicopter	877	552	248	559	1,684
Manuiwa Airways Inc. (Volcano Helicopters,Volcano Heli-Tours)	no data	0	0	0	0	800
Mokulele Flight Service Inc. (Mokulele Airlines)	fixed wing	0	15	0	5	60
Safari Aviation Inc. (Safari HelicopterTours)	helicopter	1,977	1,050	995	1341	3,920
Schuman Aviation Company,Ltd. (Makani Kai Helicopters)	no data	0	0	0	0	25
Sunshine Helicopters Inc.	helicopter	1,125	600	641	789	2,100
		16,520	**8,333**	**9,276**	**11,376**	**26,664**

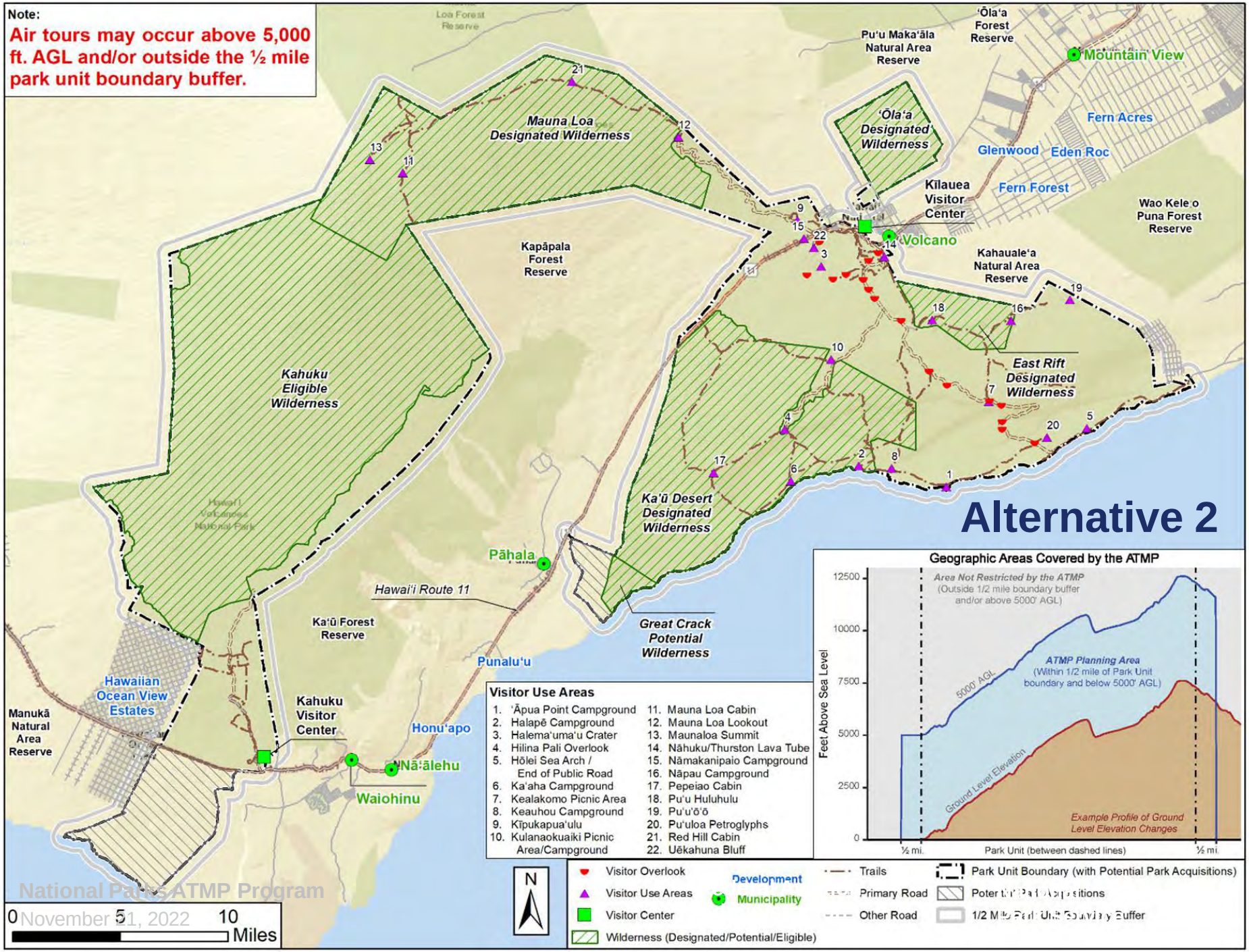
Existing Air Tour Operations

- 10 operators with Interim Operating Authority (IOA) – 7 are reporting tours
- 11,376 flights per year on average.
- IOA for up to 26,664 flights, most are helicopter operations with a few fixed wing operations
- No time-of-day restrictions
- No provisions for NPS to establish temporary no-fly periods.
- Tours occur year-round on most days of the year.
- January is the peak operation month with a 3-year average of 1,474 flights or about 47.5 flights per day during the peak month

Proposals for the Undertaking

- **~~Alternative~~ 1 (No Action)**
  - No Action – Continuation of current conditions up to IOA limits
  - Not selectable as NPATMA requires implementation of ATMP or Voluntary Agreement
- **Alternative 2 (No Air Tours within Planning Area)**
  - No air tours within 5,000ft AGL over or within ½ mile of the Park
  - Air tours could still occur outside of this area and around the Park
- **Alternative 4 (Revised from Public Scoping)**
  - Reduction in annual number of commercial air tours over the Park
  - Three routes with altitudes ranging from 1,500 – 2,000ft AGL
  - Flights permitted between 10AM-2PM/QT flights from 9AM – 5 PM
  - No air tours on Sundays
  - Only QT flights on Wednesdays
  - Circling allowed only on one route


Minimum Altitude Zones (HI Air Tour Common Procedures Manual)
Minimum altitude 1500' AGL
Minimum altitude 500' AGL
Minimum altitude over land where not specified is 1000' AGL.
Minimum altitude over the ocean is 500'.
Alternative 1
Visitor Use Areas
1. 'Āpua Point Campground
2. Halapē Campground
3. Halema'uma'u Crater
4. Hilina Pali Overlook
5. Hōlei Sea Arch / End of Public Road
6. Ka'aha Campground
7. Kealakomo Picnic Area
8. Keauhou Campground
9. Kīpukapua'ulu
10. Kulanaokuaiki Picnic Area/Campground
11. Mauna Loa Cabin
12. Mauna Loa Lookout
13. Maunaloa Summit
14. Nāhuku/Thurston Lava Tube
15. Nāmakanipaio Campground
16. Nāpau Campground
17. Pepeiao Cabin
18. Pu'u Huluhulu
19. Pu'u'ō'ō
20. Pu'uloa Petroglyphs
21. Red Hill Cabin
22. Uēkahuna Bluff
Notes
1. Tours should be flown in accordance with the minimum elevations outlined in the HI Air Tour Common Procedures Manual.
2. Air tour paths received from operators in October 2020. Air tour paths are approximations only, and may deviate due to weather and traffic.
3. Dashed lines represent the portion of the route outside of the 1/2 Mile Park Unit Boundary Buffer. Arrows on path indicate most common direction of flight.
4. Tracking shows ADS-B data from low-level overflights (operating entirely under 12,000' MSL) between November 1 and December 18, 2019, for aircraft owned by K&S Helicopters Inc, Nevada Helicopter Leasing LLC, Hana Like II LLC, and Sunshine Helicopters Inc.
Visitor Overlook
Visitor Use Areas
Visitor Center
Development
Municipality
Reported Flight Paths (Big Island Air)
Reported Flight Paths (Blue Hawaiian / Helicopter Consultants of Maui)
Reported Flight Paths (K&S Helicopters)
Reported Flight Paths (Mokulele Airlines)
Reported Flight Paths (Safari Aviation)
Reported Flight Paths (Sunshine Helicopters)
Tracking Data (Nov-Dec 2019; see note 4)
Wilderness (Designated/Eligible/Potential)
Primary Road
Trails
Park Unit Boundary (with Potential Park Acquisitions)
Potential Park Acquisitions
Park Unit Boundary Buffer
Flight Deviations allowed per 2008 Hawai'i Air Tour Common Procedures Manual
Big Island Air
Blue Hawaiian/ Helicopter Consultants of Maui
Safari Aviation
Mokulele Airlines
K&S Helicopters
Sunshine Helicopters
Kapāpala Forest Reserve
Ka'ū Forest Reserve
Pu'u Maka'āla Natural Area Reserve
'Ōla'a Forest Reserve
Kahauale'a Natural Area Reserve
Wao Kele o Puna Forest Reserve
Kīlauea Visitor Center
Kahuku Visitor Center
Manukā Natural Area Reserve
Hawaiian Ocean View Estates
Mountain View
Fern Acres
Glenwood
Eden Roc
Fern Forest
Volcano
Pāhala
Hawai'i Route 11
Punalu'u
Honu'apo
Nā'ālehu
Waiohinu
0 5 10 Miles


Note:
Air tours may occur above 5,000 ft. AGL and/or outside the ½ mile park unit boundary buffer.
Alternative 2
Mauna Loa Designated Wilderness
Kahuku Eligible Wilderness
Kapāpala Forest Reserve
'Ōla'a Designated Wilderness
'Ōla'a Forest Reserve
Pu'u Maka'āla Natural Area Reserve
Kahauale'a Natural Area Reserve
East Rift Designated Wilderness
Ka'ū Desert Designated Wilderness
Great Crack Potential Wilderness
Ka'ū Forest Reserve
Wao Kele o Puna Forest Reserve
Hawai'i Volcanoes National Park
Manukā Natural Area Reserve
Hawaiian Ocean View Estates
Mountain View
Fern Acres
Glenwood
Eden Roc
Fern Forest
Kīlauea Visitor Center
Volcano
Kahuku Visitor Center
Pāhala
Hawai'i Route 11
Punalu'u
Honu'apo
Nā'ālehu
Waiohinu
Visitor Use Areas
1. 'Āpua Point Campground
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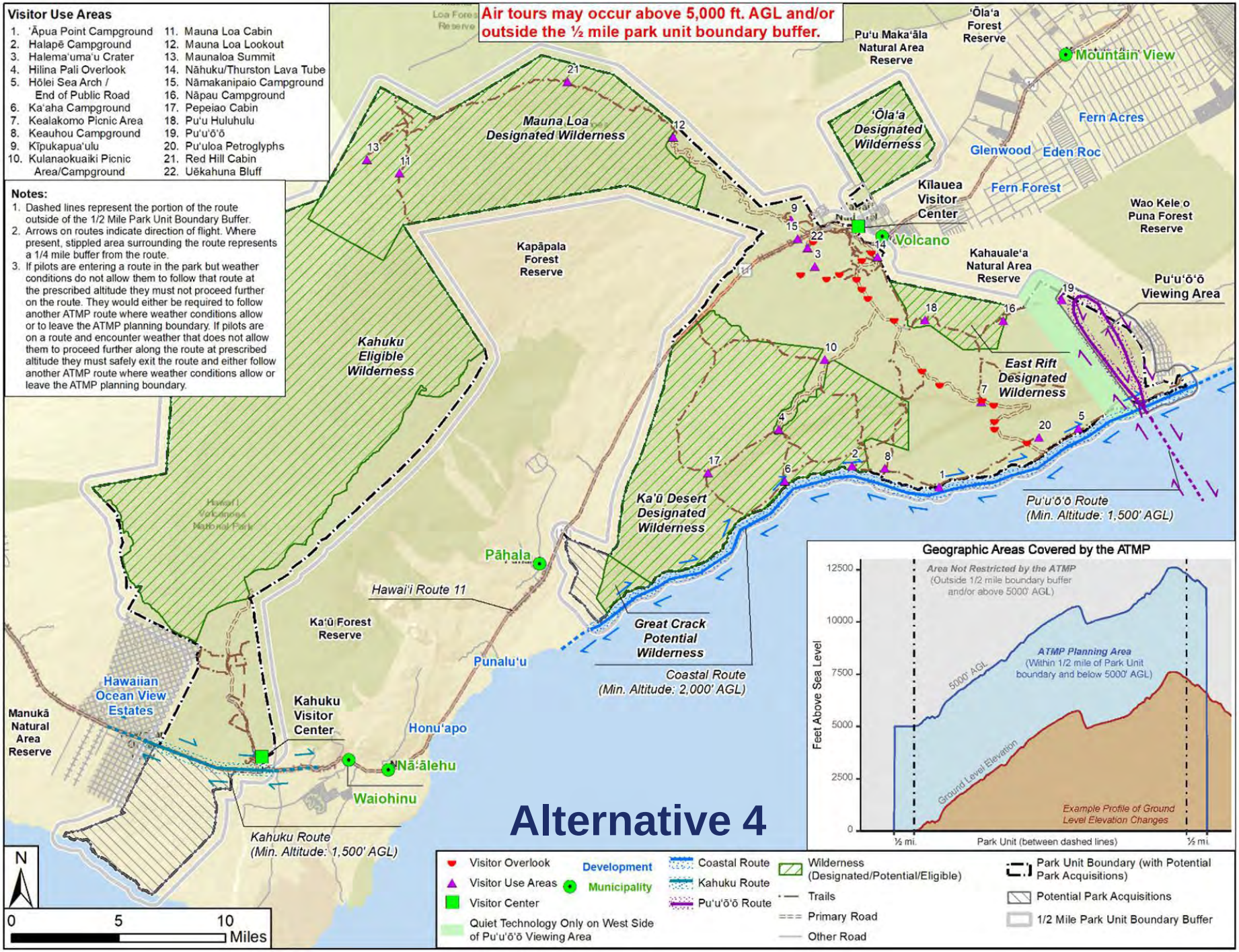
3. Halema'uma'u Crater
4. Hilina Pali Overlook
5. Hōlei Sea Arch / End of Public Road
6. Ka'aha Campground
7. Kealakomo Picnic Area
8. Keauhou Campground
9. Kīpukapua'ulu
10. Kulanaokuaiki Picnic Area/Campground
11. Mauna Loa Cabin
12. Mauna Loa Lookout
13. Maunaloa Summit
14. Nāhuku/Thurston Lava Tube
15. Nāmakanipaio Campground
16. Nāpau Campground
17. Pepeiao Cabin
18. Pu'u Huluhulu
19. Pu'u'ō'ō
20. Pu'uloa Petroglyphs
21. Red Hill Cabin
22. Uēkahuna Bluff
Geographic Areas Covered by the ATMP
Area Not Restricted by the ATMP
(Outside 1/2 mile boundary buffer and/or above 5000' AGL)
ATMP Planning Area
(Within 1/2 mile of Park Unit boundary and below 5000' AGL)
5000' AGL
Ground Level Elevation
Example Profile of Ground Level Elevation Changes
Feet Above Sea Level
12500
10000
7500
5000
2500
0
½ mi.
Park Unit (between dashed lines)
½ mi.
N
Visitor Overlook
Visitor Use Areas
Visitor Center
Wilderness (Designated/Potential/Eligible)
Development
Municipality
Trails
Primary Road
Other Road
Park Unit Boundary (with Potential Park Acquisitions)
Potential Park Acquisitions
1/2 Mile Park Unit Boundary Buffer
National Parks ATMP Program
November 21, 2022
0 5 10
Miles


Visitor Use Areas
1. ʻĀpua Point Campground
2. Halapē Campground
3. Halemaʻumaʻu Crater
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8. Keauhou Campground
9. Kīpukapuaʻulu
10. Kulanaokuaiki Picnic Area/Campground
11. Mauna Loa Cabin
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14. Nāhuku/Thurston Lava Tube
15. Nāmakanipaio Campground
16. Nāpau Campground
17. Pepeiao Cabin
18. Puʻu Huluhulu
19. Puʻuʻōʻō
20. Puʻuloa Petroglyphs
21. Red Hill Cabin
22. Uēkahuna Bluff
Notes:
1. Dashed lines represent the portion of the route outside of the 1/2 Mile Park Unit Boundary Buffer.
2. Arrows on routes indicate direction of flight. Where present, stippled area surrounding the route represents a 1/4 mile buffer from the route.
3. If pilots are entering a route in the park but weather conditions do not allow them to follow that route at the prescribed altitude they must not proceed further on the route. They would either be required to follow another ATMP route where weather conditions allow or to leave the ATMP planning boundary. If pilots are on a route and encounter weather that does not allow them to proceed further along the route at prescribed altitude they must safely exit the route and either follow another ATMP route where weather conditions allow or leave the ATMP planning boundary.
Air tours may occur above 5,000 ft. AGL and/or outside the ½ mile park unit boundary buffer.
Puʻu Makaʻāla Natural Area Reserve
ʻŌlaʻa Forest Reserve
Mountain View
Fern Acres
Glenwood
Eden Roc
Fern Forest
Wao Kele o Puna Forest Reserve
ʻŌlaʻa Designated Wilderness
Mauna Loa Designated Wilderness
Kīlauea Visitor Center
Volcano
Kapāpala Forest Reserve
Kahauala'a Natural Area Reserve
Puʻuʻōʻō Viewing Area
Kahuku Eligible Wilderness
East Rift Designated Wilderness
Kaʻū Desert Designated Wilderness
Puʻuʻōʻō Route
(Min. Altitude: 1,500' AGL)
Pāhala
Hawai'i Route 11
Kaʻū Forest Reserve
Great Crack Potential Wilderness
Punaluʻu
Coastal Route
(Min. Altitude: 2,000' AGL)
Hawaiian Ocean View Estates
Manukā Natural Area Reserve
Kahuku Visitor Center
Honuʻapo
Nāʻālehu
Waiohinu
Kahuku Route
(Min. Altitude: 1,500' AGL)
Alternative 4
Geographic Areas Covered by the ATMP
Area Not Restricted by the ATMP
(Outside 1/2 mile boundary buffer and/or above 5000' AGL)
ATMP Planning Area
(Within 1/2 mile of Park Unit boundary and below 5000' AGL)
5000' AGL
Ground Level Elevation
Example Profile of Ground Level Elevation Changes
Feet Above Sea Level
12500
10000
7500
5000
2500
0
½ mi.
Park Unit (between dashed lines)
½ mi.
N
0 5 10 Miles
Visitor Overlook
Visitor Use Areas
Visitor Center
Quiet Technology Only on West Side of Puʻuʻōʻō Viewing Area
Development
Municipality
Coastal Route
Kahuku Route
Puʻuʻōʻō Route
Wilderness (Designated/Potential/Eligible)
Trails
Primary Road
Other Road
Park Unit Boundary (with Potential Park Acquisitions)
Potential Park Acquisitions
1/2 Mile Park Unit Boundary Buffer

Assessment of Effects

- **The proposed ATMP draft alternatives would not require land acquisition, construction, or ground disturbance**
  - No physical effects to historic properties anticipated
- **Focus of the assessment – new introduction of visual or audible elements beyond current effects that could diminish the integrity of any identified significant historic property**
  - The FAA and NPS will consider consulting parties' input on potential adverse effects
  - Analyze visual and audible elements of air tours

Questions or Comments?

Next Steps – Section 106 Consultations

The FAA and the NPS will:

- Revise alternatives as needed based on the comments received during consultation
- Continue to consult on the APE and identification of historic properties (including TCPs or sacred sites) within the APE
- Complete impact modeling and analysis
- Complete and distribute EA and Draft ATMP for comment
- Be open to holding additional consultation meetings to discuss development of an ATMP and ways to avoid or minimize any adverse effects that could result from air tours in the APE
- Send a consolidated consultation letter summarizing the FAA's steps in the Section 106 process and the effects to historic properties for consulting party input this winter
- Complete and distribute EA and Draft ATMP for comment and hold a public meeting

The findings reached during the Section 106 consultation process will inform decision on the final ATMP.

THANK YOU

- **Should you wish to provide further input on cultural property identification and/or the area of potential effects, please contact:**
  - Judith Walker at (202) 267–4185 or at judith.walker@faa.gov, copying ATMPTeam@dot.gov

ATTACHMENT 2

RESPONSE TO COMMENTS ON THE DEVELOPMENT OF AN ATMP FOR HAWAIʻI VOLCANOES NATIONAL PARK

The following table provides an overview of consulting parties' comments on the development of an Air Tour Management Plan (ATMP) for Hawaiʻi Volcanoes National Park (the Park) and the Federal Aviation Administration's (FAA) responses to those comments.

Commenter	Correspondence	Summary of Comments	Response
Kiersten Faulkner, Historic Hawaiʻi Foundation	12/01/22 Letter	Instead of an ATMP, requests info on Voluntary Agreements and recommends a negotiated Agreement that addresses the full range of impacts—including those which may occur from flights within the park boundary that are higher than 5,000 feet AGL—could be more effective than an ATMP.	This request is outside the scope of the Section 106 assessment.
Kiersten Faulkner, Historic Hawaiʻi Foundation	12/01/22 Letter	Disagrees with the proposed APE - should include areas potentially affected by the commercial air tours, including areas in which tours either are currently operating or in which they may begin to fly over if the ATMP is changed from the current conditions.	In establishing the revised APE, the FAA sought to include areas where any historic property present could be affected by introduction of noise from or sight of commercial air tours as a result of the implementation of the Air Tour Management Plan (ATMP).
Kiersten Faulkner, Historic Hawaiʻi Foundation	12/01/22 Letter	Recommends the summary table of historic properties include a summary of the properties' character-defining features, with attention to those that may be affected by the air tours through visual, audible or atmospheric elements (ex: HAVO NPS TCP - the importance of its natural soundscape)	The agencies are including a summary of character defining features for the list of historic properties identified within the revised APE.

Commenter	Correspondence	Summary of Comments	Response
Kiersten Faulkner, Historic Hawai‘i Foundation	12/01/22 Letter	Requests inclusion of historic districts and resources in the APE in the adjacent towns of Volcano Village, Wai‘ōhinu and Nā‘ālehu, as well as the cultural landscapes in Wao Kele o Puna	Portions of Volcano Village are included in the revised APE, including the Hale Ōhi‘a Tract Historic District, Johnston Summer Residence (aka Hale Ōhi‘a Cottages, Uluwena), and Volcano Residential District. Wai‘ōhinu, Nā‘ālehu, and Wao Kele o Puna are outside the revised APE.
Kiersten Faulkner, Historic Hawai‘i Foundation	12/01/22 Letter	Recommends a fourth Alternative to manage air tours to avoid or minimize adverse effects on historic properties in the (recommended and expanded) APE, including areas impacts from flights that are higher than 5,000 AGL or that occur over sensitive areas that are more than half-mile from the park boundary - would need to be implemented via Agreement instead of ATMP Concerns that Alternatives would allow for flights over Halema‘uma‘u Crater higher than 5,000 feet above ground level	The ATMP for this park is being implemented pursuant to the National Air tour Management Act (the Act) and its implementing regulations. The regulations define a commercial air tour as: [A]ny flight, conducted for compensation or hire in a powered aircraft where a purpose of the flight is sightseeing over a national park, within ½ mile outside the boundary of any national park, or over tribal lands during which the aircraft flies: (i) Below 5,000 feet above ground level (except for the purpose of takeoff or landing, or as necessary for the safe operation of an aircraft as determined under the rules and regulations of the Federal Aviation Administration requiring the pilot-in-command to take action to ensure the safe operation of the aircraft); [or] (ii) Less than 1 mile laterally from any geographic feature within the park (unless more than ½ mile outside the boundary). Therefore, the agencies do not have authority to regulate air tours above 5,000 ft. above ground level.

Commenter	Correspondence	Summary of Comments	Response
Kiersten Faulkner, Historic Hawai‘i Foundation	12/01/22 Letter	Supports the Kūpuna Advisory Council's and the Office of Hawaiian Affairs' recommendations against commercial tours and request for a minimum vertical buffer of 9,000 feet above the volcano (or other minimum level to be determined by the Traditional Cultural Property study) and/or a complete “no fly zone” over HAVO	Comment noted.
Kiersten Faulkner, Historic Hawai‘i Foundation	12/01/22 Letter	Concerns with effects on the designated and eligible wilderness areas that are also rich cultural landscapes, including those on Mauna Loa, ‘Ōla‘a, East Rift, Ka‘ū Desert, Great Crack and Kahuku	The agencies are taking into consideration natural resources that contribute to the cultural resources in the APE.
Kiersten Faulkner, Historic Hawai‘i Foundation	12/01/22 Letter	Supports working meetings with consulting parties (including air tour operators) about historic properties to craft another alternative	This request is outside the scope of the Section 106 process. The agencies have considered input from the public and stakeholders including the consulting parties in the development of the alternatives included in the draft Environmental Assessment and the alternatives presented at the Nov. 21, 2022, consulting party meeting.
Kūpuna consultation group providing input to the leadership of Hawai‘i Volcanoes National Park	11/21/22 Letter	Opposes any commercial air tours over the Park	Comment noted.
Nona Wilson	12/21/22 Letter	Opposes any commercial air tours over the Park. Provided past documentation summarizing Kūpuna opposition to commercial air tours over the Park and expressed concerns regarding air tour impacts on the sacredness of the entire Park (including the ground, air, and ocean) and	Comment noted.

Commenter	Correspondence	Summary of Comments	Response
		the effects of noise pollution on cultural resources and ceremonies. The past documentation noted that natural resources are also cultural resources.	
Aku Hauanio, former HAVO National Park Specialist	12/01/22 Email	Concerns about lands adjacent to Mauna Loa Strip, home to critically endangered species of birds (ʻakiapōlāʻau, ʻakepa and ʻalawī) only found on this island. Areas of concern include Keauhou Ranch, Kīlauea Forest, Kulani, and Puʻu Makaʻala Natural Area Reserve as critical habitats that need protection. These birds are the last of their kind in the world. Any type of aerial commotion can put these birds at high-risk of extinction. Each species has a different breeding season and cannot have any type of disturbances all year. The State Department of Land and Resources are breeding the endangered ʻalalā and introducing them back into the wild. For them to be successful in their plan to repopulate, there absolutely needs to be no aerial uproar, as they are hunted by other birds and fear anything flying above them. Kapāpala Ranch is the preferred and best route to prevent the extinction of Native Birds in Hawaiʻi since there are currently no endangered species of forest birds.	This comment was shared with the NEPA team for consideration.

Commenter	Correspondence	Summary of Comments	Response
Kalena K. Blakemore, Office of Hawaiian Affairs, OHA (NHO) Representative, Land Agent for Wao Kele o Puna Forest Reserve	12/01/22 Email	Notes that the Office of Hawaiian Affairs (OHA), Compliance Enforcement Program, previously provided a comprehensive written response detailing the concerns and issues with the ATMP (see OHA letter to Cathy Nadals, Cultural Resource Specialist, FAA, dated January 24, 2022) and has also expressed a preference for Alternative 2 as part of the ATMP public scoping process (see OHA letter to Cathy Nadals, Cultural Resource Specialist, dated April 1, 2022).	Comment noted.
Kalena K. Blakemore, Office of Hawaiian Affairs, OHA (NHO) Representative, Land Agent for Wao Kele o Puna Forest Reserve	12/01/22 Email	Concerns about FAA's understanding and definitions of cultural resources. ʻŌiwi culture includes a multitude of gods (Kū, Kāne, Kanaloa, Lono, Hina, Pele), represented in elements such as plants, marine and terrestrial animals, birds, fire, lava, wind, rain, clouds, water, lightning, thunder, ocean currents, mountains, ridges, rock and forests. ʻŌiwi cannot separate these elements from the historic properties identified in the NHPA Section 106 consultation process and endeavor to protect all these resources as they directly relate to ʻaumakua (family guardians), geneaology and ancestors.	Comment noted.
Kalena K. Blakemore, Office of Hawaiian Affairs, OHA (NHO) Representative, Land Agent for Wao Kele o Puna Forest Reserve	12/01/22 Email	Concerns about the APE and requests its expansion to include the atmosphere of the height of Pele's plume to better protect OHA's natural and cultural resources.	See above APE comment. The revised APE extends vertically from the ground level to encompass areas where operators may fly above the ATMP planning area (i.e., higher than 5,000 ft. AGL).

Commenter	Correspondence	Summary of Comments	Response
Kalena K. Blakemore, Office of Hawaiian Affairs, OHA (NHO) Representative, Land Agent for Wao Kele o Puna Forest Reserve	12/01/22 Email	Concerns about flight safety. OHA endured a helicopter crash in March 2020. The accident occurred in our 5-acre clearing where OHA practices their culture through hosting school groups for ʻŌiwi-place based learning. Several ʻōhiʻa (keystone trees) were sacrificed to the accident and oil/fuel spilled on the grounds of the watershed (Pāhoa Aquifer). This was not just a major safety issue but a violation to OHA's natural and cultural resources and cultural practices. The FAA's conceived safety concerns and ʻŌiwi natural/cultural resources and practices are not mutually exclusive.	This comment is beyond the scope of the Section 106 assessment. However, this comment has been provided to agency personnel for consideration.
Kalena K. Blakemore, Office of Hawaiian Affairs, OHA (NHO) Representative, Land Agent for Wao Kele o Puna Forest Reserve	12/01/22 Email	Requests Kipukakī be considered as a sacred site. It is not listed as a historic property but is an ʻŌiwi holy place of worship in the path of air tours which can run every 15 minutes, creating great noise impacts. Asks it be acknowledged in the NHPA Section 106 consultation process.	Kīpukakī has been added to the historic property list.
Kalena K. Blakemore, Office of Hawaiian Affairs, OHA (NHO) Representative, Land Agent for Wao Kele o Puna Forest Reserve	12/01/22 Email	Requests FAA and NPS consider the impacts of air tours on the ʻŌiwi, who sacrifice their natural and cultural resources to for-profit commercial helicopter tours, with no benefit.	All contributing features of the sacred sites, ethnographic resources and traditional cultural properties entirely or partially within the revised APE will be considered in the evaluation of effects.

Commenter	Correspondence	Summary of Comments	Response
Earl Louis	12/05/22 Telephone Conversation	Against any air tours or traffic where he lives, which is about 80 miles from the coastline and part of HAVO in the District of Kaʻū on Hawaiʻi Island. Also noted that the coastline is pristine.	Comment noted.
John Carse	12/01/22 Email	Asks why historic properties outside of the park are not identified, since aircraft routes show overflights will go inside and outside the park boundaries. All government programs are responsible for indirect effects of any action (40 CFR, Section 1508.8). Asks why NPS is not cataloging historical sites along the established routes effected by the pollution caused by aircraft all the way back to the airports.	In establishing the revised APE, the FAA sought to include areas where any historic property present could be affected by introduction of noise from or sight of commercial air tours as a result of the implementation of the ATMP. Historic properties outside the park but within the APE are included in the historic property identification. See comment above explaining agency authority to regulate air tours.
John Carse	12/01/22 Email	Asks how the regulation of flights over historic sites will be enforced. Asks how air tours flying over park historical sites in violation of the ATMP will be identified and held accountable.	This comment is beyond the scope of the Section 106 process. However, as stated in the Park's February 2022 Newsletter, aircraft monitoring and enforcement will occur under the ATMP and NPS will continue to maintain its ADS-B flight tracking system to monitor commercial air tour activity within the Act's jurisdictional boundaries.
John Carse	12/01/22 Email	Asks if the November 21, 2022 meeting minutes will be made available online.	The agencies are providing the slide deck presentation for the November 21, 2022 consulting party meeting in the attachments to this letter. No further notes will be provided.

ATTACHMENT 3

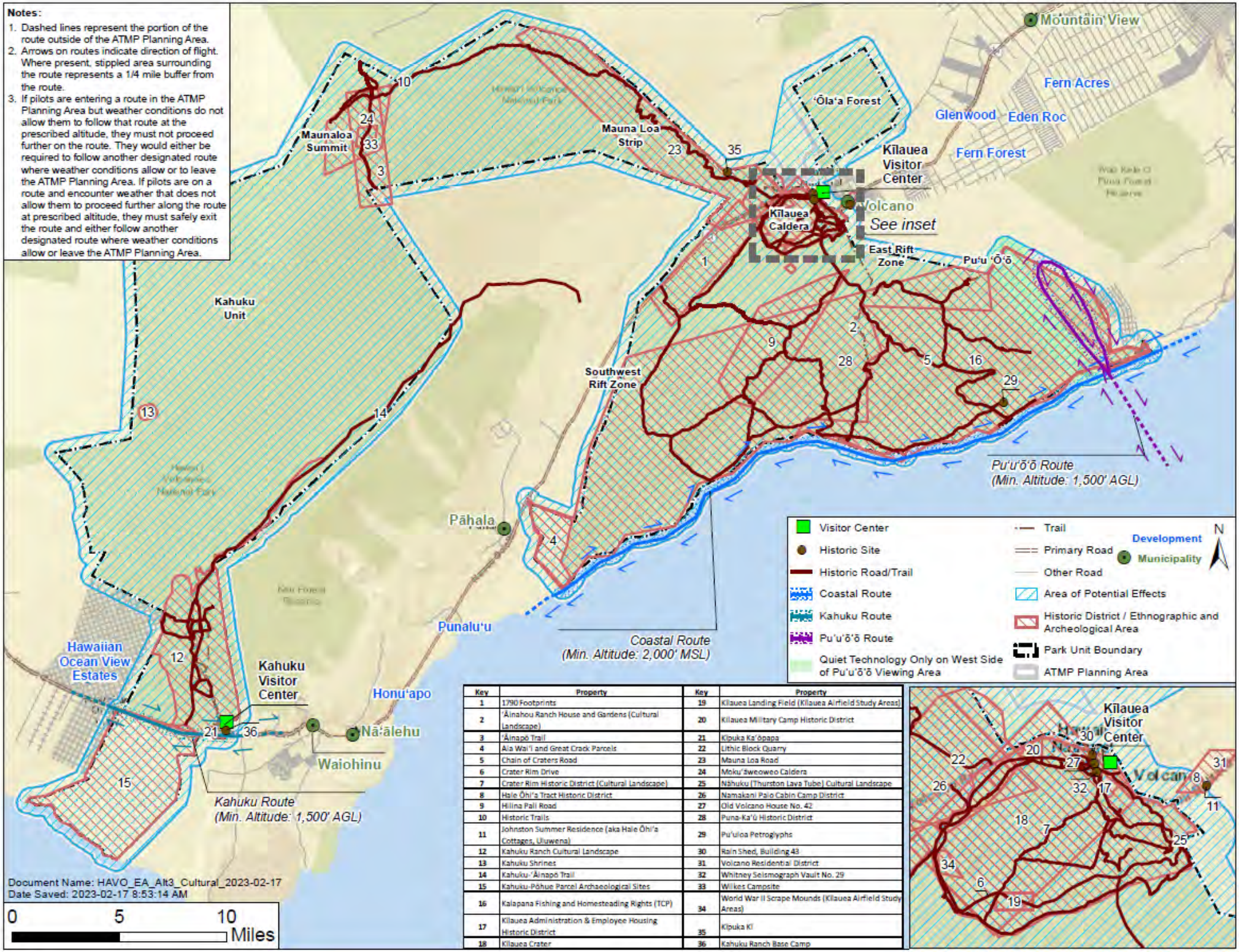
SUMMARY OF ALTERNATIVES FOR AN ATMP FOR HAWAIʻI VOLCANOES NATIONAL PARK

Alternative Attributes	**Alternative 2 (No Air Tours in the Planning Area)**	**Revised Public Scoping Alternative 4 (Reduction of Air Tours)**
General Description and Objectives	Prohibits air tours within the ATMP planning area to maximize Park resource protection. Air tours could continue to fly outside the ATMP planning area (i.e., above 5,000 ft. AGL or more than ½-mile outside of the Park's boundary).	Three routes provide air tour access over the Park with soundscape mitigations, while keeping the heart of the Park free of air tours. Avoids flights over the summit of Kīlauea and minimizes impacts on coastal backcountry users.
Routes	None in ATMP planning area.	Three routes (Kahuku route, coastal route, Puʻuʻōʻō route).
Minimum Altitudes	No minimum altitude would be set. However, flights over the Park that are above 5,000 ft. AGL could occur as they are outside the ATMP planning area. The minimum altitude for air tour operations conducted more than ½ mile outside the Park boundary would be 1,500 ft. AGL unless the operator has OpSpecs B048 (air tour operations below 1,500 ft. AGL n the State of Hawaii), in which case the operator must comply with the requirements and procedures of the Hawaii Air Tour Common Procedures Manual (HI Manual) for conducting commercial air tour operations below 1,500 ft. AGL. OBJ	Minimum 1,500 ft. AGL; minimum 2,000 ft. AGL over wilderness areas and sensitive sites. Flights more than ½-mile outside the Park boundary are similarly outside the ATMP planning area and are subject to the altitude requirements and procedures of the HI Manual.
Time of Day	N/A	10 AM – 2 PM for non-QT flights. 9 AM – 5 PM for QT flights.
Day of Week	N/A	No-fly day on Sunday. Wednesday is QT flights only.
Loitering/ Circling	N/A	Permits limited loitering/circling (e.g. 3-5 minutes) from the Puʻuʻōʻō route.
Quiet Technology (QT) Incentives	N/A	QT flights may fly 9AM - 5PM QT flights may fly on Wednesday Additional fly locations in the Puʻuʻōʻō viewing area for QT flights.

Alternative Attributes	**Alternative 2 (No Air Tours in the Planning Area)**	**Revised Public Scoping Alternative 4 (Reduction of Air Tours)**
Interpretative Training and Education	N/A	Mandatory if offered by the Park.
Alternative Attributes	**Alternative 2 (No Air Tours)**	**Revised Public Scoping Alternative 4 (Reduction of Air Tours)**
Annual Meeting	N/A	Included.
Restrictions for Particular Events	N/A	Mandatory 5-mile standoff distance (within the planning area only, does not extend outside planning area). Two months' notice provided to operators.
Operators, Initial Allocation of Air Tours, and Aircraft Types	N/A	The initial allocation would reflect the proportional number of air tours reported over the Park and the existing aircraft types of each of the seven operators that have reported operating in the period from 2017-2019. Then it would move to competitive bidding.

