

**Draft Environmental Assessment for an Air Tour
Management Plan for
Bandelier National Monument**

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1 PURPOSE AND NEED

1.1 Introduction

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

The Act requires the FAA, in cooperation with the NPS, to develop an ATMP or Voluntary Agreement for parks and tribal lands where operators have applied to conduct commercial air tours. The Act provided for existing commercial air tour operations occurring at the time the law was enacted to continue until an ATMP for the Park was implemented by expressly requiring the FAA to grant interim operating authority (IOA) to existing operators.^{1,2} Currently, there is one commercial air tour operator that conducts air tours over the Park with IOA for 126 commercial air tours annually. IOA includes only an annual cap on the number of commercial air tours that may be conducted by an operator, but does not designate the routes, time-of-day, altitudes, or other conditions for such tours.

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

The term commercial air tour operation is defined as any flight conducted for compensation or hire in a powered aircraft, where a purpose of the flight is sightseeing over a park or within ½-

¹ 49 U.S.C. § 40128(c)(2)(A)(i-ii)

² 70 FR 58,778 (Oct. 7, 2005)

mile outside a park's boundary during which the aircraft flies below 5,000 feet (ft.) above ground level (AGL). This area is referred to as the ATMP planning area (Figure 1).

1.2 Background

On February 14, 2019, Public Employees for Environmental Responsibility and Hawai'i Coalition Malama Pono filed a petition in the U.S. Court of Appeals for the District of Columbia Circuit requesting that the Court order the agencies to complete ATMPs for seven parks. On May 1, 2020, the Court granted the petition and ordered the agencies to submit a schedule to bring 23 eligible parks (based on reported air tour data from 2018) into compliance with the Act within two years or to show specific, concrete reasons why doing so will take longer. Consistent with the Court's order, agencies submitted a proposed plan and schedule (Compliance Plan) on August 31, 2020. On June 21, 2022, the Court ordered the agencies to file a joint supplemental report and propose firm deadlines for bringing each of the parks included in the Compliance Plan into compliance with the Act. On July 21, 2022, the agencies filed their report and provided a deadline of March 31, 2024, to complete the ATMP for the Park.

On September 3, 2021, the FAA, in cooperation with the NPS, published a Federal Register notice announcing the availability of the draft ATMP for the Park. The draft ATMP proposed to adopt existing conditions with adjustments to mitigate and address impacts to Park soundscapes, visitor experience, Wilderness character, and wildlife. The agencies held a public meeting on September 15, 2021, and accepted comments on the draft ATMP until October 13, 2021.

The FAA, in coordination with the NPS, initiated consultation with Native American Tribes (tribes) under Section 106 of the National Historic Preservation Act (NHPA) on the draft ATMP in March 2021, and subsequently held Section 106 tribal consultation meetings in 2021 and 2022 with Pueblo of Santa Clara, Pueblo de Cochiti, Pueblo of Pojoaque, and Pueblo de San Ildefonso. Based on feedback during tribal consultation and comments received on the September 2021 draft ATMP, the NPS and FAA agreed to prepare a draft EA to evaluate reasonable alternatives for the ATMP.

1.3 Proposed Action

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

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

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

1.4 Purpose and Need

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

Need: The Act requires an ATMP or Voluntary Agreement to be developed for the Park. Air tours have the potential to impact natural and cultural resources, tribal sacred sites and ceremonial areas, Wilderness character, and visitor experience. The Act requires that the FAA and the NPS develop acceptable and effective measures to mitigate or prevent significant adverse impacts, if any, of commercial air tour operations on natural and cultural landscapes and resources, Wilderness character, visitor experience, and Native American Traditional Cultural Properties (TCPs) including Native American sacred landscapes, sites, and ceremonial areas.

1.5 Environmental Impact Categories Not Analyzed in Detail

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

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

Biological Resources (Fish, Amphibians, Invertebrates, and Plants)

The ATMP would not result in ground disturbance or in-water activities that could affect fish, amphibians, invertebrates, or plants. The proposed minimum altitude of 2,600 ft. AGL included in the ATMP action alternative under which commercial air tours would be permitted within the ATMP planning area (Alternative 3) would create sufficient separation between commercial air tours and fish, amphibians, and invertebrates such that impacts are not expected to occur, either directly or indirectly.

Noise from aircraft have been demonstrated to influence the behavior of ecologically significant pollinators and seed dispersers in natural and human altered landscapes (Francis et al., 2012; Gallardo Cruz et al., 2021). Specifically, Francis et al. (2012) studied the effect of compressor noise running continuously and generating noise at high amplitudes (greater than 95 decibels at a distance of 1 meter). Within the study, experimental sites were established 125 to 150 meters from the noise source. Noise exposure had an indirect positive effect on pollination by hummingbirds, but an indirect negative effect on piñon pine seedling establishment by altering the composition of animals preying upon or dispersing seeds. In contrast to this experimental design of this study, commercial air tours do not generate continuous noise, and the proposed minimum altitude in the action alternative that would permit air tours in the ATMP planning area (2,600 ft. AGL) provides much greater spatial separation as compared to the study sites. Therefore, the agencies have determined that noise associated with the ATMP is unlikely to result in impacts to plants or plant pollination.

Air tours could result in some effects on air quality, such as emissions or the potential for low-flying aircraft to generate dust, which could indirectly affect plants. While air quality is a topic that will be analyzed in detail in the draft EA, the minimum altitude considered by the ATMP action alternative under which commercial air tours would be permitted within the ATMP planning area (2,600 ft. AGL) creates sufficient separation between plants and aircraft such that it is unlikely that the dust or changes in air quality would have a meaningful effect on plants.

In summary, for these reasons, the agencies have dismissed these impact topics from further analysis.

Geologic Resources

While geologic resources is not an impact category FAA traditionally examines, NPS has agency-wide policies (see NPS Management Policies (2006), Chapter 4) for managing geologic resources within the National Park System. Geologic features are the products and physical components of geologic processes, and include rocks, caves, canyons, terraces, rock outcrops and

formations, and paleontological resources. Geologic processes are the natural physical and chemical forces that act within natural systems and on human developments across a broad spectrum of space and time, and include erosion, sedimentation, and volcanic activity, among others. Geologic resources in the ATMP planning area include features in the Jemez Mountains and Pajarito Plateau. Many geologic features have cultural significance to associated tribal people and those associations are analyzed under cultural resources. Under the No Action Alternative and Alternative 3, commercial air tours would continue to occur over these features. Commercial air tours currently occur at altitudes between 800 and 1,000 ft. Under Alternative 3, commercial air tours would not occur below 10,000 ft. mean sea level (MSL) which results in altitudes of at least 2,600 ft. AGL. A review for potential vibrational impacts on historic buildings and natural features suggests that the potential for damage resulting from fixed-wing propeller aircraft overflights is minimal, as the fundamental blade passage frequency of the aircraft is well above the resonant natural frequency of these structures (i.e., the natural vibrational tendency associated with a structure). Additionally, the vibration amplitude associated with fixed-wing aircraft overflights is well below recommended limits described to avoid structural damage (Hanson et al., 1991; Volpe, 2014). Therefore, no vibrational impacts to geologic resources within the ATMP planning area would be anticipated under any of the alternatives.

Children's Environmental Health and Safety Risks

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

Hazardous Materials, Solid Waste, and Pollution Prevention

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

In the event of an emergency landing inside the Park (regardless of whether the aircraft intended to fly over the Park), once the aircraft has safely landed and any medical or other

emergency issues have been addressed, the operator should immediately notify the Park through Park dispatch of the incident and location. Prior approval from the Park superintendent or designee is required for the removal or take off of the landed aircraft in order to coordinate joint resources for the safety of visitors and Park resources (36 CFR Part 2.17). Prior approval from the Park superintendent or designee is required for any non-emergency landing of aircraft within the Park boundaries, including replacement aircraft deployed to retrieve passengers who are not able to exit via ground transportation (36 CFR Part 2.17).

If an air tour crash occurs, the NPS or a cooperating emergency response agency such as Los Alamos Police or Fire Departments would respond as soon as possible to provide life-saving search and rescue efforts. If the crash resulted in fire or hazardous materials contamination, responding personnel would attempt to secure the area and control the fire or contain potential contaminants while mitigating impacts to Park resources to the greatest extent possible. The Park's Fire Management Plan (NPS, 2005) would guide fire response and associated resource protection. Assessment of resource damage, initiation of restoration, and financial compensation sought would be guided by the System Unit Resource Protection Act, 54 U.S.C. § 100721 et. seq.

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

Farmlands

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

Land Use

Land use refers to the general characteristics of how land is allocated among various administrative, preservation, recreational, and development needs. The ATMP would not result in ground-disturbing activities, and commercial air tours would not take off or land within the

ATMP planning area. The impacts to land use are not reasonably expected; therefore, land use is not analyzed in detail in the draft EA.

Natural Resources and Energy Supply

Commercial air tours have been ongoing within the ATMP planning area prior to enactment of the Act. The ATMP would not result in the extraction of resources from the Park or cause measurable increases in the consumption of energy resources that would exceed available or future supplies of natural or energy resources. Therefore, this topic is not analyzed in detail in the draft EA.

Visual Effects – Light Emissions

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

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

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

Coastal Resources

The ATMP planning area for the Park does not include coastal areas or areas that are within a designated coastal zone. Therefore, coastal resources have not been analyzed in detail in the draft EA.

Resources of Valles Caldera National Preserve

A portion of Valles Caldera National Preserve is within the ATMP planning area. However, the EA does not analyze impacts of air tours to Valles Caldera National Preserve's resources since air tours are not authorized over Valles Caldera National Preserve.

2 ALTERNATIVES

2.1 Alternatives Development

A draft ATMP for the Park was released for public review in September, 2021. It was developed by the FAA and the NPS and proposed to largely adopt existing conditions with adjustments to mitigate and address impacts to Park soundscapes, visitor experience, Wilderness character, and wildlife. This first draft also removed a route that flew over Valles Caldera National Preserve because there is no authorization to conduct air tours there. As a result of the agencies' consideration of the comments received during the public review period for the 2021 draft ATMP which largely preserved the existing air tour conditions, including input from tribes through the Section 106 process, the agencies decided to prepare an EA to consider alternatives and to respond to public and tribal concerns. An NPS interdisciplinary team comprised of subject matter experts from the NPS's Natural Sounds and Night Skies Division, Environmental Quality Division, Intermountain Regional Office, and the Park developed the alternatives to be considered in the EA, evaluating the noise impacts of existing air tour routes and operations, the Park's cultural and natural resources, the Park's existing and natural acoustic environment, visitor experience, visual resources, and the concerns about the 2021 draft ATMP expressed by tribes and the public, as well as potential protective measures that could be included in an ATMP.

In developing alternatives, the interdisciplinary team also considered Park-specific planning and management documents, as well as the purpose and significance for which the Park was established. The agencies acknowledged the essential and foundational cultural elements that led to the establishment of the Park as they developed and evaluated alternatives. The primary purpose of the Park is to protect and preserve the outstanding features of the Pajarito Plateau, including both natural and cultural resources found there. The Park's archeological sites and natural features remain an integral component of pueblo culture and provide a context for continuing traditional practices of pueblo culture (NPS, 2015). Consistent with this purpose, tribal sacred sites, eligible TCPs, and ancestral sites listed in or eligible for listing in the National Register of Historic Places (National Register) are the most significant cultural and natural resources of the Park. The dense cultural landscape is comprised of over 3,000 ancestral sites, dozens of actively used shrines and sacred sites, and includes diverse ecosystems across an elevation gradient of nearly 5,000 ft. Important tribal sites are distributed throughout the entirety of the Park. Ancestral sites, as well as other tribal sacred sites located on the landscape, are all considered by many tribes to a part of the traditional landscape utilized by the indigenous people from time immemorial. Pueblo people continue to practice traditional ceremonies and make pilgrimages to sacred sites within the Park. These are important to the continuation of pueblo traditional practices in contemporary pueblo communities. Maintaining

these resources and respecting the privacy and sacredness of ceremonies of the pueblo people is considered an essential component of the cultural significance of the Park's purpose.

The alternatives development process also considered the preliminary environmental analysis conducted in support of the preparation of the 2021 draft ATMP using routes, altitudes, reporting data provided by the commercial air tour operator, and other relevant information, to model existing air tour conditions over the Park using the FAA's Aviation Environmental Design Tool (AEDT), a software system that models aircraft performance in space and time to estimate fuel consumption, emissions, noise, and air quality. This information was considered, in addition to acoustic monitoring information, and analyzed by the NPS's interdisciplinary planning team in development of the alternatives considered in the draft EA.

The alternatives identified by the NPS and justifications for restrictions on commercial air tours were reviewed by the FAA, including the FAA's local Flight Standards District Office (FSDO) who addressed any aviation safety concerns. The three alternatives presented in this draft EA, including the No Action Alternative, represent the alternatives advanced for environmental review and incorporate public comments and tribal feedback received to date on the ATMP planning efforts for the Park. Alternatives may be further developed or modified through the NEPA process in response to public, consulting party, and agency comments on the draft EA and draft ATMP.

2.2 Alternatives Considered but Eliminated from Further Study

2.2.1 Air Tours above Existing Levels

The agencies considered but eliminated alternatives that would allow commercial air tours to fly at levels above existing conditions (the three-year average of operator reported flights from 2017-2019). These alternatives were eliminated from further study because the NPS determined they would result in unacceptable impacts to the Park's cultural resources, tribal sacred sites, and ceremonial areas (NPS Management Policies § 1.4.7.1, 2006), and do not meet the purpose and need for the ATMP.

The NPS determined that air tours above existing conditions inhibits the NPS's ability to meet the Park's purpose and values, which are described in its Foundation Document (NPS, 2015). These purposes include continuing to provide a context for traditional practices of pueblo culture (NPS, 2015). Air tours above existing conditions would unacceptably impact existing sacred sites and cultural practices of pueblo culture within the Park and the cultural landscape as a whole. The Pueblo of Pojoaque have 2,000 ancestral sites within the Park, many of which continue to be used today. The Pueblo de San Ildefonso have noted that the documented historic properties within the Park are material evidence of the occupation of the monument by their ancestors, whose spiritual presence continues to reside within this domain and that there are extensive resources within the Park that are not documented and are

associated with traditional and ceremonial practices conducted since time immemorial into the present. The Pueblo of Acoma have noted that cultural landscapes, shrines, and gathering places associated with their culture are present in the Park. The Pueblo of Santa Clara has deep ties to the Park and its surrounding cultural landscape. The Pueblo de Cochiti have stated that the Park is an invaluable cultural landscape and a place of retreat and prayer to ensure the strength of their community and continued way of life. All have unequivocally stated that air tours are inappropriate and adversely impact the cultural resources identified above, the cultural landscape and, in some cases, violate their privacy during the ceremonial use of the land (see Appendix G, *Cultural Resources Consultation and Summary*).

The NPS Management Policies direct the NPS to avoid adversely affecting the physical integrity of sacred sites to the extent practicable (NPS Management Policies § 5.3.5.3.2, 2006). Additionally, culturally appropriate sounds are important elements of the national park experience, which includes this Park, and therefore, the NPS is directed to prevent inappropriate noise from unacceptably impacting cultural and historic resource sounds associated with park purposes (NPS Management Policies § 5.3.1.7, 2006). Air tours above existing conditions would impede the NPS's ability to fully meet the Park's purposes of protecting cultural resources and providing for the cultural practices of pueblo culture. For these reasons, the agencies have considered but eliminated alternatives that would increase air tours above existing air tour numbers.

2.2.2 Air Tours on Routes Presented in the 2021 Draft ATMP

The agencies considered but eliminated the alternative that would authorize air tour operations consistent with current operator reported operating parameters as presented in the 2021 draft ATMP. Comments received during the public comment period for the prior draft ATMP (September 3, 2021 – October 13, 2021) and information learned through tribal consultation demonstrate that impacts from the existing number of air tours flown on current operator reported routes would have too great of an impact on Park resources to carry forward and those impacts cannot be further reduced. Specifically, the routes included in the 2021 draft ATMP infringed upon the privacy of the pueblo people and disrupted the traditional use and sacredness of many important sites for the pueblos, including National Register listed or eligible TCPs, ancestral sites, and the cultural landscape; air tours, in general, introduce a conflict with the core components of the Park by allowing an opportunity for those outside of the tribal community to infringe upon the sacredness of these ancestral lands. The elevation of the terrain overflown limits the NPS's ability to reduce these impacts by raising the minimum altitudes flown by commercial air tours on these routes.³ Based on information learned during consultation and from the comments received from the pueblos (see Appendix G, *Cultural Resources Consultation and Summary*), air tours on the routes presented would unreasonably

³ Flights above 10,000 ft. MSL for 30 minutes or longer require supplemental oxygen.

interfere with the cultural landscape of the Park and the connections to TCPs and unreasonably detract from the sacred sites and tribal practices of the pueblo people. Because of the comments received on the September 3, 2021 draft ATMP, the NPS has determined that the impacts of this alternative to cultural practices, sacred sites, and the cultural landscape of the Park are too great and inhibit the NPS's ability to provide the pueblos their cultural connection to the landscape which is essential to meeting the purpose of the Park. Thus, this alternative was considered but dismissed from further evaluation.

2.3 ATMP Planning Area for the Development of the Alternatives

An ATMP regulates commercial air tours over a national park or within ½-mile outside the park's boundary during which the aircraft flies below 5,000 ft. AGL. This is referred to as the ATMP planning area in this document and as the ATMP boundary in the ATMP itself. The ATMP planning area for this Park includes the main Park unit and the Tsankawi Unit of the Park, located 12 miles northeast of the main Park unit (see Figure 2), as well as the area within ½-mile of the boundary of both the main park and the Tsankawi Unit.

Air tours outside of the ATMP planning area are not subject to the Act and are therefore not regulated under the ATMP. As air tours outside of the ATMP planning area are outside the jurisdiction of the ATMP, there would be no limitations on the annual number of such air tours that could occur, and no designated routes could be set outside the ATMP planning area under any alternative. Refer to Figure 1 for a graphic depiction of the ATMP planning area.⁴ 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.

⁴ Ground level elevations within the Park extend from the Rio Grande at 5,300 ft. to the summit of Cerro Grande at 10,200 ft. on the caldera rim.

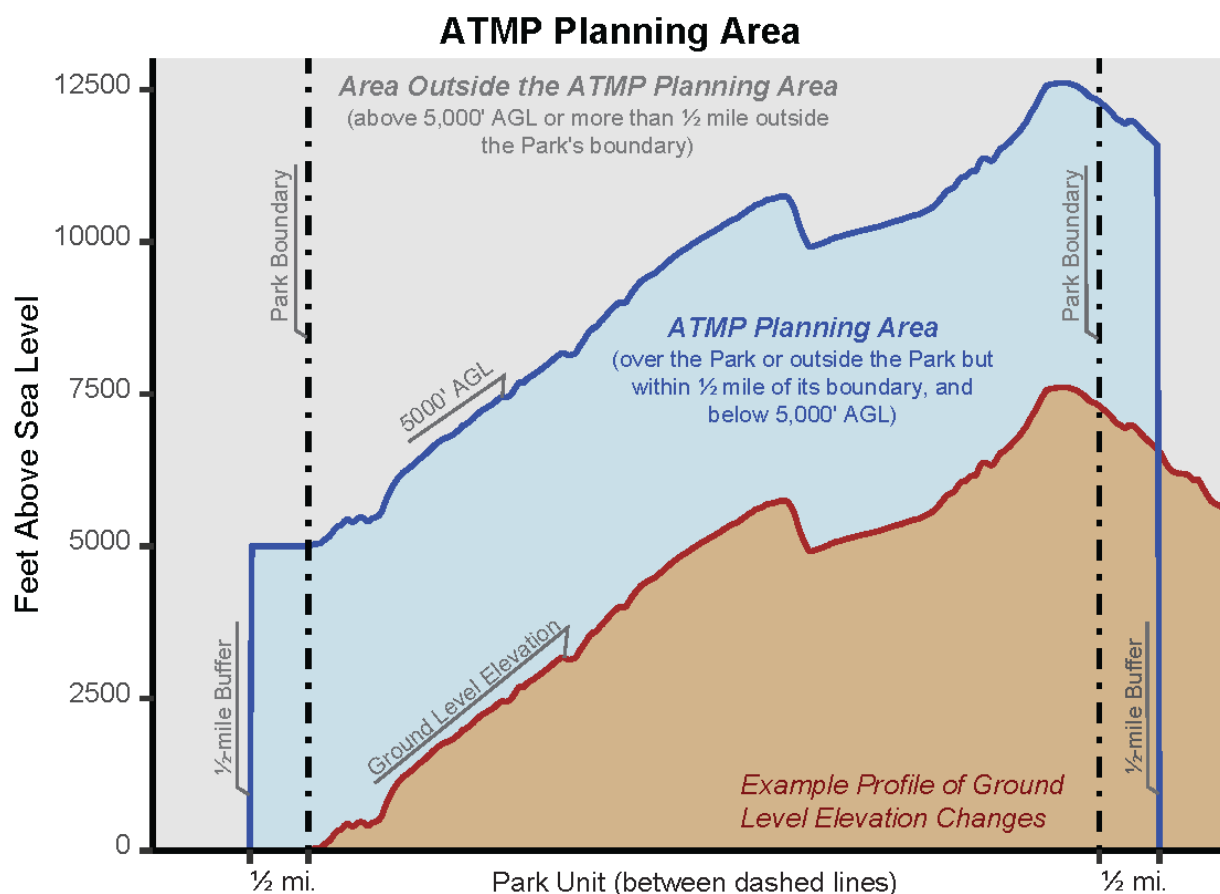


Figure 1. Geographic Depiction of the ATMP Planning Area.

2.4 Alternative 1 (No Action Alternative)

The No Action Alternative represents a continuation of what is currently flown under existing law including applicable regulations that govern aviation safety (14 CFR Part 136, Appendix A (formerly Special Federal Aviation Regulation 71)). This alternative includes IOA which the FAA was required to grant to existing operators under the Act (70 FR 36,456 (June 23, 2005)).

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

2.4.1 Commercial Air Tours per Year

One commercial air tour operator currently holds IOA to fly up to 126 commercial air tours per year over the Park (see Table 1). The yearly average number of commercial air tours conducted over the Park from 2017-2019 by the operator is 101 air tours per year. These tours occurred, on average, over 99 days per year (thus, a single tour occurred on most days, approximately 98% of the time). The agencies consider the 2017-2019 three-year average the existing

baseline for the purposes of understanding the existing number of commercial air tours over the Park. The requirement for the commercial air tour operator to report annual commercial air tour operations to the agencies was implemented in 2013. Reporting data from 2013 and 2014 are considered incomplete as reporting protocols were not fully in place at that time and likely do not accurately reflect the number of air tours conducted. Flight numbers from a single year were not chosen as the existing baseline because the three-year average accounts for both variation across years and takes into account the most recent pre-pandemic years. Reporting data from 2020 was not used because the COVID-19 pandemic resulted in abnormalities in travel patterns across the U.S., 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 agencies also decided against using the IOA as the baseline because IOA was based on numbers reported by the operator more than 20 years ago and does not represent the most current or reliable operational data. The three-year average of commercial tours from 2017-2019 is 101 tours per year, which is approximately 80% of IOA. Under the No Action Alternative, the operator could fly additional air tours up to their IOA, or they may fly fewer tours. The No Action Alternative represents a continuation of existing conditions and for the purposes of analysis uses the three-year average of flights from 2017-2019. The impacts of IOA are not analyzed nor included as the baseline condition for this alternative, though in any given year the operator could conduct additional tours up to their IOA or they may fly fewer air tours than in the period from 2017-2019.

Under the Act, the FAA was required to grant IOA for commercial air tours over the Park and adjacent pueblo tribal lands that are outside of the Park but within ½-mile of its boundary as a temporary measure until an ATMP could be established. The operations specifications for the one commercial air tour operator who currently holds IOA to fly up to 126 commercial air tours per year over the Park also reflect 43 IOA for pueblo tribal lands adjacent to the Park. The IOA for the adjacent pueblo tribal lands is coextensive with and issued in connection with the IOA issued for the Park. Because the Act provides that an ATMP extends ½-mile outside the boundary of a National Park System unit, the IOA for the adjacent pueblo tribal lands is limited to those portions of the pueblo tribal lands that are outside the Park but within ½-mile of its boundary. IOA for adjacent pueblo tribal lands does not apply to those portions of the pueblo tribal lands that are more than ½-mile outside the Park and the regulatory status of those lands would be unchanged by the ATMP.

2.4.2 Commercial Air Tour Routes and Altitudes

There are no designated flight routes under the No Action Alternative. The figure for this alternative (Figure 2) depicts general route information provided by the existing commercial air

tour operator. Likely commercial air tour operations are dispersed around the generalized routes provided by the operator depicted in Figure 2. For purposes of defining the No Action Alternative, the route information in Figure 2 is considered in this draft EA. Northeast of the Park and within the ATMP planning area there is restricted airspace over Los Alamos National Laboratory. No commercial air tour operators have the authority to fly within restricted airspace nor do they have authority to fly less than 5,000 ft. AGL over Valles Caldera National Preserve, a separate unit of the National Park System located to the northwest of the Park's boundary.

Under the No Action Alternative, commercial air tours on routes shown in Figure 2 would likely continue to be conducted at operator-reported altitudes of 800 or 1,000 ft. AGL, depending on the route, except as necessary for safe operation of an aircraft as determined under Federal Aviation Regulations requiring the pilot-in-command to take action to ensure the safe operation of the aircraft. The altitudes of 800 and 1,000 ft. AGL result in the MSL altitude callouts shown in Figure 2.⁵

The air tour operator is 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.⁶ The operator must provide the date and time each tour occurred, the make/model of aircraft used, and the route on which the tour was conducted.

2.4.3 Commercial Air Tour Operator and Aircraft Types

The one operator that holds IOA for the Park reported flying commercial air tours over the Park between 2013 and 2020. This operator reported flying fixed-wing aircraft including a Cessna 182 and a Cessna 207 over the Park during this period. Table 1 summarizes this operator's aircraft type, IOA, reported tours, and the 2017-2019 average number of reported tours over the Park.

⁵ Altitude expressed in units AGL is a measurement of the distance between the ground surface and the aircraft, whereas altitude expressed in MSL refers to the altitude of an aircraft above sea level, regardless of the terrain below it. Aircraft flying at a constant MSL altitude would simultaneously fly at varying AGL altitudes, and vice versa, assuming uneven terrain is present below the aircraft.

⁶ See *Air Tour Reporting Guidance Memo* (2020), https://www.faa.gov/about/office_org/headquarters_offices/ara/programs/air_tour_management_plan/program_information

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

Operator	Aircraft Type	2013	2014	2015	2016	2017	2018	2019	2020 ⁷	2017-2019 Avg.	IOA
Southwest Safaris	Cessna 182 and T207A	132	125	127	105	101	76	125	91	101	126

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

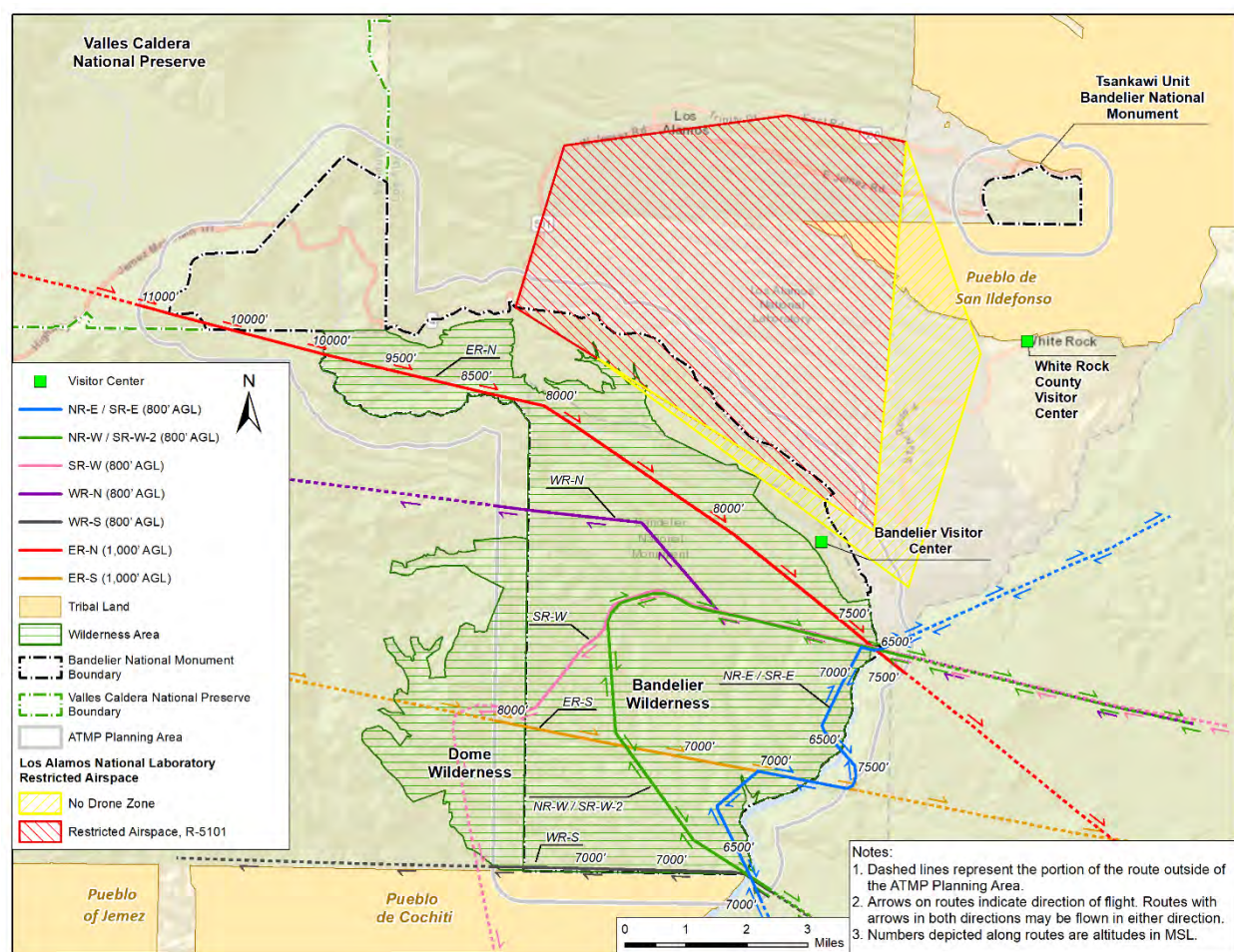


Figure 2. Alternative 1 (No Action).

2.5 Alternative 2 (Preferred Alternative)

Alternative 2 would provide the greatest level of protection for the purposes, resources, and values of the Park because it would not authorize air tours in the ATMP planning area, which

⁷ Based on unpublished reporting data.

includes the Tsankawi Unit of the Park and the area within ½-mile of its boundary. Alternative 2 would eliminate air tour presence over the sacred sites, National Register listed or eligible TCPs, ancestral sites, and cultural landscapes within the ATMP planning area; maintain confidentiality of sacred sites (Executive Order (EO) 13007, *Indian Sacred Sites*, dated May 24, 1996); respect the spiritual significance of the Park to tribal people and maintain cultural connections to the Park pursuant to the Park's Foundation Document (NPS, 2015); and prioritize the voices and values of Tribal nations in accordance with the Park's Strategic Action Plan (NPS, 2022). Alternative 2 respects the privacy of the tribal people actively conducting ceremonial practices by eliminating the opportunity for interruptions from air tours to the sacredness of the land. The Presidential Proclamation issued on February 11, 1916, for the Park was solely focused on protecting aboriginal ruins by "reserving these relics of a vanished people" (NPS, 2015). The Park's Foundation Document (NPS, 2015) identifies cultural significance as interwoven throughout the Park's resources. The Park's significance statements that express the Park's resources and values that merit designation as part of the National Park System emphasize that the archeological and natural features must remain as an integral component of pueblo culture and provide a context for continuing traditional practices (NPS, 2015). Alternative 2 is the most protective of Park resources in preserving traditional tribal practices and most closely aligns with the core components, purpose, and significance for which the Park was established.

Alternative 2 would prohibit commercial air tours within the ATMP planning area (i.e., below 5,000 ft. AGL over the Park and outside the Park but within ½-mile of its boundary). Except as necessary for safe operation of an aircraft as determined under Federal Aviation Regulations requiring the pilot-in-command to take action to ensure the safe operation of the aircraft, or unless otherwise authorized for a specified purpose, commercial air tours would not be allowed to enter the ATMP planning area. Refer to Figure 3 for a depiction of this alternative.

Air tours outside of the ATMP planning area (i.e., at or above 5,000 ft. AGL or more than ½-mile outside the Park boundary) are not subject to the Act and are therefore not regulated under the ATMP. Thus, there would be no limitations on the number of air tours that could occur outside the ATMP planning area. Because air tours outside of the ATMP planning area are not regulated by the ATMP, air tour routes outside of this area are difficult to predict with specificity. Operators could fly routes outside the ATMP planning area similar to existing flight paths, or routes could vary greatly from those currently flown and would depend on operator preference and weather conditions at the time of the tour.

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

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

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

2.5.1 Commercial Air Tour Routes and Altitudes

Air tours could be conducted only outside the ATMP planning area. An unknown number of air tours originating elsewhere in the region may continue to fly more than ½-mile outside of the Park's boundary, or over the ATMP planning area at or above 5,000 ft. AGL. The operator is unlikely to continue to conduct tours of the Park by flying along the perimeter of the ATMP planning area because it is difficult to see the predominant features of the Park from outside the ATMP planning area. The operator may fly along the perimeter of the ATMP planning area in order to conduct air tours of destinations other than the Park, as they currently fly multiple tours over different parks and New Mexico lands. Most destinations and tours offered by the operator are to the west and northwest of the Park, and the airport used for most flights is located to the southeast of the Park. Since the operator cannot fly on the north and northeast sides of the Park because of restricted air space associated with the Los Alamos National Laboratory, nor does the operator have authority to fly over Valles Caldera National Preserve located to the northwest of the Park, it is unlikely there would be new or different impacts in these areas. Due to the flight restrictions to the north and east of the Park, and to reach other regional destinations, the operator may divert flights over the adjacent Pueblo de Cochiti, and public lands more than ½-mile outside Park boundary.

The operator could also choose to move their air tours just above the ATMP planning area. If the operator chose to fly above the ATMP planning area, they would be required to maintain altitudes at or above 5,000 ft. AGL while over that area. The operator 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. However, this may be impractical due to the high elevation of the terrain because it would require the operator to fly above 10,000 ft. MSL. Supplemental oxygen use is required in unpressurized aircraft flying over 10,000 ft. MSL for more than 30 minutes (14 CFR Parts 135.89, 135.157); therefore, it is unlikely air tours would fly higher for extended periods of time. The actual flight path of air tours outside the ATMP planning area would vary due to operator preference and weather conditions at the time of the air tour. The preciseness of routes and altitudes for tours flown on alternative routes are generally subject to

Visual Flight Rules (VFR)⁸, which is based on the principle of “see and avoid,” and therefore may vary greatly.

2.5.2 Monitoring and Enforcement

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

⁸ FAA Advisory Circular 91-36D Visual Flight Rules Flight Near Noise-Sensitive Areas

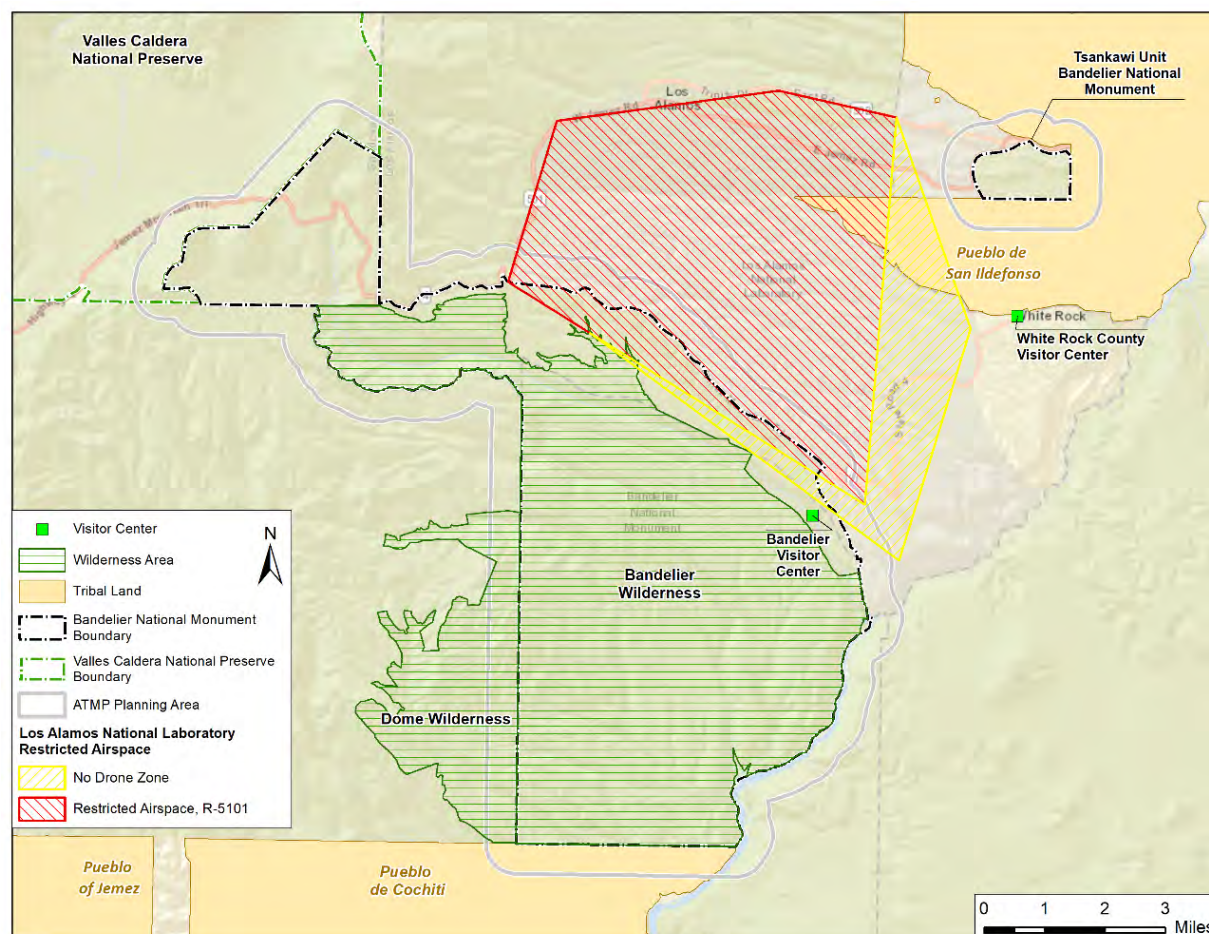


Figure 3. Alternative 2.