ATTACHMENT 4

REVISED APE MAP FOR AN ATMP FOR HAWAIʻI VOLCANOES NATIONAL PARK



Key	Property	Key	Property
1	1790 Footprints	19	Kīlauea Landing Field (Kīlauea Airfield Study Areas)
2	ʻĀinahou Ranch House and Gardens (Cultural Landscape)	20	Kīlauea Military Camp Historic District
3	ʻĀinapō Trail	21	Kīpuka Kaʻōpapa
4	Aʻa Waiʻī and Great Crack Parcels	22	Lithic Block Quarry
5	Chain of Craters Road	23	Mauna Loa Road
6	Crater Rim Drive	24	Mokuʻāweoweo Caldera
7	Crater Rim Historic District (Cultural Landscape)	25	Nāhuku (Thurston Lava Tube) Cultural Landscape
8	Hale Ōhiʻa Tract Historic District	26	Namakani Paio Cabin Camp District
9	Hilina Pali Road	27	Old Volcano House No. 42
10	Historic Trails	28	Puna-Kaʻū Historic District
11	Johnston Summer Residence (aka Hale Ōhiʻa Cottages, Uluwena)	29	Puʻuloa Petroglyphs
12	Kahuku Ranch Cultural Landscape	30	Rain Shed, Building 43
13	Kahuku Shrines	31	Volcano Residential District
14	Kahuku-ʻĀinapō Trail	32	Whitney Seismograph Vault No. 29
15	Kahuku-Pōhue Parcel Archaeological Sites	33	Wilkes Campsite
16	Kalapana Fishing and Homesteading Rights (TCP)	34	World War II Scrape Mounds (Kīlauea Airfield Study Areas)
17	Kīlauea Administration & Employee Housing Historic District	35	Kīpuka Kī
18	Kīlauea Crater	36	Kahuku Ranch Base Camp

ATTACHMENT 5

REVISED HISTORIC PROPERTY IDENTIFICATION LIST FOR HAWAIʻI VOLCANOES NATIONAL PARK

Property Name	Property Type	Eligibility Status	Significant Characteristics
1790 Footprints	District, Site	Listed	The 1790 Footprints are scattered sets of footprints of men, women, and children and hoofprints of hogs in hardened, cement-like ash that may have been laid down during the 1790 phreatic explosions of the Kīlauea volcano. The footprints are significant for their potential association with the warriors of Keoua Kuahuʻula, a high Hawaiian chief, who passed through the Kaʻū Desert during the 1790 eruption of Kīlauea. They are also significant for their potential to yield information for this historic period. Significant characteristics for the site include its location, cement-like ash, and the size, spacing, and configuration of the footprints.
ʻĀinahou Ranch House and Gardens (Cultural Landscape)	Cultural Landscape	Listed	The ʻĀinahou Ranch House and Gardens is significant for its association with Herbert C. Shipman, a Big Island rancher, horticulturist, philanthropist, and conservationist. It is also significant as an example of a Craftsman/Bungalow style of architecture in Hawai'i. The period of significance extends from 1941, when Shipman constructed the house as a safe haven from possible Japanese invasion during World War II, to 1971. Although the plant species on the property are more limited than during the period of significance, the landscape still retains several plant varieties, and the landscape design and association with agriculture contributes to the property's significance. Other significant characteristics include the property's Craftsman bungalow style, intact materials, and Japanese-influenced design.
ʻĀinapō Trail	Structure	Listed	The ʻĀinapō Trail was a 34-mile-long trail that served as the customary route to the summit of Mauna Loa from the prehistoric period until 1916. The trail was engineered to ensure availability of shelter, drinking water, and firewood between the nearest permanent settlement and the summit crater; it was often used during summit eruptions to honor Pele, the goddess of volcanoes, with chants and offerings. The U.S. Army constructed a new trail to the summit for volcanologists headquartered at Kīlauea in 1916, which led to diminished usage of the ʻĀinapō Trail. The trail is significant for its prehistoric and historic use as the main route to the summit, for its engineering, and for its potential to yield information. The trail's alignment, association with the summit of Mauna Loa, and secluded, natural setting are all significant characteristics.

Property Name	Property Type	Eligibility Status	Significant Characteristics
Ala Wai‘i Parcel	TBD	Unevaluated[2]	The Ala Wai‘i Parcel has not been formally evaluated, but it contains known significant archeological resources (Pu‘u Ula‘ula) within the parcel as well as traditional fishing areas. Potential significant characteristics of the sites include extant material culture remains and an association with the ocean and surrounding landscape.
Boles Field (Kīlauea Airfield Study Areas)	Site	Eligible	Boles Field was named after the Park’s first superintendent, Thomas R. Boles, and was constructed on the bluff between Uwēkahuna and the Kīlauea Military Camp in 1925. Boles Field was constructed after the previous landing field, built in 1923, was destroyed by the eruption of Halema‘uma‘u. Soon after construction, Boles Field was found to be dangerously short, but it was used over the next 15 years. It was also used as a location for military trucks and heavy equipment during World War II. It is significant for its association with aviation and World War II history on the island; significant characteristics include the site’s location and configuration as a landing field.
Chain of Craters Road	Structure	Unevaluated	Chain of Craters Road was constructed starting in 1927. The first iteration of the road was opened in 1928 with the original alignment connecting 8 craters to Makaopuhi Crater. The road was lengthened into the Kalapana Extension in 1960, opening in 1964. The Mauna Ulu eruptions of 1969-1974 covered portions of the original alignment, which was rebuilt in 1979. The road was again damaged by eruptions in 1983. During the Kīlauea eruptions of 2014, the road was again extended into the Kalapana extension as an emergency access road. It is one of the primary roadways in the Park connecting the summit to the coastal area. Potential significant characteristics of the property include the road’s alignment and its association with several craters, the summit, and the coast.
Crater Rim Drive	District, Structure	Listed	Crater Rim Drive is a 10.6-mile scenic main road within the Park that loops around the caldera rim and onto the caldera floor. The road passes through a variety of natural settings within the Park, including forests, high scrub desert, and lava fields. It is significant for its association with the early development of the Park, for its association with the Civilian Conservation Corps (CCC) program and NPS rustic style, and as an engineering feat that was designed around the Park’s natural landscape. The road’s alignment and design, natural setting, and association with the caldera and the CCC are all significant characteristics of the district.

[2] *For the purposes of Section 106, the FAA is treating identified but unevaluated properties as eligible for the National Register of Historic Places.*

Property Name	Property Type	Eligibility Status	Significant Characteristics
Crater Rim Drive Historic District	District, Cultural Landscape	Listed	The Crater Rim Historic District encompasses approximately 5,000 acres in and around the Kīlauea Caldera and contains Crater Rim Drive and its associated surrounding developments. It is significant for its association with the CCC program and early Park development between the periods of 1916 and 1942. It is also architecturally significant for its distinctive NPS Rustic-style architecture and naturalistic landscape architecture. Significant characteristics of the district include Crater Rim Drive's alignment and the district's natural setting, landscape design, rustic architecture, and association with the CCC.
Great Crack Parcel	TBD	Unevaluated	The Great Crack has not been formally evaluated, but it contains known potentially significant archeological resources and traditional fishing areas. Potential significant characteristics of the sites include any extant material culture remains and an association with the ocean and surrounding landscape.
Hale Ōhiʻa Tract Historic District	District	Listed	The Hale Ōhiʻa Tract Historic District is a small subdivision in Volcano Village containing historic buildings and structures that is marked by two large lava rock pillars. It is significant for its association with the development of the area of summer retreats in the early-twentieth century. Significant characteristics of the district include its varied, intact concentration of architecture, stone pillars, narrow roadway, and association with Volcano Village as a summer retreat.
Hawai'i Volcanoes National Park	TCP	Eligible	The entirety of Hawai'i Volcanoes National Park is significant as a Traditional Cultural Property (TCP) for its association with Native Hawaiian culture, traditions, and sacred uses. This includes the physical manifestations of the volcano, the forested areas as well as the soundscape and the airspace. Many Native Hawaiian cultural practitioners also come to Kīlauea for ceremonies, hoʻokupu, and paying tribute to the deity Pelehonuamea. The exceptional stillness and serenity of the TCP are significant characteristics that allow Native Hawaiians to continue conducting traditional ceremonies that require a quiet setting.
Hilina Pali Road	District	Listed	Hilina Pali Road is a secondary road in the Park road system that was built by the CCC between 1933 and 1942 and extends westerly from Chain of Craters Road for approximately 8.35 miles in a descent towards an overlook with a historic shelter overlooking the coastline. The road has several developed areas that are connected to the roadway containing a total of over 69 acres. It is significant for its association with the CCC and early Park development, as well as for its distinctive design and construction, including its use of NPS Rustic-style architecture. Significant characteristics of the district include the road's alignment and design,

Property Name	Property Type	Eligibility Status	Significant Characteristics
			its viewshed of the surrounding landscape, rustic design, descent towards the Hilina Pali overlook, and location near the coastline.
Historical Corral and Chute	Structure	Eligible	The Historical Corral and Chute is significant for its association with the agricultural history of the Kahuku Ranch. Significant characteristics include the structure's materials and association with the Kahuku Ranch.
Historic Trails	Structures	Eligible	The majority of the trails in the Park are historic, ranging in age from ancient trails, trails associated with cattle ranching, historical Park trails, CCC era trails, and trails related to Thomas Jaggar and the Buffalo Soldiers (Mauna Loa Trail). Significant characteristics of various historic trails throughout the Park include their locations, alignments, viewsheds, and surrounding landscapes.
Johnston Summer Residence (aka Hale Ōhi'a Cottages, Uluwena)	Building	Listed	The Johnston Summer Residence, constructed in 1931, consists of a main house, maid's quarters, and two-story carriage house with a landscaped Japanese garden. It is significant for its association with the development of Volcano Village as a summer retreat and as an example of the Queen Anne style. The residence's Queen Anne features (including its asymmetrical layout, complex roof form, fishscale shingles, turret and bay windows), association with summer tourism in the area, and surrounding landscape designed to hide the property from the street are all significant characteristics of the property.
Kahuku Ranch Base Camp Historic Site	Site	Eligible	The Kahuku Ranch Base Camp Historic Site spans over 5 acres and is part of the larger Kahuku Ranch. It is significant for the U.S. military's use of the ranch between 1939 to 1947 for strategic operations during World War II. The site's significant characteristics include its rolling, pastoral landscape and setting near Mauna Loa.
Kahuku Ranch Cultural Landscape	District, Cultural Landscape	Eligible	The Kahuku Ranch Cultural Landscape is locally significant for its association with the patterns of development in the cattle industry on the Island of Hawai'i and is particularly representative of the transition point in ranching history from land-responsive methods of cattle operations to more intensive infrastructure development and range management to support ranching operations in the first half of the twentieth century. The period of significance begins in 1912 when Kahuku underwent the first development as a part of the Parker Ranch and ends in 1947 when this initial phase of development was completed, and the ranch was sold to James W. Glover. This period reflects the establishment of the foundation of modern cattle ranching on the island. The Parker-era Kahuku represents the integration of early ranching practices, of large pastures and open ranges, and the first efforts

Property Name	Property Type	Eligibility Status	Significant Characteristics
			to operate the ranch through infrastructural development and range management. Significant characteristics include the rolling, pastoral landscape and association with cattle ranching.
Kahuku Shrines	Site	Eligible	The entire archeological complex of the Kahuku Shrine is significant in its named association with the 16th/17th century ruling chief ʻUmi-a-Līloa. Although the ties of this chief to specific features within the complex are tenuous, there are sufficient other regional associations with camps, trails, and temples in the high elevation area that support this evaluation. The Kahuku shrine also embodies the distinctive characteristics of Emory's Necker-style marae and those of shrines on Mauna Kea and Haleakalā. Further, the complex exhibits distinctive construction methods of stacked and set slabs on edge and end that are not typically found in such concentrations in low elevation areas and thus may represent an alpine/sub-alpine construction style. Additionally, the ʻUmi Caverns complex offers an opportunity to examine the convergence of high elevation land use, transportation, and ceremonial activities.
Kahuku-ʻĀinapō Trail	Structure	Eligible	The Kahuku-ʻĀinapō Trail is a segment of an "old trail system" that was used in historic times for driving cattle between various cattle ranching operations associated with Parker Ranch (ca. 1912-1947). Stop over locations includes various ranches in route including Kapāpala Ranch, Keahou Ranch, Humuula Sheep Station, and Puʻuʻōʻō Ranch. The trail is significant as it contributes to broad patterns of history and has the potential to yield information. Significant characteristics of the trail include its alignment and its association with and location near various ranches.
Kahuku-Pōhue Parcel Archaeological Sites	Site	Eligible	The Kahuku-Pōhue Parcel contains a total of 60 sites made up of hundreds of archeological features and ethnographic resources that have the potential to yield information on Hawaiian history and prehistory. The parcel contains four resources that have architectural/engineering significance, including the traditional Hawaiian village at Kahakahakea, which was designed around the local topography. Sites also include a quarry, habitation features, shrines, and trail segments associated with the traditional practice of commuting between residences. Significant characteristics of the site include extant material culture remains, their configuration and materials, Kahakahakea's landscape design, the surrounding topography, and trail alignments and their association with residences.
Kalapana Fishing and Homesteading Rights (TCP)	TCP	Eligible	The Kalapana Fishing and Homesteading Rights area is a TCP significant for its association with Native Hawaiian culture and traditions. It is located within the Puna-Kaʻū Historic District and is contributing to the district. Pursuant to the act of June 20, 1938 (52 Stat.

Property Name	Property Type	Eligibility Status	Significant Characteristics
			781; 16 U.S.C. 391b and 396a) Native Hawaiian residents of the villages adjacent to the Kalapana extension area added to the Park by the above act and visitors under their guidance are granted the exclusive privileges of fishing or gathering seafood from parklands (above the high waterline) along the coastline of such extension area. These persons may engage in commercial fishing under proper State permit. Significant characteristics of the TCP include its use and association with the ocean and coastline.
Kīlauea Administration and Employee Housing Historic District (Cultural Landscape)	District, Cultural Landscape	Eligible	The Kīlauea Administration and Employee Housing Historic District encompasses a collection of small-scale, rustic houses and buildings along the northeast edge of the Kīlauea Caldera. Most of the buildings and landscape features were built by CCC crews and designed following a series of master plans developed from 1931 to 1941 by the NPS Landscape and Engineering Division. The period of significance for the district is between 1927 and 1942, and it is significant for its association with the CCC and early Park planning and for its NPS Rustic-style architecture and landscape design. Significant characteristics of the district include the configuration and rustic design of the buildings, its location near the caldera, landscape design, and association with the CCC.
Kīlauea Crater	Site	Listed	Kīlauea Crater is located within the summit depression of Kīlauea Volcano, one of the earth's most active volcanoes. It is significant for its association with Native Hawaiian culture and tradition centered around the goddess Pele. It is also significant as a focal point of tourism and scientific study within the Park. The crater is used for traditional practices. Significant characteristics of the site include its quiet setting that allows Native Hawaiians to continue conducting traditional ceremonies.
Kīlauea Landing Field (Kīlauea Airfield Study Areas)	Site	Eligible	Kīlauea Landing Field was a military landing field that was built in 1923 at the request of the US Army Hawaiian Department. It was the first airfield constructed on the Island of Hawai'i and used to photograph the Caldera for the first time from the air. The field was destroyed by the eruption of Halemaʻumaʻu in the following year and was replaced by Boles Field. Kīlauea Landing Field is significant for its association with Hawaiian aviation history, military history, aerial photography, and the 1924 eruption of Kīlauea. The site's significant characteristics include its association with and location near Kīlauea.
Kilauea Military Camp Historic	District, Cultural Landscape	Eligible	The Kilauea Military Camp Historic District was established in 1916 and encompasses approximately 50 acres of land. It served as the location for training the local National Guard members and also served as a rest and relaxation facility for the military. During World War II,

Property Name	Property Type	Eligibility Status	Significant Characteristics
District (Cultural Landscape)			the camp was used as a Japanese internment and prisoner-of-war camp. It is significant for its association with the military history of the area as well as for its planning and design. Significant characteristics of the district include its architecture and landscape design.
Kīpuka Ka'ōpapa	Site	Eligible	Kīpuka Ka'ōpapa is a significant archeological resource and is a vestige of the Ka'ū Agricultural Field Systems, an expansive area of intensive agriculture that was built as early as the 1400s. The site is made up of a complex network of rock walls, mounds and structures and is eligible for having information potential into past traditional agricultural practices. The site's stone materials, extant structures and features and their configurations, and the agricultural landscape are all significant characteristics.
Kīpuka Kī	Site	Unevaluated	Kīpuka Kī has not been formally evaluated, but it is considered an ʻŌiwi holy place of worship. Potential significant characteristics include the natural soundscape including birds singing and the sound of leaves in the wind.
Lithic Block Quarry	Site	Eligible	The Lithic Block Quarry is a traditional ancient stone tool production site that is significant for its potential to yield information regarding production practices. It has been mapped with 277 individual workshops where fine-grained basalt rocks were shaped into stone tools by Native Hawaiians after the late-1600s. Significant characteristics include the extant remains of lithic production and the site's geology and location.
Mauna Loa Road	District	Listed	Mauna Loa Road, constructed between 1934 and 1962, is a secondary road through the Park that has several developments along its route. It is significant for its association with the CCC and for its NPS Rustic-style design. Significant characteristics include the road's alignment and location near the Kīlauea Crater and Mauna Loa and the district's rustic architecture and landscape design.
Mokuʻāweoweo Caldera	Site	Eligible	Mokuʻāweoweo Caldera is located at the summit of Mauna Loa and is considered a sacred place and ethnographic resource to many Native Hawaiians. Significant characteristics of the site include its quiet setting that allows Native Hawaiians to continue conducting traditional ceremonies.
Nāhuku (Thurston Lava Tube) Cultural Landscape	District, Cultural Landscape	Eligible	The Nāhuku Cultural Landscape (Thurston Lava Tube) is significant for its role in the development of tourism at Hawai'i Volcanoes National Park and the Hawaiian Islands. The identification of the lava tube in 1912 and its popularity as a visitor destination drew attention to the site as the Park was being established. The Thurston Lava Tube complex is also significant in the history of volcanology, allowing scientists and visitors to experience the

Property Name	Property Type	Eligibility Status	Significant Characteristics
			effects of volcanic activity at close range. Furthermore, features of the Thurston Lava Tube complex are significant for the association with the history of NPS design and construction and the NPS Rustic style. Certain features, such as stone walls and steps, constructed with native materials, are associated with the work of the CCC. Other improvement campaigns are related to Mission 66 goals. The Thurston Lava Tube complex is also contributing to the National Register-nominated Crater Rim Drive Historic District. Significant characteristics of the district include its rustic architecture, natural design, association with the CCC and Mission 66, and association with tourism.
Nāmakanipaio Cabin Camp District	District	Eligible	The Nāmakanipaio Cabin Camp District is a campground built in the 1960s that contains rustic cabins, camp sites, comfort stations, and picnic areas. It is significant due to its construction and design as part of the Mission 66 program and as a rare example of Hawaiian Mission 66-style architecture. Significant characteristics of the district include its rustic design and its association with camping and the Mission 66 program.
1877 Volcano House (Old Volcano House No. 42)	Building	Listed	The 1877 Volcanoe House (Old Volcano House No. 42) is a one-story building built in 1877 that formerly served as a hotel for visitors of Kīlauea Volcano. It is significant for its association with tourism and visitation within the Park and as an early representation of Western architecture in the area.
Pi‘i Mauna Dump Site	Site	Unevaluated	The Pi‘i Mauna Dump Site has not been formally evaluated, but it is a historic-age dump site encompassing approximately 450 square meters that contains a large rubble pile of old concrete, red clay fire bricks, boulders, metal fragments, and ceramics. Potential significant characteristics include the extant material culture remains.
Puna-Ka‘ū Historic District	District	Listed	The Puna Ka‘ū Historic District encompasses over 300 sites including village complexes, temple sites, cave shelters, petroglyph fields, and coastal trails. These sites are significant for their potential to yield information regarding Native Hawaiian socio-political religious systems, land use, and arts. The district encompasses land that is used for traditional practices. Significant characteristics include extant material culture and structure remains, trail alignments, and other evidence of prehistoric and historic land use.
Punalu‘u Heiau	Site	Unevaluated	The Punalu‘u Heiau is a Native Hawaiian temple constructed of heavy lava slabs. It is potentially significant for its association with Native Hawaiian rituals and culture. Potential significant characteristics include the heiau’s materials and quiet setting.

Property Name	Property Type	Eligibility Status	Significant Characteristics
Punalu‘u Springs	Site	Unevaluated	The Punalu‘u Springs, also referred to as “Queen’s Bath,” is the location of a natural spring associated with Native Hawaiian culture. It was covered by lava flows in the 1980s and 1990s. Potential significant characteristics include the site’s quiet, natural setting.
Pu‘uloa Petroglyphs	Cultural Landscape	Eligible (and contributing feature to the Puna-Ka‘ū Historic District)	Pu‘uloa is a very sacred and religious place for many of the people of Hawai‘i and has been used ritually for over 500 years. It is the largest petroglyph field in the state. There are more than 23,000 petroglyph images, mostly *poho* (cupules, or depressions) in which a portion of the umbilical cord of a newborn was placed to ensure a long life. Motifs of circles, other geometric designs, as well as cryptic designs of human representations known as anthropomorphisms, canoe sails, and even feathered cape motifs can all be found in this dense concentration. Significant characteristics of the cultural landscape include the petroglyph designs and configurations.
Rain Shed, Building 43	Building	Eligible	The Rain Shed, Building 43 is eligible for its design and engineering. The water collection system is an example of how water supplies were developed in areas lacking wells and how the collection technology changed over time. The water collection system was an essential element in the development of the Park. Significant characteristics of the building include its extant historic materials from the period of significance, such as its corrugated metal siding and roof, and its engineering.
Volcano Residential District	District	Eligible	The Volcano Residential District encompasses several residences in Volcano Village, located just east of the Park, that were constructed prior to World War II. The district is significant for its architecture and design. Significant characteristics of the district include its location and near Hawai’i Volcanoes National Park, its architecture, and its secluded and forested setting.
Whitney Seismograph Vault No. 29	Building	Listed	The Whitney Seismograph Vault No. 29 is an underground room constructed in 1912 that housed the study of volcanic and seismic activity at Kīlauea and Mauna Loa by American scientists between 1912 and 1961. The above-ground portion of the vault consists of a free-standing, reinforced concrete pier. The building is significant for its association with the history of the study of volcanic and seismic activity in the area. Significant characteristics of the vault include its location and association with Kīlauea.
Wilkes Campsite	Site	Listed	Wilkes Campsite is the location and remains of an 1840-1841 expedition by American scientists on the summit of Mauna Loa. It is significant for its association with military history and the history of scientific study on the island as well as for its association with Lieutenant Charles Wilkes, the leader of the expedition. It is also significant in the areas of transportation and engineering. The campsite’s secluded location at Mauna Loa, volcanic setting, and extant remains of the campsite are all significant characteristics.

Property Name	Property Type	Eligibility Status	Significant Characteristics
World War II Scrape Mounds (Kīlauea Airfield Study Areas)	Site	Eligible	The World War II Scrape Mounds were the result of efforts by the CCC and the U.S. military to destroy the two airfields and any other potential landing site for Japanese military aircraft after the Pearl Harbor attack. The features were generally caused by a 1.5-meter bulldozer bucket that was used to create mounds and depressions across the landscape. The mounds are significant due to their association with the CCC personnel efforts to deny use to the airfields, World War II in Hawai'i, and their information potential. Significant characteristics include the extant remains of the scrape mounds and depressions.

APPENDIX H

Section 7 Consultation

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish And Wildlife Office
300 Ala Moana Boulevard, Box 50088
Honolulu, HI 96850-5000
Phone: (808) 792-9400 Fax: (808) 792-9580

In Reply Refer To: March 22, 2023
Project Code: 2023-0058774
Project Name: Hawai‘i Volcanoes National Park - Air Tour Management Plan

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened and endangered species, as well as designated critical habitat that may occur within the boundary of your proposed project and that may be affected by project related actions. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Please contact the Service's Pacific Islands Fish and Wildlife Office (PIFWO) at 808-792-9400 if you have any questions regarding your IPaC species list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may adversely affect threatened and endangered species and/or designated critical habitat.

Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a Biological

Evaluation, similar to a Biological Assessment, be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment or Biological Evaluation are described at 50 CFR 402.12.

Due to the significant number of listed species found on each island within PIFWO's regulatory jurisdiction, and the difficulty in accurately mapping ranges for species that we have limited information about, your species list may include more species than if you obtained the list directly from a Service biologist. We recommend you use the species links in IPaC to view the life history, habitat descriptions, and recommended avoidance and minimization measures to assist with your initial determination of whether the species or its habitat may occur within your project area. If appropriate habitat is present for a listed species, we recommend surveys be conducted to determine whether the species is also present. If no surveys are conducted, we err on the side of the species, by regulation, and assume the habitat is occupied. Updated avoidance and minimization measures for plants and animals, best management practices for work in or near aquatic environments, and invasive species biosecurity protocols can be found on the PIFWO website at: https://www.fws.gov/office/pacific-islands-fish-and-wildlife/library.

If a Federal agency determines, based on the Biological Assessment or Biological Evaluation, that a listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: http://www.fws.gov/endangered/esa-library/index.

Non-federal entities can also use the IPaC generated species list to develop Habitat Conservation Plans (HCP) in accordance with section 10(a)(1)(B) of the Act. We recommend HCP applicants coordinate with the Service early during the HCP development process. For additional information on HCPs, the Habitat Conservation Planning handbook can be found at https://www.fws.gov/sites/default/files/documents/habitat-conservation-planning-handbook-entire.pdf.

Please be aware that wind energy projects should follow the Service’s wind energy guidelines (http://www.fws.gov/windenergy) for minimizing impacts to migratory birds. Listed birds and the Hawaiian hoary bat may also be affected by wind energy development and we recommend development of a Habitat Conservation Plan for those species, as described above. Guidance for minimizing impacts to migratory birds for projects including communications towers can be found at:

- http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers
- http://www.towerkill.com
- http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation actions that benefit threatened and endangered species into their project planning to further the purposes of the Act in accordance with section 7(a)(1). Please include the Consultation Tracking Number associated with your IPaC species list in any

request for consultation or correspondence about your project that you submit to our office. Please feel free to contact us at PIFWO_admin@fws.gov or 808-792-9400 if you need more current information or assistance regarding the potential impacts to federally listed species and federally designated critical habitat.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Pacific Islands Fish And Wildlife Office
300 Ala Moana Boulevard, Box 50088
Honolulu, HI 96850-5000
(808) 792-9400

PROJECT SUMMARY

Project Code: 2023-0058774
Project Name: Hawai‘i Volcanoes National Park - Air Tour Management Plan
Project Type: Recreation Operations
Project Description: The Federal Aviation Administration (FAA) and the National Park Service (NPS) are working together to develop an air tour management plan (ATMP) pursuant to the National Parks Air Tour Management Act of 2000. The National Parks Air Tour Management Act applies to all commercial air tour operations over a unit of the national park system and 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.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@19.26080965,-155.67585817112186,14z

Counties: Hawaii County, Hawaii

ENDANGERED SPECIES ACT SPECIES

There is a total of 85 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Hawaiian Hoary Bat *Lasiurus cinereus semotus*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/770
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/6477.pdf

BIRDS

NAME STATUS

Band-rumped Storm-petrel *Oceanodroma castro* Endangered
Population: USA (HI)
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/1226
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/6939.pdf

Hawaii Akepa *Loxops coccineus* Endangered
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/5714
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/6938.pdf

Hawaiian (=koloa) Duck *Anas wyvilliana* Endangered
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/7712
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/6934.pdf

Hawaiian Coot *Fulica americana alai* Endangered
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/7233
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/6934.pdf

Hawaiian Goose *Branta (=Nesochen) sandvicensis* Threatened
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/1627
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/6925.pdf

Hawaiian Petrel *Pterodroma sandwichensis* Endangered
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/6746
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/6939.pdf

Hawaiian Stilt *Himantopus mexicanus knudseni* Endangered
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/2082
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/6934.pdf

NAME	STATUS
Newell's Townsend's Shearwater *Puffinus auricularis newelli* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2048 General project design guidelines: https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/6939.pdf	Threatened
Short-tailed Albatross *Phoebastria (=Diomedea) albatrus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/433	Endangered

REPTILES

NAME	STATUS
Green Sea Turtle *Chelonia mydas* Population: Central North Pacific DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6199 General project design guidelines: https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/6929.pdf	Threatened

INSECTS

NAME STATUS

Blackburn's Sphinx Moth *Manduca blackburni* Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/4528
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/6926.pdf

Hawaiian Picture-wing Fly *Drosophila digressa* Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/1543
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/6937.pdf

Hawaiian Picture-wing Fly *Drosophila mulli* Threatened

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/5064
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/6937.pdf

Hawaiian Picture-wing Fly *Drosophila ochrobasis* Endangered

There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/4161
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/6937.pdf

Orangeblack Hawaiian Damselfly *Megalagrion xanthomelas* Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/6224
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/6935.pdf

FLOWERING PLANTS

NAME STATUS

`aiea *Nothocestrum breviflorum* Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/7493
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7060.pdf

`aku`aku *Cyanea platyphylla* Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/2041
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

`aku *Cyanea tritomantha* Endangered
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/7678
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7060.pdf

`anunu *Sicyos albus* Endangered
There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/4226
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7060.pdf

`anunu *Sicyos macrophyllus* Endangered
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/2768
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

`oha Wai *Clermontia lindseyana* Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/5493
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

`oha Wai *Clermontia peleana* Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/849
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7060.pdf

`oha Wai *Clermontia pyrularia* Endangered

NAME STATUS

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/6165
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

`ohe *Joinvillea ascendens ascendens* Endangered
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/2412
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

A`e *Zanthoxylum dipetalum var. tomentosum* Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/2297
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7060.pdf

A`e *Zanthoxylum hawaiiense* Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/4645
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

Alani *Melicope zahlbruckneri* Endangered
There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/7338
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7060.pdf

Carter's Panicgrass *Panicum fauriei var. carteri* Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/5578
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7060.pdf

Cyperus fauriei Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/3364
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7060.pdf

Delissea undulata Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/1565
General project design guidelines:

NAME STATUS

https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

Gouania vitifolia Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/6347
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

Ha`iwale *Cyrtandra giffardii* Endangered

There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/1460
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7060.pdf

Ha`iwale *Cyrtandra tintinnabula* Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/5755
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7060.pdf

Haha *Cyanea copelandii ssp. copelandii* Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/5832
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7060.pdf

Haha *Cyanea hamatiflora ssp. carlsonii* Endangered

There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/4558
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7060.pdf

Haha *Cyanea stictophylla* Endangered

There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/4068
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7060.pdf

Haiwale *Cyrtandra nanawaleensis* Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9492
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

NAME STATUS

Haiwale *Cyrtandra wagneri* Endangered
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9493

Hala Pepe *Pleomele hawaiiensis* Endangered
There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/2910
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

Hau Kuahiwi *Hibiscadelphus giffardianus* Endangered
There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/3458
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7060.pdf

Hawaiian Gardenia (=na`u) *Gardenia brighamii* Endangered
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/6853
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

Hawaiian Vetch *Vicia menziesii* Endangered
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/594
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7060.pdf

Heau *Exocarpos menziesii* Endangered
Population:
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9607

Hilo Ischaemum *Ischaemum byrone* Endangered
There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/3903
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7060.pdf

Hoawa *Pittosporum hawaiiense* Endangered
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/402

Holei *Ochrosia haleakalae* Endangered
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/884
General project design guidelines:

NAME STATUS

https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

Holei *Ochrosia kilaueaensis* Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/5248
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7060.pdf

Ihi *Portulaca villosa* Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4886

Kauila *Colubrina oppositifolia* Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/850
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

Kiponapona *Phyllostegia racemosa* Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/5226
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7060.pdf

Kuahiwi Laukahi *Plantago hawaiensis* Endangered

There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/3749
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

Loulu *Pritchardia lanigera* Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/5812

Loulu *Pritchardia maideniana* Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4945
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7060.pdf

Ma`oli`oli *Schiedea hawaiiensis* Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/2509

Makou *Ranunculus hawaiensis* Endangered

No critical habitat has been designated for this species.

NAME STATUS

Species profile: https://ecos.fws.gov/ecp/species/4033
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

Makou *Ranunculus mauiensis* Endangered
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/3594
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

Maui Reedgrass *Calamagrostis expansa* Endangered
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/1742
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

Mauna Loa (=ka'u) Silversword *Argyroxiphium kauense* Endangered
There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/1069
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

Mehamehame *Flueggea neowawraea* Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/109
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

Nanu *Gardenia remyi* Endangered
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/5835
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

Neraudia ovata Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/3669
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

Ohai *Sesbania tomentosa* Endangered
There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/8453
General project design guidelines:

NAME STATUS

https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

Phyllostegia brevidens Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/3184

Phyllostegia floribunda Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/5986
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7060.pdf

Phyllostegia parviflora Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/255
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

Phyllostegia stachyoides Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4922

Phyllostegia velutina Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/6699
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

Po`e *Portulaca sclerocarpa* Endangered

There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/1719
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7060.pdf

Popolo Ku Mai *Solanum incompletum* Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/3199
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

Popolo *Solanum nelsonii* Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/2281
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

NAME STATUS

Sanicula sandwicensis Endangered
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/5580
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7060.pdf

Schiedea diffusa ssp. macraei Endangered
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9495

Schiedea diffusa subsp. diffusa Endangered
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9616

Silene hawaiiensis Threatened
There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/4189
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

Spermolepis hawaiiensis Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/1670
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

Stenogyne angustifolia var. angustifolia Endangered
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/1591
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7060.pdf

Stenogyne cranwelliae Endangered
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/2536
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7060.pdf

Vigna o-wahuensis Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/8445
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf

FERNS AND ALLIES

NAME	STATUS
Asplenium peruvianum var. insulare	Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.	
Species profile: https://ecos.fws.gov/ecp/species/4357	
General project design guidelines: https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf	
Asplenium-leaved Diellia *Asplenium dielerectum*	Endangered
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.	
Species profile: https://ecos.fws.gov/ecp/species/7361	
General project design guidelines: https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf	
Deparia kaalaana	Endangered
No critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/9612	
Hohiu *Dryopteris glabra var. pusilla*	Endangered
No critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/8583	
General project design guidelines: https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7060.pdf	
Microlepia strigosa var. mauiensis	Endangered
No critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/4737	
General project design guidelines: https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf	
Pendant Kihi Fern *Adenophorus periens*	Endangered
There is **final** critical habitat for this species. Your location overlaps the critical habitat.	
Species profile: https://ecos.fws.gov/ecp/species/1916	
General project design guidelines: https://ipac.ecosphere.fws.gov/project/OPS4MRLQZBHXNDUQ3LOEHZNYKI/documents/generated/7051.pdf	

CRITICAL HABITATS

There are 17 critical habitats wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
`anunu *Sicyos albus*	Final
https://ecos.fws.gov/ecp/species/4226#crithab	
`i`iwi *Drepanis coccinea*	Proposed

NAME	STATUS
For information on why this critical habitat appears for your project, even though `i`iwi is not on the list of potentially affected species at this location, contact the local field office. https://ecos.fws.gov/ecp/species/9076#crithab	
Alani *Melicope zahlbruckneri* https://ecos.fws.gov/ecp/species/7338#crithab	Final
Ha`iwale *Cyrtandra giffardii* https://ecos.fws.gov/ecp/species/1460#crithab	Final
Haha *Cyanea hamatiflora ssp. carlsonii* https://ecos.fws.gov/ecp/species/4558#crithab	Final
Haha *Cyanea stictophylla* https://ecos.fws.gov/ecp/species/4068#crithab	Final
Hala Pepe *Pleomele hawaiiensis* https://ecos.fws.gov/ecp/species/2910#crithab	Final
Hau Kuahiwi *Hibiscadelphus giffardianus* https://ecos.fws.gov/ecp/species/3458#crithab	Final
Hawaiian Picture-wing Fly *Drosophila heteroneura* For information on why this critical habitat appears for your project, even though Hawaiian Picture-wing Fly is not on the list of potentially affected species at this location, contact the local field office. https://ecos.fws.gov/ecp/species/7895#crithab	Final
Hawaiian Picture-wing Fly *Drosophila ochrobasis* https://ecos.fws.gov/ecp/species/4161#crithab	Final
Hilo Ischaemum *Ischaemum byrone* https://ecos.fws.gov/ecp/species/3903#crithab	Final
Kuahiwi Laukahi *Plantago hawaiensis* https://ecos.fws.gov/ecp/species/3749#crithab	Final
Mauna Loa (=ka'u) Silversword *Argyroxiphium kauense* https://ecos.fws.gov/ecp/species/1069#crithab	Final
Ohai *Sesbania tomentosa* https://ecos.fws.gov/ecp/species/8453#crithab	Final
Pendant Kihi Fern *Adenophorus periens* https://ecos.fws.gov/ecp/species/1916#crithab	Final
Po`e *Portulaca sclerocarpa* https://ecos.fws.gov/ecp/species/1719#crithab	Final
Silene hawaiiensis https://ecos.fws.gov/ecp/species/4189#crithab	Final

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United States Department of the Interior
NATIONAL PARK SERVICE
Natural Resource Stewardship & Science
Natural Sounds and Night Skies Division

United States Department of Transportation
FEDERAL AVIATION ADMINISTRATION
Office of Policy, International Affairs & Environment
Office of Environment and Energy

NATIONAL PARKS AIR TOUR MANAGEMENT PROGRAM

April 13, 2023

Mr. Earl Campbell
U.S. Fish and Wildlife Service, Pacific Islands Ecoregion
300 Ala Moana Blvd, Rm 3-122, PO Box 50088
Honolulu, HI 96850

Re: Informal Section 7 Consultation for Hawai'i Volcanoes National Park Air Tour Management Plan

Dear Mr. Campbell,

The Federal Aviation Administration (FAA), in cooperation with the National Park Service (NPS) (collectively, the agencies), is developing an Air Tour Management Plan (ATMP) for Hawai'i Volcanoes National Park (the Park). The agencies are preparing documentation for the draft ATMP in accordance with the National Parks Air Tour Management Act of 2000 (NPATMA) and other applicable laws. This letter is a request for informal consultation with your office by the agencies pursuant to Section 7 of the Endangered Species Act (the ESA). We are seeking your concurrence that the proposed action in the draft ATMP will not adversely affect threatened and endangered species occurring within the study area.

Project Background and Purpose of the Action

NPATMA directs the agencies to develop ATMPs or voluntary agreements for National Park System units over which more than 50 commercial air tours occur annually (49 U.S.C. § 40128). A commercial air tour operation is defined as "a flight conducted for compensation or hire in a powered aircraft where the purpose of the flight is sightseeing over a national park, within ½ mile outside the boundary of a national park … during which the aircraft flies below an altitude of 5,000 feet (ft.) above ground level (AGL) or less than 1 mile laterally from any geographic feature within the Park (unless more than ½ mile outside the boundary)." When NPATMA was passed in 2000 it required the FAA to grant Interim Operating Authority (IOA) to existing air tour operators who were permitted to continue air tour operations over parks until an ATMP was completed. IOA includes only an annual cap on the number of commercial air tours that may be conducted by an operator but does not represent the actual number of air tours conducted and does not designate the route(s), time-of-day, or altitude(s) of such tours. In 2012, NPATMA was amended to require operators to report the number of commercial air tours conducted each year.

On February 14, 2019, Public Employees for Environmental Responsibility and the Hawai'i Coalition Malama Pono filed a petition for writ of mandamus seeking to have the agencies complete air tour management plans or voluntary agreements at seven specified parks, *In re Public Employees for*

Environmental Responsibility, et al., Case No. 19-1044 (D.C. Cir.). On May 1, 2020, the United States Court of Appeals for the District of Columbia Circuit granted the petition and ordered the agencies to file a proposed schedule for bringing twenty-three eligible parks, including Hawai'i Volcanoes National Park, into compliance with NPATMA within two years. The D.C. Circuit subsequently entered an order requiring the agencies to propose firm completion dates to bring all parks into compliance with NPATMA. The completion date set for the Park is December 31, 2023.

Past and Current Commercial Air Tour Activity

Table 1 describes the current commercial air tour activity over the Park along with the average number of flights typically flown over the Park, based on data reported to the NPS and FAA. Based on reported data from 2017-2019, the average annual number of commercial air tours over the Park is 11,376. The flights currently conducted over the Park are flown at altitudes ranging from 500 ft. to 1,500 ft. AGL depending on location over the Park. Details regarding the proposed action, which is implementation of an ATMP for the Park, are described in the following sections.