2.6 Alternative 3

The NPS developed Alternative 3 to provide opportunities for air tours within the ATMP planning area, while reducing impacts to tribal and cultural resources, wildlife, Wilderness values, and visitor experience. Compared to existing conditions, Alternative 3 would reduce the number of routes from seven to two eastbound routes that directly cross over the Park and avoid looping over Wilderness and following Park canyons. It would also establish a minimum altitude of 10,000 ft. MSL⁹ which results in altitudes of at least 2,600 ft. AGL as compared to minimum altitudes of 800 and 1,000 ft. AGL under existing conditions. Refer to Figure 4 for a depiction of this alternative. The FAA reviewed the alternative to ensure it is safe (see Section 2.1, Alternatives Development).

⁹ Supplemental oxygen use is required in unpressurized aircraft flying at altitudes over 10,000 ft. MSL for more than 30 minutes (14 CFR Parts 135.89, 135.157).

2.6.1 Commercial Air Tours per Year

Alternative 3 would authorize 101 commercial air tours per year within the ATMP planning area, which is consistent with the average number of flights reported on an annual basis from 2017-2019.

On the effective date of the ATMP, the number of flights authorized each year would be allocated to the operator that reported operations over the Park in the period from 2017-2019. The initial allocation would remain in place unless, for example, a competitive bidding process becomes necessary to address a new entrant application.

All IOA for the Park and abutting Pueblo tribal lands would terminate by operation of law 180 days after the establishment (effective date) of the ATMP, 49 U.S.C. § 40128(c)(2)(E), after which time the operator could not continue to rely on any operations specifications issued under IOA as authority to conduct commercial air tours within the ATMP planning area. Amended operations specifications that incorporate the operating parameters set forth in the ATMP shall be issued within 180 days of the effective date of the ATMP.

2.6.2 Commercial Air Tour Routes and Altitudes

The two eastbound routes included in Alternative 3, (the ER-N route (“red route”) and the ER-S route (“orange route”) as depicted in Figure 4), both enter the western boundary of the ATMP planning area and exit along the eastern boundary. The ER-N red route and the ER-S orange route are revised versions of the ER-N red and ER-S orange routes displayed in the No Action Alternative; portions of the ER-N red route were moved for Alternative 3 to avoid sensitive resource areas and the altitude for the entirety of both routes was raised to 10,000 ft. MSL.¹⁰ Refer to Figure 4 for a depiction of the routes and altitudes. The operator could split the total air tours authorized between the two routes or may choose to fly solely either the red or orange route if the total air tours flown per year does not exceed 101. The operator currently does not fly the red or orange route in a westbound direction within the ATMP planning area and under this alternative may not fly over the Park in a westbound direction. The operator may not deviate from the designated routes and altitude except as necessary for safe operation of an aircraft as determined under Federal Aviation Regulations requiring the pilot-in-command to take action to ensure the safe operation of the aircraft.

Under Alternative 3, no air tours could occur within the ATMP planning area, except air tours authorized on the designated routes at the designated altitude described above. Because air tours outside of the ATMP planning area are not regulated by the ATMP, air tour routes outside of this area are difficult to predict with specificity. An unknown number of air tours originating elsewhere in the region may continue to fly more than ½-mile outside of the Park’s boundary,

¹⁰ Supplemental oxygen use is required in unpressurized aircraft flying at altitudes over 10,000 ft. MSL for more than 30 minutes (14 CFR Parts 135.89, 135.157).

or over the ATMP planning area at or above 5,000 ft. AGL. The operator is unlikely to continue to conduct tours of the Park by flying along the perimeter of the ATMP planning area because it is difficult to see the predominant features of the Park from outside the ATMP planning area. The operator may fly along the perimeter of the ATMP planning area in order to conduct air tours of destinations other than the Park, as they currently fly multiple tours over different parks and New Mexico lands. Most destinations and tours offered by the operator are to the west and northwest of the Park, and the airport used for most flights is located to the southeast of the Park. Since the operator cannot fly on the north and northeast sides of the Park because of restricted air space associated with the Los Alamos National Laboratory, nor does the operator have authority to fly over Valles Caldera National Preserve located to the northwest of the Park, it is unlikely there would be new or different impacts in these areas. Due to the flight restrictions to the north and east of the Park, and to reach other regional destinations, the operator may divert flights over the adjacent Pueblo de Cochiti, and public lands more than ½-mile outside Park boundary.

The operator could also choose to move their air tours just above the ATMP planning area. If the operator chose to fly above the ATMP planning area, they would be required to maintain altitudes at or above 5,000 ft. AGL while over that area. The operator 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. However, this may be impractical due to the high elevation of the terrain because it would require the operator to fly above 10,000 ft. MSL. Supplemental oxygen use is required in unpressurized aircraft flying over 10,000 ft. MSL for more than 30 minutes (14 CFR Parts 135.89, 135.157); therefore, it is unlikely air tours would fly higher for extended periods of time. The actual flight path of air tours outside the ATMP planning area would vary due to operator preference and weather conditions at the time of the air tour. The preciseness of routes and altitudes for tours flown on alternative routes are generally subject to VFR¹¹, which is based on the principle of “see and avoid,” and therefore may vary greatly.

2.6.3 Commercial Air Tour Aircraft Type

The operator’s aircraft types would reflect those reported in the period from 2017-2019 (see Table 1). Any new or replacement aircraft must not exceed the noise level produced by the aircraft being replaced. The operator would notify the FAA and the NPS in writing of any prospective new or replacement aircraft and obtain concurrence before initiating air tours with the new or replacement aircraft.

2.6.4 Commercial Air Tour Day/Time Restrictions

Air tours would be permitted two hours after sunrise until two hours before sunset, as defined by the National Oceanic and Atmospheric Administration (NOAA). Exceptions to these

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

parameters for quiet technology aircraft are noted in Section 2.6.7, Quiet Technology Incentives. Sunrise and sunset data are available from the NOAA Solar Calculator.¹² Air tours could occur any day of the week.

2.6.5 Restrictions for Particular Events

In addition to the time-of-day restrictions described above, the NPS could establish temporary no-fly periods that apply to air tours for special events or planned Park management. Absent exigent circumstances or emergency operations, the NPS would provide a minimum of 15 days written notice to the operator for any restrictions that temporarily restrict certain areas or certain times of day, or 60 days written notice to the operator for any full-day restrictions in advance of the no-fly period. Events may include tribal ceremonies or other similar events.

2.6.6 Additional Requirements

- **Adaptive Management:** Adaptive management is a systematic approach for improving resource management and ensuring the continued effectiveness of the ATMP over time through the monitoring of Park conditions and by learning from management actions or choices. Adaptive management is also used to address changed conditions, such as if the breeding habitat of a sensitive species moves to a new area. Adaptive management of the routes, frequency, and timing will be considered, analyzed, and included in this alternative for the protection of cultural and historical resources, including tribal use; biological resources, including raptor protection, threatened and endangered, and migratory birds and other avian species; qualities of Wilderness character; and visitor experiences on the ground. The NPS would conduct monitoring to ensure that this ATMP remains consistent with Park management objectives. The FAA and the NPS will publish additional information for interested parties about the notice and process for adaptive management changes.
- **Interpretive Training and Education:** When made available by Park staff, the operator/pilots would take at least one training course per year conducted by the NPS. The training would include Park information that the operator can 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.
- **Annual Meeting:** The Park staff, the local FAA FSDO, and the operator would be required to meet once per year at the request of either of the agencies to discuss the implementation of the ATMP and any amendments or other changes to the ATMP.
- **Reporting, Monitoring, and Enforcement:** The operator would be required to equip all aircraft used for air tours with flight monitoring technology, to use flight monitoring technology during all air tours under the ATMP, and to report flight monitoring data as an attachment to the operator's semi-annual reports. FAA determination of

¹² <https://www.esrl.noaa.gov/gmd/grad/solcalc/>

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*.

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

2.6.7 Quiet Technology Incentives

The Act requires that the ATMP include incentives for the adoption of quiet technology by the commercial air tour operator. This alternative would incentivize the use of quiet technology aircraft by relaxing time-of-day restrictions to allow quiet technology aircraft to conduct air tours beginning one hour after sunrise until one hour before sunset, as defined by NOAA, on all days that flights are authorized. In order to qualify for quiet technology incentives, the operator would be required to follow a process to be defined by the agencies.

2.6.8 Initial Allocation and Competitive Bidding

The Act states whenever an ATMP limits the number of commercial air tour operations during a specified time frame, a competitive bidding process must occur pursuant to the criteria set forth in 49 U.S.C. § 40128(a)(2)(B). However, since there is only one operator with an initial allocation, a competitive bidding process would not occur unless, for example, it becomes necessary to address a new entrant application. In the time period between the finalization of an ATMP and the completion of a competitive bidding process, if necessary, the commercial air tour operator would be allocated a certain number of commercial air tours over the Park, referred to as the initial allocation as described in Section 2.6.1, Commercial Air Tours per Year. The initial allocation would authorize Southwest Safaris to conduct 101 air tours per year within the ATMP planning area.

If, in the future, two or more operators were to hold authority to conduct commercial air tours, competitive bidding may also be appropriate to address, for example, an additional new entrant application; a request by an existing operator for additional operating authority; or consideration by the agencies of Park-specific resources, impacts, or safety concerns. The Act directs the agencies to consider various factors during the competitive bidding process including known resource issues, reporting, and compliance concerns.

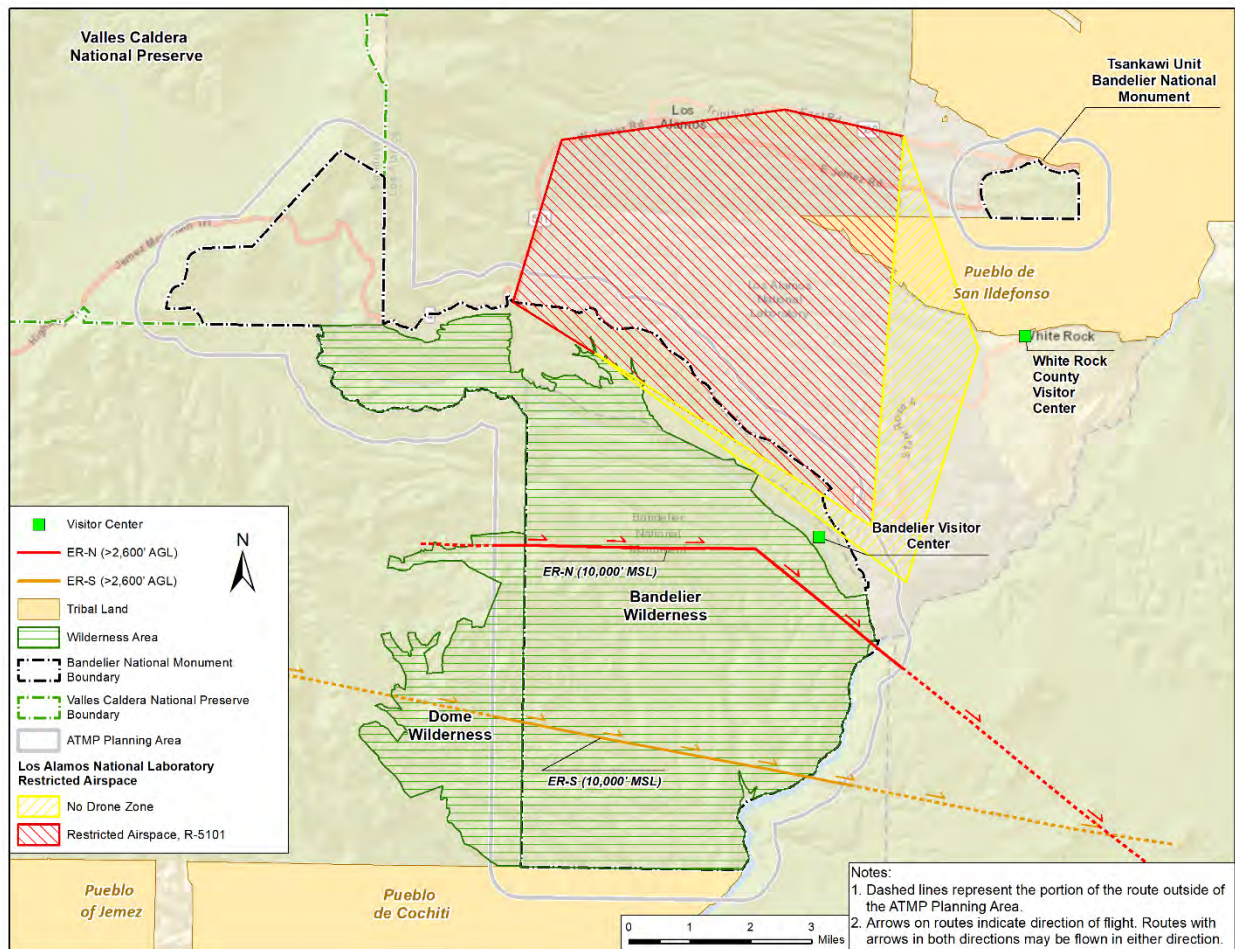


Figure 4. Alternative 3.

2.7 Summary Comparison of the ATMP Alternatives

Table 2. Summary Comparison of the ATMP Alternatives.

Alternative Attributes	Alternative 1 (No Action)	Alternative 2 (Preferred Alternative)	Alternative 3
General Description and Objectives	Allows a continuation of air tours without implementation of an ATMP or Voluntary Agreement. Does not meet the purpose and need for the ATMP.	Prohibits air tours within the ATMP planning area to maximize protection of the Park's natural and cultural resources, including privacy of tribal practices within the Park. Most closely aligns with the purpose and significance for which the Park was established. Air tours could continue to fly in unrestricted airspace outside the ATMP planning area (i.e., at or above 5,000 ft. AGL or more than ½-mile outside of the Park's boundary).	Authorizes up to 101 air tours per year to be conducted on two routes within the ATMP planning area. Air tours could also fly in unrestricted airspace outside the ATMP planning area (i.e., at or above 5,000 ft. AGL or more than ½-mile outside of the Park's boundary).
Annual/Daily Number of Flights	Considers the three-year average of 101 flights per year (based on 2017-2019 reporting data) as the existing condition, though up to 126 air tours per year could be conducted under IOA.	None in ATMP planning area.	Authorizes 101 flights per year.
Routes	No mandatory routes or no-fly zones. See map for depiction of reported routes.	None in ATMP planning area.	Two routes (ER-N, ER-S) that run west-to-east across the ATMP planning area, that reflect routes currently flown by the operator.
Minimum Altitudes	No mandatory minimum altitudes. See map for depiction of reported operations. Existing operations range from 800 to 1,000 ft. AGL.	N/A. Operators may fly above the ATMP planning area (at or above 5,000 ft. AGL).	Minimum 10,000 ft. MSL, which results in a minimum of 2,600 ft. AGL. The operator may continue to fly outside of the ATMP planning area where they already fly or fly routes over or around the ATMP planning area similar to existing flight paths but outside of the ATMP planning area.
Time of Day	No restrictions.	N/A	Two hours after sunrise until two hours before sunset for non-quiet technology flights.

Alternative Attributes	Alternative 1 (No Action)	Alternative 2 (Preferred Alternative)	Alternative 3
Quiet Technology Incentives	None.	N/A	Quiet technology flights may fly one hour after sunrise until one hour before sunset.
Interpretative Training and Education	None.	N/A	When made available by NPS, the NPS would provide yearly mandatory training for air tour pilots regarding Park resources.
Annual Meeting	None.	N/A	The Park staff, the local FAA FSDO, and the operator would be required to meet once per year.
Restrictions for Particular Events	None.	N/A	The NPS can establish no-fly periods and must provide minimum of 15 days written notice to the operator for any restrictions that temporarily restrict certain areas or certain times of day, or 60 days written notice to the operator for any full-day restrictions in advance of the no-fly period for special events or planned Park management. Events may include tribal ceremonies or other similar events.
Monitoring and Enforcement	The operator reports the number of tours, aircraft type, route, and day/time of tour to the FAA and the NPS on a semi-annual basis.	The NPS may conduct ADS-B aircraft monitoring and work with the FAA to respond to instances of noncompliance. The FAA FSDO would investigate and respond to all written reports consistent with applicable FAA guidance. FAA determination of noncompliance may result in legal enforcement actions.	Operators would provide semi-annual reports, including the flight monitoring data. Additional monitoring and enforcement would occur as described in Alternative 2.
Adaptive Management	None.	N/A	Adaptive management of the route, frequency, and timing would be considered/analyzed. NPS would conduct monitoring to ensure that this ATMP remains consistent with Park management objectives
Initial Allocation of Air Tours and Aircraft Types	Reflects existing conditions of one operator with reported data from 2017-2019.	N/A	The initial allocation would reflect the number of air tours reported over the Park and the existing

Alternative Attributes	Alternative 1 (No Action)	Alternative 2 (Preferred Alternative)	Alternative 3
			aircraft types of the one operator that has reported operating in the period from 2017-2019. Competitive bidding may result in a change to the initial allocation if there is a new entrant application. Any new or replacement aircraft must not exceed the noise level produced by the aircraft being replaced.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

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

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

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

3.1 Noise and Noise-Compatible Land Use

FAA Order 1050.1F, Appendix B, paragraph B-1.3, Affected Environment, requires the FAA to identify the location and number of noise sensitive uses in addition to residences such as schools, hospitals, parks, and other recreation areas, that could be significantly impacted by noise. As defined in Paragraph 11-5.b (10) of FAA Order 1050.1F, a noise sensitive area is "[a]n area where noise interferes with normal activities associated with its use. Normally, noise sensitive areas include residential, educational, health, and religious structures and sites, and parks, recreational areas, areas with wilderness characteristics, wildlife refuges, and cultural and historical sites." Noise sensitive areas within the ATMP planning area include the Park, cultural resources discussed in Section 3.4, Cultural Resources, parks and Section 4(f) resources discussed in Section 3.9, Department of Transportation (DOT) Act Section 4(f) Resources, as well as residential areas outside of the Park boundary but within the ½-mile buffer.