Table 1. Current Commercial Air Tour Activity

Park Unit	IOA	Current AGL	Average Total Annual Flights (2017-2019)
Hawai'i Volcanoes National Park	26,664	500 ft. – 1,500 ft.	11,376

Action Area

The action area is the area that includes all direct and indirect effects. The action area includes the Park and the land within a ½-mile of the Park's boundary, depicted in Figure 1, and is also referred to as the ATMP planning area. The ATMP applies to all commercial air tours within the ATMP planning area. A commercial air tour subject to the ATMP is any flight, conducted for compensation or hire in a powered aircraft where a purpose of the flight is sightseeing over the Park, during which the aircraft flies:

> (1) Below 5,000 ft. above ground level (except solely for the purposes of takeoff or landing, or necessary for safe operation of an aircraft as determined under the rules and regulations of the FAA requiring the pilot-in-command to take action to ensure the safe operation of the aircraft); or
>
> (2) Less than one mile laterally from any geographic feature within the Park (unless more than ½-mile outside the Park boundary).

As air tours outside of the ATMP planning area are outside the jurisdiction of the ATMP and not subject to NPATMA, there would be no limitations on the annual number of air tours that could occur, and no designated routes could be set outside the ATMP planning area.

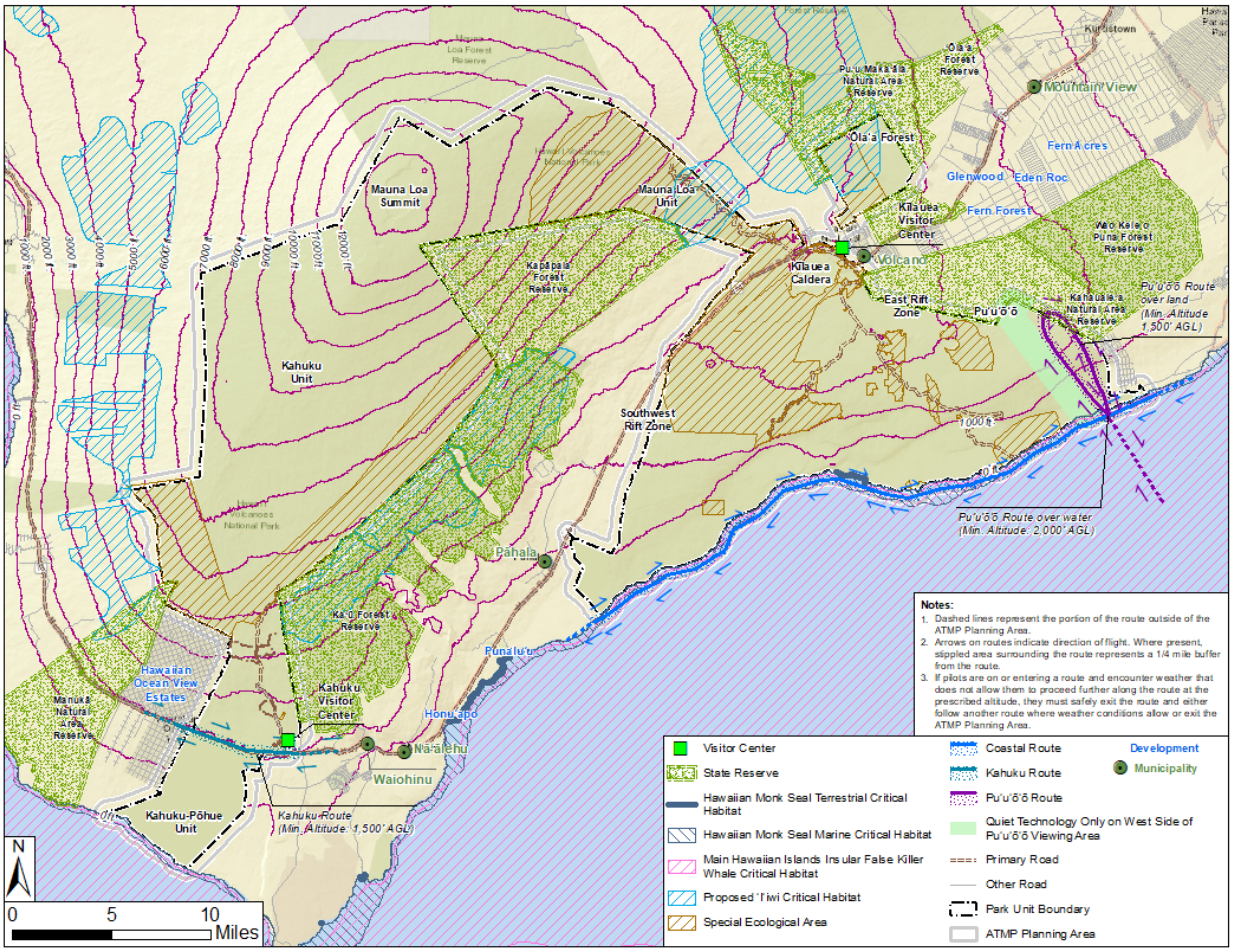

Figure 1. Commercial Air Tour Routes at Hawai'i Volcanoes National Park Under the Proposed Action[1]

Description of Proposed Action

The proposed action is implementation of an ATMP for the Park which establishes conditions for the management of commercial air tour operations. The ATMP will remain in effect until amended, at which time the agencies would reinitiate consultation pursuant to 50 CFR 402.16. A summary of operating parameters of the draft ATMP are discussed in detail below. See Attachment 1 for the draft ATMP.

Commercial Air Tours Per Year

The draft ATMP authorizes 1,565 commercial air tours over the Park each year—14% of the existing number of flights.

[1] Figure 1 includes designated and proposed critical habitat under the jurisdiction of both the National Marine Fisheries Service and U.S. Fish and Wildlife Service.

Commercial Air Tour Routes and Altitudes

The draft ATMP requires aircraft operators follow three designated flight paths with a minimum altitude of 1,500 ft. AGL over land and 2,000 ft. AGL over the ocean. Flights more than ½-mile outside the Park boundary are outside of the action area and are subject to the altitude restrictions of the 2008 FAA Hawai'i Air Tour Common Procedures Manual (HI Common Procedures Manual).

There are three designated routes that operators must follow:

- Pu'u'ō'ō Route: Travels on the east rift of Kīlauea in the Pu'u'ō'ō area with a single entry and exit point over the ocean. Operators that have converted to quiet technology aircraft may request to be allowed to conduct air tours in an expanded fly zone directly west of this route near Pu'u'ō'ō (the Pu'u'ō'ō Quiet Technology Zone). The minimum altitude is 1,500 ft. AGL over land and 2,000 ft. AGL over the ocean. Hovering, loitering, and/or circling is allowed for up to five minutes.
- Coastal Route: Bi-directional route offshore along the edge of the park boundary with a 2,000 ft. lateral distance from shore and at minimum altitude of 2,000 ft. AGL. over the ocean.
- Kahuku Route: Bi-directional route across the south side of the Kahuku Unit following Highway 11 at minimum altitude of 1,500 ft. over land.

Commercial Air Tour Day/Time

Flights would be permitted between the hours of 10:00 AM and 2:00 PM, unless using a quiet technology aircraft. Flights would be permitted on Monday, Tuesday, Thursday, Friday, and Saturday. Air tours would not be allowed on Sundays. Operators that have converted to quiet technology aircraft could request to be allowed to conduct air tours on Wednesdays.

Additional Requirements

Hovering, Loitering, and Circling: Hovering, loitering, and/or circling for up to five minutes would be permitted only on the Pu'u'ō'ō Route and in the Pu'u'ō'ō Quiet Technology Zone. Circling aircraft would have to turn away from the advancing blade as much as possible to minimize noise.

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. Resource condition monitoring and adaptive management of the ATMP would occur under this alternative to ensure that the terms and conditions of the ATMP would continue to address Park management objectives. The NPS would conduct periodic acoustic monitoring to ensure that the terms and conditions of the ATMP remain consistent with park management objectives. The FAA and the NPS will provide additional information for interested parties about the notice and process for 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 Park information

that operators could use to further their own understanding of Park priorities and management objectives, as well as enhance the interpretive narrative for air tour clients and increase understanding of the Park by air tour clients. Helicopter pilots would also be required to complete the FAA introduction to Fly Neighborly training.[2] 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.

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 draft ATMP, and to report flight monitoring data as an attachment to the operator's semi-annual reports. FAA determination of non-compliance may result in loss of authorization to conduct commercial air tours authorized by the ATMP. Any violation of Operations Specifications shall be treated in accordance with FAA Order 2150.3, *FAA Compliance and Enforcement Program*.[3]

Quiet Technology Incentives

The draft ATMP incentivizes the adoption of quiet technology aircraft by commercial air tour operators conducting commercial air tours over the Park. Operators that have converted to quiet technology aircraft would be allowed to conduct commercial air tours from 9:00 AM to 5:00 PM on all days that air tours are authorized. Quiet technology aircraft are permitted to fly on Wednesdays and conduct commercial air tours in additional locations in the Pu'u'ō'ō Quiet Technology Zone.

Summary of Conservation Measures

The proposed action includes the following measures protective of species:

- Reduces the number of air tours over the Park from 11,376 (three-year average) to 1,565, an 86% reduction.
- Permits flights only between the hours of 10:00 AM and 2:00 PM, unless using a quiet technology aircraft then flights would be permitted from 9:00 AM to 5:00 PM for those aircraft. This proposed window of operation would provide additional protection to wildlife during critical dusk/dawn periods that are prime times of day for foraging, mating, and communication.
- Aircraft will not hover or circle while conducting air tours over the Park, unless on the Pu'u'ō'ō Route and in the Pu'u'ō'ō Quiet Technology Zone where this is permitted for up to five minutes. This measure would minimize the time individual animals would be exposed to helicopter noise.
- Sets minimum altitudes of 1,500 ft. AGL over land and 2,000 ft. AGL over the ocean, which is an increase of 500 to 1,500 ft. AGL compared to existing operations. This increase in altitude would reduce noise intensity at ground level. When the altitude of an aircraft is increased, the total area of noise exposure from the aircraft may also increase depending on the surrounding terrain. However, because increases in altitude also result in a reduction in maximum sound level of the aircraft in areas nearby the flight track, the beneficial effects of increasing the

[2] https://www.faasafety.gov/gslac/ALC/course_content.aspx?pf=1&preview=true&cID=500
[3] https://www.faa.gov/regulations_policies/orders_notices/index.cfm/go/document.information/documentID/1034329

altitude of commercial air tours are anticipated to outweigh the *de minimis* impacts from any increase in the area exposed to the noise.

- Adaptive management of the route, frequency, and timing will be considered, analyzed, and included in the draft ATMP for the protection of bird movement patterns and climate change-induced range shifts impacted by air tours.

Listed Species and Critical Habitat Potentially Occurring within the Action Area

The U.S. Fish and Wildlife Service's (USFWS) Information Planning and Consultation (IPaC) tool and the NPS species list were used to assess the potential for any federally listed species or designated critical habitat that may occur within the action area. Species listed in Table 2 are those that are known to occur within the Park. All listed species including those that do not occur in the Park, but were identified via IPaC, can be found in the IPaC Official Species List (Attachment 3).

Table 2. Listed Species and Critical Habitat Potentially Occurring in the Action Area

Birds - Scientific Name	**Birds - Common name**	**Birds - Status (Federal)**	**Birds - Critical Habitat in the Action Area (Y/N)**	**Birds - Proposed Finding**
Branta (=Nesochen) sandvicensis	Hawaiian Goose (=nēnē)	Threatened	N	NLAA
Corvus hawaiiensis	ʻalalā	Endangered	N	NLAA
Drepanis coccinea	ʻI'iwi	Threatened	Proposed	NLAA
Hemignathus wilsoni	ʻAkiapōlāʻau	Endangered	N	NLAA
Loxops coccineus	Hawaiʻi ʻākepa	Endangered	N	NLAA
Loxops mana	Hawai'i Creeper	Endangered	N	NLAA
Oceanodroma castro	Band-rumped Storm-Petrel	Endangered	N	NLAA
Pterodroma sandwichensis	Hawaiian Petrel	Endangered	N	NLAA
Puffinus newelli	Newell's Shearwater	Threatened	N	NLAA
Reptiles - Scientific Name	**Reptiles - Common name**	**Reptiles - Status (Federal)**	**Reptiles - Critical Habitat in the Action Area (Y/N)**	**Reptiles - Proposed Finding**
Caretta caretta	Loggerhead Sea Turtle	Endangered	N	NLAA
Chelonia mydas	Green Sea Turtle	Threatened	N	NLAA
Dermochelys coriacea	Leatherback Sea Turtle	Endangered	N	NLAA
Eretmochelys imbricata	Hawksbill Sea Turtle	Endangered	N	NLAA
Lepidochelys olivacea	Olive Ridley Sea Turtle	Threatened	N	NLAA

Mammals - Scientific Name	Mammals- Common name	Mammals - Status (Federal)	Mammals - Critical Habitat in the Action Area (Y/N)	Mammals - Proposed Finding
Lasiurus semotus	Hawaiian Hoary Bat	Endangered	N	NLAA
Insects - Scientific Name	**Insects - Common name**	**Insects - Status (Federal)**	**Insects - Critical Habitat in the Action Area (Y/N)**	**Insects - Proposed Finding**
Drosophila digressa	Hawaiian Picture-wing Fly	Endangered	N	No Effect
Drosophila mulli	Hawaiian Picture-wing Fly	Threatened	Y	No Effect
Drosophila ochrobasis	Hawaiian Picture-wing Fly	Endangered	Y	No Effect
Megalagrion xanthomelas	Orangeblack Hawaiian Damselfly	Endangered	N	No Effect
Procaris hawaiana	Anchialine Pool Shrimp	Endangered	N	No Effect
Flowers - Scientific Name	**Flowers - Common name**	**Flowers - Status (Federal)**	**Flowers - Critical Habitat in the Action Area (Y/N)**	**Flowers - Proposed Finding**
Argyroxiphium kauense	Mauna Loa (=ka'u) Silversword	Endangered	Y	No Effect
Clermontia lindseyana	'oha Wai	Endangered	N	No Effect
Clermontia peleana	'oha Wai	Endangered	N	No Effect
Cyanea stictophylla	Haha	Endangered	Y	No Effect
Cyanea tritomantha	'aku	Endangered	N	No Effect
Cyrtandra giffardii	Ha 'iwale	Endangered	Y	No Effect
Cyrtandra tintinnabula	Ha'iwale	Endangered	N	No Effect
Exocarpos menziesii	Heau	Endangered	N	No Effect
Hibiscadelphus giffardianus	Hau Kuahiwi	Endangered	Y	No Effect
lschaemum byrone	Hilo lschaemum	Endangered	Y	No Effect
Joinvillea ascendens ascendens	'ohe	Endangered	N	No Effect
Melicope zahlbruckneri	Alani	Endangered	N	No Effect
Neraudia ovata	No Common Name	Endangered	N	No Effect
Nothocestrum breviflorum	'aiea	Endangered	N	No Effect
Ochrosia haleakalae	Holei	Endangered	N	No Effect
Ochrosia kilaueaensis	Holei	Endangered	N	No Effect
Phyllostegia floribunda	No Common Name	Endangered	N	No Effect

Phyllostegia stachyoides	No Common Name	Endangered	N	No Effect
Phyllostegia velutina	No Common Name	Endangered	Y	No Effect
Pittosporum hawaiiense	Hoawa	Endangered	N	No Effect
Plantago hawaiensis	Kuahiwi Laukahi	Endangered	Y	No Effect
Pleomele hawaiiensis	Hala Pepe	Endangered	Y	No Effect
Portulaca sclerocarpa	Po 'e	Endangered	Y	No Effect
Portulaca villosa	Ihi	Endangered	N	No Effect
Pritchardia lanigera	Loulu	Endangered	N	No Effect
Pritchardia maideniana	Loulu	Endangered	N	No Effect
Ranunculus hawaiensis	Makou	Endangered	N	No Effect
Sanicula sandwicensis	No Common Name	Endangered	N	No Effect
Schiedea diffusa subsp. *diffusa*	No Common Name	Endangered	N	No Effect
Sesbania tomentosa	Ohai	Endangered	Y	No Effect
Sicyos albus	'anunu	Endangered	Y	No Effect
Sicyos macrophyllus	'anunu	Endangered	N	No Effect
Silene hawaiiensis	No Common Name	Threatened	Y	No Effect
Solanum incompletum	Popolo Ku Mai	Endangered	N	No Effect
Spermolepis hawaiiensis	No Common Name	Endangered	N	No Effect
Stenogyne angustifolia var. *angustifolia*	No Common Name	Endangered	N	No Effect
Zanthoxylum hawaiiense	A'e	Endangered	N	No Effect
Ferns and Allies - Scientific Name	**Ferns and Allies - Common Name**	**Ferns and Allies - Status (Federal)**	**Ferns and Allies - Critical Habitat in the Action Area (Y/N)**	**Ferns and Allies - Proposed Finding**
Adenophorus periens	Pendant Kihi Fern	Endangered	Y	No Effect
Asplenium peruvianum var. *insulare*	No Common Name	Endangered	Y	No Effect

Other Protected Native Birds

Within the action area, there are several bird species that are not listed under the ESA but are protected under the Migratory Bird Treaty Act (MBTA). See Table 3.

Hawai‘i ‘amakihi (*Chlorodrepanis virens*) is a common, widely distributed omnivorous forest bird most abundant in upland mesic forest and subalpine woodland. The breeding season for Hawai‘i ‘amakihi occurs from November to May. The Island of Hawai‘i hosts a population of over 800,000 birds (Gorresen et al., 2009; Kendall et al., 2022). Based on population trend studies, this species appears to have mixed trends across the Park (Judge et al., 2017).

ʻApapane (*Himatione sanguinea*), a species in the Hawaiian honeycreeper family, is the most abundant native forest bird in the Park, occurring in relatively high numbers in Kahuku, Kīlauea, and Mauna Loa Road. ʻApapane occupy habitats predominated by ʻōhiʻa and koa and often travel in flocks to different flowering vegetation. Breeding occurs from January to July with nests throughout ʻōhiʻa canopy or in other vegetation. The response of ʻapapane vocalizations has been specifically studied in relation to helicopter noise on the Island of Hawaiʻi, 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). Based on population studies, the trends of ʻapapane are mixed within the Park (Judge et al., 2017; NPS unpublished report).

The Hawaiian hawk (*Buteo solitariu*s), known as ʻio, is a small broad-winged hawk with light and dark plumage. Its habitat includes most native and non-native forests (including papaya, guava, and macadamia orchards), grasslands, and cane fields (Clarkson and Laniawe, 2020). This species prefers open savanna or denser rainforests and will avoid dry scrub areas. Nesting occurs March through September where this species constructs their nests in the branches of high trees. Found only on the Island of Hawaiʻi, ʻio can be found at elevations from sea level to 8,500 ft. ʻIo was formerly listed as federally endangered, then listed as threatened under the ESA, and was recently removed in 2020, as range-wide population estimates have been stable for over 30 years and are not expected to decline. It is listed endangered by the State of Hawaiʻi. Threats to this species include destruction or disturbance of nesting habitat, predation, avian diseases, and extensive modification and reduction of native forest habitat. Although no incidences of ʻio and helicopter collisions have been documented in the State of Hawaiʻi, in the continental U.S. from 1990 – 2019, there were 420 collisions documented between a closely related species (red tailed hawks - also genus *Buteo*) and civilian aircraft resulting in eight fatalities and nearly $43 million USD in damages (Dolbeer et al., 2021).

ʻŌmaʻo (*Myadestes obscurus*) is a predominantly fruit-eating Hawaiian thrush with variable populations in wet and mesic environments of the Park. Populations of ʻōmaʻo increased in Kahuku and along the ʻŌlaʻa tract, and experienced a sharp decline in the East Rift Zone (Judge et al., 2017). Declining population trends of ʻōmaʻo occurred in the Northwest Kahuku and Pāpā tracts, and densities were stable in the Mauna Loa south flank and Mauna Loa Strip tracts (Judge et al., 2017). This species is most abundant along the Kīlauea caldera and flanks, the wet-mesic forests of Kahuku that extend broadly into the Kaʻū Forest Reserve, and along Mauna Loa Road in mesic forest through subalpine shrublands. ʻŌmaʻo forage primarily for fleshy fruits in both canopy and understory but also feed on seeds and arthropods, even on the forest floor. Nests have been found in a variety of habitats including tree cavities, tree ferns, rock cracks, and lava tube openings. Their breeding season is not well defined but believed to occur in the spring and summer. ʻŌmaʻo is only found on the Island of Hawaiʻi, and consists of three populations (Hawaiʻi Department of Land and Natural Resources, 2023).

The pueo (*Asio flammeus sandwichensis*), or Hawaiian short-eared owl, 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 (The Pueo Project, 2019).

Other birds that are year-round residents in the Park include the noio or Hawaiian black noddy (*Anous minutus melanogenys*) which nests on the coasts; and koaʻe kea or white-tailed tropicbird (*Phaethon*

lepturus), which are known to nest on the walls of craters such as Kīlauea caldera and other nearby craters.

Migrant or transiting birds that occur in the action area include the kōlea or Pacific golden plover (*Pluvialis fulva*), an overwintering migrant shorebird that have been observed in disturbed grasslands in the Park during the winter months.

Other native birds protected under the MBTA that may occur within the action area are listed in Table 3 and could be affected by air tour noise or direct strikes. The three designated routes under the proposed action limit the number of air tours flying directly over sensitive habitats for the Park's wildlife which reduces the likelihood of impacts to those species including noise that could alter wildlife behavior. The authorized altitudes under the proposed action (minimum 1,500 ft. AGL over land and 2,000 ft. AGL over the ocean) also limit the potential for direct strikes to wildlife within the action area.

Table 2. Other Protected Species Potentially within the Action Area

Scientific Name	**Common Names**
Alauda arvensis	Eurasian Skylark, Skylark
Anous minutus melanogenys	Black Noddy, ʻEkiʻeki, Hawaiian Noddy, Noio
Ardenna pacifica	ʻUaʻu Kani, Wedge-tailed Shearwater
Arenaria interpres	ʻAkekeke, Ruddy Turnstone
Asio flammeus sandwichensis	Pueo, Hawaiian Short-eared Owl
Bubulcus ibis	Cattle Egret, Western Cattle Egret
Calidris alba	Sanderling, Hunakai
Cardinalis cardinalis	Northern Cardinal
Chlorodrepanis virens	Hawaiʻi ʻAmakihi
Chroicocephalus philadelphia	Bonaparte's Gull
Falco peregrinus	Peregrine Falcon
Fregata minor palmerstoni	ʻIwa , Great Frigatebird
Gygis alba rothschildi	Manu-o-ku, White Tern
Haemorhous mexicanus	House finch
Mimus polyglottos	Northern Mockingbird
Myadestes obscurus	ʻŌmaʻo, Hawaiʻi Thrush
Numenius tahitiensis	Kioea, Bristle-thighed Curlew
Nycticorax nycticorax hoactli	ʻAukuʻu, Black-crowned Night Heron
Onychoprion fuscatus	ʻEwaʻewa, Sooty Tern
Phaethon lepturus	White-tailed Tropicbird
Phaethon rubricauda	Koaʻe ʻula, Red-tailed Tropicbird
Pluvialis fulva	Pacific Golden Plover
Tringa incana	ʻŪlili, Wandering Tattler
Tyto alba	Barn Owl, Western Barn Owl

Environmental Baseline

The environmental baseline for this consultation includes the three-year average of the air tours 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 HI Common Procedures Manual.

The NPS and partner organizations conduct aviation over the Park for administrative and research purposes. The NPS and its partners' aircraft activity has been evaluated and impacts addressed through Section 7 consultation previously (see Mission Critical Administrative Aviation Plan and Environmental Assessment, 2015).

Potential Stressors Associated with the Proposed Action

The agencies evaluated the proposed action to identify potential stressors that may affect listed species or critical habitat, if exposed. The proposed action does not include ground-based activities. Therefore, potential stressors would be limited to noise and direct strikes. Potential effects of low-level flights including commercial air tours on biological resources is largely inferential, as literature specific to these types of effects on individual species is generally unavailable. Discussion of potential effects is based on related species and similar actions.

Overview of Noise Associated with the Proposed Action

The draft ATMP includes several provisions to minimize potential noise impacts, as outlined above in the *Description of Proposed Action* section. As a result, the intensity of potential noise exposures would be limited under the proposed action. The draft ATMP would ensure that noise would not be constant and that there would be substantial time intervals between noise events from air tours by limiting the number of flights per year, which will reduce the potential number of flights each day. The draft ATMP also ensures that large segments of the Park would not be exposed to air tour noise by establishing designated air tour routes.

The agencies conducted noise modeling to estimate noise produced by commercial air tours under the proposed action for a standard day and a quiet technology only day (Attachment 2, *Noise Technical Analysis*). In summary, the noise modeling for a standard day predicts that the maximum sound pressure level (L_{max}) generated by commercial air tours in the Park would be 63.7 dBA and would occur at 'Āpua Point Camp. The L_{max} noise metric is event based and does not provide any context of frequency, duration, or timing of exposure. The time above (TA) noise metric specifies the amount of time (in minutes) aircraft sound levels would be above a given noise level during a 24-hour period. TA_{35dBA} and TA_{52dBA} were modeled for the proposed action. Based on the modeling, the maximum time that noise from air tours would be above 35 dBA is between 30 and 45 minutes a day, representing 1% of the action area; 29% of the action area would experience noise above 35 dBA for at least 0.1 minutes a day. The maximum time above 52 dBA experienced across all points modeled would be 5.8 minutes, and 87% of points modeled would experience time above 52 dBA for 0.0 to 0.8 minutes (see Attachment 2, *Noise Technical Analysis).*

For a quiet technology only day, noise modeling predicts that the value for L_{max} generated by commercial air tours in the Park would be 61.5 dBA and would occur at Pu'u'ō'ō. The maximum time that noise from air tours would be above 35 dBA is between 45 and 60 minutes a day, representing less than 1% of the ATMP planning area; 21% of the ATMP planning area would experience noise above 35 dBA for at least 0.1 minutes a day on a quiet technology only day. The maximum time above 52 dBA

experienced across all points modeled would be 9.7 minutes; 85% of points modeled would not experience time above 52 dBA at all (see Attachment 2, *Noise Technical Analysis).*

The FAA has established a significance threshold for noise that uses the day-night average sound level (DNL) metric (see FAA Order 1050.1F, Exhibit 4-1). The resultant DNL due to the ATMP is well below the FAA's threshold within the action area. As described in the *Noise Technical Analysis* (Attachment 2), contours for equivalent continuous sound level (L_{Aeq}) for both a standard day and a quiet technology only day show the maximum values for L_{Aeq} were below 45 dBA for the proposed action modeled at the Park; DNL will be arithmetically three dBA lower than $L_{Aeq, 12hr}$ as there are no nighttime events at the Park.

Figure 2. Compares common outdoor and indoor sound levels for context.

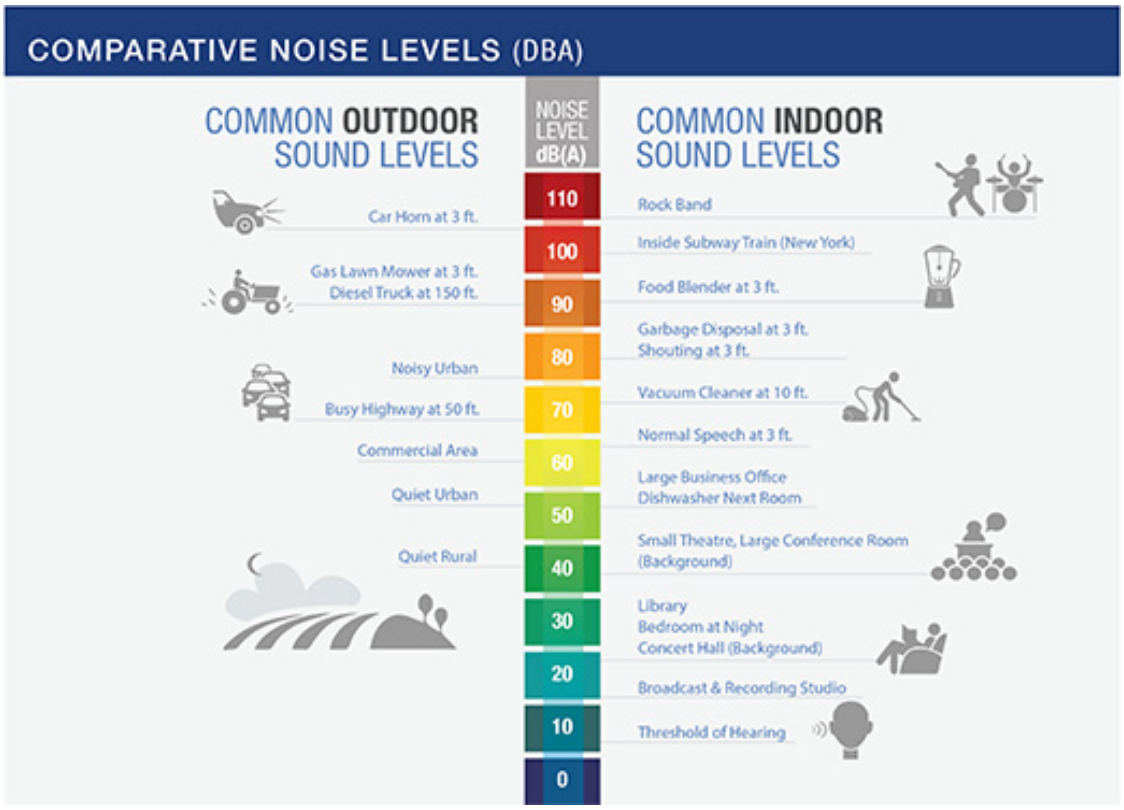

Figure 2. Comparative Noise Levels (Source: FAA 2020)

Listed Species Evaluated for Effects

The effects of the proposed action include the direct and indirect effects of the air tours that will now occur under NPATMA authorization, including the conservation measures identified. All other aspects of the environmental baseline are expected to continue at approximately the same levels.

Table 2 includes the Section 7 determination for each listed species and associated critical habitat. The proposed action does not involve ground-disturbing activities or other activities with the potential to

modify aquatic or terrestrial habitat. In addition, while the proposed action overlaps critical habitat for plant and insect species listed in Table 2, no impacts to the physical or biological features that are essential to the conservation of these species would occur. Therefore, the agencies determined the proposed action will have no effect on insects, plants, and ferns and allies and critical habitats.

Hawaiian Hoary Bat (ʻŌpeʻapeʻa)

The Hawaiian hoary bat (*Lasiurus semotus)*, or ʻōpeʻapeʻa, is the only fully terrestrial native mammal in the Hawaiian Islands and is federally listed as endangered. ʻŌpeʻapeʻa are found from sea level to 11,800 ft., with most observations occurring in native rain forests up to at least 6,000 ft. (Bonaccorso et al., 2015). Data indicates that ʻōpeʻapeʻa commonly traverse and forage throughout the action area and are likely to be roosting within this area. Detections were reported from within the Park or the vicinity of the action area, and activity peaked 40 to 60 minutes after sunset (Fraser et al., 2007). Females give birth to twin pups from June to August, and juveniles are typically volant by mid-September.

ʻŌpeʻapeʻa 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 surrounding trees (Montoya-Aiona, 2020). ʻŌpeʻapeʻa is vulnerable to roost disturbance during pupping and pup care (June to September). 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, including commercial air tours, occur over ʻōpeʻapeʻa habitat during these sensitive months.

ʻŌpeʻapeʻa is an insectivore, and prey include a variety of night-flying insects, primarily moths and beetles (Whitaker and Tomich, 1983; Pinzari et al., 2019). 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 ʻōpeʻapeʻa are currently unavailable. ʻŌpeʻapeʻa 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. There is one documented rotor strike of ʻōpeʻapeʻa on the Island of Hawaiʻi (Yuen, 2012). Other threats to this species include the elimination of roosting sites, habitat destruction, pesticides, and introduced species such as non-native insects or disease.

<u>Effect Determination</u>

Direct strikes and noise impacts are potential impacts to ʻōpeʻapeʻa. The possibility of direct strikes is considered discountable because ʻōpeʻapeʻa are nocturnal and commercial air tours will occur during daylight hours only (between 10:00 AM and 2:00 PM, or between 9:00 AM to 5:00 PM if using quiet technology aircraft), so ʻōpeʻapeʻa would be roosting in trees during the time of day at which air tours occur, and therefore the risk of a helicopter striking a bat would be unlikely to occur. Therefore, due to the time of day restrictions, the likelihood of a direct strike is extremely low and the effects are considered discountable.

ʻŌpeʻapeʻa could be intermittently exposed to commercial air tour noise while roosting in trees during the daytime and during the pupping season. Air tours would be limited during the hours of 10:00 AM to 2:00 PM unless the operators have converted to a quiet technology aircraft, which would allow for tours to occur from 9:00 AM to 5:00 PM.

Anthropogenic noise has been found to reduce foraging success of bats (Siemers and Schaub, 2011; Luo et al., 2015). When exposed to played-back traffic and gas compressor station noise at 58-76 dBA and low-level amplified noise at 35 dBA, foraging pallid bats (*Antrozous pallidus*) experienced increases in the amount of time it took to locate prey-generated sounds (Bunkley and Barber, 2015). The greater mouse-eared bat (*Myotis myotis*) had showed decreased foraging efficiency when exposed to broadband computer-generated noise at a sound pressure level of 80 dB (which corresponds to sounds occurring 10 – 15 meters (33 – 49 ft.) away; bats will avoid foraging areas with these conditions in favor for quieter foraging areas (Schaub et al., 2008). Based on noise modeling, the value for L_{max} generated by commercial air tours in the Park would be 63.7 dBA and would occur at ʻĀpua Point Camp. The maximum time above 52 dBA experienced across all points modeled would be 5.8 minutes, and 87% of points modeled would experience time above 52 dBA for 0.0 to 0.8 minutes. Based on the values for noise used in Bunkley and Barber (2015) and Schaub et al. (2008), conditions for commercial air tours under the proposed action are unlikely to inhibit foraging success in bats. Additionally, restrictions on flight altitudes would prevent flights from occurring below 1,500 ft. AGL within the action area, which is greater than the 10 – 15 meters (33 – 49 ft.) that elicited a negative foraging response in bats as described in Bunkley and Barber (2015). Noise modeling outputs for a quiet technology only day are less noisy than commercial air tour conditions under the other parameters of the proposed action. Noise associated with commercial air tours would be short in duration and could cause bats within the action area to shift their foraging areas to less noisy areas; however, even on shorter days of the year when sunset is closer to 5:00 PM, there would not be overlap between the time that commercial air tours could be conducted and the time at which bats begin to forage around dusk.

The minimum flight altitude would be 1,500 ft. AGL over land under the proposed action, which would limit the intensity of noise exposure. Given the relatively low magnitude and slow onset rate of noise from air tours, it appears unlikely that ʻōpeʻapeʻa would abandon a roost site unless noise was accompanied by visual or tactical cues that may cause a bat to perceive the noise as a threat. Based on the minimum flight altitude of 1,500 ft. AGL, helicopter downwash, air deflected downwards by an aircraft blade in motion, is not expected to be an issue.

Based on implementation of the measures described above, any potential impact resulting from direct strikes would be discountable[4] and impacts from noise would be insignificant[5]. Therefore, the agencies have determined the proposed action ***may affect, not likely to adversely affect*** the ʻōpeʻapeʻa.

Forest Birds

ʻAkiapōlāʻau (*Hemignathus wilsoni*), an endangered honeycreeper species, is extremely rare in the action area and only found along the northeast boundary of Kahuku, close to Kaʻū Forest Reserve, in mixed ʻōhiʻa-koa mesic to wet forest above 4,300 ft. elevation. This species has previously been

[4] Discountable effects are those extremely unlikely to occur.

[5] Insignificant effects relate to the size of the impact and include those effects that are undetectable, not measurable, or cannot be evaluated.

observed on the eastern side of Mauna Loa, but there is currently no resident population in this region of the Park. ʻAkiapōlāʻau nest almost exclusively in the tops of ʻōhiʻa trees. ʻAkiapōlāʻau breeds and fledges young throughout the year, although more predictably from March to July. This species had an estimated population size of 1,500 individuals in the late 1970s, and surveys conducted between 1990 and 1995 estimated that the population size decreased to around 1,110 individuals (State of Hawaiʻi, 2015), and then conservation actions resulted in increasing trends to the most recent estimate of 1,900 birds (Kendall et al., 2022).

Populations of the endangered Hawaiʻi creeper (*Loxops mana*), also known as ʻalawī, are concentrated in a small area in mesic to wet forest in the Kahuku Unit above 4,300 ft. elevation. ʻAlawī tend to build their nests at mid-canopy. This species was first listed as endangered in 1970, and its first recovery plan was created in 1983. Population estimates for ʻalawī remained stable at around 12,500 individuals until 2010, when a 5-year status review was conducted indicating that their populations across the Island of Hawaiʻi increased to approximately 14,000 birds (USFWS, 2020). There are four distinct populations on the Island of Hawaiʻi. Within the Park's Kahuku Unit, the densities of this species are increasing (Judge et al., 2017).

The Hawaiʻi ʻākepa (*Loxops coccineus)*, which are more abundant and widely distributed throughout Kahuku than ʻakiapōlāʻau and ʻalawī, forage almost exclusively on buds and new flush of ʻōhiʻa foliage in single trees or small stands within subalpine shrublands and adjacent old growth forest of Kahuku. Their breeding season occurs from March to late May. The Hawaiʻi ʻākepa was first listed as endangered in 1970, and had recovery plans created and revised in 1983 and 2006, respectively. The total population estimate of the Hawaiʻi ʻākepa population is greater than 16,000 birds, with the population in the Park and the Kaʻū Forest Reserve is being the second largest on the Island of Hawaiʻi. They are listed as endangered under the ESA. Their population at Kahuku was estimated to be 3,663 individuals (Judge et al., 2018).

The ʻiʻiwi (*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 on the Islands of Hawaiʻi, Maui, and Kauaʻi (Scott et al., 1986; Fancy and Ralph, 2020; USFWS, 2016). At the Park, ʻiʻiwi is generally restricted to elevations above 4,900 ft. where the disease vector mosquito for avian malaria is absent. The population on the Island of Hawaiʻi was estimated to be greater than 543,000 birds (Paxton et al., 2013; Kendall et al., 2022). ʻIʻiwi population trends are variable within the Park. Populations in the Kahuku Unit and on the eastern side of Mauna Loa are both declining; populations within northwest Kahuku and Ōlaʻa are considered to be stable; populations in Pāpā are increasing (Judge et al., 2017). Breeding may occur all year, but the peak of breeding occurs from February through June (Fancy and Ralph, 2020). The ʻiʻiwi 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, 2022), which includes portions of the action area.

Another endangered forest bird species, ʻalalā or Hawaiian crow (*Corvus hawaiiensis*), was once common throughout their range on the Island of Hawaiʻi. The last ʻalalā in its native habitat was thought to have been confined to higher elevations in South Kona. ʻAlalā became extinct in their native habitat. The last observation of ʻalalā in the wild was in 2002 (USFWS, 2009). It remains in a captive breeding population at Keauhou Bird Conservation Center where propagation efforts have been successful. Release of ʻalalā is being considered for several areas across the State of Hawaiʻi and may include areas within the action area; a trial for release in areas adjacent to the Park occurred previously but was

unsuccessful. Other species may be reintroduced or translocated in the future, but there are no current planned reintroductions.