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

3.1.1 Affected Environment

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

- Sounds produced by birds, frogs, mountain lions, and bighorn sheep to define territories or aid in attracting mates;
- Sounds produced by bats to locate prey or navigate;
- Sounds received by mice or deer to detect and avoid predators or other danger;
- Sounds produced by physical processes, such as wind in the trees, claps of thunder, or falling water (NPS Management Policies, § 4.9, 2006).

One of the natural resources of the Park is the natural soundscape, also referred to as the natural ambient or "natural quiet." The natural ambient includes all naturally occurring sounds, as well as the quiet associated with still nights and certain seasons. It excludes all mechanical, electrical, and other human-caused sounds. An important part of the mission of the NPS is to preserve or restore the natural soundscapes associated with units of the National Park System (NPS, 2006).

The term existing ambient refers to the sound level of all sounds in a given area, and includes all natural sounds as well as all mechanical, electrical, and other human-caused sounds. Human-generated noise sources may include wheeled vehicles on roads, such as passenger

vehicles, tour buses, and cyclists, and aircraft overflights consisting of high-altitude commercial jet aircraft, occasional NPS flights for research or other purposes, commercial air tour operations, and private general aviation aircraft. Human-generated noise within the Park is concentrated in areas of high visitor use, such as the Visitor Center and Burro Trail, but is also present in less visited areas of the Park, including the trail to Cerro Grande peak. The Park is described as a “very quiet place” with low existing sound levels (White, 2014; NPS, 2015).

To characterize the natural and existing ambient (both with and without air tours), sound level measurements were conducted at four locations across the Park in 2012 (White, 2014). For more explanation for how sound is described, see the *Noise Technical Analysis* (Appendix F, Table 1). The median or L_{50} sound level (in decibels, dBA) is the sound level exceeded 50 percent of the day. The median daytime natural ambient (L_{nat}) was between 20.1 and 30.6 dBA during the summer months, and between 18.5 and 32.0 dBA during the winter months. The median daytime existing ambient (L_{50}) was between 23.2 and 34.9 dBA during the summer months, and between 20.4 and 34.4 dBA during the winter months.

3.1.2 Environmental Consequences

There are numerous ways to measure the potential impacts of noise from commercial air tours on the acoustic environment, including intensity, duration, and spatial footprint of the noise. The affected environment and impact analysis uses noise metrics consistent with both FAA and NPS noise guidance. The FAA’s primary noise metric established in FAA Order 1050.1F is the yearly day-night average sound level (DNL, denoted by the symbol L_{dn}) metric; the cumulative noise energy exposure from aircraft over 24 hours. The NPS considers various metrics to analyze impacts to Park resources and values from noise, including equivalent continuous sound level (L_{Aeq}), time audible (the amount of time you can hear air tour aircraft noise), the amount of time that the noise from a commercial air tour operation would be above specific sound levels that relate to different Park management objectives (e.g., 35 and 52 dBA), and maximum sound level (L_{max}). These metrics are discussed further in Table 3; a comparison of the sound levels noted in Table 3 to values for a range of everyday sounds can be found in Figure 1 of the *Noise Technical Analysis* (Appendix F). Note that time audible natural ambient was not computed for this Park, as the detailed data required to compute this metric was not available.

Table 3. Primary Metrics Used for the Noise Analysis.

Metric	Relevance and Citation
Equivalent Continuous	The logarithmic average of commercial air tour sound levels, in dBA, over a 12-hour day. The selected 12-hour period is 7 AM to 7 PM to represent typical daytime commercial air tour operating hours.

Metric	Relevance and Citation
Sound Level, L _{Aeq} , 12 hr	
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 decibel (dB) penalty on noise events occurring between 10 PM and 7 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 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 (not computed for the Park)	The total time (in 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 L₅₀, determined from the natural sound conditions found in a ATMP planning area, including all sounds of nature (i.e., wind, streams, wildlife, etc.), and excluding all human and mechanical sounds. Time audible does not indicate how loud the event is, only if it might be heard.
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); blood pressure increases in sleeping humans

Metric	Relevance and Citation
	(Haralabidis et al., 2008); maximum background noise level inside classrooms (ANSI/Acoustical Society of America 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 (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.

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

Alternative 1: No Action

Under the No Action Alternative, the acoustic conditions described in the affected environment would be expected to continue. Air tour noise would vary depending on how many commercial air tours are flown, but because air tour numbers are expected to stay near the three-year average, though they may be less than the three-year average or increase up to IOA, noise conditions are likely to be similar to existing conditions. For purposes of the *Noise Technical Analysis* (see Appendix F), the No Action Alternative was modeled based on a peak month, average day of commercial air tour activity for the three-year average from 2017-2019 identified as one operation.

Additionally, air tour noise would vary depending on the aircraft and route used for the tour. The existing commercial air tour operator provided route information (depicted in Figure 2) for seven general route options and has reported flying two types of fixed-wing aircraft: a Cessna 182 and a Cessna 207. This results in fourteen potential aircraft/route combinations for

analysis. Because the peak month, average day is identified as one operation, for purposes of the *Noise Technical Analysis* (see Appendix F), the No Action Alternative modeled the orange route (ER-S) using a Cessna 182 aircraft. This route and aircraft combination was chosen as a representation of existing activity based on the best available information. Refer to Section 2.4, Alternative 1 (No Action Alternative), and the *Noise Technical Analysis* in Appendix F for additional details on the No Action Alternative and associated noise modeling. Modeling results for the No Action Alternative are presented in Table 4 below. This analysis is based on the three-year average of flights between 2017-2019.

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

Metric	No Action Alternative
12-hour Equivalent Sound Level	Would not exceed 35 dBA.
Day-night Average Sound Level	DNL would be 3 dB less than the 12-hour equivalent sound level, and therefore less than 35 dB.
Time Above 35 dBA	The maximum time that noise from air tours would be above 35 dBA is less than 5 minutes a day*, representing 39% of the ATMP planning area. See Figure 5.
Time Above 52 dBA	The maximum time above 52 dBA experienced across all points modeled would be 0.1 minutes at location point #11 (Rio Grande). All other modeled location points would not experience noise above 52 dBA due to air tours.
Maximum Sound Level	The maximum sound level (i.e., the loudest sound level generated by the loudest event independent of the number of operations) would be 54.8 dBA at location point #11 (Rio Grande).

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

For purposes of assessing noise impacts from commercial air tours on the acoustic environment under FAA's policy for NEPA, the analysis indicates that the resultant DNL is expected to be below 35 dB.

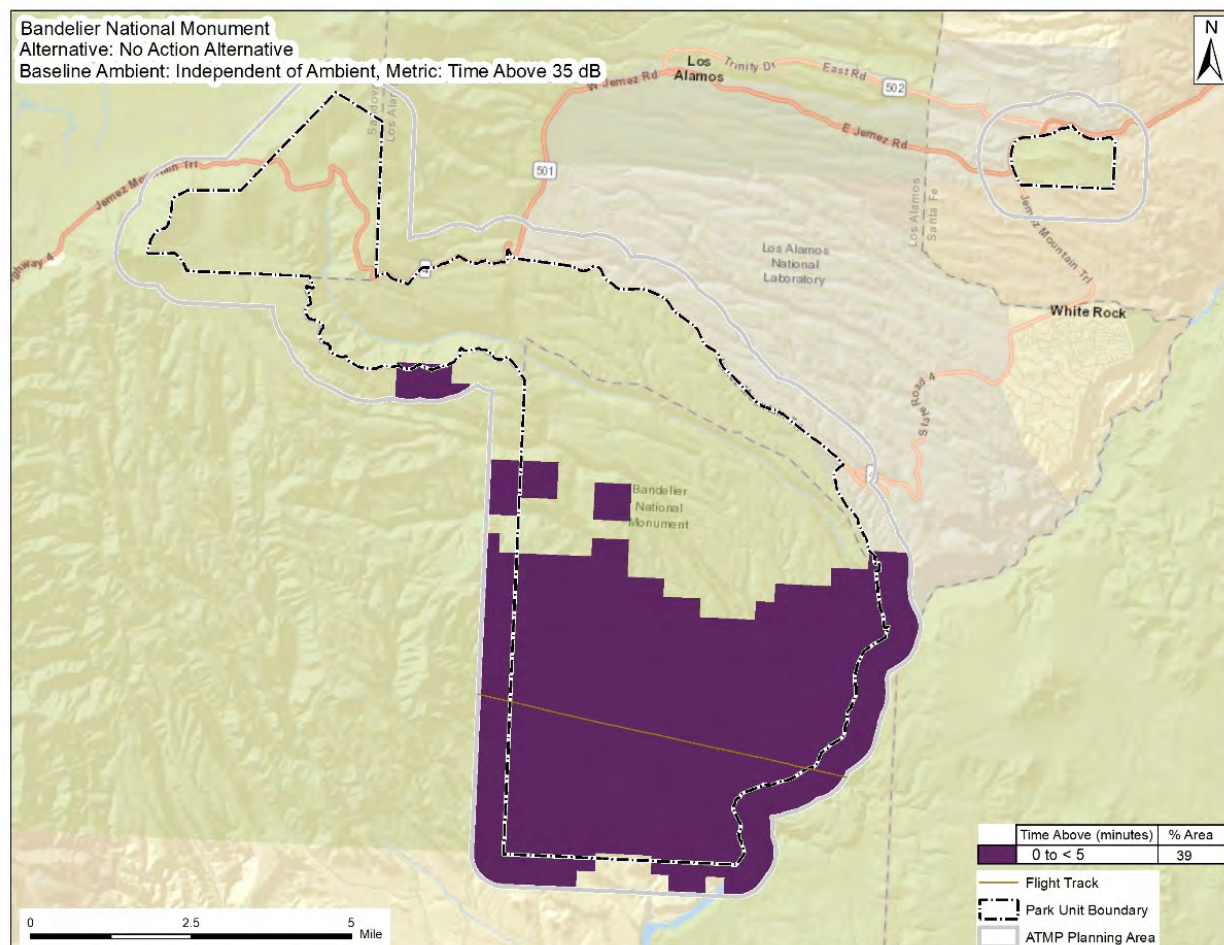


Figure 5. Time Above 35 dBA for Alternative 1 (No Action).

Alternative 2

Under Alternative 2, commercial air tours would not fly within the ATMP planning area, which would reduce this source of noise originating from within the ATMP planning area. Compared to current conditions, Alternative 2 would result in direct beneficial effects on the Park's acoustic environment. The acoustic impacts of Alternative 2 cannot be modeled because, although some speculation about air tour routes can be made, it is unknown where air tours would fly when outside the ATMP planning area. Alternative 2 would provide 365 days per year without air tours within the ATMP planning area, resulting in direct beneficial effects compared to the No Action Alternative and Alternative 3.

Alternative 3

Alternative 3 would authorize 101 air tours per year to be conducted within the ATMP planning area. The tours could occur on either of the two designated routes (ER-S orange route and ER-N red route). For the purposes of the *Noise Technical Analysis* (see Appendix F), an average day

under Alternative 3 was modeled based on the average number of operations which may occur in a single day – one operation, using the aircraft and route combination most likely to be utilized under Alternative 3 – a Cessna 182 on the ER-S orange route. In other words, the Cessna 182 - orange route combination was chosen as the most logical representation of an average day of activity based on best available information for existing conditions.

Additionally, noise modeling was performed for the Cessna 207- ER-N red route combination, providing information regarding the potential noise effects of the second authorized aircraft and route under this alternative. Effects under the two scenarios not modeled (Cessna 182 - orange route or Cessna 207 - red route) are anticipated to be similar to the effects predicted by the modeled scenarios.

Table 5 summarizes the modeled noise metric results for the Cessna 182 - orange route, and Table 6 summarizes the modeled noise metrics for the Cessna 207 - red route. Under both scenarios, the 12-hour equivalent sound level would be below 35 dBA within the ATMP planning area, therefore noise contour results are not presented. Similarly, time above 35 dBA is zero minutes within the ATMP planning area under the Cessna 182 - orange route scenario and a contour map is not presented.

Table 5. Summary of Noise Modeling Metrics for Alternative 3 (Cessna 182 - Orange Route).

Metric	Alternative 3 (Cessna 182 – ER-S Orange Route)
12-hour Equivalent Sound Level	Would not exceed 35 dBA.
Day-night Average Sound Level	DNL would be 3 dB less than the 12-hour equivalent sound level, and therefore less than 35 dB.
Time Above 35 dBA	Sound levels would not exceed 35 dBA within the ATMP planning area.
Time Above 52 dBA	Sound levels would not exceed 52 dBA within the ATMP planning area.
Maximum Sound Level	The maximum sound level (i.e., the loudest sound level generated by the loudest event independent of the number of operations) would be 28.2 dBA at location point #6 (Turkey Springs).

Table 6. Summary of Noise Modeling Metrics for Alternative 3 (Cessna 207 - Red Route).

Metric	Alternative 3 (Cessna 207 – ER-N Red Route)
12-hour Equivalent Sound Level	Would not exceed 35 dBA.

Metric	Alternative 3 (Cessna 207 – ER-N Red Route)
Day-night Average Sound Level	DNL would be 3 dB less than the 12-hour equivalent sound level, and therefore less than 35 dB.
Time Above 35 dBA	The maximum time that noise from air tours would be above 35 dBA is less than 5 minutes a day, representing 53% of the ATMP planning area (see Figure 6).
Time Above 52 dBA	The maximum time above 52 dBA experienced across all points modeled would be 0.5 minutes at location point #10 (Capulin Canyon).
Maximum Sound Level	The maximum sound level (i.e., the loudest sound level generated by the loudest event independent of the number of operations) would be 57.7 dBA at location point #10 (Capulin Canyon).

Under either scenario modeled, as well as the two scenarios not modeled, the resultant DNL for Alternative 3 is expected to be below 45 dB. Refer to the *Noise Technical Analysis* in Appendix F for more information.

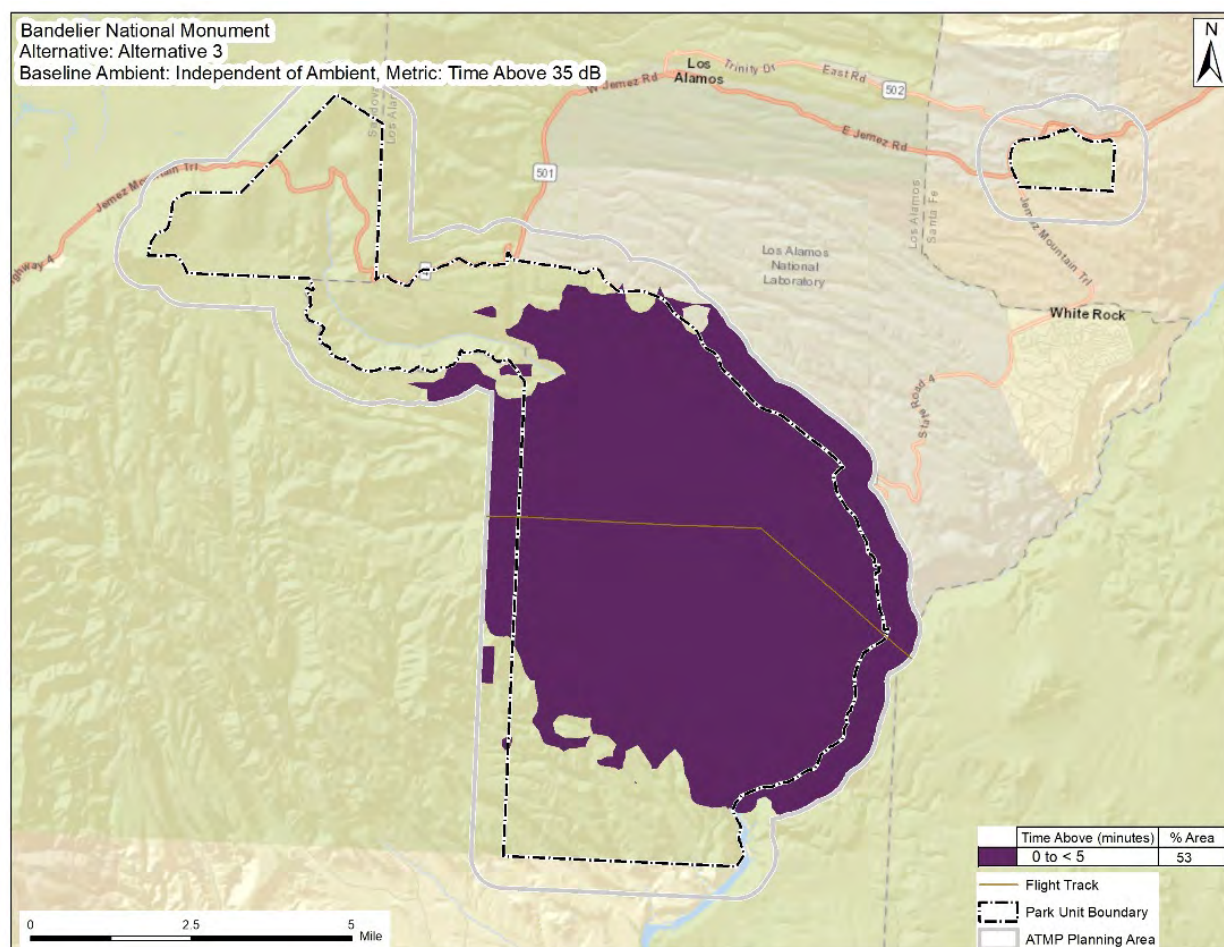


Figure 6. Time Above 35 dBA for Alternative 3 (Cessna 207 - Red Route).

A comparison of impacts to noise and noise-compatible land use between Alternative 3 (Cessna 182 - ER-S orange route scenario) and the No Action Alternative is provided below. This scenario provides the most direct comparison between alternatives, including the effects of the altitude requirement that would be authorized for this route. A comparison between the No Action Alternative and the Cessna 207 - ER-N red route scenario is not provided as the peak month, average day air tour activity under the No Action alternative does not include nor reflect the effects of this aircraft type nor this route; any comparison would be misleading. Because the noise impacts of Alternative 2 cannot be modeled, Alternative 2 was not included in this analysis. Compared to current conditions, Alternative 3, the Cessna 182 - ER-S orange route combination would result in less noise within the ATMP planning area compared to the No Action Alternative.

- 12-hour Equivalent Sound Level (Appendix F, Table 9):

- o Compared to the No Action Alternative, the average sound levels for Alternative 3, Cessna 182 - ER-S orange route combination are, on average, lower. Under either alternative, the 12-hour equivalent sound level does not exceed 35 dBA; “noise footprint” contours are not produced.
- *Time Above 35 dBA* (Appendix F, Table 8 and Table 10):
 - o Compared to the No Action Alternative, the time above 35 dBA for Alternative 3, Cessna 182 - ER-S orange route combination is lower. At location points #5 (Alamo Mesa), #6 (Turkey Springs), #7 (Lower Yapashi) and #11 (Rio Grande) it is reduced from 0.6 minutes to zero minutes. At location point #3 (Frijoles Rim) it is reduced from 0.3 minutes to 0 minutes. At all other locations, time above 35 dBA is zero minutes under both alternatives.
- *Time Above 52 dBA* (Appendix F, Table 11):
 - o Time above 52 dBA is reduced from 0.1 minute to zero minutes at location point #11 (Rio Grande). Time above 52 dBA is zero minutes at all other locations under both alternatives.
- *Maximum Sound Level* (Appendix F, Table 12):
 - o Compared to the No Action Alternative, the average sound levels for Alternative 3, Cessna 182 - ER-S orange route combination are on average 13 dBA lower across all modeled location points.

Indirect and Cumulative Effects

Indirect Effects: Under the No Action Alternative, commercial air tour operations within the ATMP planning area would remain consistent with existing conditions, although air tour numbers could increase slightly up to IOA, thus there would be no change in the acoustic environment and natural soundscape of the ATMP planning area and no indirect impacts would be expected to occur under this alternative.

Because Alternative 2 would prohibit air tours within the ATMP planning area and Alternative 3 would reduce the number of routes on which air tours may be conducted within the ATMP planning area, it is reasonably foreseeable that the current air tour operator could seek to make up lost revenue resulting from the implementation of those alternatives in other ways. One of the ways that the operator 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 the air tour operator shifting routes or altitudes to just outside the ATMP planning area. This could result in impacts to acoustic resources and natural soundscapes of the locations where the displaced air tours would occur.

It is difficult to predict with specificity if, where, and to what extent any air tours would be displaced to areas outside the ATMP planning area, including at altitudes at or above 5,000 ft. AGL. The preciseness of routes and altitudes for air tours flown on displaced routes are generally subject to VFR, which is based on the principle of “see and avoid” and may vary greatly. It is reasonably foreseeable that the operator would continue to fly to points of interest outside of the ATMP planning area. The operator would be unlikely to continue to conduct tours of the Park by flying along the perimeter of the ATMP planning area because it is difficult to see the predominant features of the Park from outside the ATMP planning area, but the operator may fly along the perimeter of the ATMP planning area in order to conduct air tours of destinations other than the Park. The operator currently flies multiple tours over other parks and lands across six states (Southwest Safaris, 2022) and could fly these tours more frequently. The majority of destinations and tours offered by the operator are to the west and northwest of the Park, and the airport used for most flights is located to the southeast of the Park. The northwest corner of the Park borders Valles Caldera National Preserve, another National Park System unit for which there is currently no authority to conduct air tours, and the northern and eastern sides of the Park border restricted airspace over Los Alamos National Laboratory. Due to flight restrictions to the north and east of the Park, it is unlikely that displaced air tours would result in new or different impacts in these areas. Due to these flight restrictions, there may be a slight increase in flights to the west and south of the ATMP planning area if air tours were displaced outside of the ATMP planning area.

It is highly unlikely that the operator would choose to fly above the ATMP planning area. As they would be required to maintain altitudes at or above 5,000 ft. AGL while over the ATMP planning area, the high elevation of the terrain would require the operator to fly above 10,000 ft. MSL. It is unlikely air tours would fly higher for extended periods of time as supplemental oxygen use is required in unpressurized aircraft flying over 10,000 ft. MSL for more than 30 minutes (14 CFR Parts 135.89, 135.157). Additionally, flights at or above 5,000 ft. AGL or higher would provide limited value to a sightseeing operation.

The exactness of routes and altitudes for displaced air tours flown outside the perimeter of the ATMP planning area at altitudes below 5,000 ft. AGL flying VFR could vary depending on safety, client demand, weather, fuel load, and other costs. Specific routes, altitudes and numbers would be relevant in assessing noise and other potential indirect and cumulative impacts associated with eliminating air tours within the ATMP planning area. Consistent with the CEQ regulations, the agencies are disclosing that specific air tour routes, altitudes, and numbers of tours are not available with enough specificity to assess noise and other potential indirect and cumulative impacts associated with reducing or eliminating air tours within the ATMP planning area. In addition, because specific air tour routes are not available, it is not possible to identify all the other potential noise sources that might contribute to the acoustic conditions outside the ATMP planning area where the operator may fly. Agencies are not required to conduct new

scientific or technical research to analyze impacts and may rely on existing information to assess impacts. See 40 CFR Part 1502.21(c). For the purposes of disclosing the potential indirect effects of these alternatives, the agencies have considered the potential noise effects of operations above or along the perimeter of the ATMP planning area.

Although highly unlikely, displaced air tours above the ATMP planning area (above 5,000 ft. AGL) would result in noise within the ATMP planning area. Compared to current conditions, the noise would be spread over a larger geospatial area and would be audible for a longer period, but at lower intensity. Thus, under Alternatives 2 and 3 some locations within the ATMP planning area may experience less intense noise but for a longer period when compared to current conditions. Additionally, other locations within the ATMP planning area not currently experiencing air tour noise may experience some noise under these alternatives when compared to current conditions. However, in both cases, the intensity of noise would likely be quite 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.

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 outside the ATMP planning areas as the commercial air tours operating within the ATMP planning area under the No Action Alternative are well below this threshold - less than 35 dBA $L_{Aeq, 12hr}$, equivalent to DNL 32 dBA.

Cumulative Effects: As part of the cumulative effects assessment, the FAA and the NPS considered other ongoing and planned actions. The NPS will begin a construction project in the summer of 2023 that will expand an existing parking lot at the Frey Trailhead within the developed area adjacent to Juniper Campground. Construction sounds will include those made by large, earth-moving equipment and machinery to lay asphalt. In the spring of 2024, the NPS will begin construction for a utility replacement project that will rehabilitate and replace most underground utilities at the Park. The project area will include the mesa-top developed area (including NPS housing and Juniper Campground), the Entrance Road, and the main visitor use area in Frijoles Canyon. Construction is expected to last up to one year, including all ground rehabilitation activities. The noise from this operation will include those made by large, earth-moving equipment and small-scale directional drilling activities.

During the spring and early summer months each year (typically April – June) the NPS and the Santa Fe National Forest station a wildland fire Type 3 helicopter at the Interagency Fire Center. The Interagency Fire Center is located at TA-49 on Los Alamos National Laboratory lands adjacent to State Highway 4. This helicopter is deployed as needed to scout fire reports on Park

and other federal lands in the immediate area and is made available for wildland fire initial attack on federal lands nearby. Additionally, the Los Alamos Police Department occasionally responds to search and rescue incidents within the Park using helicopter flights for scouting purposes.

Because the No Action Alternative would not result in any new direct or indirect impacts compared to current conditions, there would be no cumulative effects from the No Action Alternative. Under any of the alternatives, the NPS would continue current management actions and respond to future Park needs and conditions without major changes in the present course. Alternative 2 could result in some cumulative beneficial effect on the overall acoustic environment of the Park from eliminating air tours within the ATMP planning area since the intensity of noise directly around and below existing air tour routes would decrease as described above. Alternative 3 would minimize areas where noise from air tours would be noticeable by reducing the number of routes, which would have a cumulative beneficial effect on the acoustic environment in the ATMP planning area. However, when compared to Alternative 2, Alternative 3 could contribute more cumulative noise than Alternative 2 as some air tours would still be authorized in the ATMP planning area.

3.2 Air Quality and Climate Change

3.2.1 Affected Environment

Air Quality

The Clean Air Act divides federal lands into different classifications based on acreage. The Park is classified as a Class I airshed, which means that it is afforded special air quality and visibility protection (NPS, 2020).

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

Although the Park's air quality is in attainment for all NAAQS, the Park's air quality does not meet the NPS Air Resources Division's recommended benchmarks for visibility, ozone, and nitrogen deposition. Given pollutant exposure, an assessment of air quality indicators, and resources sensitive to air pollution, air quality conditions warrant moderate concern (NPS, 2020a). A potential source of particulates that affect visibility arise from wildfires, as smoke from wildfires could not only affect visibility, but also potentially cause exceedances of the particulate matter (PM₁₀) standard for NAAQS under certain wind conditions. The NPS has

taken measures to mitigate this risk, such as creating a fire management program for the Park (NPS, 2005). The NPS currently participates in two air quality monitoring programs- the Interagency Monitoring of Protected Visual Environments program and the National Atmospheric Deposition Program. The NPS conducts on-site sampling for these programs (Jacobs et al., 2015).

Greenhouse Gases

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

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

Initial findings by the NPS show that transportation (which does not include commercial air tours but does include both administrative and visitor activities) was the largest contributor to total GHG emissions for the Park (41.6% of emissions). Energy was the second largest contributor, with 38.9% of emissions; solid waste and other emission sources (such as refrigeration and air conditioning) also contributed to overall Park emissions (NPS and EPA, 2008). These findings provide an initial overview of the carbon footprint of the Park. Further monitoring and analysis will track progress in reducing the Park's carbon footprint into the future.

3.2.2 Environmental Consequences

Alternative 1: No Action

The No Action Alternative represents existing air tour conditions. Modeling results for the No Action Alternative are presented in Table 7 for the criteria pollutants. Note that ozone is not reported as it is not directly emitted in aircraft exhaust. Pollutant emissions are based on annual flight miles and routes for each aircraft type operating within the ATMP planning area.

The emission rates (pounds of emissions per mile flown) used in modeling are aircraft engine- and fuel-specific. The results in Table 7 describe baseline emissions under existing conditions. A range is provided for carbon monoxide because reporting information provided by the commercial air tour operator was not detailed enough to be able to assign a specific number of operations to specific routes; thus, baseline emissions were modeled as all 101 flights on both the WR-S black route and the ER-N (original) red route to account for any possible combination of flights the operator may have flown throughout the year. Other criteria pollutants were less than 0.001 tons per year (TPY) regardless of route analyzed so a range is not provided. Emissions under alternatives can be compared to baseline emissions to indicate potential impacts on air quality within the ATMP planning area.

Table 7. Summary of Criteria Pollutant Annual Emissions in Tons per Year (TPY) Under the No Action Alternative.

Criteria Pollutant	Total Annual Emissions (TPY)
Carbon monoxide (CO)	0.205-0.499
Lead (Pb)	<0.001
Nitrogen dioxide (NO ₂)	<0.001
Particulate matter: aerodynamic diameter ≤ 2.5 μm (PM _{2.5})	<0.001
Particulate matter: aerodynamic diameter ≤ 10 μm (PM ₁₀)	<0.001
Sulfur dioxide (SO ₂)	<0.001

The range of total annual GHG emissions for all sources of commercial air tour aircraft emissions under the No Action Alternative is modeled to be 0.46-1.13 metric tons (MT) of CO₂. The No Action Alternative would not cause pollutant concentrations to exceed one or more of the NAAQS for any of the time periods analyzed. This analysis is based on the three-year average of flights between 2017-2019.

Alternative 2

Under Alternative 2, commercial air tours would not be conducted within the ATMP planning area which would eliminate direct emissions from air tours within the planning area and would not cause pollutant concentrations to exceed one or more of the NAAQS for any of the time periods analyzed. Therefore, Alternative 2 would result in direct beneficial effects on air quality compared to the No Action Alternative, due to lower commercial air tour emissions within the ATMP planning area. Direct emissions in the ATMP planning area would be expected to decrease by the amount reported in the No Action Alternative (Table 7) and would result in zero emissions from the elimination of commercial air tours within the ATMP planning area. The direct effects of this alternative would be the reduction of the emissions within the ATMP

planning area reflected in Table 7; however, emissions could still be generated from displaced air tours (refer to indirect effects analysis below).

Alternative 3

Under Alternative 3, commercial air tour aircraft would still fly within the ATMP planning area; however, tours would be restricted to just two routes (ER-S orange and ER-N red) flown at the operator's discretion with an annual air tour limit (from both routes combined) equal to the annual number of air tours in the No Action Alternative – 101 operations. Because there would be no route-specific air tour limits under Alternative 3, similar to the analysis for the No Action Alternative, both routes were modeled (i.e., all air tours on the ER-S orange route, and all air tours on the ER-N (revised) red route) to estimate the range of emissions changes. Modeling results for Alternative 3 show that there would be negligible change in annual TPY as compared to the No Action Alternative. Note that ozone is not reported as it is not directly emitted in aircraft exhaust. Similar to the No Action Alternative, these results are based on flight miles and routes for each aircraft type and the emission rates used in modeling are aircraft engine- and fuel-specific. The results in Table 8 show that emissions from air tours for all criteria pollutants would result in minimal to no benefit or impact.

Table 8. Summary of Change in Criterial Pollutant Annual Emissions in TPY Under Alternative 3 as Compared to the No Action Alternative.

Criteria Pollutant	Change in TPY as Compared to the No Action Alternative
Carbon monoxide (CO)	-0.228-0.130
Lead (Pb)	<±0.001
Nitrogen dioxide (NO ₂)	<±0.001
Particulate matter: aerodynamic diameter ≤ 2.5 µm (PM _{2.5})	<±0.001
Particulate matter: aerodynamic diameter ≤ 10 µm (PM ₁₀)	<±0.001
Sulfur dioxide (SO ₂)	<±0.001

The range of change in annual GHG emissions for the Alternative 3, as compared to the No Action Alternative, would be -0.53 to 0.28 MT CO₂. Alternative 3 would not cause pollutant concentrations to exceed one or more of the NAAQS for any of the time periods analyzed. Compared to the No Action Alternative, Alternative 3 would result in no or negligible benefit/impact to air quality within the ATMP planning area.

Indirect and Cumulative Effects

Indirect Effects: Under the No Action Alternative, commercial air tour operations within the ATMP planning area would remain consistent with existing conditions. Although operations could increase up to IOA no indirect impacts to air quality and GHG emissions would be expected to occur under this alternative.

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

Because Alternative 2 would prohibit air tours within the ATMP planning area and Alternative 3 would reduce the number of routes on which air tours may be conducted within the ATMP planning area, it is reasonably foreseeable that the operator could potentially generate revenue by offering air tours in unrestricted airspace outside of the ATMP planning area, as the areas outside this area would not be regulated by the ATMP. Some of this displaced activity could result in impacts to air quality although it is difficult to predict with specificity if, where, and to what extent any displaced air tours would result in impacts in different and/or new areas. The preciseness of routes and altitudes for tours flown on displaced routes are generally subject to VFR and may vary greatly.

Air tours occurring outside the ATMP planning area, if any, would not result in direct emissions-related effects within the ATMP planning area. However, prevailing winds may transport some of the emissions outside the ATMP planning area to within the ATMP planning area (i.e., indirect effects). Additionally, some areas that are not currently exposed to emissions from air tours (unrestricted airspace outside the ATMP planning area) may be exposed to emissions in these scenarios thus affecting the air quality in these areas.

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

Cumulative Effects: Because the No Action Alternative would not result in any new direct or indirect impacts compared to current conditions, there would be no cumulative effects from the No Action Alternative. Under any of the action alternatives, the NPS would continue work

related to the Climate Action Plan, and the NPS would continue to utilize equipment associated with Park maintenance and construction activities, and aircraft used for Park maintenance, firefighting, and emergency response (NPS, 2021). Alternatives 2 and 3 would likely result in no noticeable change to a slight improvement in overall air quality in the Park, with no change in the current NAAQS attainment status. Ongoing present and future Park management actions by the NPS would continue to occur under any of the alternatives.

3.3 Biological Resources

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

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

The Endangered Species Act (ESA) is the primary federal statute regulating federally listed threatened and endangered species and critical habitat. The U. S. Fish and Wildlife Service (USFWS) is the federal agency responsible for administration of the ESA, the Bald and Golden Eagle Protection Act, and the Migratory Bird Treaty Act (MBTA). NPS Management Policies (2006) direct the NPS to meet its obligations under the NPS Organic Act and the ESA to both proactively conserve listed species and prevent detrimental effects on these species (NPS Management Policies § 4.4.2.3, 2006).

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

3.3.1 Affected Environment

The Park is home to over 700 native plant species, 60 species of mammals, 170 species of birds, 27 species of reptiles, and a diverse community of insects that includes over 200 species of

butterfly (Cedarbaum, 2016). The biological resources analyzed in this section include both listed and non-listed wildlife most likely to be affected by the alternatives. As discussed in Section 1.5, Environmental Impact Categories Not Analyzed in Detail, it is unlikely that fish, amphibians, invertebrates, and plant species would be affected by air tours, therefore they are not considered for further analysis in this draft EA. See Figure 7 for a depiction of the affected environment for biological resources.

Birds

Bird community monitoring in the northwest region of the Park was conducted in 2012. Over 1,924 individuals across 46 species were observed in mixed conifer habitat, the most common of which were the yellow-rumped warbler (*Setophaga coronada*) and the warbling vireo (*Vireo gilvus*), which made up nearly 25% of all birds observed (Holmes and Johnson, 2014). Warblers, woodpeckers, flycatchers, and nuthatches were other common birds observed. This monitoring was the third year of sampling in mixed conifer habitat, which allowed researchers to observe bird abundances in the breeding seasons before and after the Las Conchas Fire in 2011. Of the 20 most commonly detected species, nine species had increased abundance, nine species' abundances decreased, and two species did not exhibit changes in relative abundance (Holmes and Johnson, 2014). Federally listed threatened and endangered birds known to occur in the Park include the yellow-billed cuckoo, Mexican spotted owl, and southwestern willow flycatcher, and are discussed below. Additionally, the broad-billed hummingbird, bald eagle, and peregrine falcon are state listed species whose presence has also been confirmed in the Park. The NPS's resource management goals for birds include increasing understanding of bird population dynamics, range, and distribution through bird banding and monitoring programs (NPS, 2020b).