Today, most Hawaiian forest birds persist only in high-elevation forests where the risk of malaria transmission is lower due in part to cooler temperatures (van Riper et al., 1986; Scott et al., 1986; Atkinson and LaPointe, 2009; Atkinson et al., 2014). Even though much of the high elevation threatened and endangered bird habitat in the action 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).

Effect Determination

Forest birds could be impacted by direct strikes and noise from air tours. Most Hawaiian forest birds occupy high-elevation forests where cooler temperatures cause the risk of avian malaria transmission to be lower than at lower altitudes. Although forest birds may occur at altitudes high enough where they could collide with aircrafts, this event is unlikely, as the birds are relatively small (ranging from 4 - 8 inches in size). ʻAkiapōlāʻau, ʻalawī, Hawaiʻi ʻākepa, and ʻiʻiwi are not listed in the FAA Wildlife Strike Database, so it can be inferred that there are no reported strikes of these species on the Island of Hawaiʻi (FAA, 2022).

Anthropogenic noise has the potential to affect woodlands structure through seed removal, seed predation, and seedling recruitment (Francis et al., 2012), and areas closer to anthropogenic noise have lower bird species richness than areas further away from noise, but nesting success was higher in noisier areas due to noise intolerance of predatory birds (Francis et al., 2009). The costs of chronic noise exposure include impacts to reproduction and habitat selection. Communication networks allow birds to simultaneously assess potential mates and rivals. Acoustic masking, the process by which the threshold of detection for a sound is increased by other sounds, reduces the number of individuals that participate in these communication networks and can impact reproductive processes (Barber et al., 2010). Moreover, nocturnally migrating songbirds have been observed to listen across species' boundaries for other vocalizations to assess habitat, and reduced listening area hindered by anthropogenic sound can affect this acoustical eavesdropping (Barber et al., 2010). Noise from commercial air tours would not be chronic due to restrictions on the total number of flights per year, the requirement of designated routes, and time of day restrictions.

Gallardo Cruz et al. (2021) assessed the impacts of helicopter noise from air tours on forest bird species in the Park. They found that helicopter noise affects the vocalizing behavior of birds but does not always significantly impact the total vocalization time before, during, or after helicopter noise, and that exposure to high amplitude helicopter noise was not severe enough to mask bird song in some locations (Gallardo Cruz et al., 2021). Bird response to helicopter noise was the strongest in areas with very loud and frequent helicopter traffic, which would be mitigated under the proposed action by limiting the number of air tours that could occur each year and designated flight routes that require operators to fly in specific locations within the action area. The effect of helicopter noise on the vocalizing behavior of birds decreases when helicopters fly at high altitudes with low frequency (Gallardo Cruz et al., 2021). While altering vocalizations may not result in death of impacted birds, this change in behavior is likely to be indicative of other effects (e.g., stress response) seen in numerous bird species in response to noise

disturbance (Francis et al., 2009; Barber et al., 2010; Shannon et al., 2016; Buxton et al., 2017). Stress is well known to reduce survival and reproductive success in birds (Delaney et al., 1999; Kleist et al. 2018).

The routes included in the draft ATMP would avoid most forest bird habitat that is present within the action area. Specifically, the Kahuku Route and Coastal Route would not fly over forested areas that provide habitat for these species which would limit the maximum sound levels that would occur from commercial air tours in forested areas near these routes. While the Puʻuʻōʻō Route overlaps with some forested areas in the East Rift Zone, the route avoids the most forested areas in this region that would provide the best quality habitat protection to support forest bird populations. Other parameters included in the draft ATMP including the annual limit on the number of flights and limits on hovering, loitering and/or circling will reduce the frequency and duration of noise exposure to forest birds. Across the entire action area, the noise modeling shows that on a standard day, the maximum time that noise from air tours would be above 35 dBA is between 30 and 45 minutes a day, representing 1% of the action area; 29% of the action area would experience noise above 35 dBA for at least 0.1 minutes a day. Under both types of operational days (standard and quiet technology only), most areas of the action area that provide forest bird habitat (particularly in the Kahuku Unit) would not experience noise above 35 dBA from commercial air tours. Collectively, these operational parameters represent an improvement to the protection of forest bird habitat as compared to existing conditions because forest birds will be exposed to less noise throughout the action area.

Proposed critical habitat for ʻiʼiwi is located within the action area but would not be impacted and is outside of the proposed routes.

Therefore, the agencies have determined the proposed action ***may affect, not likely to adversely affect*** forest birds including the ʻakiapōlāʻau, ʻalawī, Hawaiʻi ʻākepa, ʻalalā, and ʻiʻiwi, and proposed critical habitat for ʻiʻiwi .

Seabirds

There are three federally listed seabirds confirmed or potentially breeding in the study area, traveling outside of the action area during the day to feed and return to the nest at night. ʻAkēʻakē 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. (Slotter-back 2002; Antaky et al., 2019). This species was listed as endangered in 2016 after the first active nests were discovered in the Hawaiian Islands.

Once widespread in the main Hawaiian Islands, the ʻaʻo, or Newell's shearwater (*Puffinus newelli*), is federally listed as threatened. ʻAʻo breed on the ground in excavated burrows often surrounded with dense vegetation, including native ʻōhiʻa (*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). Populations are historically known to occupy areas of the lower East Rift Zone outside the Park and nest in other areas of rainforest with an uluhe fern understory; however, much of the area was covered in lava in 2018 during the lower Puna eruption, including Puʻulena Crater where surveyors in 1993 confirmed a breeding colony (Reynolds and Ritchotte, 1997). Before the 2018 eruption, potential colonies were suspected to be under the threat of predation by barn owls (*Tyto alba*), which have devastated seabird colonies in areas (Byrd and Telfer, 1980) and were recorded frequently in known breeding locations (Reynolds et al., 1994). In the early 1970s there was a carcass

and bird calls recorded at Makaopuhi Crater within the Park (Banko, 1980) and there were incidental reports of calls near the Kalapana Trailhead (Banko, 1980; Swift and Burt-Toland, 2009), but there were no detections of Newell's Shearwaters during radar and auditory/visual surveys conducted between 2001 and 2005 (Swift and Burt-Toland, 2009). It is assumed that some birds may still be nesting in areas of the East Rift Zone within the Park. No focused monitoring has occurred since the early 2000s (Swift and Burt-Toland, 2009).

The Hawaiian Petrel *(Pterodroma sandwichensis)*, known as ʻuaʻu, is an endangered seabird that forages widely across the Pacific and nests only in the Hawaiian Islands, which is the only time they utilize land. Their nesting habitat is variable, ranging from heavily vegetated, forested slopes on the Islands of Lānaʻi and Kauaʻi to subalpine and alpine environments on the Islands of Maui and Hawaiʻi. They have been observed nesting in shallow pits, cracks, and lava tubes within sparsely vegetated, weathered pāhoehoe lava flows on Mauna Loa, in addition to underground burrows at high elevations (above 5,500 ft.) in sparsely vegetated terrain on the western slope of Kahuku and in upper subalpine and alpine habitat on the eastern side of Mauna Loa above 8,000 ft. elevation. Adult petrels and fledglings are believed to enter and exit their underground nests at dusk and dawn. This species was first listed as endangered under the ESA in 1978, and a recovery plan was created in 1983 by the USFWS. A 5-year status review was conducted in 2011, where ʻuaʻu populations statewide had increased from the low thousands to around 19,000 individuals, allowing some of their delisting criteria to be partially fulfilled due to conservation efforts such as predator management (USFWS, 2022a). Another 5-year status review began in 2022. Data from this review and fulfillment of delisting criteria are still being analyzed, but populations of ʻuaʻu on the Island of Hawaiʻi are expected to increase due to predator management actions such as installing predator-proof fencing. However, nests outside of protective fences remain extremely vulnerable to predation. ʻUaʻu populations on the Island of Hawaiʻi number in the low hundreds and within the Park there are approximately 55 to 75 known active nests.

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 ʻakēʻakē, ʻaʻo, and ʻuaʻu. Expanding invasive species are also associated with climate change scenarios, which could potentially degrade the breeding habitat of the ʻakēʻakē, ʻaʻo, and ʻuaʻu. (Ainley et al., 2019). Current threats to seabirds include habitat loss, trampling of nests by feral ungulates, predation, light pollution, and collision with vehicles and man-made objects/structures.

Effect Determination

Direct strikes and noise are potential impacts to high elevation seabirds. There are no recorded strikes of ʻakēʻakē or ʻaʻo on the Island of Hawaiʻi and there is one recorded strike of ʻuaʻu that occurred in 2020 (FAA, 2022). Many seabirds are nocturnal, underground burrow nesters that travel to and from nest sites during the night. Direct strikes could occur if flights are conducted near dusk or dawn. However, under the draft ATMP, non-quiet technology flights may only occur from 10:00 AM and 2:00 PM, while flights using quiet technology aircraft may occur from 9:00 AM and 5:00 PM, so the likelihood of an aircraft striking a seabird is extremely low and the effects are considered discountable.

High and mid-elevation seabirds would experience greater protection from noise associated with commercial air tours as compared to existing level of flights because of the placement of the routes included in the draft ATMP. Specifically, routes would avoid high and mid-elevation seabird habitat in all

areas of the action area, except for those near Puʻuʻōʻō, and limits the number of commercial air tours to no more than 1,565 tours per year. Noise above 35 dBA could occur for up to 30 to 45 minutes a day on a standard day and up to 45 to 60 minutes on a quiet technology-only day, depending on the location being utilized. Most areas within ʻaʻo habitat would experience noise levels above 35 dBA for less than 15 minutes a day. This would result in beneficial improvements for the habitat conditions for this species compared to current conditions. Attachment 2 (*Noise Technical Analysis*) shows that commercial air tour noise above 35 dBA would not occur within the high-elevation seabird habitat under the draft ATMP.

Designated air tour routes, annual flight limits, and time of day restrictions would limit the nesting habitat that is flown over and minimize impacts to seabirds during the nesting season. Therefore, the agencies have determined the proposed action ***may affect, not likely to adversely affect*** seabirds including ʻakēʻakē, ʻaʻo, and ʻuaʻu.

Hawaiian Goose (Nēnē)

The Hawaiian Goose (*Branta sandvicensis*), known as nēnē, occur in the Park and the greater Hawaiian Islands, often flying between roosting and foraging sites multiple times throughout the day. They are listed as threatened under the ESA. 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 (Banko et al., 2020; Leopold and Hess, 2014).

Nēnē were extirpated from all islands except the Island of Hawaiʻi by the early 1900s. In 1967, this species was listed as federally endangered under the ESA. In 2019, the nēnē were down listed from endangered to threatened. Currently, the population size of nēnē within the Park is estimated to be fewer than 200 individuals; nēnē have multiple breeding areas in the Park, which is nearly 20% of the population of nēnē on the Island of Hawaiʻi. Their population continues to decline despite conservation efforts such as habitat management, predator control, and restrictions on areas where nēnē are present. Threats to nēnē include vehicle collisions, wind farm turbine collisions, human or vehicle-related injuries and trauma, predation by small mammals, toxoplasmosis (a pathogen carried by feral cats), and mosquito-borne avian pox virus (Banko et al., 2020; Work et al., 2015).

<u>Effect Determination</u>

Direct strikes and noise impacts are potential impacts to the nēnē from commercial air tours, as this species has habitat throughout the action area. Observational evidence by the NPS indicates temporary response to low-level helicopter flights by nēnē (NPS, 2014). Although direct collisions with aircrafts are possible, the probability is low. Bird strikes most often occur during the approach and landing of airplanes (International Civil Aviation Organization, 2020). No take off or landings will occur within the Park. According to the FAA Wildlife Strike Database, there have been six reported nēnē strikes at airports across the Hawaiian Islands since 2014, two of which occurred on the Island of Hawaiʻi (FAA, 2022). Noise can also impact nēnē during molting, flocking periods, and during their nesting season from October to April. Potential effects from noise on these areas are minimized by the minimum altitude requirement of 1,500 ft. AGL over land and 2,000 ft. AGL over the ocean.

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 dBA (Brown, 1990). 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, 1990).

Under the proposed action, nēnē would be exposed intermittently to audible air tour noise. As discussed above, the minimum flight altitude of 1,500 ft. over land and 2,000 ft. AGL over the ocean, in addition to other provisions of the draft ATMP such as designated routes and time of day restrictions, would limit exposure to air tour noise. Based on the relatively low magnitude and frequency of exposure, noise is not expected to affect the fitness of individual birds and any effects would be limited. The amount of habitat that is flown over by commercial air tours is limited by the designated routes, minimum altitude requirements, and time of day restrictions. Therefore, any potential impact resulting from direct strikes would be discountable and impacts from noise would be insignificant. Therefore, the agencies have determined the proposed action ***may affect, not likely to adversely affect*** nēnē.

Reptiles

Several species of listed sea turtles occur within the action area including green sea turtle (*Chelonia mydas*) or honu, hawksbill sea turtle (*Eretmochelys imbricata*) or honu ʻea, 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 Hawaiʻi, has approximately 3,710 breeding females (Seminhoff et al., 2015). More than 96% of nesting occurs at one site in the Northwestern 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 Hawaiʻi. One female honu was observed false nesting at Kamehame and Halapē beaches in and outside of the action area, before successfully nesting at Pōhue Bay (which is located within the action area) in 2011 (Seitz, 2012). Honu are also regularly observed basking on beaches in the action area (Seitz, 2012). Critical habitat for this species is designated outside of the action area.

Honuʻea forage nearshore in the Park and are listed as endangered under the ESA. There are several beaches along the south coast of the Park within the action area that are protected for nesting females. Less than 20 females per year nest in the Park, which makes it one of the smallest nesting populations in the world but the largest in the Central North Pacific Ocean (NOAA, 2022). Honuʻea exhibit high site fidelity, and regularly return to Āpua Point, Halapē, and Pōhue/Kahuku Beach to lay eggs from late July to mid-September (Fung Associates and SWCA Environmental Consultants, 2019). Although a large proportion of the known nesting sites in the Pacific are found in the State of Hawaiʻi, abundance for the species is quite low (NOAA, 2013). These turtles feed in similar habitat to that of the more abundant

honu. Honu‘ea utilize the beaches in the daytime for basking, and on rare occasions for nesting (Seitz, 2012; Kurpita and Ransom, 2013). Honu‘ea have critical habitat that is designated outside of the action area.

Leatherback sea turtles are the largest turtle in the world and highly migratory. Leatherback sea turtles are listed as endangered under the ESA. In the Pacific Ocean, nesting is common in Mexico, Nicaragua, and Indonesia, but rare across the State of Hawai‘i. Leatherback sea turtles have not been observed on the beaches of the Park. 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). Critical habitat is designated outside of the action area.

The loggerhead sea turtle is the most abundant sea turtle that nests in the United States and has nine distinct populations. This species is listed as endangered under the ESA. The North Pacific population that spans the action area mates on the coasts of Japan and forages in the western Pacific. However, loggerhead sea turtles have not been observed on the beaches of the Park. 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). The largest threat to loggerhead sea turtles is fisheries bycatch, followed by coastal development that reduces nesting habitat. Critical habitat is designated outside of the action area.

Olive ridley sea turtles are one of the smallest sea turtles and are listed as threatened under the ESA. They are found worldwide, notably in Pacific subtropical waters from California to Peru. An olive ridley nest was documented in 2020 at a beach neighboring Park lands outside of the action area. Population estimates of this species vary by nesting location but are believed to be declining overall due to threats such as habitat loss, coastal development, and pollution (NMFS and USFWS, 2014). In the Pacific, large nesting populations are present in Mexico and Costa Rica.

The agencies are consulting on these species due to the presence of sea turtles nesting and basking on beaches within the action area. The agencies are also consulting with the National Marine Fisheries Service (NMFS) separately for impacts to sea turtles in the marine environment.

Effect Determination

Studies that examine the impacts of noise on sea turtles that are on land for basking or nesting are largely unavailable. Underwater noise thresholds in the loggerhead sea turtle were measured by Martin et al. (2012) that indicated potential behavioral thresholds observed at about 100 dB at 100 hertz, much higher than the maximum sound levels of 65 dB associated with the proposed action. Sea turtle ears are adapted to hearing underwater, and they are more sensitive to underwater sounds than sounds above water.[6] Therefore, while sea turtles hauled out on shore could be exposed to noise, it is unknown what level of noise would elicit a response for individual turtles.

Adverse effects have been noted as occurring to sea turtles when flight altitudes over water are 600 ft. or lower, and flight altitudes up to 2,000 ft. have been determined to not likely to adversely affect sea

[6] https://www.fisheries.noaa.gov/feature-story/sea-turtles-sea-sound#:~:text=Sea%20turtle%20ears%20are%20adapted,than%20sounds%20above%20water%20sounds.

turtle species (NMFS, 2022). Due to the poor sound transference from air to water, noise would be unlikely to elicit a response for individual turtles underwater.

The minimum altitude of 1,500 ft. AGL over land and 2,000 ft. AGL over the ocean under the proposed action is above the threshold of adverse effects found in prior Section 7 consultations. In addition, the noise levels of the proposed action are well below those found to show a behavioral response. Therefore, the agencies determined any noise impacts would be discountable resulting in ***may affect, not likely to adversely affect*** honu, honu‘ea, leatherback sea turtle, loggerhead sea turtle, and olive ridley sea turtle.

Cumulative Effects of the Action

Cumulative effects of the action include the effects of future State, Native Hawaiian, local, or private actions that are reasonably certain to occur in the action area. Currently there are no known planned Federal or Native Hawaiian actions that would affect the species described above. Similarly, the agencies are not aware of any proposed non-Federal action that may affect species or critical habitats considered in this consultation. The impacts of ongoing Federal actions unrelated to the proposed action are considered part of the baseline condition since they are covered under separate consultation pursuant to Section 7 of the ESA. Therefore, there are no cumulative effects associated with the proposed action.

Conclusion

As indicated above, the proposed action implements designated routes, required minimum altitudes, establishes time of day restrictions, and limits the number of air tours annually. The measures enumerated above incorporated into the ATMP will serve to avoid and minimize possible effects to listed species and their critical habitat. Therefore, based on the analysis that all effects of the proposed action will be insignificant or discountable, the agencies have determined that the proposed project ***may affect, not likely to adversely affect*** ‘ōpe‘ape‘a; forest birds including ‘akiapōlā‘au, ‘alawī, Hawai‘i ‘ākepa, ‘alalā, ‘i’iwi, and ‘i’iwi proposed critical habitat; seabirds including ‘akē‘akē, ‘a‘o, and ‘ua‘u; nēnē; and sea turtles including honu,, honu‘ea, leatherback sea turtle, loggerhead sea turtle, and olive ridley sea turtle. Thank you very much for your help and support. If you have questions or need more information, please contact Michelle Carter, Michelle_Carter@nps.gov, at the NPS who is helping coordinate overall Section 7 consultations for ATMPs on behalf of the agencies.

Sincerely,

RHONDA LOH

Digitally signed by RHONDA LOH
Date: 2023.04.19 08:59:55 -10'00'

Rhonda Loh, Superintendent for Hawai‘i Volcanoes National Park

KEVIN W. WELSH

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Kevin Welsh, Executive Director, Office of Environment and Energy, Federal Aviation Administration

Attachments

- Attachment 1 Draft Air Tour Management Plan
- Attachment 2 Noise Technical Analysis
- Attachment 3 U.S. Fish and Wildlife Service's Information Planning and Consultation tool Official Species List

List of Acronyms and Abbreviations

The agencies	The National Park Service and Federal Aviation Administration
ATMP	Air Tour Management Plan
Action area	The area within which 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.
AGL	Above ground level
dB	Decibels
dBA	Decibels (A-weighted scale)
DNL	Day-night Average Sound Level (denoted by the symbol L_{dn})
ESA	Endangered Species Act
FAA	Federal Aviation Administration
ft.	Feet
HI Common Procedures Manual	2008 FAA Hawai'i Air Tour Common Procedures Manual
IPaC	U.S. Fish and Wildlife Service Information Planning and Consultation tool
IOA	Interim Operating Authority
L_{Aeq}	Equivalent continuous sound level
L_{max}	Maximum sound pressure level
NMFS	National Marine Fisheries Service
NOAA	National Oceanic Atmospheric Administration
NPS	National Park Service
NPATMA	National Parks Air Tour Management Act of 2000
The Park	Hawai'i Volcanoes National Park
TA_{35dBA} and TA_{52dBA}	The amount of time (in minutes) aircraft sound levels would be above a given noise level during a 24-hour period (35 minutes and 52 minutes)
USFWS	United States Fish and Wildlife Service

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United States Department of the Interior
NATIONAL PARK SERVICE
Natural Resource Stewardship & Science
Natural Sounds and Night Skies Division

U.S. Department of Transportation
Federal Aviation Administration

United States Department of Transportation
FEDERAL AVIATION ADMINISTRATION
Office of Policy, International Affairs & Environment
Office of Environment and Energy

NATIONAL PARKS AIR TOUR MANAGEMENT PROGRAM

April 13, 2023

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NOAA/IRC/NMFS/PIRO
Protected Resources Division
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Re: Informal Section 7 Consultation for Hawai'i Volcanoes National Park Air Tour Management Plan

Dear Ms. Garrett,

The Federal Aviation Administration (FAA), in cooperation with the National Park Service (NPS) (collectively, the agencies), is developing an Air Tour Management Plan (ATMP) for Hawai'i Volcanoes National Park (the Park). The agencies are preparing documentation for the draft ATMP in accordance with the National Parks Air Tour Management Act of 2000 (NPATMA) and other applicable laws. This letter is a request for informal consultation with your office by the agencies pursuant to Section 7 of the Endangered Species Act (the ESA). We are seeking your concurrence that the proposed actions in the draft ATMP will not adversely affect threatened and endangered species occurring within the study area.

Project Background and Purpose of the Action

NPATMA directs the agencies to develop ATMPs or voluntary agreements for National Park System units over which more than 50 commercial air tours occur annually, 49 U.S.C. § 40128. A commercial air tour operation is defined as "a flight conducted for compensation or hire in a powered aircraft where the purpose of the flight is sightseeing over a national park, within ½ mile outside the boundary of a national park…during which the aircraft flies below an altitude of 5,000 feet (ft.) above ground level (AGL) or less than 1 mile laterally from any geographic feature within the Park (unless more than ½ mile outside the boundary)." When NPATMA was passed in 2000 it required the FAA to grant Interim Operating Authority (IOA) to existing air tour operators who were permitted to continue air tour operations over parks until an ATMP was completed. IOA includes only an annual cap on the number of commercial air tours that may be conducted by an operator but does not represent the actual number of air tours conducted and does not designate the route(s), time-of-day, or altitude(s) of such tours. In 2012, NPATMA was amended to require operators to report the number of commercial air tours conducted each year.

On February 14, 2019, Public Employees for Environmental Responsibility and the Hawai'i Coalition Malama Pono filed a petition for writ of mandamus seeking to have the agencies complete air tour

management plans or voluntary agreements at seven specified parks, *In re Public Employees for Environmental Responsibility, et al*., Case No. 19-1044 (D.C. Cir.). On May 1, 2020, the United States Court of Appeals for the District of Columbia Circuit granted the petition and ordered the agencies to file a proposed schedule for bringing twenty-three eligible parks, including Hawai'i Volcanoes National Park, into compliance with NPATMA within two years. The D.C. Circuit subsequently entered an order requiring the agencies to propose firm completion dates to bring all parks into compliance with NPATMA. The completion date set for the Park is December 31, 2023.

Past and Current Commercial Air Tour Activity

Table 1 describes the current commercial air tour activity over the Park along with the average number of flights typically flown over the Park, based on data reported to the NPS and FAA. Based on reported data from 2017-2019, the average annual number of commercial air tours over the Park is 11,376. The flights currently conducted over the Park are flown at altitudes ranging from 500 ft. to 1,500 ft. AGL depending on location over the Park. Details regarding the proposed action, which is implementation of an ATMP for the Park, are described in the following sections.

Table 1. Current Commercial Air Tour Activity

Park Unit	IOA	Current AGL	Average Total Annual Flights (2017-2019)
Hawai'i Volcanoes National Park	26,664	500 ft. – 1,500 ft.	11,376

Action Area

The action area is the area that includes all direct and indirect effects. The action area includes the Park and the land within a ½-mile of the Park's boundary, depicted in Figure 1, and is referred to as the ATMP planning area. The ATMP applies to all commercial air tours within the action area. A commercial air tour subject to the ATMP is any flight, conducted for compensation or hire in a powered aircraft where a purpose of the flight is sightseeing over the Park, during which the aircraft flies:

> (1) Below 5,000 ft. above ground level (except solely for the purposes of takeoff or landing, or necessary for safe operation of an aircraft as determined under the rules and regulations of the FAA requiring the pilot-in-command to take action to ensure the safe operation of the aircraft); or
>
> (2) Less than one mile laterally from any geographic feature within the Park (unless more than ½-mile outside the Park boundary).

As air tours outside of the ATMP planning area are outside the jurisdiction of the ATMP and not subject to NPATMA, there would be no limitations on the annual number of air tours that could occur, and no designated routes could be set outside the ATMP planning area.

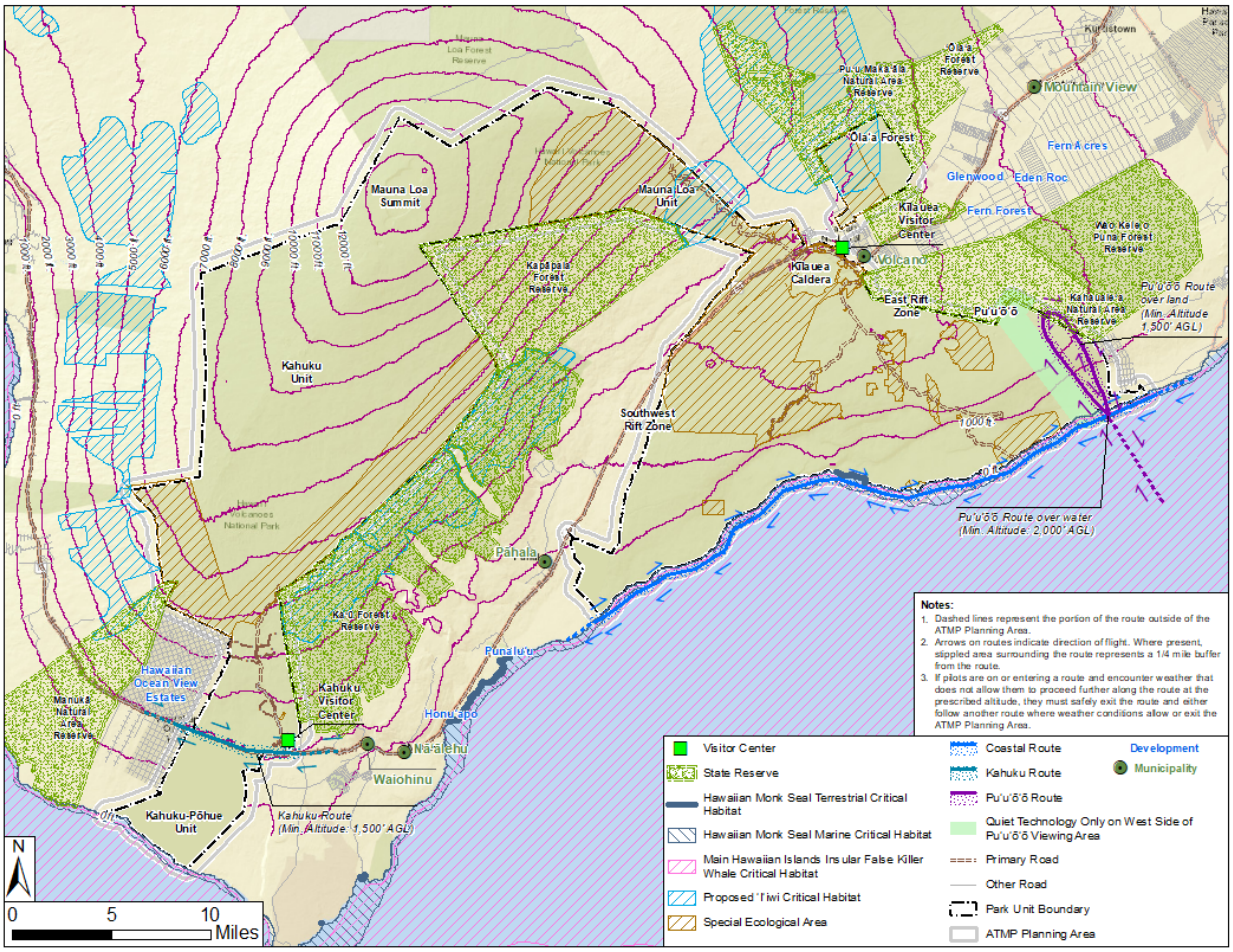


Figure 1. Commercial Air Tour Routes at Hawai'i Volcanoes National Park Under the Proposed Action[1]

Description of Proposed Action

The proposed action is implementation of an ATMP for the Park which establishes conditions for the management of commercial air tour operations. The ATMP will remain in effect until amended, at which time the agencies would reinitiate consultation pursuant to 50 CFR 402.16. A summary of relevant operating parameters of the draft ATMP are discussed in detail below. See Attachment 1 for the draft ATMP.

Commercial Air Tours Per Year

The draft ATMP authorizes 1,565 commercial air tours over the Park each year — 14% of the existing number of flights.

[1] Figure 1 includes designated and proposed critical habitat under the jurisdiction of both the National Marine Fisheries Service and U.S. Fish and Wildlife Service.

Commercial Air Tour Routes and Altitudes

The draft ATMP requires aircraft operators to follow three designated flight paths with a minimum altitude of 1,500 ft. AGL over land and 2,000 ft. AGL over the ocean. Flights more than ½-mile outside the Park boundary are outside of the action area and are subject to the altitude restrictions of the 2008 FAA Hawai'i Air Tour Common Procedures Manual (HI Common Procedures Manual).

There are three designated routes that operators must follow:

- Pu'u'ō'ō Route: Travels on the east rift of Kīlauea in the Pu'u'ō'ō area with a single entry and exit point over the ocean. Operators that have converted to quiet technology aircraft may request to be allowed to conduct air tours in an expanded fly zone directly west of this route near Pu'u'ō'ō (the Pu'u'ō'ō Quiet Technology Zone). The minimum altitude is 1,500 ft. AGL over land and 2,000 ft. AGL over the ocean. Hovering, loitering, and/or circling is allowed for up to five minutes.
- Coastal Route: Bi-directional route offshore along the edge of the park boundary with a 2,000 ft. lateral distance from shore and at minimum altitude of 2,000 ft. AGL over the ocean.
- Kahuku Route: Bi-directional route across the south side of the Kahuku Unit following Highway 11 at minimum altitude of 1,500 ft. AGL over land.

Commercial Air Tour Day/Time

Flights would be permitted between the hours of 10:00 AM and 2:00 PM, unless using a quiet technology aircraft. Flights would be permitted on Monday, Tuesday, Thursday, Friday, and Saturday. Air tours would not be allowed on Sundays. Operators that have converted to quiet technology aircraft could request to be allowed to conduct air tours on Wednesdays.

Additional Requirements

Hovering, Loitering, and Circling: Hovering, loitering, and/or circling for up to five minutes would be permitted only on the Pu'u'ō'ō Route and in the Pu'u'ō'ō Quiet Technology Zone. Circling aircraft would have to turn away from the advancing blade as much as possible to minimize noise.

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. Resource condition monitoring and adaptive management of the ATMP would occur under this alternative to ensure that the terms and conditions of the ATMP would continue to address park management objectives. The NPS would conduct periodic acoustic monitoring to ensure that the terms and conditions of the ATMP remain consistent with park management objectives. The FAA and the NPS will provide additional information for interested parties about the notice and process for 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 Park information

that operators could use to further their own understanding of Park priorities and management objectives as well as enhance the interpretive narrative for air tour clients and increase understanding of the Park by air tour clients. Helicopter pilots would also be required to complete the FAA Introduction to Fly Neighborly training.[2] 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.

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 draft 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 shall be treated in accordance with FAA Order 2150.3, *FAA Compliance and Enforcement Program*.[3]

Quiet Technology Incentives

The draft ATMP incentivizes the adoption of quiet technology aircraft by commercial air tour operators conducting commercial air tours over the Park. Operators that have converted to quiet technology aircraft would be allowed to conduct commercial air tours from 9:00 AM to 5:00 PM on all days on which flights are allowed. Quiet technology aircraft are permitted to fly on Wednesdays and conduct commercial air tours in additional locations in the Puʻuʻōʻō Quiet Technology Zone.

Summary of Conservation Measures

The proposed action includes the following measures protective of species:

- Reduces the number of air tours over the Park from 11,376 (three-year average) to 1,565, an 86% reduction.
- Permits flights only between the hours of 10:00 AM and 2:00 PM, unless using a quiet technology aircraft then flights would be permitted from 9:00 AM to 5:00 PM for those aircraft. This proposed window of operation would provide additional protection to wildlife during critical dusk/dawn periods that are prime times of day for foraging, mating, and communication.
- Aircraft will not hover or circle while conducting air tours over the Park, unless on the Puʻuʻōʻō Route and in the Puʻuʻōʻō Quiet Technology Zone where this is permitted for up to five minutes. This measure would minimize the time individual animals would be exposed to aircraft noise.
- Sets minimum altitudes of 1,500 ft. AGL over land and 2,000 ft. AGL over the ocean, which is an increase of 500 to 1,500 ft. compared to existing operations. This increase in altitude would reduce noise intensity at ground level. When the altitude of an aircraft is increased, the total area of noise exposure from the aircraft may also increase depending on the surrounding terrain. However, because increases in altitude also result in a reduction in maximum sound level of the aircraft in areas nearby the flight track, the beneficial effects of increasing the altitude of commercial air tours are anticipated to outweigh the *de minimis* impacts from any increase in the area exposed to the noise.

[2] https://www.faasafety.gov/gslac/ALC/course_content.aspx?pf=1&preview=true&cID=500
[3] https://www.faa.gov/regulations_policies/orders_notices/index.cfm/go/document.information/documentID/1034329

Listed Species and Critical Habitat Potentially Occurring within the Action Area

The National Marine Fisheries Service's (NMFS) online Species Directory was used to assess the potential for any federally listed species or designated critical habitat that may occur within the action area. Based on this review of species protected under the ESA administered by NMFS, the agencies identified the following species and/or critical habitat that may occur within the action area (see Table 2).

Table 2. Listed Species and Critical Habitat Potentially Occurring in the Action Area

Reptiles - Scientific Name	Reptiles - Common Name	Reptiles - Status (Federal)	Reptiles - Critical Habitat in the Action Area (Y/N)	Reptiles - Proposed Finding
Caretta caretta	Loggerhead Sea Turtle	Endangered	N	No Effect
Chelonia mydas	Green Sea Turtle	Threatened	N	No Effect
Dermochelys coriacea	Leatherback Sea Turtle	Endangered	N	No Effect
Eretmochelys imbricata	Hawksbill Sea Turtle	Endangered	N	No Effect
Lepidochelys olivacea	Olive Ridley Sea Turtle	Threatened	N	No Effect
Mammals - Scientific Name	**Mammals - Common Name**	**Mammals - Status (Federal)**	**Mammals - Critical Habitat in the Action Area (Y/N)**	**Mammals - Proposed Finding**
Balaenoptera borealis	Sei Whale	Endangered	N	No Effect
Balaenoptera musculus	Blue Whale	Endangered	N	No Effect
Balaenoptera physalus	Fin Whale	Endangered	N	No Effect
Eubalaena japonica	North Pacific Right Whale	Endangered	N	No Effect
Neomonachus schauinslandi	Hawaiian Monk Seal	Endangered	Y	NLAA
Physeter macrocephalus	Sperm Whale	Endangered	N	No Effect
Pseudorca crassidens	Main Hawaiian Island Insular False Killer Whale	Endangered	Y	No Effect

Environmental Baseline

The environmental baseline for this consultation includes the three-year average of the air tours 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 HI Common Procedures Manual.

The NPS and partner organizations conduct aviation over the Park for administrative and research purposes. The NPS and its partners' aircraft activity has been evaluated and impacts addressed through Section 7 consultation previously (see Mission Critical Administrative Aviation Plan and Environmental Assessment, 2015).

Potential Stressors Associated with the Proposed Action

The agencies evaluated the proposed action to identify potential stressors that may affect listed species or critical habitat, if exposed. The proposed action does not include in-water activities. Therefore, potential stressors would be associated with overflights, limited to noise and visual disturbance. An increase in altitude to 2,000 ft. AGL over the ocean would limit visual disturbance and reduce noise intensity. Potential effects of low-level flights including commercial air tours on biological resources is largely inferential, as literature specific to these types of effects on individual species is generally unavailable. Discussion of potential effects is based on related species and similar actions.

Overview of Noise Associated with the Proposed Action

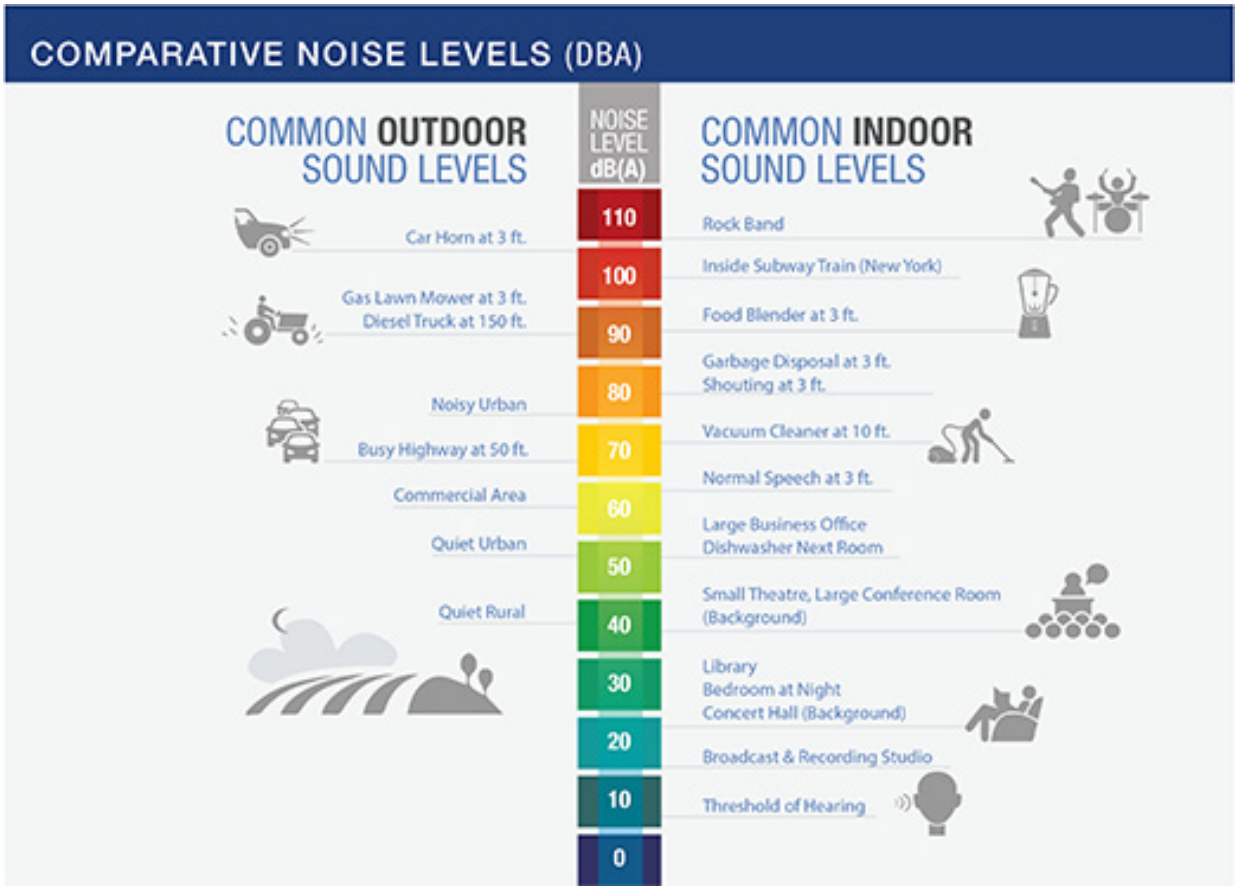
The draft ATMP includes several provisions to minimize potential noise impacts, as outlined above in the *Description of Proposed Action* section. As a result, the intensity of potential noise exposures would be limited under the proposed action. The draft ATMP would ensure that noise would not be constant and that there would be substantial time intervals between noise events from air tours by limiting the number of flights per year, which will reduce the potential number of flights each day. The draft ATMP also ensures that large segments of the Park and areas directly offshore would not be exposed to air tour noise by establishing designated air tour routes.