Mammals

The Park was surveyed for small, terrestrial mammals in 2004, and bat surveys and monitoring are conducted periodically. The terrestrial mammal survey documented bats, insectivores, lagomorphs (e.g., hares, rabbits, pikas), rodents, and artiodactyls (e.g., sheep, goats, cattle, pigs) (Bogan et al., 2007). The federally endangered New Mexican meadow jumping mouse can be found in the Park and is discussed further below. The spotted bat is a state threatened species known to occur in the Park, along with many other species of bats. Mule deer (*Odocoileus hemionis*) and Abert's squirrels (*Sciurus aberti*) are among the most encountered mammals in the Park. Mammals are commonly observed along the Pueblo Loop Trail, Alamo Boundary, Cerro Grande Trail, and Ski Trails (NPS, 2022a).

Federally Listed Species

A list of threatened and endangered species that may occur within the ATMP planning area was obtained through the USFWS Information Planning and Consultation tool. As discussed in

Section 1.5, Environmental Impact Categories Not Analyzed in Detail, Biological Resources (Fish, Amphibians, Invertebrates and Plants), the agencies determined that air tours would not result in ground disturbances that have the potential to directly or indirectly impact fish species to include the endangered Rio Grande silvery minnow (*Hybognathus amarus*), the candidate fish species the Rio Grande cutthroat trout (*Oncorhynchus clarki virginalis*), the endangered amphibian the Jemez Mountains salamander (*Zapus hudsonius luteus*), or the candidate insect species the monarch butterfly (*Danaus plexippus*). Additionally, the endangered Mexican spotted wolf (*Canis lupus baileyi*) is not found in the Park, nor does the Park contain adequate habitat for this species, and therefore is not included in this draft EA discussion. For more information on these species, see the *Section 7 No Effect Memo* in Appendix H.

The federally protected species described below are known to occur within the ATMP planning area and could be potentially affected by the Proposed Action.

Mammals

New Mexico Meadow Jumping Mouse

The New Mexico meadow jumping mouse (*Zapus hudsonius luteus*) (jumping mouse) is a subspecies of the meadow jumping mouse that is listed as endangered under the ESA. It is dark yellow to brown in color with elongated feet and a long, bicolored tail. This subspecies lives in densely vegetated riparian areas from southern Colorado and central New Mexico to eastern Arizona. Suitable habitat for the jumping mouse includes tall sedges and forbs in wetland vegetation that has reached full growth potential associated with seasonally available, flowing water (USFWS, 2020). While the ATMP planning area does not contain designated critical habitat, it does contain suitable habitat for the New Mexico meadow jumping mouse in the canyon areas. The jumping mouse is active from late May to early October in high elevation areas and mid-May to late October in low elevation areas along the Rio Grande. They nest in dry soils and have been observed in the Park along the stream in the upper regions of Frijoles Canyon (Bogan et al., 2007). Surveys for this species began in 2022.

Birds

Mexican Spotted Owl

The Mexican spotted owl (*Strix occidentalis lucida*) (MSO) is listed as threatened under the ESA and is one of three subspecies of spotted owl and are distinguished by their chestnut brown color and white and brown spots. MSO hunt at night and are considered a “perch and pounce” predator that use elevated perches to locate prey by sight and sound. MSO are an indicator species for old growth habitat, as they consistently avoid managed forests (NPS, 2014). Most of the suitable habitat for MSO in the ATMP planning area is located in the Bandelier Wilderness. Nesting-roosting zones cover about 20% of the Park and have steep slopes (Jacobs et al., 2015).

Preferred habitat for breeding includes mixed-conifer forest habitat associated with relatively steep-walled canyons, and the Douglas fir (*Pseudotsuga menziesii*) is the most common tree used for nesting (NPS, 2014). Nesting pairs have been documented in the Upper Alamo Canyon and mid Frijoles Canyon, and surveys for this species within the Park are ongoing.

The entire Park is designated critical habitat for the MSO and there are protected activity centers (PACs) located within the Park. The PACs are areas that encompass a minimum of 600 acres surrounding known MSO nest and roost sites (see Figure 7).

Southwestern Willow Flycatcher

The southwestern willow flycatcher (*Empidonax traillii extimus*) (flycatcher) is one of four subspecies of willow flycatcher. Flycatchers are small insectivores that winter in Central America and southern Mexico. Habitat for this species includes riparian corridors with trees that have complex branching patterns that can support flycatcher nests (NPS, 2014). Although there is no active NPS survey of this species, flycatchers have been observed in the Park along the Rio Grande, one of the most populous breeding sites for this species (USFWS, 2013). There is no designated critical habitat for the flycatcher within the ATMP planning area.

Yellow-billed Cuckoo

The yellow-billed cuckoo (*Coccyzus americanus*) is a large insectivore whose yellow bill is almost as long as its head that is listed as threatened under ESA. Riparian habitat is important for the survival of this species, as yellow-billed cuckoos nest in riparian areas and use river corridors as travel routes during migration. Within the ATMP planning area, suitable habitat for this species is located in riparian areas along the Rio Grande. Three individuals have been documented in the Park, however after multiple surveys, no nesting pairs have been observed. There is no designated critical habitat located inside the ATMP planning area.

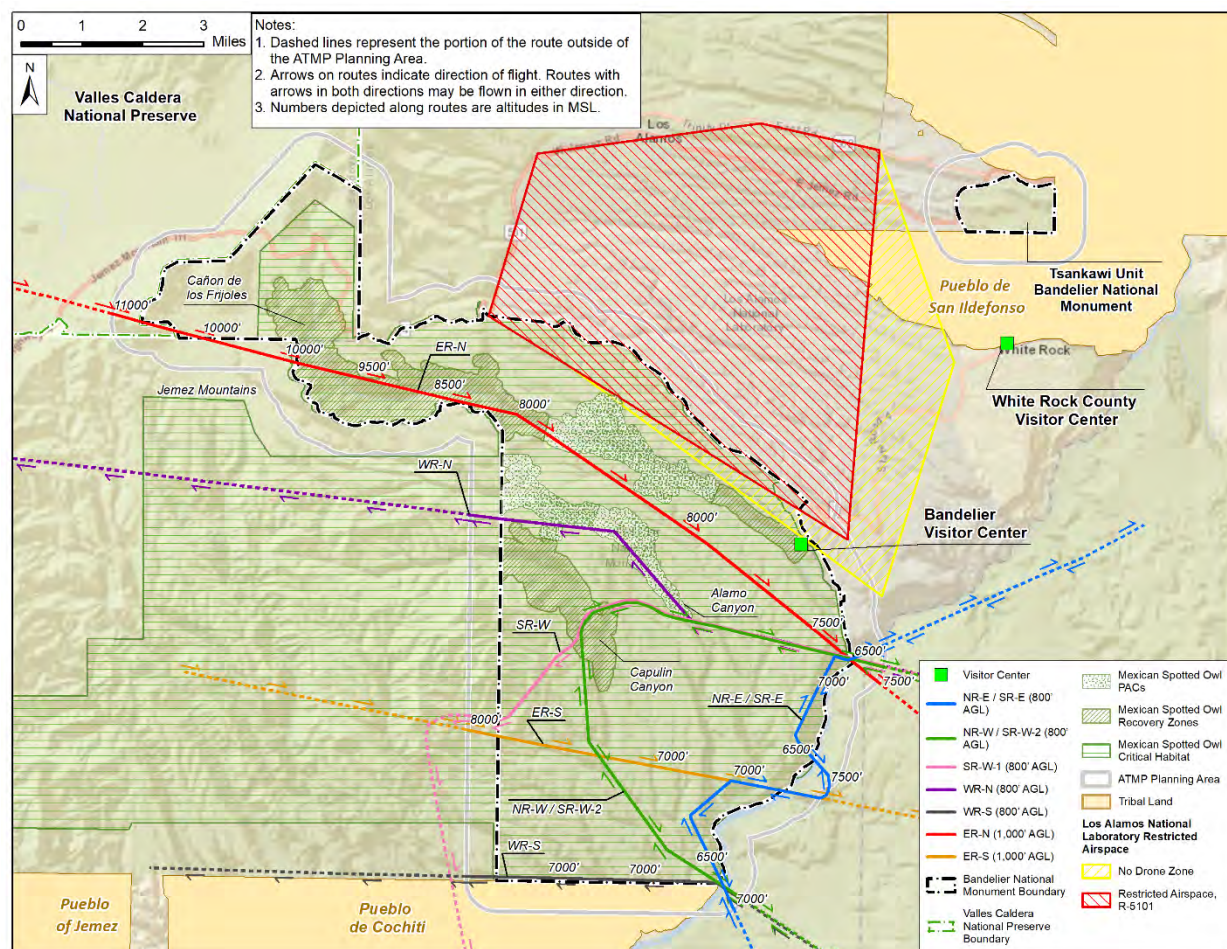


Figure 7. Affected Environment for Biological Resources.

3.3.2 Environmental Consequences

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

Alternative 1: No Action

Under the No Action Alternative, current effects to biological resources would continue as commercial air tours within the ATMP planning area would continue to fly at low altitudes

(ranging from 800 to 1,000 ft. AGL) and there would be no limit to the time-of-day flights commercial air tours could occur, although flights do not occur at night. Raptor species within the ATMP planning area, including MSO, bald eagles, and peregrine falcons, are especially sensitive to low flying aircraft. In consideration of the effects of aircraft on bald eagles, perched and incubating eagles rarely responded to fixed-wing aircraft at close approaches ranging from 50 to 150 meters from the nest (164 to 492 ft.) (Watson, 1993). While some studies show flushing impacts can occur from helicopters flown at lower altitudes (Stalmaster and Kaiser, 1997), these types of impacts are not expected as only fixed-wing aircraft are used in the No Action Alternative and noise impacts are lower for fixed-wing aircraft. Scientific and national level guidance recommends a minimum aircraft standoff of 1,000 ft. for bald eagles (USFWS, 2007) and 2,600 ft. for peregrine falcons to prevent both collisions as well as noise impacts (Colorado Parks and Wildlife, 2020). Because air tours occur between 800 and 1,000 ft. AGL under the No Action Alternative using fixed-wing aircraft, they do not meet the standoff distances for bald eagles or peregrine falcons.

The USFWS seasonal buffer zone recommendation for MSO is ½-mile from March 1 through August 31 to reduce potential impacts to MSO from disturbance including, but not limited to, fixed-wing overflights. The entire Park is considered critical habitat for MSO and PACs are also present in the Park. The No Action Alternative includes two routes (WR-N, and ER-N) that currently fly at altitudes ranging from 800 to 1,000 ft. AGL directly above two identified PACs in the Park. Existing air tours occurring between 800 and 1,000 ft. AGL under the No Action Alternative using fixed-wing aircraft do not currently fly in accordance with the ½-mile recommended buffer zone (above 2,640 ft. AGL) for MSO.

Noise from commercial air tours also has the potential to disturb the Park's wildlife and could result in changes in wildlife behavior such as vocal behavior, breeding relocation, avoiding an area, and changes in foraging behavior. The analysis in Section 3.1.2, Environmental Consequences for Noise and Noise-Compatible Land Use, shows that 39% of the ATMP planning area would experience noise above 35 dBA for less than five minutes on days when air tours occur (see the *Noise Technical Analysis*, Appendix F, Table 8). The maximum sound level identified in the noise modeling (i.e., the loudest sound level generated by the loudest event independent of the number of operations) would be 54.8 dBA. This sound level corresponds to that of noise level expected in a quiet urban daytime setting or the noise coming from a dishwasher in an adjacent room. These noise intrusions would be short in duration and the maximum sound level is relatively low.

In conclusion, on the days when air tours occur, the short-term noise impacts (noise above 35 dBA for less than five minutes) have the potential to cause temporary disturbances in the behavior of bird foraging, mating, or nesting. However, these noise impacts are so infrequent and short in duration, they are not anticipated to cause adverse effects to any of the federally

listed species, including southwestern willow flycatcher, yellow-billed cuckoo, MSO, New Mexican meadow jumping mouse, or any other wildlife species.

Alternative 2

Under Alternative 2, commercial air tour aircraft would not fly within the ATMP planning area, which would eliminate this source of noise from the ATMP planning area as well as low-flying aircraft that are not currently in compliance with recommended buffer zones for MSO, bald eagles, and peregrine falcons. Therefore, there would be a direct beneficial effect on biological resources since the intensity and likely presence of noise and aircraft from commercial air tours would be less than under the No Action Alternative. While the impacts described above under the No Action Alternative are minimal, they would be even less likely to occur or would not occur at all as a result of air tours since air tours would no longer be conducted within the ATMP planning area.

The FAA and the NPS are currently conducting analysis for those federally listed species described in Section 3.3.1, Affected Environment for Biological Resources, in accordance with 50 CFR Part 402.02. As of the time of this draft EA publication, the agencies believe the preferred alternative would have *no effect* on federally listed threatened or endangered species. See Appendix H, *Section 7 No Effect Memo* for additional analysis.

Alternative 3

As described in Section 2.6.2, Commercial Air Tour Routes and Altitudes, Alternative 3 would authorize air tours to be conducted on two flight paths as shown in Figure 8, avoiding some habitat areas for sensitive species. Furthermore, Alternative 3 would require air tours to be conducted at a minimum altitude of 10,000 ft. MSL, which would result in altitudes greater than 2,600 ft. AGL within the ATMP planning area. This represents an increase in altitude between 1,600 – 1,800 ft., depending on the location within the ATMP planning area, when compared to existing conditions. As a result of the specific flight paths and altitude requirements, the likelihood of impacts to biological resources that could alter wildlife behavior would be reduced compared to current conditions, as described in the No Action Alternative.

While several routes are currently flown directly over PACs below the suggested ½-mile recommended buffer for the MSO (Romin and Muck, 2002), a day on which the ER-S orange route is utilized for Alternative 3 would completely avoid flying over all PACs within the Park. While a portion of the ER-N red route for Alternative 3 is located over the southern part of the PAC located within the Alamo Canyon and crosses one of the MSO recovery zones, the altitudes required by Alternative 3 would meet the recommended buffer distance (½-mile).

To capture how noise may affect biological resources for Alternative 3, the resource impacts analysis examines the time that noise above 35 dBA would occur for both routes. For the purposes of the *Noise Technical Analysis* in Appendix F and Section 3.1.2, Environmental

Consequences for Noise and Noise-Compatible Land Use, an average day under Alternative 3 was modeled based on the average number of operations which may occur in a single day – one operation, using the aircraft and route combination most likely to be utilized under Alternative 3 – a Cessna 182 on the ER-S orange route. The Cessna 182 - ER-S orange route combination was chosen as the most logical representation of an average day of activity based on best available information for existing conditions, similar to the No Action Alternative, and can be used for comparison purposes. Based on this analysis for Alternative 3, on days when air tours occur where the operator uses the ER-S orange route (using a Cessna 182), there would be no noise above 35 dBA and therefore, no noise impacts would be expected to occur that would have the potential to alter wildlife behavior. As compared to existing conditions, Alternative 3 would result in less potential for noise impacts to biological resources when air tours are conducted using the ER-S orange route.

Additionally, noise modeling was performed for the Cessna 207 - ER-N red route combination, providing information regarding the potential noise effects of the second authorized aircraft and route. On days where air tours are conducted on the ER-N red route when the Cessna 207 is flown, no similar comparison is available for existing conditions (refer to Section 3.1.2, Environmental Consequences for Noise and Noise-Compatible Land Use). Based on the modeling results identified for the ER-N red route, noise above 35 dBA would occur for less than five minutes in most areas (53%) within the ATMP planning area.

Additionally, the time-of-day restrictions, which would allow the operator to conduct air tours beginning two hours after sunrise until two hours before sunset, may reduce the likelihood of impacts to nocturnal species. In the event that operators request and are authorized to use the quiet technology incentive, those tours would result in the possibility of noise during the sunrise/sunset time periods. The impacts from these flights would be less than the noise modeled in the *Noise Technical Analysis* (see Appendix F) but could be more than when there are no flights during this time of day.

In conclusion, while wildlife would continue to be exposed to noise, direct effects would not be widespread throughout the ATMP planning area. Any disturbances would likely be temporary in nature and infrequent on both a daily and annual basis. Noise from commercial air tours would be experienced only by those wildlife that are present under or near the designated routes, leaving most wildlife in the ATMP planning area unaffected. The level of noise exposure would be similar or decrease compared to current conditions because the number of authorized flights under the ATMP will be the same as the average number of flights from 2017-2019 but flown on fewer routes and greater altitudes.

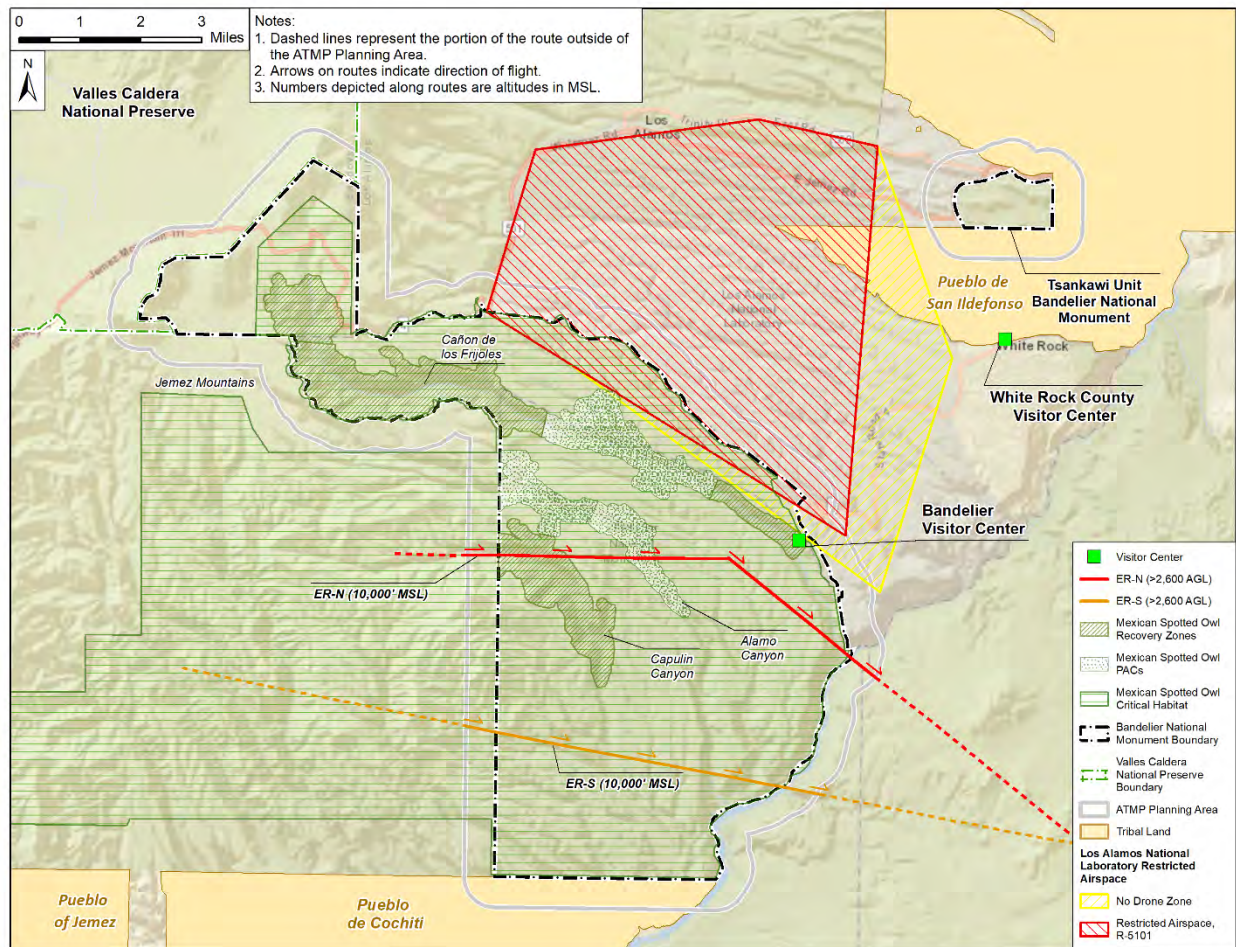


Figure 8. Biological Resources Environmental Consequences for Alternative 3.

Indirect and Cumulative Effects

Indirect Effects: Indirect effects to biological resources could occur as a result of noise caused by air tours flying outside of the ATMP planning area. Under the No Action Alternative, commercial air tour operations within the ATMP planning area would remain consistent with existing conditions, although air tour numbers could increase slightly (up to IOA), thus there would be no change to biological resources within the ATMP planning area and no indirect impacts would be expected to occur under this alternative.

As noted in Section 3.1.2, Indirect and Cumulative Effects for Noise and Noise-Compatible Land Use, indirect noise impacts would have the potential to occur under Alternatives 2 and 3 as these alternatives would limit the number of air tours per year and/or the number of routes on which those air tours would be authorized within the ATMP planning area as compared to existing conditions, so some air tour displacement could occur. In the ATMP planning area, this would have beneficial effects to biological resources compared to current conditions by

reducing the extent of noise-related disturbances described for the No Action Alternative. The operator may choose to fly along existing flight paths but at or above 5,000 ft. AGL; however, the increase in altitude would likely decrease impacts on ground level resources in the ATMP planning area as compared to existing conditions. Furthermore, this may be impractical due to the high elevation of the terrain because it would require the operator to fly above 10,000 ft. MSL. Supplemental oxygen use is required in unpressurized aircraft flying over 10,000 ft. MSL for more than 30 minutes (14 CFR Parts 135.89, 135.157); therefore, it is unlikely air tours would fly higher for extended periods of time.

The operator would be unlikely to continue to conduct air tours of the Park by flying along the perimeter of the ATMP planning area because it is difficult to see the predominant features of the Park from outside the ATMP planning area. The operator may fly along the perimeter of the ATMP planning area in order to conduct air tours of destinations other than the Park. Since the operator cannot fly on the north side of the Park because of restricted airspace, it is unlikely there would be new or different impacts in that area. The operator may expand the number of air tours offered over other sites in the area. The operator currently flies multiple tours over different parks and lands in New Mexico (Southwest Safaris, 2022) and could fly these tours more frequently. The majority of destinations and tours offered by the operator are to the west and northwest of the Park, and the airport used for most flights is located to the southeast of the Park. Due to the flight restrictions to the north and east of the Park, there may be a slight increase in flights to the west and south of the ATMP planning area if air tours were displaced outside of the ATMP planning area. These displaced flights would increase the noise-related disturbances to biological resources described in the No Action Alternative along other routes the operator may choose to use outside the ATMP planning area.

Alternative 2 prohibits flights within the ATMP planning area and would likely result in the greatest number of displaced air tours along other routes the operator might choose to use, followed by Alternative 3. Alternative 3 would authorize existing condition of air tours on an annual basis, but it limits the air tours to two routes in the ATMP planning area, in addition to other operating parameters as specified in Section 2.6, Alternative 3, and thus could result in some air tour displacement, though likely less than Alternative 2. In conclusion, any indirect effects to wildlife caused by dispersed air tours under any of the alternatives would not likely be widespread and would be temporary in nature and infrequent on both a daily and annual basis.

Cumulative Effects: Under all alternatives, the NPS would continue current management actions and respond to future needs and conditions for biological resources without major changes in the present course. Aircraft are used during the spring and early summer months each year to scout fire reports, suppress fires and respond to search and rescue incidents. The associated noise levels from these annual activities and resultant wildlife disturbance risks

within the ATMP planning area would likely continue at current levels. Mechanized equipment and ground teams would also generate noise during normal Park maintenance activities occurring on the ground.

In addition to current management and maintenance activities that cause changes in wildlife behaviors, the Park will begin a construction project in the summer of 2023 that will expand an existing parking lot at the Frey Trailhead within the developed area adjacent to Juniper Campground. In the spring of 2024, the Park will also begin construction for a utility replacement project that will rehabilitate and replace most underground utilities. The project area for utility replacement will include the mesa-top developed area (including NPS housing and Juniper Campground), the Entrance Road, and the main visitor use area in Frijoles Canyon. Both of these construction projects are expected to last up to one year and the resulting equipment and ground disturbing activities could result in both direct and indirect effects to wildlife.

Because the No Action Alternative would not result in any new direct or indirect impacts compared to current conditions, there would be no cumulative effects from the No Action Alternative. Alternative 2 could result in some cumulative beneficial effect on wildlife from not authorizing air tours within the ATMP planning area as this source of noise and resultant wildlife disturbances would be eliminated within the ATMP planning area. The same is true when the ER-S orange route is flown under Alternative 3. Due to the increased altitudes, noise from air tours would be reduced compared to current conditions, and the potential cumulative impacts to wildlife would also be reduced. Ongoing present and future Park management actions by the NPS would continue to occur under any of the alternatives and the impacts to wildlife resulting from planned construction activities would remain the same for all alternatives.

3.4 Cultural Resources

The National Historic Preservation Act (NHPA) (54 U.S.C. §§ 300101 et seq.) is comprehensive federal preservation legislation intended to protect cultural resources. Section 106 of the NHPA (54 U.S.C. § 306108), as implemented in 36 CFR Part 800, requires federal agencies to consider the effects of undertakings on historic properties, should any such properties exist. Historic property is defined in 54 U.S.C. § 300308 and 36 CFR Part 800.16(l)(1) as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register. This term includes artifacts, records, and remains that are related to and located within such properties. It also includes properties of traditional religious and cultural importance to an Indian tribe and those that meet the National Register criteria. The FAA's environmental impact category discussing Cultural Resources is titled as Historical, Architectural, Archeological and Cultural Resources in FAA Order 1050.1F. These categories include historic properties as well as any cultural resources identified that may not be eligible

for listing in the National Register including those otherwise protected as tribal resources or by local and state laws. Sacred sites, for example, are considered significant cultural resources and are also protected under the American Indian Religious Freedom Act. The methodology in Appendix E, *Environmental Impact Analysis Methodology*, as well as the Section 106 documentation in Appendix G, *Cultural Resources Consultation and Summary*, further describe the identification and treatment of cultural resources for the project.

In addition to Section 106 of the NHPA, the NPS's Organic Act and Section 110 of the NHPA apply to and provide for the preservation of historic, ethnographic, and cultural resources on parkland. NPS policies and directives also apply to park cultural and ethnographic resources and provide direction for their management including the NPS Management Policies (2006), Chapter 5, Director's Order 28: Cultural Resource Management, and EO 13007 which provide direction regarding Indian Sacred Sites, and NPS Policy Memorandum 22-03 which sets forth guidance on how the NPS will implement Secretary's Order No. 3403, Joint Secretarial Order on Fulfilling the Trust Responsibility to Indian Tribes in the Stewardship of Federal Lands and Waters. NPS Management Policies (2006) § 5.3.1.7, Cultural Soundscape Management, acknowledges that culturally appropriate sounds are important elements of the national park experience in many parks, and that the NPS will preserve soundscape resources and values of the parks to the greatest extent possible to protect opportunities for appropriate transmission of cultural and historic sounds that are fundamental components of the purposes and values for which the parks were established. NPS Management Policies identify and define five types of cultural resources for consideration in NEPA evaluation: Archeological Resources, Cultural Landscapes, Ethnographic Resources, Historic and Prehistoric Structures, and Museum Collections. These resource types correlate generally with the FAA categories as described further below. Museum Collections is dismissed from consideration due to the nature of the project.

Section 106 consultation with the New Mexico State Historic Preservation Office (SHPO) was initiated via formal letter dated March 29, 2021. On April 28, 2021, May 4, 2021, and May 6, 2021, the agencies held initial Section 106 consultation webinars to provide basic background information on ATMPs and the ATMP development process. The agencies identified consulting parties that may have an interest in the undertaking and its effects on historic properties. The agencies initiated consultation with consulting parties in five phases in order to include additional parties that were identified as the process moved forward (see Appendix G, *Cultural Resources Consultation and Summary*, for correspondence and a list of consulting parties). These letters were dated March 26, 2021, April 15, 2021, May 6, 2021, June 1, 2021, and July 30, 2021.

The NEPA study area for cultural resources corresponds with the Area of Potential Effects (APE) identified as part of the Section 106 process and encompasses the potential effects of all

alternatives under consideration. An APE as defined at 36 CFR Part 800.16(d) is the geographic area or areas within which the undertaking may directly or indirectly cause alterations in the character or use of any historic properties, if any such properties exist. The proposed undertaking does not require land acquisition, construction, or ground disturbance, and the agencies anticipate no physical effects to historic properties. The APE therefore includes areas where any historic property present could be affected by the potential introduction of visual or audible elements that could diminish the integrity of any identified significant historic properties. The APE has been defined to include the Park and areas outside the Park but within ½-mile of its boundary, including Pueblo tribal lands, but excluding the Tsankawi Unit of the Park and areas within ½-mile of its boundary which are currently not overflowed by commercial air tours. Refer to Figure 9 for a depiction of the APE.

When the Park was reserved from the public domain in 1916 pursuant to the Antiquities Act of 1906, it was described in the proclamation by President Wilson as featuring “certain prehistoric aboriginal ruins...of unusual, ethnologic, scientific, and educational interest...”¹³ It is from these features that the Park’s significance as a national monument is rooted. Six main statements of significance for the Park were identified in the Park’s Foundation Document (NPS, 2015). “Cultural Connections” is one of these six statements. The Park’s Foundation Document explains that “Archeological sites and natural features of Bandelier National Monument remain an integral component of pueblo culture and provide a context for continuing traditional practices” and further goes on to state that the Park “plays an important role for the traditionally associated pueblos, providing a direct cultural connection to resources, stories, and oral histories.”

“Continuing Cultural Connections” is also identified as a fundamental resource and value for the operation of the Park in its Foundation Document (NPS, 2015), which explains that “Affiliated pueblo Indian groups still have strong traditional associations and ties to Bandelier National Monument’s landscape. Their cultures, lifestyles, religious beliefs, and traditions continue to be shaped by their ties to the natural and cultural resources of the monument.”

The Park’s Foundation Document (NPS, 2015) makes very clear that the Park has identified cultural landscapes associated with tribal partners as a significant cultural resource that should be protected from any diminishment. National Park Service Director’s Order 28: Cultural Resource Management Guideline (1998) provides the guidance for ensuring that these significant sites are not diminished. In particular, NPS Director’s Order 28 provides the following direction:

When used by their associated ethnic groups, these types of resources help underpin entire cultural systems. Resource management sensitive to the rights and interests of

¹³ Proclamation No. 1322, Bandelier National Monument, N. Mex., 39 Stat. 1764 (Feb. 11, 1916).

these groups, especially Native Americans, can help perpetuate if not strengthen traditional activities such as subsistence, language use, religious practice, and aesthetic expression. In this context, cultural resource management extends beyond concern with tangible resources to recognition and accommodation of cultural processes.

NPS Policy Memorandum 22-03 sets forth guidance on how the NPS will implement Secretary's Order No. 3403, Joint Secretarial Order on Fulfilling the Trust Responsibility to Indian Tribes in the Stewardship of Federal Lands and Waters. This policy states that the NPS will give due consideration to tribal recommendations and Indigenous knowledge in the planning and management of Federal lands and waters. Per Executive Order 13007, the NPS will, to the greatest extent practicable, accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and avoid adversely affecting the physical and spiritual integrity of such sacred sites; collaborate with Indian and other traditionally associated peoples who have identified sacred sites within units of the National Park System to prepare mutually agreeable strategies for providing access; and enhance the likelihood of privacy during religious ceremonies.

Several tribes have reiterated the importance of their continuing cultural connections to the Park during consultation. The agencies consulted with the New Mexico SHPO, tribes, the operator, and other consulting parties prior to finalizing the APE. The agencies sent a letter dated August 27, 2021, to the New Mexico SHPO, tribes, and consulting parties defining the undertaking, proposing an APE, providing a preliminary identification of historic properties, and asking for input on identifying additional historic properties. Tribal consultation meetings were held under EO 13175 (*Consultation and Coordination with Indian Tribal Governments*, dated November 9, 2000) and Section 106 with Pueblo of Santa Clara on November 22, 2021, with Pueblo de San Ildefonso on March 9, 2022, with Pueblo of Pojoaque on April 11, 2022, and with Pueblo de Cochiti on June 27, 2022.

3.4.1 Affected Environment

The affected environment includes prehistoric or historic districts, sites, buildings, structures, and/or objects, as well as TCPs (inclusive of ethnographic resources and sacred sites) and cultural landscapes that have been previously documented in the APE or identified through consultation. Under existing conditions, based on operator-reported routes, the heaviest concentrations of commercial air tours fly over the southern portion of the Bandelier Civilian Conservation Corps (CCC) National Historic Landmark, as well as the Bandelier National Monument Traditional Cultural Properties (see Figure 9).

Throughout the Section 106 process, the agencies requested consulting parties' input to help identify historic properties within the APE. The agencies provided an initial historic property identification list to consulting parties in an August 2021 letter requesting further input on the

identification of historic properties within the proposed APE. A letter dated January 26, 2023, was sent to the New Mexico SHPO, tribes, and consulting parties with an updated historic property list. Consulting parties provided comments during meetings as well as written comments regarding the identification of historic properties, which the agencies took into consideration. A final historic properties list was provided in the April 20, 2023 finding of effects letter.

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

Ethnographic resources are resources that are associated with the customs, habits, or behaviors of a cultural group, including those that possess religious and cultural significance. A sacred site, as defined in Executive Order 13007, is any specific location that is identified to be an appropriately authoritative representative of an indigenous religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an indigenous religion. A TCP is a property significant due to its association with past and continuous cultural practices or beliefs of a living community that are rooted in that community's history and are important in maintaining the continuing cultural identity of the community. TCPs possess traditional cultural significance derived from the role the property plays in a community's historically rooted beliefs, customs and practices (NPS, 1992). TCPs are treated as historic properties for the purpose of evaluating impacts under Section 106 and NEPA (FAA, 2020).

Several tribes communicated the cultural importance of the entire Park as a cultural landscape as well as undocumented resources that are associated with traditional and ceremonial practices. Therefore, the agencies are treating the entire Park as a TCP, and acknowledge that there are hundreds, if not thousands, of TCPs within the APE that are not individually identified in this analysis and are referred to collectively as the Bandelier National Monument Traditional Cultural Properties. During consultation, the tribes voiced the importance of preservation, maintaining traditions, and cultural identity throughout the Park. Tribes have occupied and stewarded areas of the natural and cultural landscape prior to colonization and before the Park was established, including areas encompassed by the Park. Tribes maintain a cultural connection with the landscape through story, song, prayer, ceremony, and pilgrimage such that the landscape is in continuous use by multiple tribes. Many tribal members consider the Park to lie within the ancestral domain of their tribe and believe that the landscape is tied to the spiritual presence of their ancestors. Shrines and sacred sites are located throughout the Park. Many shrines and sacred sites within the Park have expansive views of the Park's landscape as well as views of archeological sites that contribute to the Park's history.

Through consultation, the agencies have heard from several tribes that they consider the natural resources within the APE to be cultural resources, with particular emphasis on plants, animals, and the sky. The preservation of natural resources and the natural setting of the Park

are important to maintaining the integrity of ethnographic resources, including TCPs. Many of these natural resources are contributing features to the cultural resources detailed throughout this draft EA.

Archeological Resources

Archeological resources are the physical evidence of past human activity, including evidence of the effects of that activity on the environment. The Park was surveyed for archeological resources several times throughout the early to late-1900s. Archeological features and sites within the APE include pueblo structures, tools, and artifact scatters, among others. These resources encompass a range of sites from Paleoindian times (approximately 12,000 years ago) to the post-World War II era.

Archeological resources include artifacts and features that are located in a concentrated area, otherwise known as sites, as well as isolated occurrences of cultural material located outside of site boundaries. Artifact scatters located at archeological sites can represent locations where stone tools were manufactured, places where historic visitors camped, individual feature remains, and Ancestral Puebloan villages.

The Bandelier National Monument Archeological and Historic District contains 2,974 contributing archeological sites which are evenly distributed throughout the Park and are listed on the National Register. Many of the archeological sites in the Park are in good condition and retain a high level of integrity, but there are a series of natural and cultural disturbances that have affected them. The pre-Hispanic sites are associated with habitation of the area by Ancestral Pueblo peoples. The area saw limited occupation in historic times by historic pueblo groups, nomadic Athabascan groups, Hispanos, and Euro-Americans. NPS does not disclose the exact locations of sensitive resources.

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

A cultural landscape reflects human adaptation and use of natural resources and is often expressed in the way land is organized and divided. Cultural landscapes are geographic areas associated with specific cultures or historical events, and they help illustrate how humans have adapted to and altered their surroundings. The NPS recognizes four cultural landscape categories: historic designed landscapes, historic vernacular landscapes, historic sites, and ethnographic landscapes.