The agencies conducted noise modeling to estimate noise produced by commercial air tours under the proposed action for a standard day and a quiet technology only day (Attachment 2, *Noise Technical Analysis*). In summary, the noise modeling for a standard day predicts that the maximum sound pressure level (L_{max}) generated by commercial air tours in the Park would be 63.7 dBA and would occur at ʻĀpua Point Camp. The L_{max} noise metric is event based and does not provide any context of frequency, duration, or timing of exposure. The time above (TA) noise metric specifies the amount of time (in minutes) aircraft sound levels would be above a given noise level during a 24-hour period. TA_{35dBA} and TA_{52dBA} were modeled for the proposed action. Based on the modeling, the maximum time that noise from air tours would be above 35 dBA is between 30 and 45 minutes a day, representing 1% of the action area; 29% of the action area would experience noise above 35 dBA for at least 0.1 minutes a day. The maximum time above 52 dBA experienced across all points modeled would be 5.8 minutes, and 87% of points modeled would experience time above 52 dBA for 0.0 to 0.8 minutes (see Attachment 2, *Noise Technical Analysis)*.

For a quiet technology only day, noise modeling predicts that the value for L_{max} generated by commercial air tours in the Park would be 61.5 dBA and would occur at Puʻuʻōʻō. The maximum time that noise from air tours would be above 35 dBA is between 45 and 60 minutes a day, representing less than 1% of the ATMP planning area; 21% of the ATMP planning area would experience noise above 35 dBA for at least 0.1 minutes a day on a quiet technology only day. The maximum time above 52 dBA experienced across all points modeled would be 9.7 minutes; 85% of points modeled would not experience time above 52 dBA at all (see Attachment 2, *Noise Technical Analysis).*

The FAA has established a significance threshold for noise that uses the day-night average sound level (DNL) metric (see FAA Order 1050.1F, Exhibit 4-1). The resultant DNL due to the ATMP is well below the FAA's threshold within the action area. As described in the *Noise Technical Analysis* (Attachment 2), contours for equivalent continuous sound level (L_{Aeq}) for both a standard day and a quiet technology only day show the maximum values for L_{Aeq} were below 45 dBA for the proposed action modeled at the Park; DNL will be arithmetically three dBA lower than $L_{Aeq, 12hr}$ as there are no nighttime events at the Park.

Figure 2.Compares common outdoor and indoor sound levels for context.



Listed Species Evaluated for Effects

The effects of the proposed action include the direct and indirect effects of the air tours that will now occur under NPATMA authorization, including the conservation measures identified. All other aspects of the environmental baseline are expected to continue at approximately the same levels. Table 2 includes the Section 7 determination for each listed species and associated critical habitat.

Reptiles

Several species of listed sea turtles occur within the action area including the green sea turtle (*Chelonia mydas)* or honu, the hawksbill sea turtle (*Eretmochelys imbricata*) or honu'ea, 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.

Due to the poor sound transference from air to water, noise would be unlikely to illicit a response for individual turtles underwater. Adverse effects have been noted as occurring to sea turtles when flight altitudes are 600 ft. MSL or lower, and flight altitudes up to 2,000 ft. AGL have been determined to not likely adversely affect sea turtle species (NMFS, 2022).

Conservation measures included in the proposed action, notably the altitude requirement of 2,000 ft. AGL over the ocean and three designated air tour routes, along with prohibition of hovering and circling over the ocean, ensure that the intensity of the noise associated with commercial air tours is limited. Therefore, the agencies have determined the proposed action would have ***no effect*** on honu, honu'ea, leatherback sea turtle, loggerhead sea turtle, and olive ridley sea turtle.

Mammals

Several cetaceans occur within the action area including the 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).* Critical habitat for the Main Hawaiian Islands Insular false killer whale is located within the action area.

Richter et al. (2006) evaluated aircraft effects on blow duration, vocalization patterns, and surface time for sperm whales and found that there was little change in blow duration when exposed to aircraft used for aerial whale watching. When aircraft were flown at 150 meters (492 ft.), surface time differed between resident and transient whale populations, where resident whales had a slightly longer surface duration when exposed to aircraft, while transient whales had a shorter surface duration when exposed to aircraft (Richter et al., 2006). Sperm whales did not alter the frequency of their vocalization patterns, but did take longer to make their first click sound after a tail fluke-up dive when aircraft were present.

Noise from air tours may impact marine species in a number of ways: altered vocal behavior, changes in behavior such as retreating underwater and surface times, and pod formation, among others (Kunc et al., 2016; Kunc and Schmidt, 2019; Gomez et al., 2016; Richardson et al., 1995). Visually, aircraft can be difficult for cetaceans to locate since they are not in the water and move rapidly (Richter et al., 2006). Aircraft that fly below 500 meters (about 1,640 ft.) have caused cetaceans to exhibit behavioral responses that might constitute a significant disruption of their normal behavioral patterns (Patenaude et al., 2002).

Commercial air tours have the potential to generate noise that could be audible to whales. However, these noise events are not expected to be stressors on these species as they are infrequent and of short duration (likely limited to no more than a few minutes of exposure). Noise underwater is the loudest

when aircraft are directly overhead, and generally decrease as altitude increases. The altitudes under the proposed action would be consistent with marine mammal viewing guidelines. A specific regulation, issued pursuant to the ESA 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. No such stand off zone has been established for other whale species within the action area. However, the agencies believe the 2,000 ft. AGL minimum flight altitude over the ocean is protective of whale species.

Conservation measures included in the proposed action, notably the altitude requirement of 2,000 ft. AGL over the ocean and three designated air tour routes, along with prohibition of hovering and circling over the ocean, ensure that the intensity of the noise associated with commercial air tours is limited. Therefore, the agencies have determined the proposed action would have ***no effect*** on blue whale, fin whale, Main Hawaiian Islands Insular false killer whale, North Pacific right whale, sei whale, and sperm whale; and would have ***no effect*** on the critical habitat of Main Hawaiian Islands Insular false killer whale, including the essential element of its critical habitat and the four features associated with it.

Hawaiian Monk Seal

The endangered Hawaiian monk seal (*Neomonachus schauinslandi*), or ʻilio 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). Hawaiian monk seals inhabit the remote beaches of the Park, notably Halapē, Keauhou, ʻĀpua, and Pōhue, where they rest and bask along the shore for several days throughout the year. They also use these beaches for hauling out, pupping, and nursing, and utilize the vegetation further inland on the beaches for protection from weather elements. Monk seal births are most common between February and August, peaking in March and April (NMFS and NOAA, 2007). Federally designated critical habitat for the Hawaiian monk seal, both terrestrial and marine, is located within the action area along the coast within the action area (see Figure 1). Critical habitat for this species has three essential features: 1) Terrestrial areas and adjacent shallow, sheltered aquatic areas with characteristics preferred by monk seals for pupping and nursing; 2) Marine areas from 0 to 200 meters in depth that support adequate prey quality and quantity for juvenile and adult monk seal foraging; and 3) Significant areas used by monk seals for hauling out, resting, or molting.

Compared to related species, Hawaiian monk seals have reduced sensitivity to airborne sounds and a reduction in terrestrial hearing ability (Ruscher et al., 2021). Although this species has a broad range of hearing while in water, they are not sensitive to noise that is less than 73 dB while in water (Sills et al., 2021). Under the proposed action, noise over critical habitat and beach areas used by Hawaiian monk seals for hauling out or pupping is not expected to exceed 75 dBA. The value for L_{max} generated by commercial air tours in the Park on a standard day would be 63.7 dBA and would occur at ʻĀpua Point Camp, which is located near marine critical habitat for the Hawaiian monk seal; however, the L_{max} noise metric is event based and does not provide any context of frequency, duration, or timing of exposure. At this location, time above 52 dBA would occur for 2.1 minutes on a standard day and 2.5 minutes on a quiet technology only day (see Attachment 2, *Noise Technical Analysis*).

A study of ringed seal responses to fixed-wing airplanes and helicopters in Greenland 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 (Born et al., 1999). 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. (Born et al., 1999). 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). Pinnipeds pupping or molting on land were the most responsive to aircraft noise and responded by retreating to the water (Richardson et al., 1995).

Effect Determination

A specific regulation, issued pursuant to the ESA 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 2,000 ft. AGL altitude requirement in the draft ATMP exceeds altitudes that have been shown to cause effects.

While Hawaiian monk seals will be exposed to noise, these noise events are not expected to be stressors on these species. Commercial air tours will not inhibit foraging, feeding, breeding or nesting of these species because they are infrequent and of short duration (likely limited to no more than a few minutes of exposure). Coastal beaches along the Coastal Route utilized by Hawaiian monk seals would have noise above 52 dBA between 0.8 and 1.2 minutes on a standard day, and 0.4 to 2.5 minutes on a quiet technology only day (see Attachment 2, *Noise Technical Analysis*).

In addition, conservation measures included in the proposed action such as the requirement to fly on three designated routes and the establishment of required minimum altitudes reduce noise impacts, which will ensure that the intensity of the noise associated with commercial air tours is limited. Therefore, any potential impact resulting from noise would be insignificant[4] due to the minimum altitude of 2,000 ft. AGL over the ocean which exceeds the altitudes that have been shown to cause adverse impacts to pinnipeds. Based on the analysis presented above, the agencies have determined that the proposed action ***may affect, not likely to adversely affect*** Hawaiian monk seal and its critical habitat.

Cumulative Effects of the Action

Cumulative effects of the action include the effects of future State, Native Hawaiian, local, or private actions that are reasonably certain to occur in the action area. Currently there are no known planned Federal or Native Hawaiian actions that would affect the species described above. Similarly, the agencies are not aware of any proposed non-Federal action that may affect species or critical habitats considered in this consultation. The impacts of ongoing Federal actions unrelated to the proposed action are considered part of the baseline condition since they are covered under separate consultation

[4] Insignificant effects relate to the size of the impact and include those effects that are undetectable, not measurable, or cannot be evaluated.

pursuant to Section 7 of the ESA. Therefore, there are no cumulative effects associated with the proposed action.

Conclusion

As indicated above, the proposed action implements designated flight paths, requires minimum altitudes, and limits the number of air tours that may be conducted within the action area each year. The measures incorporated into the draft ATMP will serve to avoid and minimize possible effects to listed species and their critical habitat. Therefore, based on the analysis that all effects of the proposed action will be insignificant and/or discountable, the agencies have determined that the proposed action ***may affect, not likely to adversely affect*** Hawaiian monk seal and its critical habitat.

Thank you very much for your help and support. If you have questions or need more information, please contact Michelle Carter, Michelle_Carter@nps.gov at NPS who is helping coordinate overall Section 7 consultations for ATMPs on behalf of the agencies.

Sincerely,

RHONDA LOH

Digitally signed by RHONDA LOH
Date: 2023.04.19 08:58:34 -10'00'

Rhonda Loh, Superintendent for Hawai'i Volcanoes National Park

KEVIN W. WELSH

Digitally signed by KEVIN W. WELSH
Date: 2023.04.21 10:29:43 -04'00'

Kevin Welsh, Executive Director, Office of Environment and Energy, Federal Aviation Administration

Attachments

- Attachment 1 Draft Air Tour Management Plan
- Attachment 2 Noise Technical Analysis

List of Acronyms and Abbreviations

The agencies	National Park Service and Federal Aviation Administration
ATMP	Air Tour Management Plan
Action area	The area within which 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.
AGL	Above ground level
dB	Decibels
dBA	Decibels (A-weighted scale)
DNL	Day-night Average Sound Level (denoted by the symbol L_{dn})
ESA	The Endangered Species Act
FAA	Federal Aviation Administration
ft.	Feet
HI Common Procedures Manual	2008 FAA Hawai'i Air Tour Common Procedures Manual
IOA	Interim Operating Authority
L_{Aeq}	Equivalent continuous sound level
L_{max}	Maximum sound pressure level
NMFS	National Marine Fisheries Service
NOAA	National Oceanic Atmospheric Administration
NPS	National Park Service
NPATMA	National Parks Air Tour Management Act of 2000
The Park	Hawai'i Volcanoes National Park
TA_{35dBA} and TA_{52dBA}	The amount of time (in minutes) aircraft sound levels would be above a given noise level during a 24-hour period (35 minutes and 52 minutes)
USFWS	United States Fish and Wildlife Service

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APPENDIX I

Section 4(f) Analysis

Section 4(f) Analysis

Section 4(f) Parks and Recreational Areas

Table 1 lists Section 4(f) parks and recreational areas identified in the Section 4(f) study area. All data sources were accessed the week of December 5, 2022.

Table 1. Section 4(f) parks, recreational resources, and wildlife/waterfowl refuges in the Section 4(f) study area

Property Name	Official(s) with Jurisdiction	Property Type	Description	Approximate Size (acres)
Hawai'i Volcanoes National Park	National Park Service (NPS) Park Unit	National Park	Hawai'i Volcanoes National Park encompasses the summits of two of the world's most active volcanoes, Kīlauea and Mauna Loa.	388,788 ac (entirely within Section 4(f) study area)
Hakalau Forest National Wildlife Refuge	U.S. Fish and Wildlife Service	Wildlife Refuge	Refuge was established in 1985 to protect, conserve, and manage threatened or endangered Hawaiian species and their rain forest habitat. The refuge includes Kahuku Lots 2 and 3 archaeological sites.	15,494 ac (1,206 ac within Section 4(f) study area)
Keahou Cooperative Nēnē Sanctuary	State Department of Land and Natural Resources (DLNR)	State Reserve	Nēnē sanctuary.	3,901 ac (1,580 ac within Section 4(f) study area)
'Ola'a Forest Reserve	State DLNR	State Forest Reserve	Parcel of relatively undisturbed rain forest, with deep ash soils, abundant rainfall, and native plants.	4,320 ac (890 ac within Section 4(f) study area)
Ka'ū Forest Reserve	State DLNR	State Forest Reserve	Established to protect forest and maintain water supply. Public use includes hunting, recreational opportunities, cultural uses, personal gathering, and educational programs and activities. Public access is allowed in the Reserve for recreational and cultural uses, including	61,538 ac (7,077 ac within Section 4(f) study area)

Property Name	Official(s) with Jurisdiction	Property Type	Description	Approximate Size (acres)
			hunting, hiking and gathering of plant material.	
Kapāpala Forest Reserve	State DLNR	State Forest Reserve	Activities include birdwatching, hiking, and hunting.	37,211 ac (6,442 ac within Section 4(f) study area)
Mauna Loa Forest Reserve (and game management area)	State DLNR	State Forest Reserve	Activities include hunting and hiking.	54,851 ac (4,745 ac within Section 4(f) study area)
Kapāpala Cooperative Game Management Area	State DLNR	State Reserve	Located adjacent to the park; location of the 'Āinapō Trail; active ranch to manage cattle and nēnē.	28,372 ac (3,475 ac within Section 4(f) study area)
Kahauale‘a Natural Area Reserve	State DLNR	State Reserve	Kahauale‘a includes representatives of pioneer vegetation on lava flows, lowland rain forest and mesic forest in the Puna District.	22,678 ac (4,415 ac within Section 4(f) study area)
Kipāhoehoe Natural Area Reserve	State DLNR	State Reserve	Narrow piece of land running down the southwest slopes of Mauna Loa in the district of South Kona. Recent volcanic flows run through the Reserve.	5,891 ac (365 ac within Section 4(f) study area)
Manukā Natural Area Reserve	State DLNR	State Reserve	Activates include hiking, camping. Recent lava flows add a variety of pioneer vegetation types, as well as uncharacterized and unsurveyed lava tubes.	25,700 ac (544 ac within Section 4(f) study area)
Pu‘u Maka‘ala Natural Area Reserve	State DLNR	State Reserve	This reserve was established to protect wet native forest and unique geologic features.	18,645 ac (3,307 ac within Section 4(f) study area)
Kipuka ‘Ainahou Nēnē Sanctuary	State DLNR	State Reserve	Designated Public Hunting Area; DLNR nēnē sanctuary.	24,048 ac (121 ac within Section 4(f) study area)

Property Name	Official(s) with Jurisdiction	Property Type	Description	Approximate Size (acres)
Kīlauea State Recreation Area	State DLNR	State Park	State recreation area. Kīlauea is the youngest and most active volcano on the Island of Hawai‘i.	7 ac (entirely within Section 4(f) study area)
Papa/Honomalino Conservation Easements (Nature Conservancy of Hawai‘i Kona Hema Preserve)	State DLNR/The Nature Conservancy (TNC)	State Forest Reserve	These conservation easements are part of the Nature Conservancy of Hawai‘i Kona Hema Preserve, a diverse mosaic of mid-elevation koa-‘ōhi‘a forest stands.	6,299 ac (900 ac within Section 4(f) study area)
Keaoi Islet Seabird Sanctuary	State DLNR		Keaoi Islet Seabird Sanctuary is a 2-acre islet located off the Kau Coast along Hawai‘i Volcanoes National Park.	2 ac (entirely within Section 4(f) study area)
State Resource Management Area (SRMA)	State DLNR	SRMA	SRMA on the Island of Hawai‘i.	3,132 ac within Section 4(f) study area

Noise Effects Analysis on Section 4(f) Resources

Noise modeling for the Park included two types of analyses: contour analysis and representative location point analysis. A noise contour presents a graphical illustration or “footprint” of the area potentially affected by the noise. Contours were developed for the following metrics: 12-Hour Equivalent Sound Level, Time Audible for Natural Ambient, and Time Above 35 decibels, A-weighted (dBA). Location point results present the metric results at specific points of interest. The NPS provided a list of 44 location points, geographically located across the entire park, where noise levels were to be evaluated. Location point analysis was conducted for the same set of metrics, as well as Time Above 52 dBA and the Maximum Sound Level. Refer to Appendix F, *Noise Technical Analysis*.

To assess Time above 52 dBA at Section 4(f) resources under the Preferred Alternative, location points within 1.5 miles of each Section 4(f) resource were identified. These location points are listed in Table 3 for each Section 4(f) resource and the corresponding Time Above 52 dBA. The Time Above 52 dBA at each location point and the range of Time Above 52 dBA at Section 4(f) resources based on nearby location points were then calculated and reported as high and low values. This range is reported in Table 2 for each Section 4(f) property. See Figure 1 for a map of location points and Section 4(f) resources at the Park.

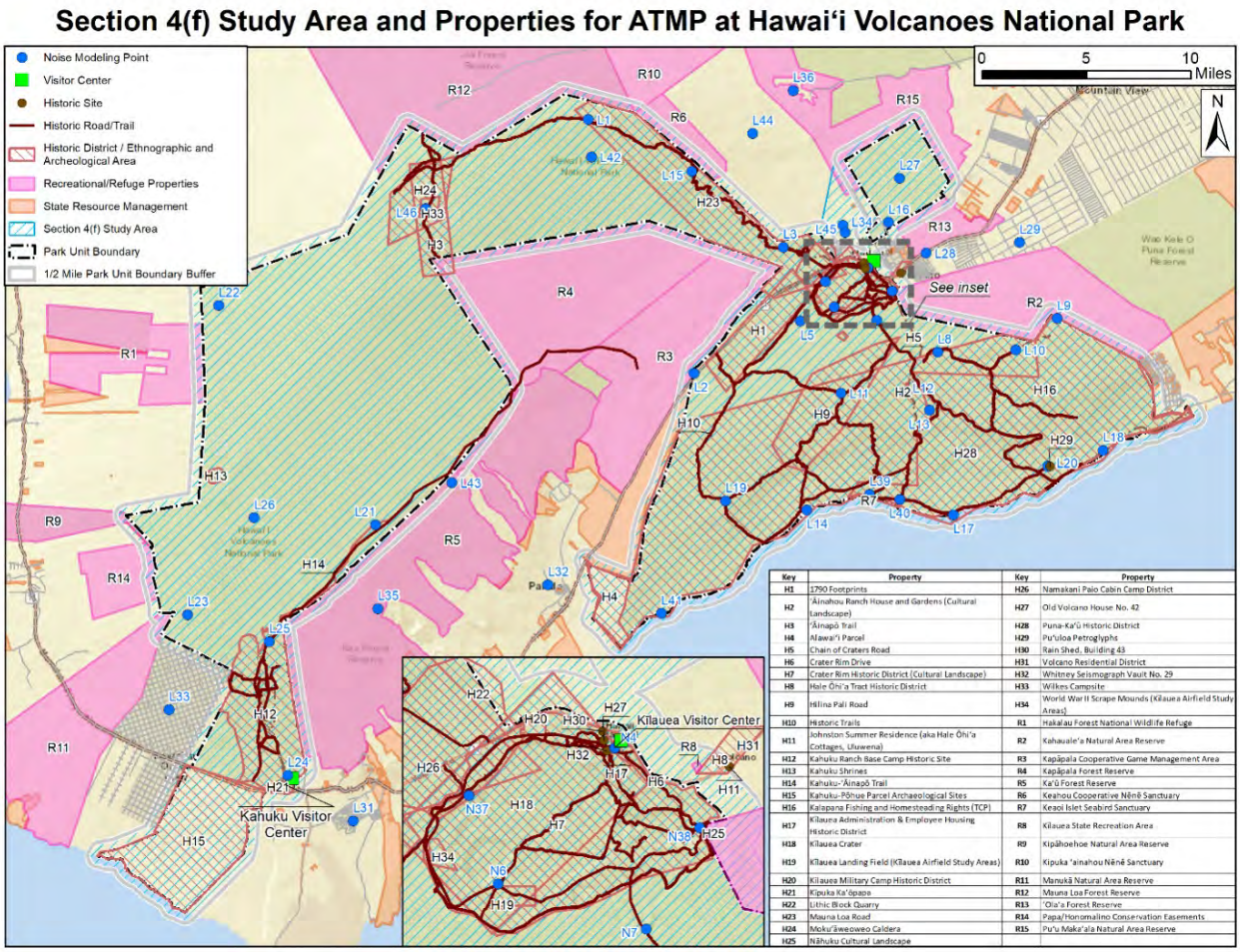


Figure 1. Section 4(f) resources and location points in the Section 4(f) study area

Table 2 shows the low and high modelled Time above 52 dBA values under the preferred alternative at each Section 4(f) resource. Table 3 shows the distance between each Section 4(f) resource and nearby location point and the Time Above 52 dBA at the corresponding location point. A distance of 0.00 miles indicates that the location point falls within the Section 4(f) property. The longest Time Above 52 dB in the Section 4(f) study area is 5.8 minutes on standard days and 9.7 minutes on quiet technology (QT)-only days.

Table 2. Low and high modelled values for Time Above 52 dB under the Preferred Alternative for Section 4(f) resources. Noise modeling results are shown for a standard day and quiet technology-only day.

Section 4(f) Resource	Time Above 52 dBA – Low, Standard Day (minutes)	Time Above 52 dBA – High, Standard Day (minutes)	Time Above 52 dBA – Low, QT Day (minutes)	Time Above 52 dBA – High, QT Day (minutes)
1790 Footprints	0.0	0.0	0.0	0.0
'Āinapō Trail	0.0	0.0	0.0	0.0

Section 4(f) Resource	Time Above 52 dBA – Low, Standard Day (minutes)	Time Above 52 dBA – High, Standard Day (minutes)	Time Above 52 dBA – Low, QT Day (minutes)	Time Above 52 dBA – High, QT Day (minutes)
ʻĀinahou Ranch House and Gardens (Cultural Landscape)	0.0	0.0	0.0	0.0
Chain of Craters Road	0.0	1.5	0.0	1.4
Crater Rim Drive	0.0	0.0	0.0	0.0
Crater Rim Historic District (Cultural Landscape)	0.0	0.0	0.0	0.0
Hakalau Forest National Wildlife Refuge	0.0	0.0	0.0	0.0
Hale Ōhiʻa Tract Historic District	0.0	0.0	0.0	0.0
Hilina Pali Road	0.0	0.0	0.0	0.0
Historic Trails	0.0	2.1	0.0	2.5
Johnston Summer Residence (aka Hale Ōhiʻa Cottages, Uluwena)	0.0	0.0	0.0	0.0
Kahauale'a Natural Area Reserve	0.0	5.8	0.0	9.7
Kahuku Ranch Cultural Landscape	0.0	0.7	0.0	0.0
Kahuku-Pōhue Parcel Archaeological Sites	0.0	0.7	0.0	0.0
Kahuku-ʻĀinapō Trail	0.0	0.7	0.0	0.0
Kalapana Fishing and Homesteading Rights (TCP)	0.0	5.8	0.0	9.7
Kapāpala Cooperative Game Management Area	0.0	0.0	0.0	0.0
Kaʻū Forest Reserve	0.0	0.7	0.0	0.0
Keahou Cooperative Nēnē Sanctuary	0.0	0.0	0.0	0.0
Keaoi Islet Seabird Sanctuary	0.8	1.2	0.4	1.2
Kilauea Military Camp Historic District	0.0	0.0	0.0	0.0
Kīlauea Administration & Employee Housing Historic District	0.0	0.0	0.0	0.0
Kīlauea Crater	0.0	0.0	0.0	0.0
Kīlauea Landing Field (Kīlauea Airfield Study Areas)	0.0	0.0	0.0	0.0
Kīlauea State Recreation Area	0.0	0.0	0.0	0.0
Kīpuka Kaʻōpapa	0.0	0.7	0.0	0.0

Section 4(f) Resource	Time Above 52 dBA – Low, Standard Day (minutes)	Time Above 52 dBA – High, Standard Day (minutes)	Time Above 52 dBA – Low, QT Day (minutes)	Time Above 52 dBA – High, QT Day (minutes)
Lithic Block Quarry	0.0	0.0	0.0	0.0
Manukā Natural Area Reserve	0.0	0.0	0.0	0.0
Mauna Loa Forest Reserve	0.0	0.0	0.0	0.0
Mauna Loa Road	0.0	0.0	0.0	0.0
Moku'āweoweo Caldera	0.0	0.0	0.0	0.0
Namakani Paio Cabin Camp District	0.0	0.0	0.0	0.0
Nāhuku (Thurston Lava Tube) Cultural Landscape	0.0	0.0	0.0	0.0
'Ola'a Forest Reserve	0.0	0.0	0.0	0.0
Old Volcano House No. 42	0.0	0.0	0.0	0.0
Puna-Ka'ū Historic District	0.0	5.8	0.0	9.7
Pu'uloa Petroglpyhs	0.0	0.0	0.0	0.0
Pu'u Maka'ala Natural Area Reserve	0.0	0.0	0.0	0.0
Rain Shed, Building 43	0.0	0.0	0.0	0.0
State Resource Management Area	0.0	0.7	0.0	0.0
Volcano Residential District	0.0	0.0	0.0	0.0
Whitney Seismograph Vault No. 29	0.0	0.0	0.0	0.0
Wilkes Campsite	0.0	0.0	0.0	0.0
World War II Scrape Mounds (Kīlauea Airfield Study Areas)	0.0	0.0	0.0	0.0

Table 3. Section 4(f) resources and corresponding location point data for air tours under the Preferred Alternative. Noise modeling results are shown for a standard day and quiet technology (QT)-only day.

Section 4(f) Resource	Location Point ID	Location Point Name	Distance to Location Point (Miles)	Time Above 52 dBA, Standard Day (Minutes)	Time Above 52 dBA, QT Day (Minutes)
1790 Footprints	2	Vicinity of Halfway House	0.71	0.0	0.0
1790 Footprints	3	Kipuka Puaulu	1.12	0.0	0.0
1790 Footprints	5	Cone Peak, Nene Area	0.45	0.0	0.0
1790 Footprints	6	Halemaumau Crater	1.25	0.0	0.0
1790 Footprints	37	Nahuku (Thurston Lava Tube)	0.90	0.0	0.0

Section 4(f) Resource	Location Point ID	Location Point Name	Distance to Location Point (Miles)	Time Above 52 dBA, Standard Day (Minutes)	Time Above 52 dBA, QT Day (Minutes)
Chain of Craters Road	7	Puhimau Hot Spot	0.02	0.0	0.0
Chain of Craters Road	8	Pu‘ u Huluhulu View Pt.	1.18	0.0	0.0
Chain of Craters Road	12	Ainahou Ranch	0.76	0.0	0.0
Chain of Craters Road	13	Kipuka Kahalii	0.52	0.0	0.0
Chain of Craters Road	18	End of Road / Visitor Use	1.19	1.5	1.4
Chain of Craters Road	20	Pu‘ u Loa Petroglpyhs	0.48	0.0	0.0
Chain of Craters Road	38	Jaggar/HVO	1.09	0.0	0.0
Crater Rim Drive	4	Park HQ Developed Area	0.03	0.0	0.0
Crater Rim Drive	5	Cone Peak, Nene Area	1.03	0.0	0.0
Crater Rim Drive	6	Halemaumau Crater	0.04	0.0	0.0
Crater Rim Drive	7	Puhimau Hot Spot	0.86	0.0	0.0
Crater Rim Drive	37	Nahuku (Thurston Lava Tube)	0.12	0.0	0.0
Crater Rim Drive	38	Jaggar/HVO	0.0	0.0	0.0
Crater Rim Historic District (Cultural Landscape)	4	Park HQ Developed Area	0.0	0.0	0.0
Crater Rim Historic District (Cultural Landscape)	5	Cone Peak, Nene Area	0.97	0.0	0.0
Crater Rim Historic District (Cultural Landscape)	6	Halemaumau Crater	0.0	0.0	0.0
Crater Rim Historic District (Cultural Landscape)	7	Puhimau Hot Spot	0.65	0.0	0.0
Crater Rim Historic District (Cultural Landscape)	37	Nahuku (Thurston Lava Tube)	0.0	0.0	0.0

Section 4(f) Resource	Location Point ID	Location Point Name	Distance to Location Point (Miles)	Time Above 52 dBA, Standard Day (Minutes)	Time Above 52 dBA, QT Day (Minutes)
Crater Rim Historic District (Cultural Landscape)	38	Jaggar/HVO	0.0	0.0	0.0
Crater Rim Historic District (Cultural Landscape)	45	Keauhou Bird Conservation Center	1.21	0.0	0.0
Hakalau Forest National Wildlife Refuge	22	Northwest Kahuku	1.18	0.0	0.0
Hale Ōhiʻa Tract Historic District	4	Park HQ Developed Area	1.43	0.0	0.0
Hale Ōhiʻa Tract Historic District	38	Jaggar/HVO	0.95	0.0	0.0
Hilina Pali Road	7	Puhimau Hot Spot	1.07	0.0	0.0
Hilina Pali Road	11	Kulanaokuaiki Camp	0.0	0.0	0.0
Historic Trails	1	Red Hill	0.0	0.0	0.0
Historic Trails	2	Vicinity of Halfway House	1.24	0.0	0.0
Historic Trails	3	Kipuka Puaulu	0.95	0.0	0.0
Historic Trails	4	Park HQ Developed Area	0.08	0.0	0.0
Historic Trails	5	Cone Peak, Nene Area	0.35	0.0	0.0
Historic Trails	6	Halemaumau Crater	0.01	0.0	0.0
Historic Trails	7	Puhimau Hot Spot	0.64	0.0	0.0
Historic Trails	8	Puʻ u Huluhulu View Pt.	0.03	0.0	0.0
Historic Trails	10	Napau Wilderness Camp	0.0	0.0	0.0
Historic Trails	11	Kulanaokuaiki Camp	0.04	0.0	0.0
Historic Trails	13	Kipuka Kahalii	0.36	0.0	0.0
Historic Trails	14	Kaaha Wilderness Camp	0.27	1.4	1.6
Historic Trails	15	Top of Strip Road	0.16	0.0	0.0

Section 4(f) Resource	Location Point ID	Location Point Name	Distance to Location Point (Miles)	Time Above 52 dBA, Standard Day (Minutes)	Time Above 52 dBA, QT Day (Minutes)
Historic Trails	17	Apua Pt. Camp	0.11	2.1	2.5
Historic Trails	19	Kipuka Pepeiao Wilderness Camp	0.03	0.0	0.0
Historic Trails	20	Pu‘ u Loa Petroglpyhs	0.01	0.0	0.0
Historic Trails	24	Upper Reservoir Kahuku	1.17	0.7	0.0
Historic Trails	25	Frontcountry Kahuku	1.23	0.0	0.0
Historic Trails	37	Nahuku (Thurston Lava Tube)	0.06	0.0	0.0
Historic Trails	38	Jaggar/HVO	0.0	0.0	0.0
Historic Trails	39	Halape Wilderness Camp	0.0	1.2	1.2
Historic Trails	40	Keauhou Camp	0.02	0.8	0.4
Historic Trails	46	Mauna Loa Wilderness Camp	0.02	0.0	0.0
Johnston Summer Residence (aka Hale Ōhi'a Cottages, Uluwena)	38	Jaggar/HVO	0.94	0.0	0.0
Kahauale'a Natural Area Reserve	7	Puhimau Hot Spot	1.33	0.0	0.0
Kahauale'a Natural Area Reserve	8	Pu‘ u Huluhulu View Pt.	1.45	0.0	0.0
Kahauale'a Natural Area Reserve	9	Pu‘ u Oo	0.05	5.8	9.7
Kahauale'a Natural Area Reserve	10	Napau Wilderness Camp	0.60	0.0	0.0
Kahauale'a Natural Area Reserve	28	Volcano Village	1.26	0.0	0.0
Kahauale'a Natural Area Reserve	29	Fern Forest	0.60	0.0	0.0
Kahauale'a Natural Area Reserve	38	Jaggar/HVO	0.05	0.0	0.0

Section 4(f) Resource	Location Point ID	Location Point Name	Distance to Location Point (Miles)	Time Above 52 dBA, Standard Day (Minutes)	Time Above 52 dBA, QT Day (Minutes)
Kahuku Ranch Cultural Landscape	21	Nene Cabin Kahuku	0.03	0.0	0.0
Kahuku Ranch Cultural Landscape	24	Upper Reservoir Kahuku	0.0	0.7	0.0
Kahuku Ranch Cultural Landscape	25	Frontcountry Kahuku	0.0	0.0	0.0
Kahuku-Pōhue Parcel Archaeological Sites	24	Upper Reservoir Kahuku	1.29	0.7	0.0
Kahuku-ʻĀinapō Trail	21	Nene Cabin Kahuku	0.25	0.0	0.0
Kahuku-ʻĀinapō Trail	24	Upper Reservoir Kahuku	1.40	0.7	0.0
Kahuku-ʻĀinapō Trail	25	Frontcountry Kahuku	0.01	0.0	0.0
Kahuku-ʻĀinapō Trail	43	Endangered Forest Bird Habitat 1	0.47	0.0	0.0
Kalapana Fishing and Homesteading Rights (TCP)	8	Puʻ u Huluhulu View Pt.	1.01	0.0	0.0
Kalapana Fishing and Homesteading Rights (TCP)	9	Puʻ u Oo	0.0	5.8	9.7
Kalapana Fishing and Homesteading Rights (TCP)	10	Napau Wilderness Camp	0.96	0.0	0.0
Kalapana Fishing and Homesteading Rights (TCP)	12	Ainahou Ranch	0.77	0.0	0.0
Kalapana Fishing and Homesteading Rights (TCP)	13	Kipuka Kahalii	0.0	0.0	0.0
Kalapana Fishing and Homesteading Rights (TCP)	17	Apua Pt. Camp	0.0	2.1	2.5
Kalapana Fishing and Homesteading Rights (TCP)	18	End of Road / Visitor Use	0.0	1.5	1.4

Section 4(f) Resource	Location Point ID	Location Point Name	Distance to Location Point (Miles)	Time Above 52 dBA, Standard Day (Minutes)	Time Above 52 dBA, QT Day (Minutes)
Kalapana Fishing and Homesteading Rights (TCP)	20	Pu‘ u Loa Petroglpyhs	0.0	0.0	0.0
Kalapana Fishing and Homesteading Rights (TCP)	39	Halape Wilderness Camp	0.0	1.2	1.2
Kalapana Fishing and Homesteading Rights (TCP)	40	Keauhou Camp	0.0	0.8	0.4
Kapāpala Cooperative Game Management Area	2	Vicinity of Halfway House	0.04	0.0	0.0
Kapāpala Cooperative Game Management Area	3	Kipuka Puaulu	0.89	0.0	0.0
Ka'ū Forest Reserve	21	Nene Cabin Kahuku	0.71	0.0	0.0
Ka'ū Forest Reserve	24	Upper Reservoir Kahuku	1.10	0.7	0.0
Ka'ū Forest Reserve	25	Frontcountry Kahuku	0.74	0.0	0.0
Ka'ū Forest Reserve	35	Kau Forest Reserve	0.0	0.0	0.0
Ka'ū Forest Reserve	43	Endangered Forest Bird Habitat 1	0.0	0.0	0.0
Keahou Cooperative Nēnē Sanctuary	15	Top of Strip Road	0.44	0.0	0.0
Keaoi Islet Seabird Sanctuary	39	Halape Wilderness Camp	0.27	1.2	1.2
Keaoi Islet Seabird Sanctuary	40	Keauhou Camp	1.47	0.8	0.4
Kilauea Military Camp Historic District	4	Park HQ Developed Area	0.98	0.0	0.0
Kilauea Military Camp Historic District	37	Nahuku (Thurston Lava Tube)	1.12	0.0	0.0
Kilauea Military Camp Historic District	45	Keauhou Bird Conservation Center	1.19	0.0	0.0

Section 4(f) Resource	Location Point ID	Location Point Name	Distance to Location Point (Miles)	Time Above 52 dBA, Standard Day (Minutes)	Time Above 52 dBA, QT Day (Minutes)
Kīlauea Administration & Employee Housing Historic District	4	Park HQ Developed Area	0.0	0.0	0.0
Kīlauea Administration & Employee Housing Historic District	38	Jaggar/HVO	1.26	0.0	0.0
Kīlauea Crater	4	Park HQ Developed Area	0.0	0.0	0.0
Kīlauea Crater	5	Cone Peak, Nene Area	1.10	0.0	0.0
Kīlauea Crater	6	Halemaumau Crater	0.0	0.0	0.0
Kīlauea Crater	7	Puhimau Hot Spot	1.44	0.0	0.0
Kīlauea Crater	34	Volcano Golf Course Community	1.04	0.0	0.0
Kīlauea Crater	37	Nahuku (Thurston Lava Tube)	0.0	0.0	0.0
Kīlauea Crater	38	Jaggar/HVO	0.94	0.0	0.0
Kīlauea Crater	45	Keauhou Bird Conservation Center	0.68	0.0	0.0
Kīlauea Landing Field (Kīlauea Airfield Study Areas)	6	Halemaumau Crater	0.03	0.0	0.0
Kīlauea Landing Field (Kīlauea Airfield Study Areas)	37	Nahuku (Thurston Lava Tube)	1.30	0.0	0.0
Kīlauea State Recreation Area	4	Park HQ Developed Area	1.09	0.0	0.0
Kīlauea State Recreation Area	38	Jaggar/HVO	0.77	0.0	0.0
Kīpuka Ka'ōpapa	24	Upper Reservoir Kahuku	0.56	0.7	0.0
Lithic Block Quarry	3	Kipuka Puaulu	1.07	0.0	0.0

Section 4(f) Resource	Location Point ID	Location Point Name	Distance to Location Point (Miles)	Time Above 52 dBA, Standard Day (Minutes)	Time Above 52 dBA, QT Day (Minutes)
Lithic Block Quarry	4	Park HQ Developed Area	1.26	0.0	0.0
Lithic Block Quarry	6	Halemaumau Crater	1.20	0.0	0.0
Lithic Block Quarry	34	Volcano Golf Course Community	1.11	0.0	0.0
Lithic Block Quarry	37	Nahuku (Thurston Lava Tube)	0.0	0.0	0.0
Lithic Block Quarry	45	Keauhou Bird Conservation Center	0.92	0.0	0.0
Manukā Natural Area Reserve	23	Pu'u Ohohia	0.65	0.0	0.0
Manukā Natural Area Reserve	33	Ocean View Community	1.45	0.0	0.0
Mauna Loa Forest Reserve	1	Red Hill	0.89	0.0	0.0
Mauna Loa Road	1	Red Hill	0.0	0.0	0.0
Mauna Loa Road	3	Kipuka Puaulu	0.0	0.0	0.0
Mauna Loa Road	4	Park HQ Developed Area	1.07	0.0	0.0
Mauna Loa Road	5	Cone Peak, Nene Area	1.44	0.0	0.0
Mauna Loa Road	6	Halemaumau Crater	1.32	0.0	0.0
Mauna Loa Road	15	Top of Strip Road	0.0	0.0	0.0
Mauna Loa Road	37	Nahuku (Thurston Lava Tube)	0.03	0.0	0.0
Mauna Loa Road	42	Petrel Breeding Area	1.05	0.0	0.0
Mauna Loa Road	45	Keauhou Bird Conservation Center	1.35	0.0	0.0
Moku'āweoweo Caldera	46	Mauna Loa Wilderness Camp	0.0	0.0	0.0

Section 4(f) Resource	Location Point ID	Location Point Name	Distance to Location Point (Miles)	Time Above 52 dBA, Standard Day (Minutes)	Time Above 52 dBA, QT Day (Minutes)
Namakani Paio Cabin Camp District	37	Nahuku (Thurston Lava Tube)	0.61	0.0	0.0
Nāhuku (Thurston Lava Tube) Cultural Landscape	38	Jaggar/HVO	0.0	0.0	0.0
Old Volcano House No. 42	4	Park HQ Developed Area	0.17	0.0	0.0
Puna-Kaʻū Historic District	8	Puʻ u Huluhulu View Pt.	0.0	0.0	0.0
Puna-Kaʻū Historic District	9	Puʻ u Oo	0.0	5.8	9.7
Puna-Kaʻū Historic District	10	Napau Wilderness Camp	0.0	0.0	0.0
Puna-Kaʻū Historic District	11	Kulanaokuaiki Camp	0.0	0.0	0.0
Puna-Kaʻū Historic District	12	Ainahou Ranch	0.0	0.0	0.0
Puna-Kaʻū Historic District	13	Kipuka Kahalii	0.0	0.0	0.0
Puna-Kaʻū Historic District	14	Kaaha Wilderness Camp	0.0	1.4	1.6
Puna-Kaʻū Historic District	17	Apua Pt. Camp	0.0	2.1	2.5
Puna-Kaʻū Historic District	18	End of Road / Visitor Use	0.0	1.5	1.4
Puna-Kaʻū Historic District	19	Kipuka Pepeiao Wilderness Camp	0.0	0.0	0.0
Puna-Kaʻū Historic District	20	Puʻ u Loa Petroglpyhs	0.0	0.0	0.0
Puna-Kaʻū Historic District	39	Halape Wilderness Camp	0.0	1.2	1.2
Puna-Kaʻū Historic District	40	Keauhou Camp	0.0	0.8	0.4
Puna-Kaʻū Historic District	41	Great Crack Coastal Fishing Camp	0.0	2	2.3

Section 4(f) Resource	Location Point ID	Location Point Name	Distance to Location Point (Miles)	Time Above 52 dBA, Standard Day (Minutes)	Time Above 52 dBA, QT Day (Minutes)
Pu'uloa Petroglpyhs	20	Pu‘ u Loa Petroglpyhs	0.11	0.0	0.0
Pu'u Maka'ala Natural Area Reserve	34	Volcano Golf Course Community	1.45	0.0	0.0
Pu'u Maka'ala Natural Area Reserve	36	Olaa Kilauea Forest Partnership	0.0	0.0	0.0
Rain Shed, Building 43	4	Park HQ Developed Area	0.29	0.0	0.0
Volcano Residential District	4	Park HQ Developed Area	1.19	0.0	0.0
Volcano Residential District	28	Volcano Village	0.82	0.0	0.0
Volcano Residential District	38	Jaggar/HVO	0.75	0.0	0.0
Whitney Seismograph Vault No. 29	4	Park HQ Developed Area	0.11	0.0	0.0
Wilkes Campsite	46	Mauna Loa Wilderness Camp	0.0	0.0	0.0
World War II Scrape Mounds (Kīlauea Airfield Study Areas)	4	Park HQ Developed Area	1.40	0.0	0.0
World War II Scrape Mounds (Kīlauea Airfield Study Areas)	5	Cone Peak, Nene Area	1.16	0.0	0.0
World War II Scrape Mounds (Kīlauea Airfield Study Areas)	6	Halemaumau Crater	0.60	0.0	0.0
World War II Scrape Mounds (Kīlauea Airfield Study Areas)	37	Nahuku (Thurston Lava Tube)	0.53	0.0	0.0
'Ola‘a Forest Reserve	16	Ola'a Transect 19	0.37	0.0	0.0
'Ola‘a Forest Reserve	28	Volcano Village	0.03	0.0	0.0

Section 4(f) Resource	Location Point ID	Location Point Name	Distance to Location Point (Miles)	Time Above 52 dBA, Standard Day (Minutes)	Time Above 52 dBA, QT Day (Minutes)
'Olaʻa Forest Reserve	29	Fern Forest	1.33	0.0	0.0
'Āinapō Trail	46	Mauna Loa Wilderness Camp	0.0	0.0	0.0
'Āinahou Ranch House and Gardens (Cultural Landscape)	12	'Ainahou Ranch	0.0	0.0	0.0
'Āinahou Ranch House and Gardens (Cultural Landscape)	13	Kipuka Kahalii	1.48	0.0	0.0
State Resource Management Area	2	Vicinity of Halfway House	0.32	0.0	0.0
State Resource Management Area	4	Park HQ Developed Area	1.00	0.0	0.0
State Resource Management Area	16	Ola'a Transect 19	1.20	0.0	0.0
State Resource Management Area	24	Upper Reservoir Kahuku	0.77	0.7	0.0
State Resource Management Area	28	Volcano Village	0.03	0.0	0.0
State Resource Management Area	29	Fern Forest	1.47	0.0	0.0
State Resource Management Area	30	Kalapana	1.12	0.0	0.0
State Resource Management Area	31	Discovery Harbor, Naalehu	0.79	0.0	0.0
State Resource Management Area	32	Pahala	0.50	0.0	0.0
State Resource Management Area	34	Volcano Golf Course Community	0.97	0.0	0.0
State Resource Management Area	38	Jaggar/HVO	0.62	0.0	0.0

Table 4. Distribution to Officials with Jurisdiction for Section 4(f) Resources

Entity	**Address**
U.S. Fish and Wildlife Service	60 Nowelo Street, Suite 100 Hilo, HI 96720-2788
Department of Land and Natural Resources	1151 Punchbowl St. Honolulu, HI 96813
NPS	P.O. Box 52 Hawaii National Park, HI 96718

APPENDIX J

Public Scoping Newsletter and Comment Summary Report

Federal Aviation Administration
National Park Service

Hawai‘i Volcanoes National Park

FEB 2022
Newsletter

Air Tour Management Plan
Potential Alternatives for Public Comment

The Federal Aviation Administration (FAA) and the National Park Service (NPS) are working together to present potential alternatives for an Air Tour Management Plan for Hawai‘i Volcanoes National Park. Public and stakeholder feedback during this phase is critical. This document will explain:

- Commercial air tour operations
- Requirements for a plan at the Park
- Potential alternatives being considered for the plan
- How the public and stakeholders can provide feedback

Project Introduction

This document presents potential alternatives for the Hawai‘i Volcanoes National Park Air Tour Management Plan (ATMP) Environmental Assessment (EA) for public and stakeholder input. As applied to Hawai‘i Volcanoes National Park (Park), 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 ½-mile outside the Park’s boundary during which the aircraft flies below 5,000 feet above ground level.

The National Parks Air Tour Management Act (the Act) of 2000 requires the FAA, in cooperation with the NPS, to develop an ATMP for parks and tribal lands where operators have applied to conduct commercial air tours. The objective of this ATMP, under the Act, is to develop acceptable and effective measures to mitigate or prevent the significant adverse impacts of commercial air tour operations on the Park’s natural and cultural resources, Native Hawaiian sacred sites and ceremonial areas, wilderness character, and visitor experience.

As part of the public scoping process pursuant to the National Environmental Policy Act (NEPA), the FAA and the NPS invite public input on potential alternatives. Many of you have commented on the FAA and the NPS’s past efforts to complete an ATMP for Hawai‘i Volcanoes National Park which have been considered in the development of these potential alternatives. Public and stakeholder input will be used to further refine or dismiss alternatives and potentially to consider new alternatives. Public input will also be used to inform the environmental analysis. Alternatives that are carried forward and analyzed in the EA are expected to be available for public review and comment later this year.

Hōlei Cliffs

Purpose and Need for the Project

Under NEPA, alternatives must meet the Purpose (i.e., objective) and Need for the project.

Purpose

To comply with the *National Parks Air Tour Management Act of 2000 (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*.

Need

The Act requires an ATMP or voluntary agreement 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 resources, wilderness character, visitor experience, and Native Hawaiian Traditional Cultural Properties including Native Hawaiian sacred sites and ceremonial areas. In order to address potential impacts from commercial air tours the agencies have decided to prepare an ATMP for the Park.

Resources for Consideration in the EA

The agencies propose to analyze the potential impacts of each alternative on the following resources:

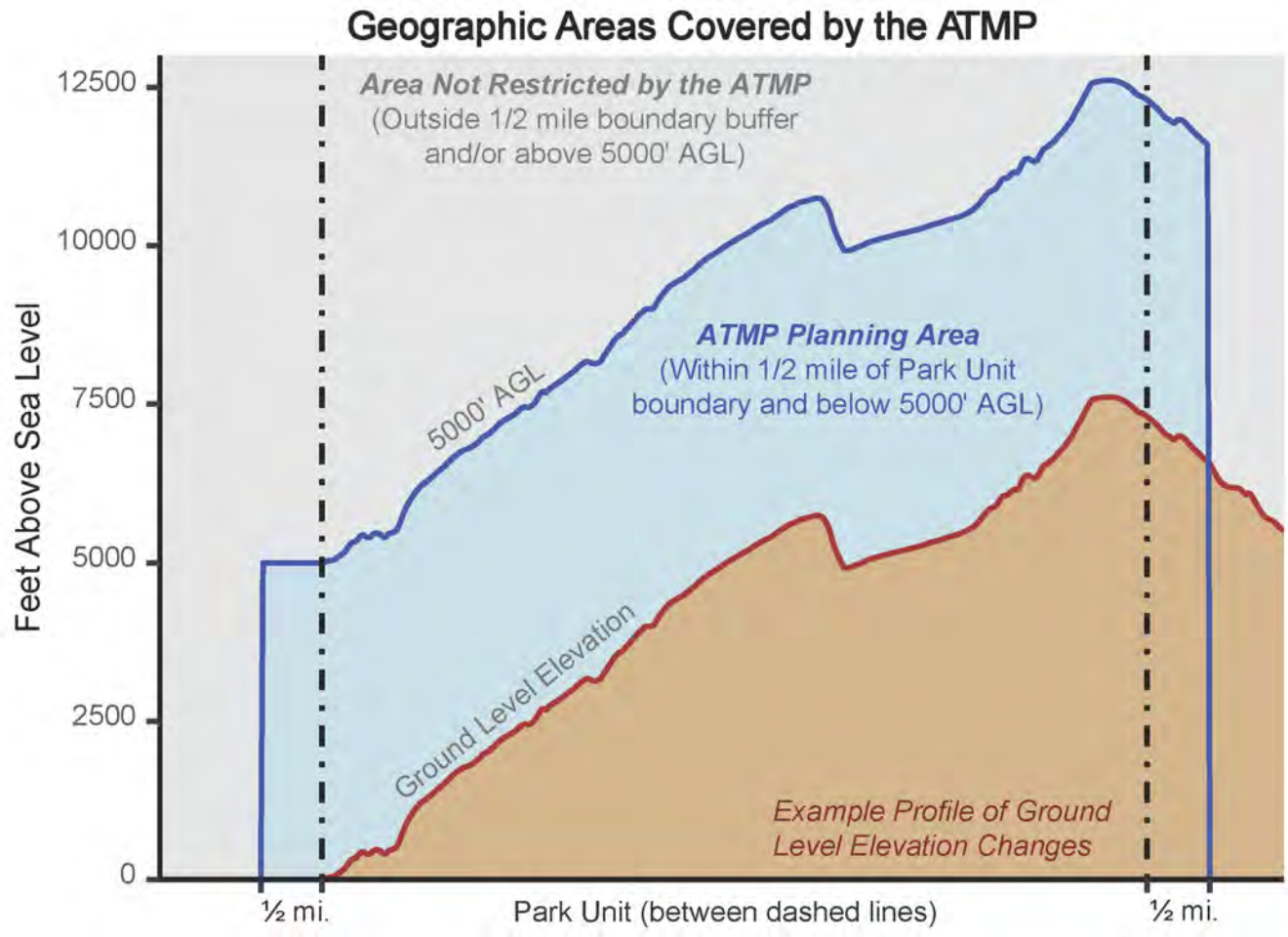
- Air quality
- Biological resources (wildlife including special status species)
- Climate (climate change and greenhouse gas emissions)
- Coastal resources
- Cultural resources (historic buildings, historic districts, archeological resources, sacred sites, Traditional Cultural Properties, cultural landscapes, ethnographic resources)
- Department of Transportation Act, Section 4(f)
- Noise and compatible land use (acoustic environment and Park soundscape)
- Park visitors and visitor uses
- Socioeconomics, Children's Environmental Health and Safety Risk, and Environmental Justice (children's environmental health and safety risks, environmental justice and resident communities, socioeconomics)
- Visual effects (visual resources and visual character)
- Water resources
- Wilderness

Elements Common to All Alternatives for the Hawai‘i Volcanoes National Park ATMP

All alternatives being considered for the Hawai‘i Volcanoes National Park ATMP will incorporate the following:

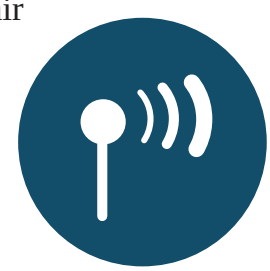
ATMP Planning Area

According to the Act, an ATMP shall regulate commercial air tours over a national park or within ½-mile outside the park's boundary during which the aircraft flies below 5,000 feet above ground level (AGL). This is referred to as the ATMP planning area. 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 the boundaries of the ATMP planning area are outside the jurisdiction of the ATMP, there would be no limitations on the annual number of air tours or routes that could occur outside the ATMP planning area under any alternative. Refer to the figure below for a geographic 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.



Monitoring and Enforcement

All air tour operators are required to report to the FAA and the NPS, 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.



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 and the FAA are both responsible for the monitoring and oversight of the ATMP. If the NPS identifies instances of non-compliance, the NPS will report such findings to the FAA's Honolulu Flight Standards District Office (FSDO). The FSDO will investigate all substantiated reports of noncompliance. The public may also report allegations of non-compliance with the ATMP to the FSDO, which may result in an FAA investigation.

Minimum Altitudes

The range of altitudes examined in the alternatives will be from 1,500 to 5,000 feet AGL. On two-way routes, aircraft will utilize vertical separation to allow aircraft to maintain a safe distance from each other. Vertical separation of aircraft only applies to aircraft traveling in opposite directions, and vertical stacking of aircraft going the same direction along a route would be prohibited.

Flight Routes and In-flight Deviations

The maps included in the potential alternatives show flight routes where air tours could occur within the ATMP planning area. Flight routes within the ATMP planning area are represented by a line with a buffer on either side of the route that indicates the acceptable range of deviation that would not trigger enforcement action. The flight lines will be used for noise modeling purposes in the impact analysis. If pilots are entering a route in the ATMP planning area but weather conditions do not allow them to follow that route at the prescribed altitude they may not proceed further on the route. They would either be required to follow another ATMP route where weather conditions allow or to leave the ATMP planning area boundary. If pilots are on a route and encounter weather that does not allow them to proceed further along the route at prescribed altitude, they must safely exit the route and either follow another ATMP route where weather conditions allow or leave the ATMP planning area boundary.

FAA Airspace Authority

The FAA has authority for all airspace matters, including any enforcement actions for violations under the ATMP, which the agency would process in accordance with existing FAA procedures and regulations.

Fee Collection

Under the Omnibus Budget Reconciliation Act of 1993 (54 U.S.C. § 100904), commercial air tour operators currently conducting air tours over the Park are required to pay a fee (currently $25 for each aircraft with 25 passengers or less) for each air tour conducted. This requirement will remain in force when this ATMP becomes effective. Fee collection will not be considered in the decision-making process for analyzing and selecting a potential alternative. The decisions will be based solely on the environmental impact analysis and public input.

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) and other criteria developed by the agencies. Since the number of flights would be limited for Alternatives 3 and 4, 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.

Competitive bidding may also be appropriate to address: a new entrant application; a request by an existing operator for additional operating authority; consideration by the agencies of Park-specific resources, impacts, or safety concerns; or for other reasons. The Act directs the agencies to consider various factors during the comp bidding process including known resource issues, reporting, and compliance concerns.

Potential Alternatives

The agencies have considered a range of reasonable alternatives that are technically and economically feasible, meet the purpose and need for the project, and the goals of the agencies.

Alternatives Considered and Dismissed

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

The NPS determined the current level of air tours is inconsistent with the Park's purpose and values. The Park's purpose includes perpetuating the traditional Hawaiian cultural connections to the Park's landscapes (see Foundation Document). Noise from the current level of air tours inhibits the Park's ability to meet this purpose. Noise from air tours negatively impacts existing sacred sites within the Park associated with Native Hawaiian people. The NPS is required to avoid such impacts to sacred sites to the extent possible (NPS Management Policies 2006 5.3.5.3.2). Native Hawaiians have consistently noted that persistent air tours over the Park unreasonably interfere with Native Hawaiian connections to the Park's sacred areas.

Additionally, existing air tour operations result in frequent and loud noise disruptions in many areas of the Park. Current air tours over the Park impede the NPS's ability to fully meet the Park's purpose of perpetuating 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 Foundation Document). A recent Park study 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 endemics, which already face a number of stressors (Atkinson and Lapointe 2009; Pratt et al. 2009; LaPointe et al. 2010), than on introduced species.

Current air tours over the Park also directly interfere with resource management activities (such as the execution of acoustic based bird surveys), which impedes the NPS's ability to fully meet the Park's purpose of perpetuating 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 Foundation Document).

Nāhuku Rainforest

The current level of air tours diminishes visitor opportunities to learn about and be inspired by Park resources and values and unreasonably interferes with the atmosphere of peace and tranquility and the natural soundscapes in wilderness. Existing air tours repeatedly interrupt and unreasonably interfere with interpretive programs and visitor activities at many sites, including Uēkahuna Bluff, Kīlauea Overlook, Steam Vents, Volcano House, Kīlauea Visitor Center, Kūpinaʻi Pali, Kīlauea Iki, Devastation, Puʻupuaʻi, Keanakākoʻi, Maunaulu, Puhimau, Kīpukapuaʻulu, and Maunaloa (lookout and trail). Regular visitor complaints and staff observations indicate that noise from air tours impedes visitors from enjoying and learning about existing Park resources in these and other areas of the Park.

Existing air tour operations also unreasonably interfere with the natural soundscape maintained within the Hawaiʻi Volcanoes National Park's four designated Wilderness areas, Maunaloa, ʻŌlaʻa, East Rift, and Kaʻū Desert, as well as the eligible (Upper Kahuku) and potential (Great Crack) Wilderness areas (see NPS Management Policies 1.4.7.1). Persistent noise within Wilderness interferes with the opportunity for solitude and detracts from the natural quality of Wilderness.

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

Lava lake

Alternative 1 (No Action)

Objective

A no action alternative is required by the Council on Environmental Quality and NEPA regulations.

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 and is not in compliance with the Act. The agencies have decided to comply with the Act by developing an ATMP for the Park.

Description

The no action alternative is what happens if the agencies do not adopt an ATMP. The no action alternative would allow a continuation of air tours under Interim Operating Authority (IOA) without implementation of an ATMP or voluntary agreement. Under the no action alternative, air tour numbers would be expected to vary from year to year, likely consistent with reported numbers over the past three to five years. Air tour numbers from 2017 to 2019 are listed below. Under the no action alternative operators could fly up to IOA, 26,664 air tours per year. Air tour operators may fly where they choose. Currently, altitudes are flown in accordance with the Hawai‘i Air Tour Common Procedures Manual (HI Manual). Minimum altitudes range from 500-1,500 ft. AGL, weather dependent, depending on location on the island.

Number of Flights Each Year

Alternative 1 represents a continuation of what is currently flown and allowed under existing law including each company's IOA as granted by the FAA (70 Federal Register 36456 (June 23, 2005)), applicable regulations that govern aviation safety (Title 14 Code of Federal Regulations Part 136, Appendix A (formerly Special Federal Aviation Regulation 71)), and any FAA exceptions issued to individual operators as outlined by the HI Manual. Ten commercial air tour operators currently hold IOA to fly up to a combined total of 26,664 annual commercial air tours over the Park (see table on page 11).

Since reporting began in 2013, the total number of annual commercial air tours reported over the Park ranges from 8,333 (reported in 2018) to 16,520 (reported in 2017). Under the no action alternative, operators could fly up to IOA. The operators may not exceed their respective IOA limitation in any given year. Under the no action alternative, air tours numbers would be expected to vary from year to year, likely consistent with reported numbers over the past three to five years.

Alternative 1 (No Action)

The average annual number of commercial air tours conducted over the Park from 2017-2019 for all operators is 11,376. The agencies consider the 2017-2019, three-year average, the existing baseline for the purposes of understanding the existing number of commercial air tour flights over the Park. The requirement for commercial air tour operators to report actual commercial air tours to the FAA and the NPS 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 reflect actual flights. 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.

Routes and Altitudes

There are no designated flight routes or no-fly zones under the no action alternative. The figure for this alternative depicts both general route information provided by current commercial air tour operators and Automatic Dependent Surveillance-Broadcast (ADS-B) flight tracking data of actual commercial air tour operations over and adjacent to the Park. Actual commercial air tour operations are dispersed around the generalized routes provided by operators depicted on the figure. The ADS-B tracking data is more reflective of existing operations for various reasons including deviations that may occur due to weather.

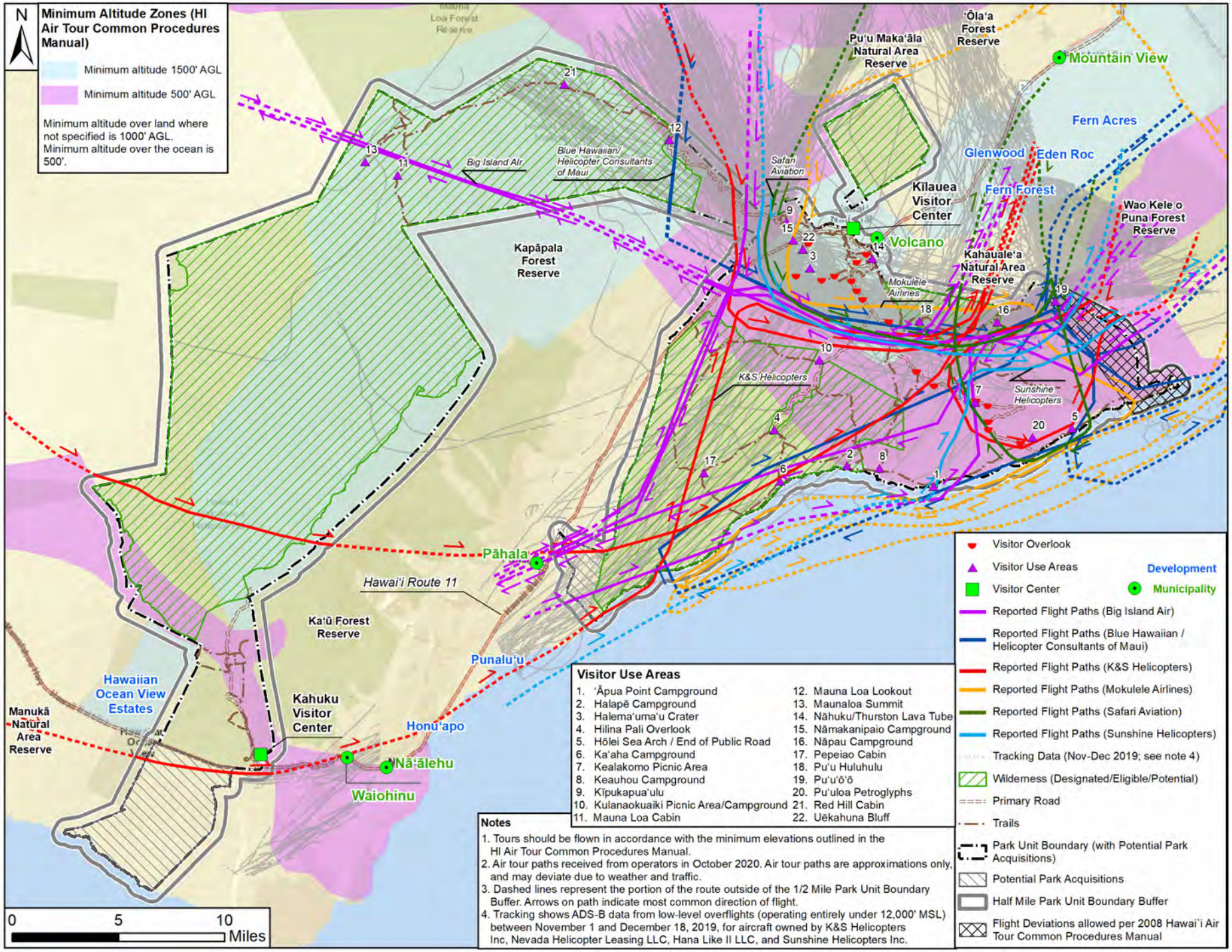
Minimum altitudes for commercial air tours within the ATMP planning area are flown in accordance with the HI Manual, from 500-1,500 ft. AGL, weather dependent and contingent on location on the island. In addition, operators holding a B048 Operations Specification are authorized to conduct commercial air tour operations at altitudes less than 1,500 feet above the surface, within the state of Hawai‘i, in accordance with the provisions and limitations of the HI Manual. See the figure for this alternative for details.

Operators, Aircraft Types, Interim Operating Authority

Seven of the ten operators that hold IOA for the Park reported flying commercial air tours over the Park between 2013 and 2019. Five operators fly helicopters, and two operators fly fixed-wing aircraft. The following table summarizes each operator’s aircraft type, IOA for the Park, and average number of reported air tours over the Park from 2017-2019:

Alternative 1 (No Action)

Operator	Aircraft Type	2017 Reported Tours	2018 Reported Tours	2019 Reported Tours	3-year Reported Average No. of Air Tours (2017-2019)	Interim Operating Authority (IOA)
Above it All Inc. (Sporty's Academy Hawai'i, Hawai'i Island Hoppers, Hawai'i Airventures, Benchmark Flight Center)	no data	0	0	0	0	3,878
Big Island Air Inc.	fixed wing	102	7	0	36	1,643
Hawai'i Helicopters Inc. (Helicopter Consultants of Maui, Inc.)	helicopter	139	50	67	85	141
Helicopter Consultants of Maui Inc. (Hawai'i Helicopter, Blue Hawaiian Helicopters)	helicopter	12,300	6,059	7,325	8561	12,413
K&S Helicopters (Paradise Helicopters)	helicopter	877	552	248	559	1,684
Manuiwa Airways Inc. (Volcano Helicopters, Volcano Heli-Tours)	no data	0	0	0	0	800
Mokulele Flight Service Inc. (Mokulele Airlines)	fixed wing	0	15	0	5	60
Safari Aviation Inc. (Safari Helicopter Tours)	helicopter	1,977	1,050	995	1341	3,920
Schuman Aviation Company, Ltd. (Makani Kai Helicopters)	no data	0	0	0	0	25
Sunshine Helicopters Inc.	helicopter	1,125	600	641	789	2,100
		16,520	**8,333**	**9,276**	**11,376**	**26,664**



Alternative 1 (No Action)

Alternative 2

Objective

Alternative 2 seeks the greatest protection for the purposes, resources, and values of the Park. These include the summits of Kīlauea and Maunaloa which hold 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; ground-based visitor experience; Native Hawaiian traditional cultural practices; scenic qualities, and natural sounds.

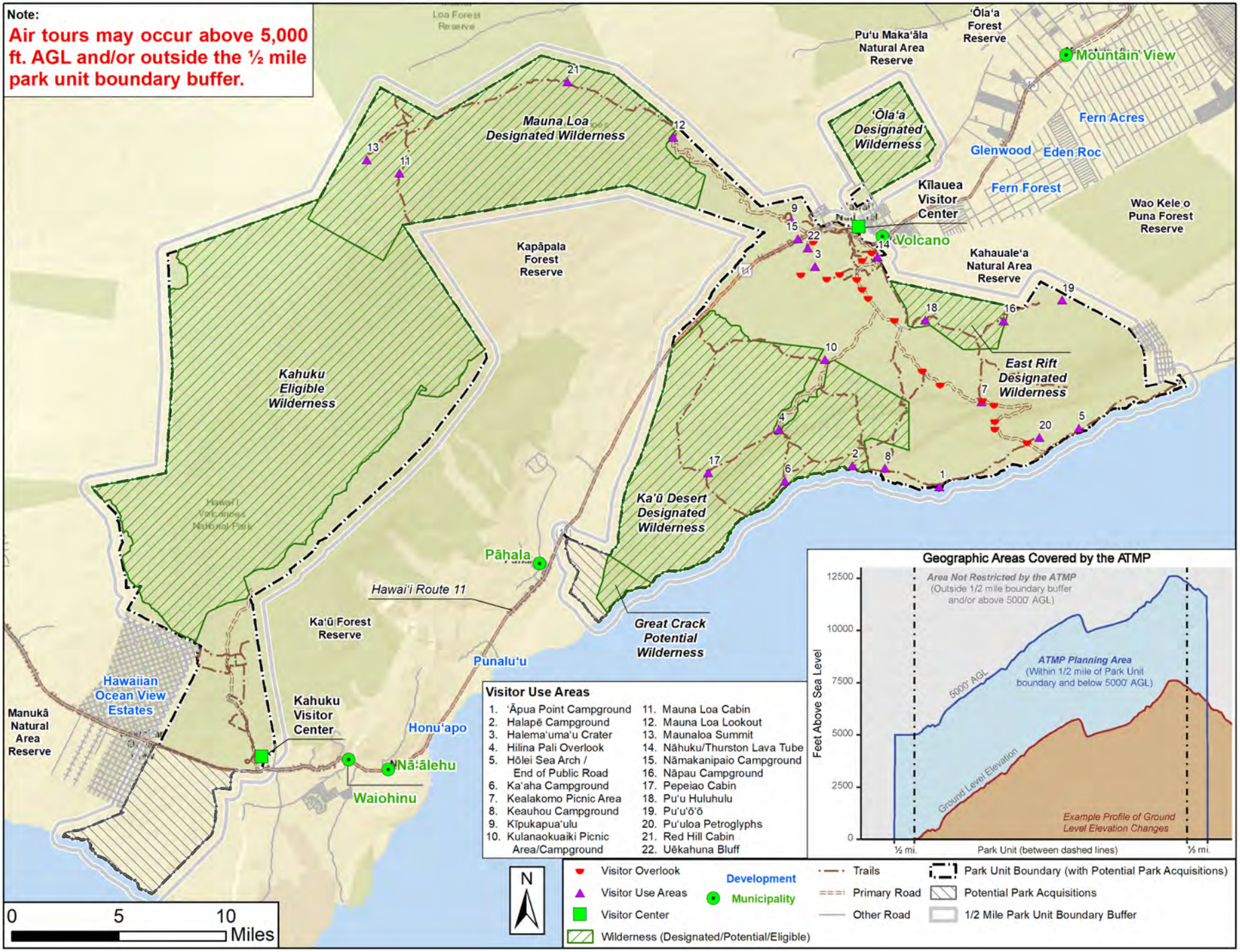
Description

Alternative 2 would prohibit air tours within the ATMP planning area. The ATMP planning area includes areas below 5,000 feet AGL and within ½-mile of the Park boundary. The Park itself would be designated as an area to remain free of commercial air tours under 5,000 feet AGL regardless of future eruptions or lava flows. Air tours outside of the ATMP planning area (i.e., above 5,000 feet 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 and Altitudes

Air tours could be conducted only outside the ATMP planning area. Based on current air tour activity, routes outside of the ATMP planning area would be expected to be similar to existing routes. An unknown number of air tours originating on Hawai‘i Island from Hilo, Kailua-Kona, Hāpuna and Waikoloa, and airports on Maui and O‘ahu would still continue to fly more than ½-mile outside of the Park’s boundary at or below 1,500 feet AGL in accordance with the HI Manual. The actual flight path of air tours outside the ATMP planning area would vary due to operator preference, volcanic activity, and weather conditions at the time of the air tour.

Rainforest trail



Alternative 2

Alternative 3

Objective

The NPS developed Alternative 3 to provide multiple air tour routes for access to historically active volcanic areas of the Park with mitigations to avoid or minimize unacceptable impacts to soundscapes based on Park management zones. The FAA reviewed the alternative to ensure it meets safety parameters.

Description

Commercial air tour operations would only fly along two main routes, one fly zone, and one adaptive management route providing access to active volcanic areas, coastal areas, and other volcanic landscapes.

Caps on Numbers of Flights Allowed Annually and Daily

Soundscape modeling for Alternative 3 will consider and evaluate various numbers of annual commercial air tours over the Park, ranging between 1 flight per year to below current condition (the average number of commercial air tours conducted over the Park each year from 2017-2019, in this case 11,376). The number of flights allowed over the Park on an annual basis will be selected to avoid or minimize unacceptable impacts to soundscapes based on Park management zones. This alternative would not consider a daily cap on the number of commercial air tours that each operator could fly.

Routes and Altitudes

Alternative 3 includes two main routes, one fly zone, and one adaptive management route where commercial air tour operators could fly. Refer to the figure for this Alternative for a depiction of each:

- Northern Route: Commercial air tour operations would fly along Highway 11 for viewing of Kīlauea and Halemaʻumaʻu Craters. The northern route would be flown at minimum 1,500 ft. AGL altitude, and minimum 2,000 ft. AGL altitude over wilderness areas and sensitive sites.
- Coastal Route: Commercial air tour operators would fly offshore along the edge of the Park boundary, but within ½-mile of the Park boundary. The route runs offshore along the edge of the ATMP planning area boundary in order to protect wilderness areas and backcountry campgrounds within the Park. This route would be flown at minimum 2,000 ft. AGL. The coastal route would be available for use only if commercial air tour operators could safely adhere to the required altitudes and distances to the shore. If an operator is not able to safely fly offshore in accordance with the prescribed altitude and distance requirements, the operator shall not utilize that route.

- Pu‘u‘ō‘ō Viewing Area: The Pu‘u‘ō‘ō viewing area is a fly zone along the east rift of Kīlauea to the Pu‘u‘ō‘ō area. Commercial air tour access would be permitted to the east rift of Kīlauea within the Pu‘u‘ō‘ō viewing area. Quiet Technology (QT) aircraft would be permitted to use an expanded fly zone in the western portion of this area near Pu‘u‘ō‘ō. Commercial air tours conducted within this area would be flown at minimum 1,500 ft. AGL.
- Southwest Rift Zone Route: The Kīlauea Southwest Rift Zone would be viewable from the Southwest Rift Zone route outside the Park boundary but within ½-mile of the boundary under adaptive management only (e.g., if lava emerges, the adaptive management process would be implemented to determine if/when the route is approved for use). The offset from the Park boundary would provide protection to wilderness areas. This route would be flown at minimum 2,000 ft. AGL.

Other than the routes described above, under Alternative 3, no air tours could occur below 5,000 feet AGL within the rest of the Park or within ½-mile of the Park boundary. Refer to the map for this alternative for a depiction of flight corridors and altitudes.

Loitering/Circling

This alternative would prohibit loitering or circling because it could negatively impact visitors, cultural, and natural resources, including sensitive sites.

Time of Day/Day of Week

Flights would be permitted between the hours of 10:00 a.m. – 2:00 p.m. Flights would be permitted on all days of the week except Wednesday and Sunday. Exceptions to these parameters for QT aircraft are noted below, which allows QT aircraft to fly over the Park on Wednesdays. One no-fly day provides opportunities for visitor enjoyment, particularly bird watching. Sunday was selected as a no-fly day for consistency with the Park’s Mission Critical Administrative Aviation Plan and Environmental Assessment and allows for one weekend flight-free day at the Park.

Quiet Technology (QT) Incentives

The Act requires that the ATMP include incentives for the adoption of QT by commercial air tour operators. Alternative 3 includes the following incentives for operators conducting commercial air tours using QT aircraft:

- Relax the day of week restriction to allow flights on Wednesdays for QT aircraft
- Relax the time-of-day restrictions to allow QT aircraft to fly from 10:00 a.m. - 4:00 p.m.
- Allow QT aircraft to conduct commercial air tours in additional locations in the Pu‘u‘ō‘ō viewing area (see map for a depiction of these areas).

In order to qualify for QT incentives, operators will be required to follow a process to be defined by the agencies.

Restrictions for Special Events

This alternative would include a mandatory 5-mile standoff for special events that could be impacted by commercial air tours, limited to the day of the event. Special events could include Native Hawaiian events or other natural and cultural resource programs. Two months' notice would be provided to commercial air tour operators prior to the event. The standoff would not extend outside the ATMP planning area.

Adaptive Management

Adaptive management is a systematic approach for improving resource management and ensuring that 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 a new lava flow occurs in the Park or if the breeding habitat of a sensitive species moves to a new area. This alternative will analyze an adaptive management route, the Southwest Rift Zone route, for use during an eruptive event along the Southwest Rift Zone of Kīlauea. See "Routes and Altitudes" section for a description of this route.

Interpretive Training and Education

The NPS would provide mandatory training for air tour pilots regarding Park resources. The training would include the Park information that operators could use to further their own understanding of Park priorities, cultural and natural resources protection and management objectives as well as enhance the interpretive narrative for air tour clients and increase understanding of the Park by air tour clients.

Operators would also be required to complete the FAA Fly Neighborly training for their aircraft type. Fly Neighborly is a noise reduction program that seeks to create better relationships between communities and helicopter operators by establishing noise mitigation techniques and increasing effective communication.

Annual Meeting

An annual meeting between the agencies and commercial air tour operators would occur under this alternative. The ATMP will describe the details of the annual meeting.

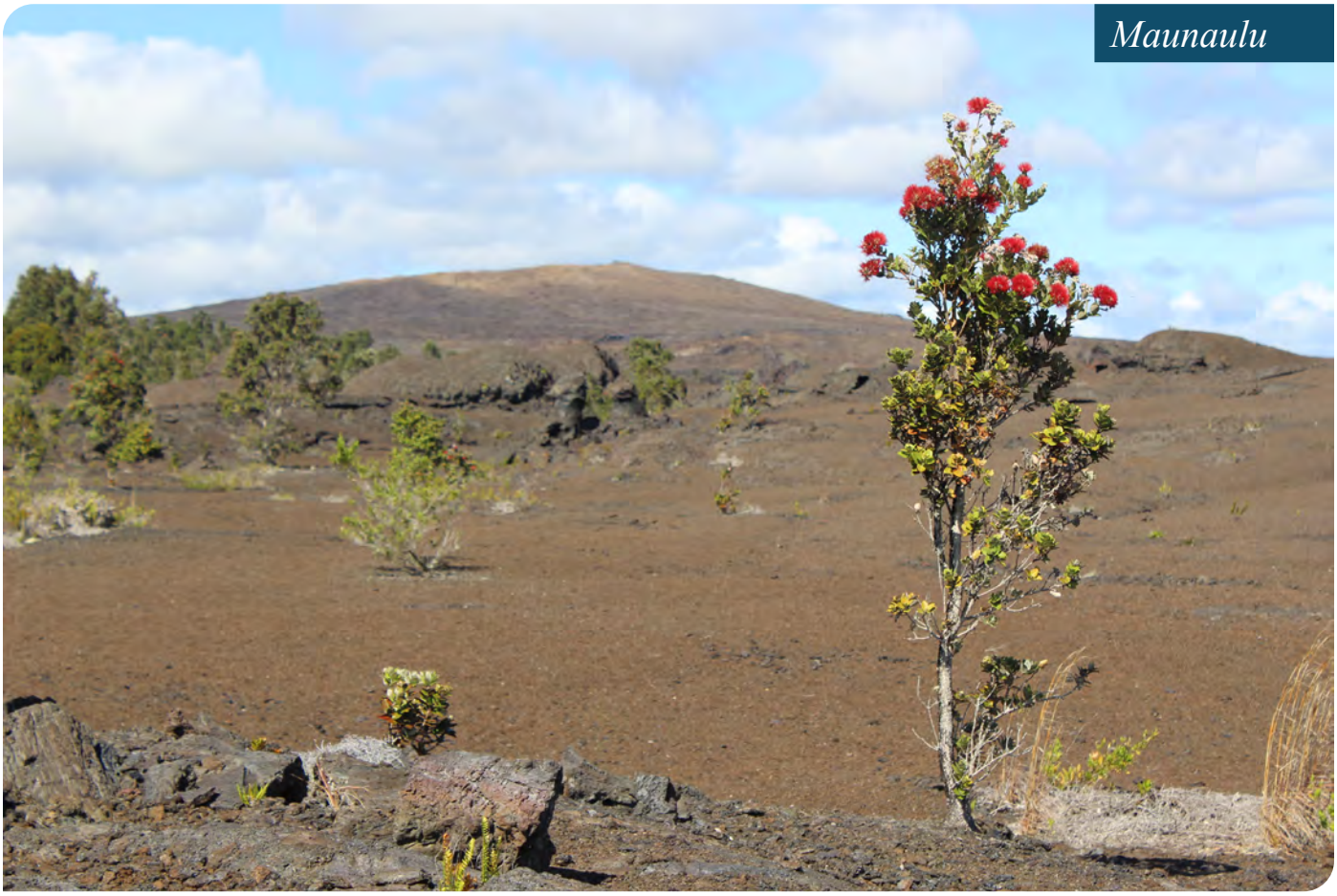
Operators, Initial Allocation of Air Tours, and Aircraft Types

Upon finalization of the ATMP, the number of flights authorized to occur each year would be proportionally allocated to each of the seven operators that have reported operations over the Park in the period from 2017-2019. Each operator's initial allocation will reflect the proportion of its average number of reported flights from 2017-2019 as compared to all operators that have reported flying over the Park during this period. Each operator's aircraft types would reflect those reported in the period from 2017-2019. The initial allocation would be used until a competitive bidding process could occur. Under the Act, IOA terminates 180 days after the date of establishment of the ATMP, however, if the FAA updates an operator's Operations Specifications before that time, IOA will be terminated when the Operations Specifications are updated.

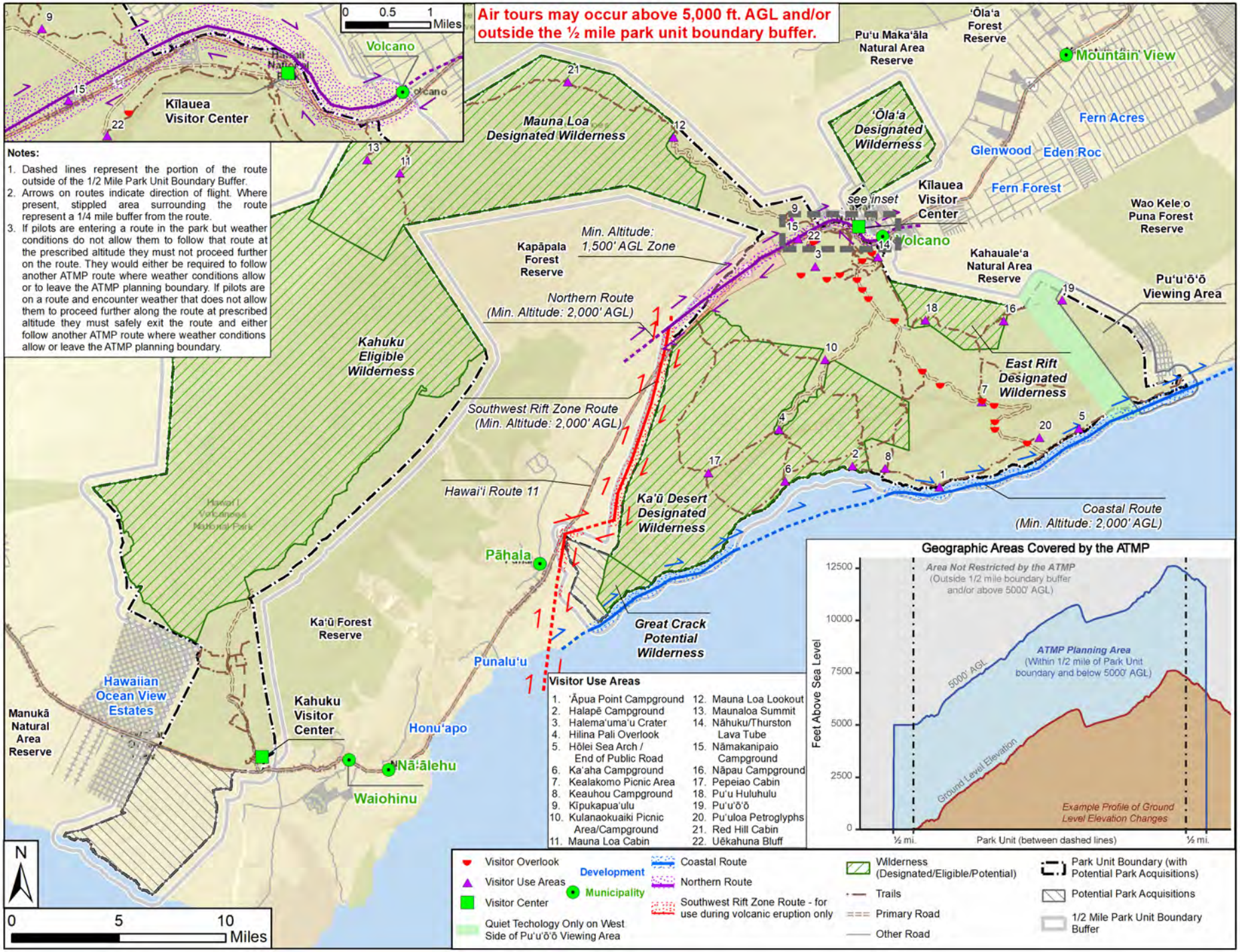
Alternative 3

Monitoring and Enforcement

Upon finalization of the ATMP, the operators would be required to equip all aircraft used for air tours with flight monitoring technology, 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. Soundscape monitoring would also occur to ensure that the terms and conditions of the ATMP are consistent with Park management objectives.



Maunaulu



Alternative 3

Alternative 4

Objective

The NPS developed Alternative 4 to provide an air tour route for access to the historically active east rift zone of Kīlauea, an additional route for air tour transit across the lower southern edge of Kahuku, and an offshore coastal flight corridor that would protect wilderness areas and backcountry campgrounds. The heart of the Park, including designated wilderness areas and key cultural and visitor use areas, would be free of commercial air tours. This alternative would avoid or minimize unacceptable impacts to Park soundscapes based on Park management zones. The FAA reviewed the alternative to ensure it meets safety parameters.

Description

This alternative includes three flight corridors for commercial air tours within the ATMP planning area and does not consider any adaptive management routes.

Caps on Numbers of Flights Allowed Annually and Daily

Soundscape modeling for Alternative 4 will consider and evaluate various numbers of annual commercial air tours over the Park, ranging between 1 flight per year to below current condition (the average number of annual commercial air tours conducted over the Park from 2017-2019, in this case 11,376). The number of flights allowed over the Park on an annual basis will be selected to avoid or minimize unacceptable impacts to soundscapes based on Park management zones. This alternative would consider the use of daily caps by operator due to the historical frequency of air tours that have occurred during eruptive events at the Park.

Routes and Altitudes

This alternative includes three flight corridors where commercial air tour operators would be permitted to fly:

- Pu‘u‘ō‘ō Route: The Pu‘u‘ō‘ō route consists of a route on the east rift of Kīlauea in the Pu‘u‘ō‘ō area with a single entry and exit over the ocean. Only QT aircraft would be permitted to use an expanded fly zone directly west of this route near Pu‘u‘ō‘ō. The flight path on the west side would avoid the designated wilderness boundary at Nāpau, and an impact analysis would be used to determine the boundary line of the west side flight zone. Commercial air tours conducted within this area would be flown at minimum 1,500 ft. AGL.
- Coastal Route: Commercial air tour operators would fly offshore along the edge of the Park boundary, but within ½-mile of the boundary. The route runs offshore along the edge of the ATMP planning area boundary in order to protect wilderness areas and backcountry campgrounds within the Park. This route would be flown at minimum 2,000 ft. AGL. The coastal route would be

available for use only if commercial air tour operators could safely adhere to the required altitudes and distances to the shore. If an operator is not able to safely fly offshore in accordance with the prescribed altitude and distance requirements, the operator shall not utilize that route.

- Kahuku Route: This route provides access for Kailua-Kona flights and circle island tours across the lower southern edge of Kahuku along Highway 11 to provide views of the southwest rift of Maunaloa and many past eruptions. This route would be flown at minimum 1,500 ft. AGL.

Other than the routes described above, under Alternative 4, no air tours could occur below 5,000 feet AGL over the rest of the Park or within ½-mile of its boundary. Refer to the map for this alternative for a depiction of flight corridors and altitudes.

Loitering/Circling

This alternative would allow loitering and circling along the Pu'u'ō'ō route and viewing area. Impact analyses would be used to set mandatory time limits for loitering within the Pu'u'ō'ō viewing area. Circling aircraft must turn away from the advancing blade as much as possible in order to minimize noise.

Time of Day/Day of Week

Flights would be permitted between the hours of 9:00 a.m. – 5:00 p.m. Flights would be permitted on all days of the week except Sunday. Exceptions to these parameters for QT aircraft are noted below. One no-fly day provides opportunities for visitor enjoyment, particularly bird watching. Sunday was selected as a no-fly day for consistency with the Park's Mission Critical Administrative Aviation Plan and Environmental Assessment and allows for one weekend flight-free day at the Park.

Quiet Technology (QT) Incentives

The Act requires that the ATMP include incentives for the adoption of QT by commercial air tour operators. Alternative 4 includes the following incentives for operators conducting commercial air tours using QT aircraft:

- Relax the time-of-day restrictions to allow QT aircraft to fly from 8:00 a.m. - 5:00 p.m.
- Allow QT aircraft to conduct commercial air tours in additional locations in the Pu'u'ō'ō viewing area (see map for a depiction of these areas).

In order to qualify for QT incentives, operators will be required to follow a process to be defined by the agencies.

Restrictions for Special Events

This alternative would include a voluntary 3-mile standoff for special events that could be impacted by overflights, limited to the day of the event. Special events could include Native Hawaiian events or other natural and cultural resource programs. Two months' notice would be provided to commercial air tour operators prior to the event. The standoff would not extend outside the boundary of the ATMP planning area.

Interpretive Training and Education

NPS would provide voluntary training for air tour pilots regarding Park resources. 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 the interpretive narrative for air tour clients and increase understanding of the Park by air tour clients.

Operators would also be required to complete the FAA Fly Neighborly training for their aircraft type. Fly Neighborly is a noise reduction program that seeks to create better relationships between communities and helicopter operators by establishing noise mitigation techniques and increasing effective communication.

Annual Meeting

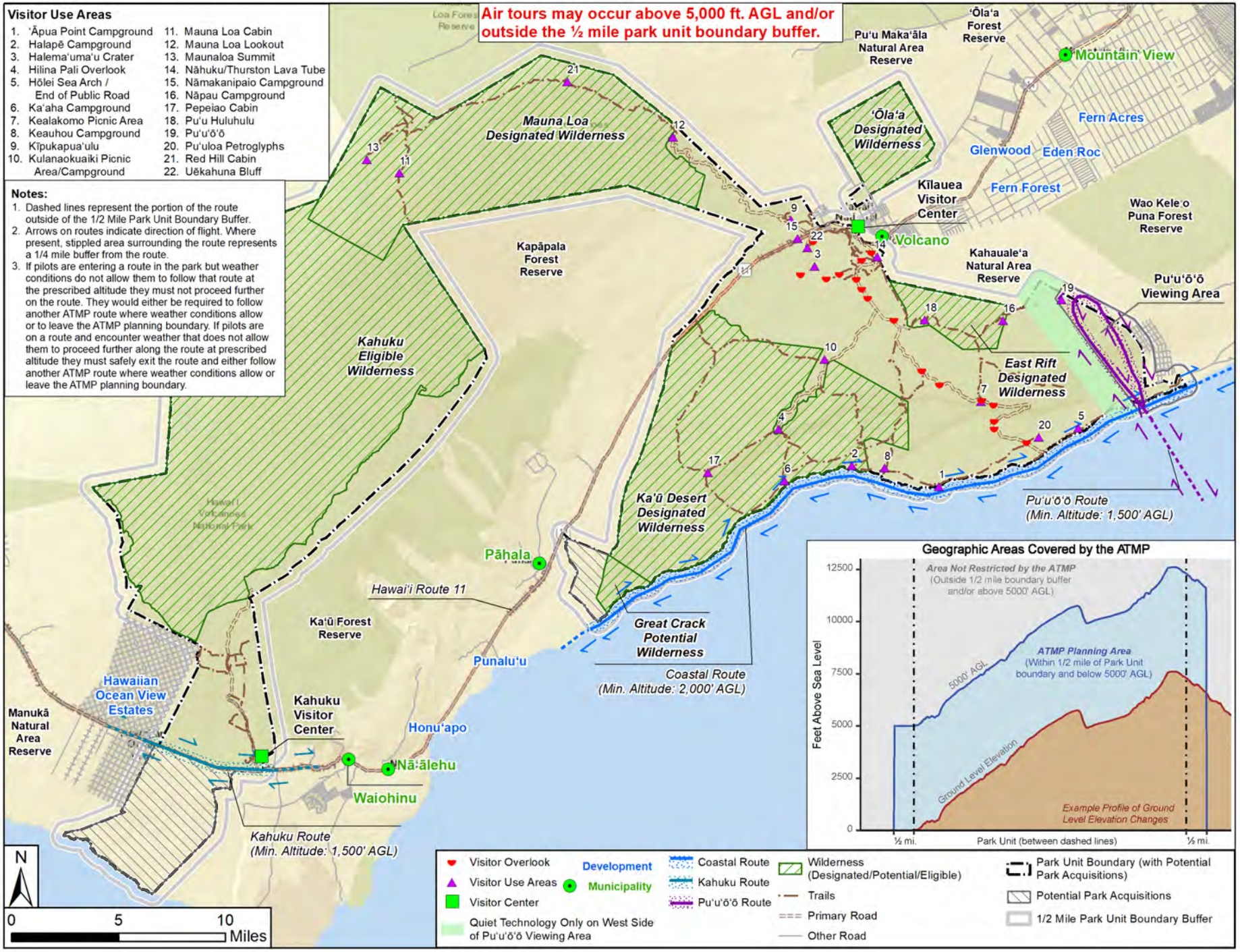
An annual meeting between the agencies and commercial air tour operators would occur under this alternative. The ATMP will describe the details of the annual meeting.

Operators, Initial Allocation of Air Tours, and Aircraft Types

Upon finalization of the ATMP, the number of flights authorized to occur each year would be proportionally allocated to each of the seven operators that have reported operations over the Park in the period from 2017-2019. Each operator's initial allocation will reflect the proportion of their average number of reported flights from 2017-2019 as compared to all operators that have reported flying over the Park during this period. Each operator's aircraft types would reflect those reported in the period from 2017-2019. The initial allocation would be used until a competitive bidding process could occur. Under the Act, IOA terminates 180 days after the date of establishment of the ATMP. However, if FAA updates an operator's Operations Specifications before that time, the IOA will be terminated when the Operations Specifications are updated.

Monitoring and Enforcement

Operators would be required to equip all aircraft used for air tours with flight monitoring technology, 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. Soundscape monitoring would also occur to ensure that the terms and conditions of the ATMP are consistent with Park management objectives.


Visitor Use Areas
1. ʻĀpua Point Campground
2. Halapē Campground
3. Halemaʻumaʻu Crater
4. Hilina Pali Overlook
5. Hōlei Sea Arch / End of Public Road
6. Kaʻaha Campground
7. Kealakomo Picnic Area
8. Keauhou Campground
9. Kīpukapuaʻulu
10. Kulanaokuaiki Picnic Area/Campground
11. Mauna Loa Cabin
12. Mauna Loa Lookout
13. Maunaloa Summit
14. Nāhuku/Thurston Lava Tube
15. Nāmakanipaio Campground
16. Nāpau Campground
17. Pepeiao Cabin
18. Puʻu Huluhulu
19. Puʻuʻōʻō
20. Puʻuloa Petroglyphs
21. Red Hill Cabin
22. Uēkahuna Bluff
Notes:
1. Dashed lines represent the portion of the route outside of the 1/2 Mile Park Unit Boundary Buffer.
2. Arrows on routes indicate direction of flight. Where present, stippled area surrounding the route represents a 1/4 mile buffer from the route.
3. If pilots are entering a route in the park but weather conditions do not allow them to follow that route at the prescribed altitude they must not proceed further on the route. They would either be required to follow another ATMP route where weather conditions allow or to leave the ATMP planning boundary. If pilots are on a route and encounter weather that does not allow them to proceed further along the route at prescribed altitude they must safely exit the route and either follow another ATMP route where weather conditions allow or leave the ATMP planning boundary.
Air tours may occur above 5,000 ft. AGL and/or outside the ½ mile park unit boundary buffer.
Puʻu Makaʻāla Natural Area Reserve
ʻŌlaʻa Forest Reserve
Mountain View
Fern Acres
Glenwood
Eden Roc
Fern Forest
ʻŌlaʻa Designated Wilderness
Mauna Loa Designated Wilderness
Kīlauea Visitor Center
Volcano
Wao Keleʻo Puna Forest Reserve
Kapāpala Forest Reserve
Kahaualeʻa Natural Area Reserve
Puʻuʻōʻō Viewing Area
Kahuku Eligible Wilderness
East Rift Designated Wilderness
Kaʻū Desert Designated Wilderness
Puʻuʻōʻō Route
(Min. Altitude: 1,500' AGL)
Pāhala
Hawai'i Route 11
Kaʻū Forest Reserve
Great Crack Potential Wilderness
Punaluʻu
Coastal Route
(Min. Altitude: 2,000' AGL)
Hawaiian Ocean View Estates
Manukā Natural Area Reserve
Kahuku Visitor Center
Honuʻapo
Nāʻālehu
Waiohinu
Kahuku Route
(Min. Altitude: 1,500' AGL)
Geographic Areas Covered by the ATMP
Area Not Restricted by the ATMP
(Outside 1/2 mile boundary buffer and/or above 5000' AGL)
ATMP Planning Area
(Within 1/2 mile of Park Unit boundary and below 5000' AGL)
5000' AGL
Ground Level Elevation
Example Profile of Ground Level Elevation Changes
Feet Above Sea Level
12500
10000
7500
5000
2500
0
½ mi.
Park Unit (between dashed lines)
½ mi.
N
0
5
10
Miles
Visitor Overlook
Visitor Use Areas
Visitor Center
Development
Municipality
Quiet Technology Only on West Side of Puʻuʻōʻō Viewing Area
Coastal Route
Kahuku Route
Puʻuʻōʻō Route
Wilderness (Designated/Potential/Eligible)
Trails
Primary Road
Other Road
Park Unit Boundary (with Potential Park Acquisitions)
Potential Park Acquisitions
1/2 Mile Park Unit Boundary Buffer

Summary of Alternative Elements

Alternative Attributes	Alternative 1 (No Action)	Alternative 2	Alternative 3	Alternative 4
General Description and Objectives	What happens if the agencies do not adopt an ATMP. Allows a continuation of air tours under IOA without implementation of an ATMP or voluntary agreement. Does not comply with the Act.	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., above 5,000 feet AGL or more than ½-mile outside of the Park's boundary).	Two main air tour routes, one fly zone, and one adaptive management route provide access to historically active volcanic areas of the Park with soundscape mitigations.	Three routes provide air tour access over the Park with soundscape mitigations, while keeping the heart of the Park free of air tours.
Annual/Daily Number of Flights	Leaves IOA in place, allowing the potential for up to 26,664 commercial air tours each year. Actual number of tours has historically ranged from 8,333 to 16,520 flights per year, or an average of 11,376 flights (based on 2017-2019 reporting).	None in ATMP planning area.	Above 1 and below 11,376 flights per year, dependent on modeling. No daily caps.	Above 1 and below 11,376 flights per year, dependent on modeling. Daily caps will be considered.
Routes	No mandatory routes or no-fly zones. See map for depiction of reported routes and actual operations.	None in ATMP planning area.	Two main routes (coastal route and northern route) and one fly zone (Pu‘u‘ō‘ō viewing area). Also includes an adaptive management route (Southwest Rift Zone route) for use during a volcanic eruption only.	Three routes (Kahuku route, coastal route, Pu‘u‘ō‘ō route). Does not include adaptive management routes.
Minimum Altitudes	Flown in accordance with the HI Manual, generally between 500-1,500 ft. AGL.	No minimum altitude would be set. However, flights over the Park that are above 5,000 feet AGL could occur as they are outside the ATMP planning area. Flights more than ½-mile outside the Park boundary are similarly outside the ATMP planning area and are subject to the altitude restrictions of the HI Manual.	Minimum 1,500 ft. AGL; minimum 2,000 ft. AGL over wilderness areas and sensitive sites. Flights more than ½-mile outside the Park boundary are similarly outside the ATMP planning area and are subject to the altitude restrictions of the HI Manual.	Minimum 1,500 ft. AGL; minimum 2,000 ft. AGL over wilderness areas and sensitive sites. Flights more than ½-mile outside the Park boundary are similarly outside the ATMP planning area and are subject to the altitude restrictions of the HI Manual.
Time of Day	No Restrictions.	N/A	10 AM – 2 PM for non-QT flights. 10 AM – 4 PM for QT flights.	9 AM – 5 PM for non-QT flights. 8 AM – 5 PM for QT flights.

Continuation of Alternative Attributes	Alternative 1 (No Action)	Alternative 2	Alternative 3	Alternative 4
Day of Week	No Restrictions.	N/A	No-fly day on Sunday Only QT flights may fly on Wednesday.	No-fly day on Sunday.
Loitering/ Circling	None.	N/A	Not permitted.	Permits loitering/circling from the Pu‘u‘ō‘ō route.
Quiet Technology (QT) Incentives	None.	N/A	QT flights may fly 10AM - 4PM QT flights may fly on Wednesdays Additional fly locations in the Pu‘u‘ō‘ō viewing area for QT flights.	QT flights may fly 8AM - 5PM Additional fly locations in the Pu‘u‘ō‘ō viewing area for QT flights.
Interpretative Training and Education	None.	N/A	Mandatory.	Voluntary.
Annual Meeting	None.	N/A	Included.	Included.
Restrictions for Particular Events	None.	N/A	Mandatory 5-mile standoff distance. Two months' notice provided to operators.	Voluntary 3-mile standoff distance. Two months' notice provided to operators.
Adaptive Management	None.	N/A	Includes adaptive management route for new eruption along Southwest Rift Zone.	None.
Operators, Initial Allocation of Air Tours, and Aircraft Types	Reflects IOA (26,664 IOA issued to ten operators (five helicopter operators, two fixed-wing operators, and three with unknown aircraft).	N/A	The initial allocation would reflect the proportional number of air tours reported over the Park and the existing aircraft types of each of the seven operators that have reported operating in the period from 2017-2019. Then it would move to competitive bidding.	The initial allocation would reflect the proportional number of air tours reported over the Park and the existing aircraft types of each of the seven operators that have reported operating in the period from 2017-2019. Then it would move to competitive bidding.

Glossary

The Act	National Parks Air Tour Management Act of 2000
ADS-B	Automatic Dependent Surveillance-Broadcast
AGL	Above Ground Level
ATMP	Air Tour Management Plan
EA	Environmental Assessment
FAA	Federal Aviation Administration
FSDO	Flight Standards District Office
HI Manual	Hawai‘i Air Tour Common Procedures Manual
IOA	Interim Operating Authority
NEPA	National Environmental Policy Act
NPS	National Park Service
Park	Hawai‘i Volcanoes National Park
PEPC	Planning, Environment & Public Comment System
QT	Quiet Technology

Nēnē flock

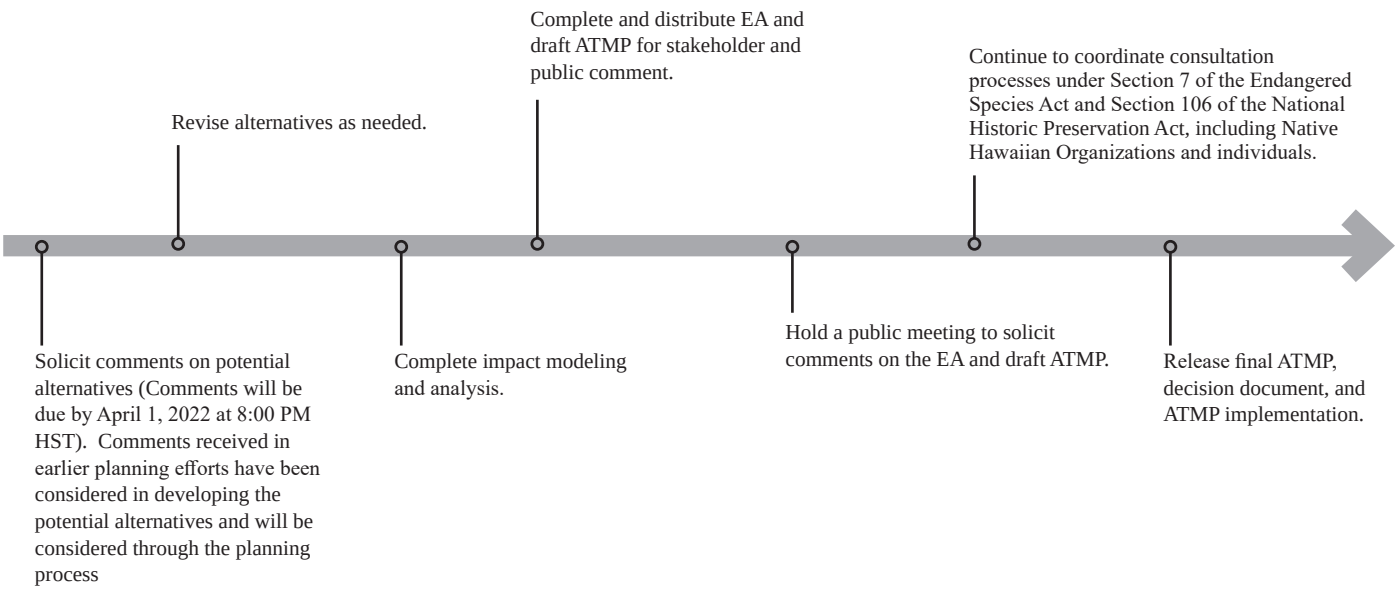
Next Steps

This public scoping period represents the first opportunity to be involved in the current planning process. During this scoping period, the project planning team would like to receive comments on the potential alternatives. After this public scoping process has concluded, the agencies will prepare an EA to comply with NEPA and a draft ATMP. Important steps in the planning process are in the graphic below.

The FAA and the NPS are also identifying resources that are listed in or eligible for listing in the National Register of Historic Places that could be affected by air tours operating under the proposed ATMP. This includes any historic districts, sites, buildings, structures, objects or landscapes, including traditional cultural properties. If members of the public have any information on historic properties that they believe would be helpful in this effort, including properties outside of the Park, we welcome that assistance.

The FAA and the NPS are also seeking to identify additional individuals or organizations that may be interested in participating in Section 106 consultations for the ATMP as consulting parties. We want to ensure that we include anyone that may have information or expertise to share.

Should you have information you wish to provide regarding historic properties or are interested in participating in the Section 106 review process as a consulting party, please contact Cathy Nadals at 240-446-5086 or Catherine.L.Nadals@FAA.gov and copy the ATMP Team at ATMPTeam@dot.gov. Please note that this contact information is only for correspondence related to the Section 106 process and comments not related to the Section 106 process will not be accepted or relayed via email. Instructions for general public comment on the potential alternatives described in this newsletter are provided below.



Instructions for Public Comment

Please comment on any alternative and/or alternative element described above. The agencies are seeking substantive comments that describe why something will or will not work, provide new ideas or factual information to correct or adjust assumptions made, or present reasonable alternatives other than those described. Comments that merely support or oppose the proposals are not considered substantive. Commenters may wish to consider the following questions:

- What elements of the alternatives do you think are most important? Why?
- What other information should the planning team consider when analyzing the alternatives?
- Are there other elements or ideas that should be considered and analyzed that are not already presented? What is missing, and why should it be considered?
- Are there other resources or impact topics that should be considered in the analysis?
- What other comments and suggestions do you have?

Comment submission using the Planning, Environment & Public Comment (PEPC) system is preferred, although written comments sent via postal mail will also be accepted. If you do not have access to a computer, use the attached comment form, following directions on the form. Comments will not be accepted via email.

Comments may be submitted using the PEPC system (https://parkplanning.nps.gov/HawaiiVolcanoesATMP) by **April 1, 2022 at 8:00 PM HST**.

Written comments may be sent via postal mail to the following address:

Volpe National Transportation Systems Center
Kaitlyn Rimol, V-326
Attn: Hawai‘i Volcanoes National Park ATMP
55 Broadway
Cambridge, MA 02142

Send Us Your Comments!

PLEASE SUBMIT YOUR COMMENTS BY **APRIL 1, 2022 AT 8:00 PM HST**.

Please submit comments electronically by visiting: https://parkplanning.nps.gov/HawaiiVolcanoesATMP. Once on the website, select "Open for Comment" to provide your thoughts on these preliminary alternatives. If you do not have access to a computer, you can send us your comments on this comment form.

Do you wish to remain on the mailing list for the Air Tour Management Plan ? YES___ NO___

Please print your name and address in the space provided. If the mailing label we used is incorrect, please indicate any corrections in the space below. To keep our mailing list accurate, please check the boxes below that apply.

- ☐ Change my address.
- ☐ Add my name to the mailing list.
- ☐ Remove my name from the mailing list.
- ☐ Send me information by e-mail.

Name: _____

Organization, if any: _____

Mailing Address: _____

City/State/Zip: _____

Email: _____

Below, please write any comments or feedback related to information provided in this newsletter. Please include additional sheets of paper as necessary. When complete, please fold this form in half, showing the preprinted address on the outside, tape it closed (no staples please), add postage, and drop in the mail.

_____

_____

_____

_____

Comments will not be accepted by fax, e-mail, or any other way than those specified above. Bulk comments in any format (hard copy or electronic) submitted on behalf of others will not be accepted. Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment, including your personal identifying information, may be made publicly available at any time. While you can ask us to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Name: _____

Address: _____

_____

ADD
POSTAGE
HERE

Volpe National Transportation Systems Center
Kaitlyn Rimol, V-326
Attn: Hawai‘i Volcanoes National Park ATMP
55 Broadway
Cambridge, MA 02142

US Department of Transportation
Federal Aviation Administration

US Department of the Interior
National Park Service

Hawai‘i Volcanoes National Park

Air Tour Management Plan

Summary of Comments Received During Scoping for the Environmental Assessment

November 2022

CONTENTS

INTRODUCTION

An Air Tour Management Plan (ATMP) would provide the terms and conditions for commercial air tours conducted over Hawai‘i Volcanoes National Park (Park) pursuant to the National Parks Air Tour Management Act (Act) of 2000. The Act requires that the Federal Aviation Administration (FAA) in cooperation with the National Park Service (NPS) (collectively, the agencies) establish an ATMP or voluntary agreement for each National Park System unit for which one or more applications to conduct commercial air tours has been submitted, unless that unit is exempt from this requirement because 50 or fewer commercial air tour operations are conducted over the Park on an annual basis. 49 U.S.C. § 40128(a)(5).

The objective of establishing an ATMP for the Park is to develop acceptable and effective measures to mitigate or prevent the significant adverse impacts, if any, of commercial air tours on natural and cultural resources, Native Hawaiian sacred sites and ceremonial areas, wilderness character, and visitor experience.

The agencies invited the public to comment on potential alternatives for an ATMP for the Park as part of the National Environmental Policy Act (NEPA) public scoping process. The Park notified the public of the scoping period by issuing a press release, posting notice on the Park's website and social media, and sending emails and hard copy mailings to the Park's civic engagement stakeholder list and congressional officials. In addition, Park staff responded to media inquiries and requests for interviews. The agencies accepted comments from February 28 through April 1, 2022. The NPS published a newsletter describing the potential alternatives on the NPS Planning, Environment, and Public Comment (PEPC) website at the start of the scoping period and included the newsletter in the Park's emails and hard copy mailing notifications. The newsletter on potential alternatives provided a project introduction, the purpose and need for the project, resources for consideration in the Environmental Assessment (EA), elements common to all the alternatives, and an overview of four potential alternatives including routes, altitudes, time-of-day restrictions, restrictions for particular events, maximum numbers of flights, and other provisions. The potential draft alternatives also include a justification for the provisions and conditions designed to protect Park resources and visitor experience.

Any comments entered into PEPC by members of the general public, as well as any written comments mailed to the NPS, were considered and included in the project file. The agencies will use public and stakeholder input to further refine or dismiss alternatives and potentially to consider new alternatives. The agencies will also use public input to inform the environmental analysis. Alternatives that are carried forward and analyzed in the EA will be available for public review and comment as part of the public comment period on the EA. This *Public Comment Summary Report* provides a summary of the substantive comments submitted during the public scoping period.

COMMENT ANALYSIS METHODOLOGY

Comment analysis is a process used to compile and correlate similar comments into a usable format for the agencies' decision-makers and the program team. Comment analysis assists the agencies in organizing, clarifying, and addressing information and aids in identifying the topics and issues to be evaluated and considered throughout the ATMP planning process.

The process includes five main components:

- developing a coding structure;
- employing a comment database for comment management;
- reviewing and coding of comments;

- interpreting and analyzing the comments to identify issues and themes; and
- preparing a comment summary.

A coding structure was developed to help sort comments into logical groups by topic and issue. The coding structure was designed to capture the content of the comments rather than to restrict or exclude any ideas.

The NPS PEPC database was used to manage the public comments received. The database stores the full text of all correspondence and allows each comment to be coded by topic and category. The agencies read and analyzed all comments

Under each code, all comments were grouped by similar themes, and those groups were summarized with concern statements.

COMMENT ANALYSIS

In total, 957 correspondences were received, of which 22 were duplicates. Therefore, the agencies received a total of 935 unique correspondences, which included 1,449 discrete comments. The term "correspondence," as used in this report, refers to each submission offered by a commenter. The term "comment," as used in this report, refers to an individual issue or concern raised by a commenter that was coded by topic and category. A single commenter may have raised multiple comments within a correspondence. Similarly, multiple commenters raised many of the same comments. Of the correspondences received, eight were identified as form letters. These form letters opposed the ATMP for various reasons all captured in the comment summaries below. The eight form letters were signed by a combined total of 465 signatories. There were other correspondences that were excerpts or shorter versions of the eight form letters, but the comment management software did not capture them as form letters.

SUMMARY OF COMMENTS

The following section summarizes the comments received during the scoping period and is organized by code. The summarized text is formatted into concern statements to identify the thematic issues or concerns represented by comments within the code. The agencies only coded comments with substantive content. Substantive comments raise, debate, or question a point of fact or elements of the potential alternatives. Comments that merely support or oppose the potential alternatives are not considered substantive. There were 518 non-substantive comments received during the scoping period.

ADV100 Adverse Impacts: Soundscape Impacts

1. Commenters stated that air tour noise adversely affects opportunities to experience quiet, peace, solitude, tranquility, and opportunities to hear natural sounds; adversely affects visitors that come to the Park to experience natural soundscapes or visit the backcountry and Kīlauea summit; adversely affects residents' health and triggers post-traumatic stress disorder (PTSD) for military personnel and veterans; and that air tours are incompatible with wilderness. Commenters also stated that air tours interfere with park visitor experience and park interpretive programs.
2. Commenters noted that many helicopters are heard at the same time or very frequently throughout the day at the Park, and increasing the altitude of aircrafts would disperse sound further.
3. Commenters stated that air tours interfere with acoustic-based bird surveys, avian studies, and interrupt recordings of bird species such as the ōmaʻo and the ʻapapane. One commenter noted the noise over Highway 11 negatively impacts the education and safety at nearby schools.

ADV200 Adverse Impacts: Wildlife/Biological Impacts

1. Commenters expressed concern about the negative impacts air tours would have on wildlife, specifically noting increases in heartrate, injury, stress, and predation, in addition to decreased hatching success and interferences with communication and breeding.
2. Commenters also noted that noise from air tours would adversely affect native species such as honey creepers, nēnē, Hawaiian hawks, ʻapapane, ʻiʻiwi, and pueo.

ADV300 Adverse Impacts: Endangered Species Impacts

1. Commenters noted effects from air tourism, such as noise and wind turbulence, would have a negative impact on endangered species such as nēnē, Hawaiian hoary bat, ʻiʻiwi, ʻakiapōlāʻau, and ʻio, and their critical habitat. Concern was also expressed about impacts to the nearby Keauhou Bird Conservation Center.
2. Commenters stated that limiting air tours could result in more ground-based visitors which would have an impact on endangered species.

ADV400 Adverse Impacts: Wilderness Character Impacts

1. Commenters opposed flights over wilderness and backcountry areas such as Mauna Loa and Nāpau, noting that air tours are incompatible with wilderness character and impact visitor experience.
2. Commenters suggested restrictions on flights within 0.5 miles of wilderness, and increasing the minimum altitudes above wilderness.

ADV500 Adverse Impacts: Cultural Resource Impacts

1. Commenters noted the importance of the Park to Native Hawaiians and that the Park contains culturally significant resources, sites, temples, and burial grounds. Commenters noted air tours disrupt traditional and customary practices and activities of spiritual and cultural significance. Commenters noted the presence of Tutu Pele and importance of sites such as Kaluapele and Wahinekapu.
2. A commenter noted that the park is eligible for listing as a Traditional Cultural Property due to the importance to Native Hawaiians and their culture.

ADV600 Adverse Impacts: Visual Impacts

1. Commenters noted air tours cause visual impacts that impede enjoyment of scenic qualities such as night skies, wilderness, and scenic vistas.

ADV700 Adverse Impacts: Equity

1. Commenters noted that banning air tours limits the elderly and those with disabilities from viewing the Park.
2. Commenters noted that air tours do not meet Americans with Disabilities Act (ADA) requirements.
3. Commenters stated that a disproportionately small number of people who can afford or who can physically fit on the aircraft for air tours cause adverse impacts for most visitors and island residents.

ADV800 Adverse Impacts: Climate Change, Greenhouse Gasses, and Air Quality

1. Commenters stated that air tours contribute to air pollution, increased carbon footprint, and greenhouse gas emissions, which contribute to hazardous health conditions and harmful effects on ecosystems like the ʻōhiʻa forest. Commenters also noted that ultra-fine particles have been associated with cardiovascular and neurological effects to humans, and are likely to affect the health of insects and other animals under the path of air tours.

ADV900 Adverse Impacts: Other

1. Commenters noted the restrictive measures in the ATMP would effectively eliminate air tours over the Park or introduce potentially unsafe policies for pilots. These commenters also stated Hawaiʻi air tours are the most regulated in the country and the proposals target an important part of the economy for the Island of Hawaiʻi.
2. Commenters voiced concern about accidents, unnecessary increased risk of danger due to accidents caused by weather and winds affecting air traffic safety, and concern for the potential for fires after an accident which would harm flora, fauna, and humans.

ALT100 Alternatives: Substantive Support for Alternative 1 – No Action

1. Commenters expressed support for Alternative 1 because it would allow these operations to continue to contribute to the overall economy of the State.

ALT150 Alternatives: Substantive Opposition for Alternative 1 – No Action

1. Commenters expressed opposition to Alternative 1 as it does not improve the current conditions and continues to cause impacts to noise, natural and cultural resources, wilderness character, and ground-based user experience.
2. Commenters suggested limiting flights but opposed Alternative 1 noting that the continuation of Interim Operating Authority (IOA) is significantly higher than the actual annual overflights since reporting began in 2013. Commenters also noted that one operator is flying 75% of the current flights and all operators combined are flying less than half of the IOA.

ALT200 Alternatives: Substantive Support for Alternative 2 – No Air Tours in Planning Area

1. Commenters expressed support for Alternative 2 as it provides the greatest protection from pollution, noise, and others adverse impacts from air tours. Commenters noted Alternative 2 would protect Native Hawaiian cultural practices, educational experiences, mental health, biological resources, endangered species, wilderness character, and ground-based visitor experience.

ALT250 Alternatives: Substantive Opposition for Alternative 2 – No Air Tours in Planning Area

1. Commenters opposed Alternative 2 for reasons such as interfering with accessibility of the Park and for the potential of causing a concentration of aircraft over communities near the ½-mile buffer, and as aircraft maneuver for position, loiter, and circle at altitudes above 5,000 feet (ft.) above ground level (AGL).

ALT300 Alternatives: Substantive Support for Alternative 3 – Mitigation Measures

1. Commenters supported Alternative 3 on the basis that it restricts the visual and auditory impacts to Park visitors, provides quiet technology incentives, and includes restrictions such as limited operating hours, establishing no fly days on Sundays, and restricting circling or loitering.
2. Commenters suggested reducing the number of flights on Saturday and proposed a lower Kahuku route from Alternative 4, and altering the Puʻuʻōʻō route to fixed entry and exit at the ocean.

ALT350 Alternatives: Substantive Opposition for Alternative 3 – Mitigation Measures

1. Commenters expressed opposition to certain elements of Alternative 3 noting that the compressed tour hours would result in increased noise during a short time span and a concentration of aircraft in areas such as the remote coastline, Route 11, Pāhala, Puʻuʻōʻō, Nāmakanipaio Campground, Kīlauea Military Camp, Volcano Golf Course and residential area, Steam Vents, Sulphur Banks, Kīlauea Visitor Center, Volcano School of Arts and Sciences, and Volcano Village.
2. Commenters stated that Alternative 3 would still result in aircraft noise and produce the same issues within the Park to a lesser degree such as impacts to park users' enjoyment and serenity, wildlife, ecosystems, wilderness character, and cultural resources and practices.

ALT400 Alternatives: Substantive Support for Alternative 4 – East Rift Zone

1. Commenters expressed support for elements of Alternative 4 including the limitations on the number of flights and days on which flights can occur in addition to the flight routes that are restricted to the East Rift Zone and further away from Kīpukapuaulu, an important bird watching trail, and populated areas of the Park.

ALT450 Alternatives: Substantive Opposition for Alternative 4 – East Rift Zone

1. Commenters opposed Alternative 4 because it would lead to an increased concentration of aircraft along the Puʻuʻōʻō route, the coastal zone, and the East Rift Zone. Commenters also noted that Alternative 4 would impact the Park's natural and cultural resources, wilderness character, and the visitor experience. Commenters also noted opposition to Alternative 4 because it would only provide one no-fly day per week.

CUL100: Native Hawaiian Organizations (NHO)/Kūpuna Concerns

1. Commenters expressed opposition to air tours, stating Native Hawaiians and Kūpuna believe the Kīlauea caldera is sacred, and suggested alternatives such as increasing the no-fly zone higher than the planning area.

ELE100 ATMP Elements: Annual Number of Air Tours

1. Commenters suggested general limits to the annual number of flights and suggested various options including no fly days and caps on the number of tours per day.

ELE200 ATMP Elements: Routes and Altitudes

1. Commenters suggested revisions to proposed routes and altitudes such as moving routes to fly offshore, increasing buffers, and changing the altitudes to 1,500 ft., 3,000 ft., 4,000 ft., or 5,000 ft. AGL as these measures would avoid highly populated areas and reduce impacts to wildlife, ecosystems, and cultural resources.

ELE400 ATMP Elements: Day/Time

1. Commenters expressed support of the proposed time and day restrictions to protect sacred places and sensitive habitats and to reduce noise impacts but also suggested permitting flights only one day a week and other flight times such as 10AM-3PM, 1PM-5PM, and 7PM-9PM.
2. Commenters noted that proposed flight times can interfere with cultural practices that occur at sunrise and sunset.

ELE500 ATMP Elements: Other

1. Commenters called for increased and measurable ways to enforce restrictions as well as flight monitoring and systems to track complaints and violations.
2. Commenters requested consultation regarding applicability with the Federal Coastal Zone Management Act (CZMA) as well as consultations with Hawai'i residents.
3. Commenters expressed concern regarding the 2-month notice requirement for cultural practices and recommended that qualifying events be clearly outlined.
4. Commenters stated that loitering and circling should not be permitted along any route and that quiet technology should be required for all helicopters without any special hours or days.
5. Commenters expressed concern that the alternatives are too restrictive and may cause safety concerns for the pilots.
6. Commenters suggested aircraft include clear identification numbers on the bottom of the aircraft so individuals can identify them and file a report if necessary. Commenters also noted frustration in reporting violations and requested instructions.

FAV100: Benefits of Air Tours

1. Commenters identified benefits of air tours such as increased revenue for the State; reductions in the number of visitors in wilderness or over-crowded areas; the ability to share the culture and history of Hawai‘i; accessibility of the Park to handicapped, disabled, and elderly; ability to provide a unique vantage point of the Park; and that air tours do not require Park infrastructure or personnel.

PRO100 Process Comments: Impact Analysis

1. Several commenters suggested that Federal agencies validate data provided by operators to ensure accuracy.
2. Commenters requested disclosure of the impacts of air tourism on the economy, sacred sites, Park infrastructure, climate change, air quality, noise pollution, noise resulting from the use of quiet technology, wilderness, safety, wildlife, endangered birds and nēnē, ADA accessibility, environmental justice, and local residents. One commenter stated indirect impacts must be thoroughly analyzed and presented in the overall analysis.
3. Many commenters requested that the impacts to nearby residences and communities be analyzed including outside the planning area.

PRO200 Process Comments: Public Review

1. Commenters stated concern that the agencies have not coordinated with or requested input from Native Hawaiian communities and individuals, stakeholders, residents, or air tour operators.
2. Commenters noted the difficulty in finding and commenting on the document and commenters voiced concern on the request for substantive comments rather than voting on a preferred alternative.

PRO300 Process Comments: Alternatives Considered

1. Commenters suggested a blend of the elements from Alternatives 3 and 4, such as keeping the flight paths from Alternative 4 but with the mandatory interpretive training and education as well as quiet technology incentives of only allowing quiet technology flights on Wednesdays; limited time of day restrictions from Alternative 3 with the more limited routes in Alternative 4; no loitering/circling per Alternative 3; daily flight caps from Alternative 4; making the Southwest Rift Zone a regular route in Alternative 3; adding a Kahuku route as in Alternative 4; setting minimum altitudes at 2,000 ft. AGL on all routes; mandatory interpretive training; and 3-mile event restrictions.
2. Commenters proposed another alternative that restricts air tours in all areas of the Park and for a greater distance outside the Park.

PRO400 Process Comments: Other

1. Commenters requested more information on ATMP timelines as well as practical, measurable resource protection objectives along the lines of desired future conditions, which when combined with systematic monitoring can be used as the basis for future evaluation of the effectiveness of the plan in accomplishing its resource protection goals.

PRO500 Process Comments: NEPA

1. Commenters noted the Park has conducted a proper planning process in accordance with Council of Environmental Quality NEPA implementing regulations and the NPS NEPA Handbook 2015.

APPENDIX K

CZMA Compliance

Hawaii CZM Program
Coastal Zone Management

www.hawaii.gov/dbedt/czm

APPLICATION FOR CZM FEDERAL CONSISTENCY REVIEW

Project/Activity Title or Description: Air Tour Management Plan for Hawai'i Volcanoes National Park

Location: Hawai'i Volcanoes National Park and within ½-mile of its boundary, airspace below 5,000 ft. AGL

Island: Hawai'i

Tax Map Key:

Applicant or Agency

Federal Aviation Administration, Attn: Eric Elmore
Name of Applicant or Agency

800 Independence Ave SW, Suite 900W
Mailing Address

Washington, DC 20591
City / State / Zip Code

202-267-8335
Phone

eric.elmore@faa.gov
E-mail Address

Agent or Representative for Applicant

Agent or Representative for Applicant

Mailing Address

City / State / Zip Code

Phone

E-mail Address

CZM Consistency Determination or Certification

✓ Check the applicable type of federal action below and sign.

☑ Federal Agency Activity

CZM Consistency Determination: "The proposed activity will be undertaken in a manner consistent to the maximum extent practicable with the enforceable policies of the Hawaii Coastal Zone Management Program."

Signature ERIC M ELMORE Digitally signed by ERIC M ELMORE Date: 2023.04.24 15:01:24 -04'00' Date

☐ Federal Permit or License

CZM Consistency Certification: "The proposed activity complies with the enforceable policies of Hawaii's approved management program and will be conducted in a manner consistent with such program."

Signature Date

☐ Federal Grants and Assistance

CZM Consistency Certification: "The proposed activity complies with the enforceable policies of Hawaii's approved management program and will be conducted in a manner consistent with such program."

Signature Date

Submit Application By: Email - Debra.L.Mendes@hawaii.gov
USPS Mail - Office of Planning & Sustainable Development, P.O. Box 2359, Honolulu, Hawaii 96804

For Questions or Help Contact: Debra Mendes | Email: Debra.L.Mendes@hawaii.gov | Phone: (808) 587-2840

Hawaii CZM Program
Coastal Zone Management

HAWAII CZM PROGRAM
FEDERAL CONSISTENCY ASSESSMENT FORM

Federal regulations (15 CFR Part 930) require that an evaluation of consistency with the relevant enforceable policies of the Hawaii CZM Program be provided. This assessment form is organized according to the Hawaii CZM objectives and their supporting policies (Hawaii Revised Statutes § 205A-2) to help the Hawaii CZM Program evaluate the consistency of the proposed action. An independent evaluation would need to be submitted in lieu of using this form for a consistency review.

For Help Contact: Debra Mendes | Email: Debra.L.Mendes@hawaii.gov | Phone: (808) 587-2840

RECREATIONAL RESOURCES

Objective: Provide coastal recreational opportunities accessible to the public. Policies:

1) Improve coordination and funding of coastal recreational planning and management.
2) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:
   a) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas.
   b) Requiring restoration of coastal resources that have significant recreational and ecosystem value, including but not limited to coral reefs, surfing sites, fishponds, sand beaches, and coastal dunes, when these resources will be unavoidably damaged by development; or requiring monetary compensation to the State for recreation when restoration is not feasible or desirable.
   c) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value.
   d) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation.
   e) Ensuring public recreational uses of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources.
   f) Adopting water quality standards and regulating point and non-point sources of pollution to protect, and where feasible, restore the recreational value of coastal waters.
   g) Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing.
   h) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting that dedication against the requirements of Hawaii Revised Statutes, section 46-6.

RECREATIONAL RESOURCES (continued)

Check either Yes or No for each of the following questions, and provide an explanation or information for Yes responses in the Discussion section that follows:

	Yes	No
1. Will the proposed action occur in or adjacent to a dedicated public right-of-way? E.g., public beach access, inland or coastal hiking trail, shared-use path	☐	☑
2. Will the proposed action affect public access to or along the shoreline?	☐	☑
3. Is the project parcel adjacent to the shoreline?	☑	☐
4. Is the project site on or adjacent to a sandy beach?	☑	☐
5. Is the project site in or adjacent to a state or county park?	☑	☐
6. Is the project site in or adjacent to a water body such as a stream, river, pond, lake, or ocean?	☑	☐
7. Will the proposed action occur in or affect an ocean or coastal recreation area, swimming area, surf site, fishing or gathering area, or boating area?	☐	☑

Discussion: Explain "Yes" responses to the questions above. If more space is needed, attach a separate sheet, or append additional information.

The action is to implement an air tour management plan (ATMP) for Hawai'i Volcanoes National Park (the Park) pursuant to the National Parks Air Tour Management Act (NPATMA), 49 U.S.C. § 40128. Commercial air tours have been operating over the Park since before NPATMA was enacted in 2000. The ATMP applies to commercial air tours over the Park or within ½-mile outside the Park's boundary during which aircraft fly below 5,000 feet (ft.) above ground level (AGL). This is referred to as the ATMP planning area. Prior to NPATMA, commercial air tours within the ATMP planning area were subject only to FAA's general safety regulations. At that time there were no limits on the number of air tours that could be conducted per year and no designated routes or altitudes for flights.

NPATMA required the FAA to grant interim operating authority (IOA) to existing commercial air tour operators that applied for it. 49 U.S.C. § 40128(c)(1). Specifically, the FAA was required to grant IOA that authorized the greater of the number of commercial air tour flights over the Park during the 12-month period prior to the enactment of NPATMA, or the average number of commercial air tour flights within the 36-month period prior to the enactment of NPATMA. Id. § 40128(c)(2). Since 2005, commercial air tours over the Park have been conducted pursuant to IOA issued by the FAA in accordance with NPATMA. IOA does not itself include any operating parameters (e.g., routes, altitudes, time of day, etc.) for commercial air tours other than an upper limit of the total number of air tours operators may conduct each year.

Currently, ten commercial air tour operators currently hold IOA to fly up to a combined total of 26,664 commercial air tours per year over the Park. The three-year average number of commercial air tours conducted over the Park from 2017-2019 across all operators is 11,376, which the FAA and the National Park Service (NPS) consider to be the existing condition of commercial air tours within the ATMP planning area. There are currently no designated flight routes for commercial air tours or no-fly zones within the ATMP planning area. The environmental assessment (EA) includes a depiction of available information regarding likely commercial air tour operations over and adjacent to the Park in Figure 2 in Section 2.4. Minimum altitudes for commercial air tours within the ATMP planning area are flown in accordance with the HI 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 HI Common Procedures Manual requires helicopters to fly at a minimum 500 ft. AGL . Those areas are also depicted in Figure 2. There currently

HISTORIC RESOURCES

Objective: 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.

Policies:

1) Identify and analyze significant archaeological resources.
2) Maximize information retention through preservation of remains and artifacts or salvage operations.
3) Support state goals for protection, restoration, interpretation, and display of historic resources.

Check either Yes or No for each of the following questions, and provide an explanation or information for Yes responses in the Discussion section that follows:

	Yes	No
1. Is the project site within a designated historic or cultural district?	☑	☐
2. Is the project site listed on or nominated to the Hawaii or National Register of Historic Places?	☑	☐
3. Has the project site been surveyed for historic or archaeological resources?	☐	☑
4. Has the State Historic Preservation Division been consulted?	☑	☐
5. Does the project parcel include undeveloped land which has not been surveyed by an archaeologist?	☑	☐
6. Is the project site within or adjacent to a Hawaiian fishpond or historic settlement area?	☐	☑

HISTORIC RESOURCES (continued)

Discussion: Explain "Yes" responses to the questions above. If more space is needed, attach a separate sheet, or append additional information.

As indicated by the "yes" responses to questions 1, 2, 4, and 5 above, portions of the ATMP planning area are within a designated cultural or historic district, listed on or nominated to the Hawai'i or National Register of Historic Places, and include undeveloped land which has not been surveyed by an archeologist, and the State Historic Preservation Division (SHPD) has been consulted per the agencies' responsibilities in accordance with Section 106 of the National Historic Preservation Act. It should be noted that the project is regulating commercial air tour use of the airspace, and does not involve land use within the ATMP planning area. Implementation of the ATMP would not result in ground-disturbing activities or development that would result in physical effects to historic or prehistoric resources.

Because the ATMP manages air tours that are currently occurring, it is consistent with the CZM policy supporting state goals for protection, restoration, interpretation, and display of historic resources. The objective of the ATMP is, in part, to develop acceptable and effective measures to mitigate or prevent significant adverse impacts, if any, of commercial air tour operations on the Park's cultural landscapes and resources, and areas of historic and spiritual significance to Native Hawaiians. Information retention through preservation of remains and artifacts or salvage operations would continue after implementation of the ATMP.

Significant archeological resources and other cultural resources (as indicated by those eligible or listed on the National Register of Historic Places) were identified during the Section 106 process. The ATMP is protective of historic resources because it includes measures designed to protect these resources, such as a designated route, minimum altitudes, and annual and daily air tour limits that do not exist under the existing condition. Refer to Section 3.4.2 of the EA for a discussion of the environmental consequences associated with cultural resources and historic properties within the area of potential effects. Refer to Appendix G, Cultural Resources Consultation and Summary, for information on the Section 106 process, including historic properties identified during this process, consultation with Section 106 consulting parties, and the agencies' finding of effects analysis describing the ATMP's effect on historic properties. To this end, the agencies have identified and analyzed significant archeological resources as part of this effects analysis, and have concluded that the ATMP would have No Adverse Effect on historic properties.

The agencies have evaluated the ATMP and have found that implementation of the ATMP would not interfere with the Hawai'i coastal zone management objective for 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. The ATMP will be undertaken in a manner consistent to the maximum extent practicable with the enforceable policies of the Hawai'i CZM Program with respect to historic resources.

SCENIC AND OPEN SPACE RESOURCES

Objective: Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources.

Policies:

1) Identify valued scenic resources in the coastal zone management area.
2) Ensure that new developments are compatible with their visual environment by designing and locating those developments to minimize the alteration of natural landforms and existing public views to and along the shoreline.
3) Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources.
4) Encourage those developments that are not coastal dependent to locate in inland areas.

Check either Yes or No for each of the following questions, and provide an explanation or information for Yes responses in the Discussion section that follows:

	Yes	No
1. Will the proposed action alter any natural landforms or existing public views to and along the shoreline?	☐	☑
2. Does the proposed action involve the construction of a multi-story structure?	☐	☑
3. Is the project site located on or adjacent to an undeveloped parcel, including a beach or oceanfront land?	☑	☐
4. Does the proposed action involve the construction of a structure visible between the nearest coastal roadway and the shoreline?	☐	☑
5. Will the proposed action involve constructing or placing a structure in waters seaward of the shoreline?	☐	☑

SCENIC AND OPEN SPACE RESOURCES (continued)

Discussion: Explain "Yes" responses to the questions above. If more space is needed, attach a separate sheet, or append additional information.

As indicated by the "yes" response to question 3 above, portions of the ATMP planning area located on or adjacent to an undeveloped parcel, including a beach or oceanfront land. The project site includes airspace above areas of undeveloped open space, including undeveloped coastal areas, which are a part of the Park. The project is regulating commercial air tour use of the airspace, and does not involve land use within the ATMP planning area. Implementation of the ATMP would not result in ground-disturbing activities or development, and commercial air tours would not take off or land within the ATMP planning area. To this end, because the project does not include new development which is typically associated with land use or other ground disturbing activities, the ATMP is fully consistent with the CZM policy to ensure that new developments are compatible with their visual environment by designing and locating those developments to minimize the alteration of natural landforms and existing public views to and along the shoreline. For the same reasons, it is also fully consistent with the policy to encourage those developments that are not coastal dependent to locate in inland areas.
The agencies have identified valued scenic resources in the coastal zone management area in the EA (refer to Section 3.8.1, Affected Environment for Visual Effects). Because the ATMP would manage air tours that are currently occurring, it is consistent with the CZM policy of preserving, maintaining, and, where desirable, improving and restoring shoreline open space and scenic resources. Access to scenic and open space resources, including natural landforms and shoreline open space, would not be affected by the ATMP. Natural landforms and existing public views to and along the shoreline would not be altered by the ATMP.

The ATMP is protective of scenic and open space resources because it includes measures designed to protect these resources, such as a designated route, minimum altitudes, and annual and daily air tour limits that do not exist under the existing condition. Refer to Section 3.8.2 of the EA for a discussion of the environmental consequences associated with visual effects including scenic resources. Refer to Section 3.10.2 of the EA for a discussion of the environmental consequences associated with publicly-owned open space resources.

The agencies have evaluated the ATMP and have found that implementation of the ATMP would not interfere with the Hawai'i coastal zone management objective for 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. The ATMP will be undertaken in a manner consistent to the maximum extent practicable with the enforceable policies of the Hawai'i CZM Program with respect to scenic and open space resources.

COASTAL ECOSYSTEMS

Objective: Protect valuable coastal ecosystems, including reefs, beaches, and coastal dunes, from disruption and minimize adverse impacts on all coastal ecosystems.

Policies:

1) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources.
2) Improve the technical basis for natural resource management.
3) Preserve valuable coastal ecosystems of significant biological or economic importance, including reefs, beaches, and dunes.
4) Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land water uses, recognizing competing water needs.
5) Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.

Check either Yes or No for each of the following questions, and provide an explanation or information for Yes responses in the Discussion section that follows:

	Yes	No
1. Does the proposed action involve dredge or fill activities?	☐	☑
2. Is the project site within the Special Management Area (SMA) or the Shoreline Setback Area?	☑	☐
3. Is the project site within the State Conservation District?	☑	☐
4. Will the proposed action involve some form of discharge or placement of material into a body of water or wetland?	☐	☑
5. Will the proposed action require earthwork, grading, clearing, grubbing, or stockpiling?	☐	☑
6. Will the proposed action include the construction of waste treatment facilities, such as injection wells, discharge pipes, or septic systems?	☐	☑
7. Will the proposed action involve the construction or installation of a stormwater discharge or conveyance system?	☐	☑
8. Is an intermittent or perennial stream located on or adjacent to the project parcel?	☐	☑

COASTAL ECOSYSTEMS (continued)

	Yes	No
9. Does the project site provide habitat for endangered species of plants, birds, or mammals?	☑	☐
10. Is any such habitat located near the project site?	☑	☐
11. Is a wetland located on the project site or parcel?	☑	☐
12. Is the project site situated in or abutting a Natural Area Reserve, Marine Life Conservation District, Marine Fisheries Management Area, or an estuary?	☐	☑
13. Will the proposed action occur on or near a coral reef or coral colonies?	☐	☑

Discussion: Explain "Yes" responses to the questions above. If more space is needed, attach a separate sheet, or append additional information.

As indicated by the "yes" responses to questions 2, 3, and 9-11 above, portions of the ATMP planning area are within the SMA or Shoreline Setback Area, the State Conservation District, overlap habitat for endangered species of plants, birds, and mammals, and a wetland. However, it should be noted that the project is regulating commercial air tour use of the airspace above these areas, and does not involve land use within the ATMP planning area. Implementation of the ATMP would not result in ground-disturbing activities or development. Commercial air tours would not take off or land within the ATMP planning area. To this end, because the project does not involve land use or ground disturbance, the ATMP would not have the potential to affect water resources or water quality, so the ATMP is fully consistent with CZM policies to minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land water uses, recognizing competing water needs; and to promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.

As to the individual enforceable policies related to coastal ecosystems, they do not appear to directly apply to management of airspace above a national park through an ATMP. Commercial air tours are not evaluated for their effects on coastal ecosystems elsewhere in the state where NPATMA does not require their regulation. Because the ATMP manages air tours that are currently occurring, it is consistent with the CZM policies of exercising an overall conservation ethic, and practicing stewardship in the protection, use, and development of marine and coastal resources; preserving valuable coastal ecosystems of significant biological or economic importance, including reefs, beaches, and dunes; and improving the technical basis for natural resource management.

The ATMP is protective of coastal ecosystems because it includes measures designed to protect these ecosystems and their features, such as a designated route, minimum altitudes, and annual and daily air tour limits that do not exist under the existing condition. Physical features of suitable habitat and designated critical habitat for threatened and endangered species would not be altered by the ATMP. Refer to Section 3.3 of the EA for a discussion of biological resources within the project area and potential effects. Refer to Appendix H, Section 7 Consultation, for additional information on the consultation process with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service under Section 7 of the Endangered Species Act.

The agencies have evaluated the ATMP and have found that implementation would not interfere with the Hawai‘i coastal zone management objective for 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. The ATMP will be undertaken in a manner consistent to the maximum extent

ECONOMIC USES

Objective: Provide public or private facilities and improvements important to the State's economy in suitable locations.

Policies:

1) Concentrate coastal development in appropriate areas.
2) Ensure that coastal dependent development and coastal related development are located, designed, and constructed to minimize exposure to coastal hazards and adverse social, visual, and environmental impacts in the coastal zone management area.
3) Direct the location and expansion of coastal development to areas designated and used for that development and permit reasonable long-term growth at those areas, and permit coastal development outside of designated areas when:
   a) Use of designated locations is not feasible;
   b) Adverse environmental effects and risks from coastal hazards are minimized; and
   c) The development is important to the State's economy.

Check either Yes or No for each of the following questions, and provide an explanation or information for Yes responses in the Discussion section that follows:

	Yes	No
1. Does the proposed action involve a harbor or port?	☐	☑
2. Is the proposed action a visitor industry facility or a visitor industry related activity?	☑	☐
3. Does the project site include agricultural lands or lands designated for such use?	☐	☑
4. Does the proposed action relate to commercial fishing or seafood production?	☐	☑
5. Is the proposed action related to energy production or transmission?	☐	☑

ECONOMIC USES (continued)

Discussion: Explain "Yes" responses to the questions above. If more space is needed, attach a separate sheet, or append additional information.

As indicated by the "yes" response to question 2 above, air tours are a recreational resource for those who want to view the Park from an aerial vantage point. It should be noted that the project is regulating commercial air tour use of the airspace, and does not involve land use within the ATMP planning area. Implementation of the ATMP would not result in ground-disturbing activities or development. Commercial air tours would not take off or land within the ATMP planning area. To this end, because the ATMP does not involve development and would not preclude coastal development from occurring, it is fully consistent with all of the enforceable policies for economic uses in the coastal zone, all of which relate to coastal development.

The ATMP would allow 1,565 air tours per year to be conducted within the ATMP planning area. The air tour industry contributes to the state's economy and this would continue to occur as a result of the ATMP. Refer to Section 3.7 of the EA for a discussion of the socioeconomic conditions associated with the implementation of the ATMP.

The agencies have evaluated the ATMP and have found that its implementation would not interfere with the Hawai'i coastal zone management objective for economic uses, which is to provide public or private facilities and improvements important to the State's economy in suitable locations. The ATMP will be undertaken in a manner consistent to the maximum extent practicable with the enforceable policies of the Hawai'i CZM Program with respect to economic uses.

COASTAL HAZARDS

Objective: Reduce hazard to life and property from coastal hazards.

Policies:

1) Develop and communicate adequate information about the risks of coastal hazards.
2) Control development, including planning and zoning control, in areas subject to coastal hazards.
3) Ensure that developments comply with requirements of the National Flood Insurance Program.
4) Prevent coastal flooding from inland projects.

Check either Yes or No for each of the following questions, and provide an explanation or information for Yes responses in the Discussion section that follows:

	Yes	No
1. Is the project site on or adjacent to a sandy beach?	☑	☐
2. If "Yes" to question no. 1, has the project parcel or adjoining shoreline areas experienced erosion?	☐	☑
3. Is the project site within a potential tsunami inundation area? Refer to tsunami evacuation maps at: https://dod.hawaii.gov/hiema/public-resources/tsunami-evacuation-zone/	☑	☐
4. Is the project site within a flood hazard area according to a FEMA Flood Insurance Rate Map? Refer to FEMA maps at: https://msc.fema.gov/portal/home	☑	☐
5. Is the project site susceptible to or has it experienced ocean related impacts? E.g., sea water inundation, high tides, wave runup, sea level rise, storm surge, ground water intrusion, or subsidence.	☐	☑
6. Is the project site susceptible to or has it experienced either stormwater or groundwater impacts?	☐	☑

COASTAL HAZARDS (continued)

Discussion: Explain "Yes" responses to the questions above. If more space is needed, attach a separate sheet, or append additional information.

As indicated by the "yes" responses to questions 1, 3, and 4 above, portions of the ATMP planning area are adjacent to and/or within a sandy beach, a potential tsunami inundation area according to tsunami evacuation maps, and a flood hazard area according to a FEMA Flood Insurance Rate Map. However, it should be noted that the project is regulating commercial air tour use of the airspace, and does not involve land use within the ATMP planning area. Implementation of the ATMP would not result in ground-disturbing activities or development. Commercial air tours would not take off or land within the ATMP planning area. The ATMP would have no impacts to coastal development in areas subject to coastal hazards or coastal flooding from inland projects within or adjacent to the Park because it does not involve ground disturbance that could result in physical effects to these areas, or change or increase the potential for coastal hazards. The ATMP does not involve land use or development that could be used as a tsunami evacuation area or be subject to coastal flooding, coastal hazards, or the requirements of the National Flood Insurance Program, so the ATMP is fully consistent with the enforceable CZM policies related to coastal hazards.

The agencies have evaluated the ATMP and have found that implementation would not interfere with the Hawai'i coastal zone management objective for coastal hazards, which is to reduce hazard to life and property from coastal hazards. The ATMP will be undertaken in a manner consistent to the maximum extent practicable with the enforceable policies of the Hawai'i CZM Program with respect to coastal hazards.

MANAGING DEVELOPMENT

Objective: Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

Policies:

1) Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development.
2) Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements.
3) Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the public to facilitate public participation in the planning and review process.

Check either Yes or No for each of the following questions, and provide an explanation or information for Yes responses in the Discussion section that follows:

	Yes	No
1. List the permits or approvals required for the proposed action and provide the status of each in the Discussion section below.	☐	☑
2. Does the proposed action conform with state and county land use designations for the site?	☑	☐
3. Has an environmental impact statement or environmental assessment been prepared for the proposed action?	☑	☐
4. Has the public, applicable neighborhood board, or community groups been notified of the proposed action?	☑	☐

MANAGING DEVELOPMENT (continued)

Discussion: Explain "Yes" responses to the questions above. If more space is needed, attach a separate sheet, or append additional information.

As indicated by the "yes" responses to questions 2-4 above, the ATMP conforms with state and county land use for designations for the site; necessitated the preparation of an environmental assessment; and ensured that the public, applicable neighborhood board, and/or community groups have been notified of the ATMP.

As to the individual enforceable policies related to managing development, they do not appear to directly apply to management of airspace above a national park through an ATMP. Implementation of the ATMP would not result in ground-disturbing activities or development. Commercial air tours would not take off or land within the ATMP planning area. Because the ATMP does not involve land use or other activities related to development, it is consistent with the policies to use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development; and to facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements.

The ATMP would manage air tours that are currently occurring. The agencies have prepared an EA pursuant to the National Environmental Policy Act (NEPA) for the ATMP, and will release the EA for public comment and hold a public meeting on the draft ATMP and environmental documentation, which is consistent with the CZM policy of communicating the potential short and long-term impacts of the project and in terms understandable to the public to facilitate public participation in the planning and review process. Refer to Appendix D, Distribution List, for the distribution list of the agencies and parties that were provided copies of the EA and draft ATMP documents for participation in the NEPA process.

The agencies have evaluated the ATMP and have found that implementation of the ATMP would not interfere with the Hawai‘i coastal zone management objective for managing development, which is to improve the development review process, communication, and public participation in the management of coastal resources and hazards. The ATMP will be undertaken in a manner consistent to the maximum extent practicable with the enforceable policies of the Hawai‘i CZM Program with respect to managing development.

PUBLIC PARTICIPATION

Objective: Stimulate public awareness, education, and participation in coastal management.

Policies:

1) Promote public involvement in coastal zone management processes.
2) Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities.
3) Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.

Check either Yes or No for each of the following questions, and provide an explanation or information for Yes responses in the Discussion section that follows:

	Yes	No
1. Has information about the proposed action been disseminated to the public, applicable neighborhood board, or community groups?	☑	☐
2. Has the public been provided an opportunity to comment on the proposed action?	☑	☐
3. Has or will a public hearing or public informational meeting be held?	☑	☐

Discussion: Explain "Yes" responses to the questions above. If more space is needed, attach a separate sheet, or append additional information.

As indicated by the "yes" responses to questions 1-3 above, information about the ATMP has been disseminated to the public, applicable neighborhood board, or community groups; the public has been provided an opportunity to comment on the ATMP; and a public hearing or public informational will be held.

As to the individual enforceable policies related to public participation, they do not appear to directly apply to management of airspace above a national park through an ATMP. However, the agencies have complied with the Council on Environmental Quality's NEPA regulations by preparing an EA disclosing the potential for environmental impacts associated with the ATMP, and are acting in a manner consistent with the CZM policies of promoting public involvement, disseminating information, and organizing policy dialogues in response to concerns by initiating a public scoping period and releasing the EA for public review and comment. On February 28, 2022, the agencies 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 the EA and were also used to inform the environmental analysis. Refer to Appendix J, Public Scoping Newsletter and Comment Summary Report, for more information. As stated above, the agencies will release the EA for public comment and hold a public meeting on the draft ATMP and environmental documentation. Refer to Appendix D, Distribution List, for a list of agencies and parties that have been notified of the publication of the EA and draft ATMP.

The agencies have evaluated the ATMP and have found that its implementation would not interfere with the Hawai'i coastal zone management objective for public participation, which is to stimulate public awareness, education, and participation in coastal management. The ATMP will be undertaken in a manner consistent to the maximum extent practicable with the enforceable policies of the Hawai'i CZM Program with respect to public participation.

BEACH AND COASTAL DUNE PROTECTION

Objective:

(A) Protect beaches and coastal dunes for:
  (i) Public use and recreation;
  (ii) The benefit of coastal ecosystems; and
  (iii) Use as natural buffers against coastal hazards; and

(B) Coordinate and fund beach management and protection.

Policies:

1) Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion.

2) Prohibit construction of private shoreline hardening structures, including seawalls and revetments, at sites having sand beaches and at sites where shoreline hardening structures interfere with existing recreational and waterline activities.

3) Minimize the construction of public shoreline hardening structures, including seawalls and revetments, at sites having sand beaches and at sites where shoreline hardening structures interfere with existing recreational and waterline activities.

4) Minimize grading of and damage to coastal dunes.

5) Prohibit private property owners from creating a public nuisance by inducing or cultivating the private property owner's vegetation in a beach transit corridor.

6) Prohibit private property owners from creating a public nuisance by allowing the private property owner's unmaintained vegetation to interfere or encroach upon a beach transit corridor.

Check either Yes or No for each of the following questions, and provide an explanation or information for Yes responses in the Discussion section that follows:

	Yes	No
1. Will the proposed action occur on a shoreline parcel?	☐	☑
2. Will the proposed action occur in an area or parcel that is adjacent to a shoreline parcel?	☐	☑
3. Is the proposed action located within the shoreline setback area?	☐	☑
4. Will the proposed action affect natural shoreline processes?	☐	☑
5. Will the proposed action affect recreational activities?	☐	☑
6. Will the proposed action affect public access to or along the shoreline?	☐	☑

BEACH AND COASTAL DUNE PROTECTION (continued)

Discussion: Explain "Yes" responses to the questions above. If more space is needed, attach a separate sheet, or append additional information.

N/A

MARINE AND COASTAL RESOURCES

Objective: Promote the protection, use, and development of marine and coastal resources to assure their sustainability.

Policies:

1) Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial.
2) Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency.
3) Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone.
4) Promote research, study, and understanding of ocean and coastal processes, impacts of climate change and sea level rise, marine life, and other ocean resources to acquire and inventory information necessary to understand how coastal development activities relate to and impact ocean and coastal resources.
5) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

Check either Yes or No for each of the following questions, and provide an explanation or information for Yes responses in the Discussion section that follows:

	Yes	No
1. Will the proposed action involve the use or development of marine or coastal resources?	☐	☑
2. Will the proposed action affect the use or development of marine or coastal resources?	☐	☑
3. Does the proposed action involve research of ocean processes or resources?	☐	☑
4. Will the proposed action occur in or abutting a Natural Area Reserve, Marine Life Conservation District, Marine Fisheries Management Area, or an estuary?	☐	☑

MARINE AND COASTAL RESOURCES (continued)

Discussion: Explain "Yes" responses to the questions above. If more space is needed, attach a separate sheet, or append additional information.

N/A