The Park contains cultural landscapes that are architecturally and historically significant. Key contributing elements important for the preservation of cultural landscapes include dramatic dissected topography of canyons and mesas, 360-degree views of the Pajarito Plateau, the Jemez Mountains, the Rio Grande Valley, native vegetation, masonry pueblos, cavates (human-

made caves), petroglyphs, and other rock features, and the sense of timelessness in the area, among others (NPS, 2014a).

The Bandelier CCC National Historic Landmark District and cultural landscape (NHL) is listed on the National Register and is associated with the CCC's contribution to national parks between 1933 and 1942 as well as the New Deal Era of construction and the NPS Rustic style. This historic landmark contains the largest intact group of CCC structures in the national park system that has not been altered by the addition of new structures (NPS, 2020b). The NHL contains 31 buildings of Pueblo Revival design that serve as office space, employee housing, courtyards, and roadways, among others, that embody the distinct NPS Rustic style and the craftsmanship of the CCC (NPS, 2015b). As a result of the application of rustic design principles, the cultural landscape today blends with its natural setting and conveys a strong sense of place. The rustic Pueblo Revival architecture, natural canyon setting, experience of archeological sites, and the riparian corridor all contribute to the unique feeling that the district conveys.

The Park's staff and public-use village on Frijoles Mesa is a Mission 66 Historic District comprised of a Park employee housing area (four buildings) and the Juniper Family Campground and associated roads and interpretive service structures. The Mission 66 Historic District is significant for its association with the unique Frijoles Mesa land swap between the NPS and the Atomic Energy Commission, through a 1961 executive order. The Mission 66 designers carefully sited the Bandelier Mission 66 Village for minimum disturbance of natural Frijoles Mesa vegetation, resulting in desirable privacy for campsites, and screening of the amphitheater and the residential area from campers and automobiles.

The Bandelier National Monument Archeological and Historic District encompasses the entire Park and is significant for its association with the history of the Pajarito Plateau. Notably, use in the Pajarito Plateau includes Archaic use, Ancestral Pueblo occupation, early historic use, early scientific investigations, the development of archeology, early Native Arts revival efforts, land management, and the CCC era (NPS, 2014a). The Bandelier National Monument Archeological and Historic District contains 32 contributing buildings, 90 contributing structures, and 2,974 contributing archeological sites.

Other cultural landscapes that are part of listed or eligible cultural resources within the APE include the Ancestral landscape and Frijoles Canyon. The Ancestral landscape consists of the entirety of Ancestral Pueblo resources, including those located in Frijoles Canyon, that receive the most visitation. The Frijoles Canyon landscape covers the history of human occupation within Frijoles Canyon.

Cultural Resources List

There are four identified cultural resources within the APE, listed in Table 9 and depicted in Figure 9. Descriptions of each can be found in Appendix G, *Cultural Resources Consultation and Summary*.

Table 9. National Register Listed, Eligible, and Potentially Eligible Properties within the APE and Section 4(f) Resources.

Property Name	Property Type (cultural landscape, district, site, structure, TCP)	Eligibility Status
Bandelier CCC National Historic Landmark District	National Historic Landmark and Historic District	Listed
Bandelier National Monument Archeological and Historic District	Historic District	Listed
Mission 66 Historic District	Historic District	Eligible
Bandelier National Monument Traditional Cultural Properties	TCPs	Eligible

Sources: NPS Cultural Resource Managers, New Mexico State Historic Preservation Office staff, tribes.

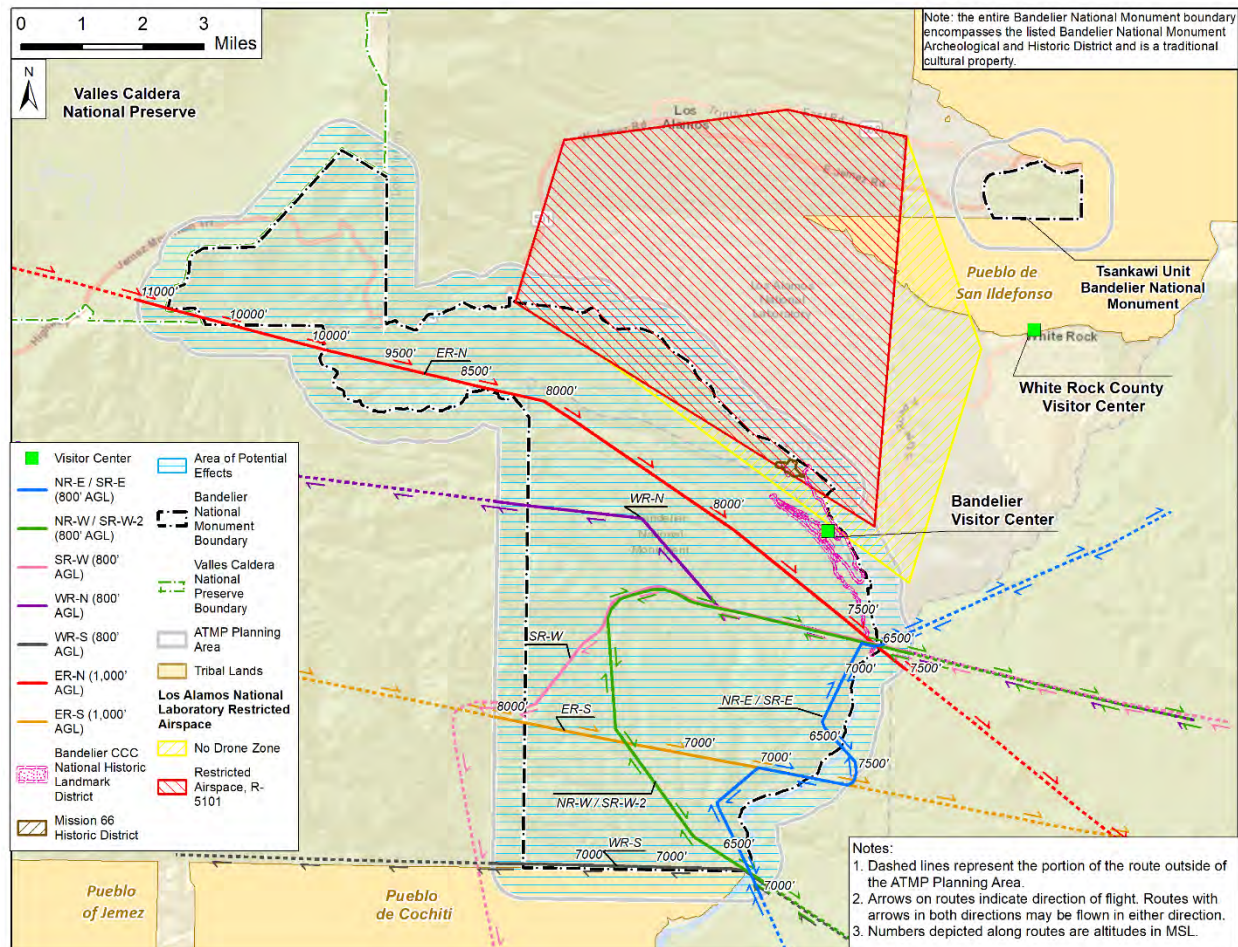


Figure 9. Affected Environment for Cultural Resources.

3.4.2 Environmental Consequences

Cultural resources within the APE include historic, architectural, archeological and cultural resources, inclusive of ethnographic resources, TCPs, sacred sites, cultural landscapes, historic districts, and prehistoric and historic buildings and structures. Adverse impacts to these resources would occur if the alternative would alter the characteristics that contribute to the significance of a cultural resource in a manner that diminishes the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association. Commercial air tours, by their nature, have the potential to impact resources for which feeling and setting are contributing elements.

For all alternatives, the proposed action would not limit access to tribal sacred sites on federal lands. Sacred ceremonies or other tribal activities which occur without notice to the NPS may be interrupted by noise or the visual presence of air tours, however, commercial air tours have

no effect on tribal access. Additionally, the proposed action would not involve any ground disturbance or other activities that would adversely affect the physical integrity of sacred sites.

The agencies requested and received consulting party input on the potential effects of the alternatives on historic properties throughout the Section 106 process, including at the November 22, 2021, March 9, 2022, April 11, 2022, and June 27, 2022, Section 106 tribal meetings. Consulting parties provided comments during the meetings, and the agencies took into consideration the input from the consulting parties in evaluating the effects of the preferred alternative on historic properties.

Alternative 1: No Action

Under the No Action Alternative, cultural resources within the APE would continue to be impacted by air tours, as noise and visual effects would impact the feeling and setting of those resources. Air tours would also continue to impart an invasion of privacy on tribal users of the Park which would be inconsistent with the Park's purpose and values as described below.

Under the No Action Alternative, some noise and visual effects from commercial air tours would continue to be present in the APE which could impact the feeling and setting of cultural resources. Reporting data from 2017-2019 indicates that air tours fly over the APE approximately 101 times per year and on days when air tours occur, an average of one tour is flown, creating some potential for audible and visual intrusions of the TCPs, tribal ceremonies, and cultural practices. Based on the *Noise Technical Analysis* (see Appendix F, Section 6), which uses an average of one flight per day (based on a peak month, average day of commercial air tour activity for the three-year average from 2017-2019), air tour noise above 35 dBA occurs for less than five minutes across the APE. At the modeled location points, air tour noise above 35 dBA would occur for less than one minute a day. For example, the time above 35 dBA under the No Action Alternative would be 0 minutes at the Visitor Center (location point #2), which is near the NHL and the Mission 66 District. The 12-hour equivalent sound level at this location is 0 dBA. Across the modeled location points, the highest 12-hour equivalent sound level would be 19.3 dBA at the Rio Grande (location point #11), which is south of the NHL and the Mission 66 District. While some noise and visual intrusions would continue to be present which could have the potential to interrupt tribal cultural practices, ceremonies, and connections to pueblos, those intrusions would be infrequent and limited to a few minutes per day and 101 instances per year.

Noise and visual effects from air tours within the APE could also impact the Park's historical, architectural, and archeological resources, including cultural landscapes and historic structures, when air tour noise detracts from the feeling and setting of those resources. Under existing conditions, the cultural resource that experiences the most air tours flying directly over or near

it is the Archeological District (refer to Figure 9). The Visitor Center, which is located near the NHL and the Mission 66 District, would experience a maximum sound level of 36.4 dBA. Other cultural resources in the APE that are located throughout other areas of the Park could continue to have their feeling and/or setting impacted by the noise and visual intrusions of air tours under the No Action Alternative. Collectively, this analysis of impacts to cultural resources based on the three-year average number of air tours flown from 2017-2019 represents the impacts of the No Action Alternative, (see Section 2.4.1, Commercial Air Tours per Year). In summary, the noise associated with existing commercial air tours over the Park is minimal, as the noise is short in duration and maximum sound levels are low, which would result in infrequent detractions from the feeling and setting of the Park's historical, architectural, and archeological resources, including cultural landscapes and historic structures that are located closest to the existing air tour routes. These effects would continue to occur under the No Action Alternative.

As described in Section 2.2.1, Air Tours above Existing Levels, the presence of existing low-altitude overflights over the Park, including commercial air tours, unreasonably interferes with tribal connections to the sacred landscape of the Park primarily due to tribal concerns about privacy. Air tours over the Park interfere with the privacy of the pueblo people as they carry out ceremonies and sacred practices, the protection of which is a primary purpose of the Park. Tribal dances are religious ceremonies which may be practiced on tribal land or in the Park are not public performances. It is a privilege to witness a ceremony. Silence is mandatory during all dances and pueblo ceremonies. Commercial air tours may interrupt these cultural and religious practices with noise, but primarily interrupt these practices by their physical presence and invasion of privacy which denigrates the sacred space that the Park protects. Like any village, the pueblos are home to those who live there and should be respected as such. Pueblo villages, including kivas, ceremonial rooms, and cemeteries, are sacred places and restricted for use by pueblo members only. Air tour patrons' observations of pueblo people carrying out traditional uses and ceremonies in these sacred lands intrudes on the cultural practices the Park is required to protect.

Tribes have stated that overflights, including commercial air tours, are disruptive and limit their ability to engage freely in religious and cultural activities in the Park. Tribes have stated that disclosing the time and location of their sacred practices would violate their privacy. Tribes consider the entire landscape of the Pajarito Plateau to be sacred and believe air tours are inappropriate and constitute an adverse effect to the cultural landscape, wildlife, and plants. Tribes stated that overflights, including commercial air tours, have disturbed gatherings and traditional religious practices at sacred sites, impacted viewsheds to sacred peaks, are inappropriate to the sacred landscape, and disrupt the tranquility of accessing the lands for reflection or cultural purposes. Tribes and tribal members have emphasized that overflights,

including commercial air tours, have negative impacts on the cultural heritage of pueblos, dances, traditional events, and hunting, among other events and activities.

Air tours over the Park and their encroachment on tribal privacy, religious, and cultural activities interrupt and diminish both the tangible and intangible associations tribes experience during use of their traditional cultural properties, the protection of which is a significant Park purpose. Because continuing cultural connections to the Park is a fundamental resource value of the Park and is significant to the Park's purpose, air tours and their resultant interference with tribal connections to the land under the No Action Alternative would be inconsistent with the Park's purpose and values for which it was established.

Alternative 2

Under Alternative 2, commercial air tours would not be conducted within the ATMP planning area. The elimination of commercial air tours from the ATMP planning area would reduce the noise and visual intrusions of air tours from impacting the feeling and setting of cultural resources within the APE and would result in direct beneficial impacts to cultural resources, including ethnographic resources and sacred sites, TCPs, archeological resources, cultural landscapes, historic districts, and prehistoric and historic buildings and structures compared to existing conditions. Alternative 2 would be most consistent with the Park's purpose and values for which it was established, as the elimination of air tours within the APE would improve privacy conditions for the tribes during traditional uses and ceremonies in the Park.

The agencies continued consultation under Section 106 with an evaluation of the effects of Alternative 2, as the preferred alternative, on historic properties. A letter was sent on April 20, 2023, to the New Mexico SHPO and all consulting parties outlining the Section 106 process, including a description of the undertaking, delineation and justification of the APE, identification of historic properties and an evaluation and proposed finding of effects. Based on this consultation, the FAA proposes a finding that the ATMP will not adversely affect historic properties. See Appendix G, *Cultural Resources Consultation and Summary*, for more information.

Alternative 3

The two flight routes under Alternative 3 would avoid some of the Park's sacred sites, ethnographic resources, and cultural landscapes and historic districts. The resultant noise and visual effects of Alternative 3 and their effect on the feeling and setting of cultural resources within the APE would be similar or experience a slight improvement compared to current conditions. However, air tours would continue to disturb religious ceremonies and privacy of tribes while within the Park which would be inconsistent with the Park's purpose and values.

The modified ER-S orange route for Alternative 3 would overall reduce noise and visual impacts that could detract from the feeling and setting of cultural resources within the APE. For the

purposes of the *Noise Technical Analysis* in Appendix F and Section 3.1.2, Environmental Consequences for Noise and Noise-Compatible Land Use, an average day under Alternative 3 was modeled based on the average number of operations which may occur in a single day – one operation, using the aircraft and route combination that may be utilized under Alternative 3 – a Cessna 182 on the ER-S orange route. The Cessna 182 ER-S orange route combination was chosen as a representation of an average day of activity based on best available information for existing conditions, similar to the No Action Alternative and can be used for comparison purposes. Under the ER-S orange route for Alternative 3, the *Noise Technical Analysis* (Appendix F, Table 7) indicates that on days when air tours occur, noise in the APE would not exceed 35 dBA. Compared to the No Action Alternative, the time above 35 dBA would be reduced by up to five minutes a day across the APE. Portions of the APE along the flight path of the ER-S orange route would experience 12-hour equivalent sound levels less than 3 dBA (see the *Noise Technical Analysis*, Appendix F, Table 7). Commercial air tours would not be conducted over the NHL or the Mission 66 District. The maximum sound level for Alternative 3 on days where the ER-S orange route is flown would not reach 30 dBA at the modeled location points (see the *Noise Technical Analysis*, Appendix F, Table 7). Compared to the No Action Alternative, the sound levels for the Alternative 3 ER-S orange route are, on average, lower.

On days where air tours are conducted on the ER-N red route and the Cessna 207 is flown, no similar comparison is available to existing conditions. As discussed in Section 3.1.2, Environmental Consequences for Noise and Noise-Compatible Land Use, the ER-N red route in Alternative 3 was modeled using the ER-N red route combination, providing information regarding the potential noise effects of the second authorized aircraft. Based on this analysis for Alternative 3, on days when air tours occur where the operator uses the ER-N red route, noise would exceed 35 dBA for up to five minutes a day (see the *Noise Technical Analysis*, Appendix F, Figure 5). Based on the modeled location points, noise above 35 dBA would not exceed 2.5 minutes a day (see the *Noise Technical Analysis*, Appendix F, Table 6). Locations along the flight path of the ER-N red route for Alternative 3 would experience 12-hour equivalent sound levels up to 25.2 dBA. Commercial air tours would be conducted close to the southern portion of the NHL and TCPs. The maximum sound level for Alternative 3 on the ER-N red route would remain under 60 dBA at the modeled location points.

Alternative 3 would not introduce new audible elements into the APE because air tours are currently occurring in this area. Alternative 3 would limit the routes that the operator could utilize to conduct commercial air tours, which would avoid some noise sensitive cultural resources of the Park. The time-of-day restrictions, quiet technology incentives, no-fly periods, and reductions in the number of routes could reduce some noise or visual effects from air tours. However, Alternative 3 still remains similar to current conditions and would not eliminate all the impacts to tribal privacy and cultural connections for which the Park was established because the alternative does not eliminate air tours from the ATMP planning area.

In summary, the noise and visual effects associated with commercial air tours over the Park would be minimal under Alternative 3, as the noise would be short in duration and maximum sound levels are low, which would result in infrequent detractions from the feeling and setting of the Park's historical, architectural, and archeological resources, including cultural landscapes and historic structures. These effects under Alternative 3 would be similar to or result in a slight improvement compared to current conditions.

Similar to the No Action Alternative, air tours over the Park under Alternative 3 and their encroachment on tribal privacy, religious, and cultural activities would interrupt and diminish both the tangible and intangible associations tribal partners experience during use of their traditional cultural properties, the protection of which is a significant Park purpose. Because continuing cultural connections is a fundamental resource value of the Park and is significant to the Park's purpose, air tours and their resultant interference with tribal connections to the land under the No Action Alternative would be inconsistent with the Park's purpose and values for which it was established.

While Alternative 3 would authorize air tours to be conducted on fewer routes over the APE than the No Action Alternative, because National Register listed or eligible tribal sacred sites, cultural landscapes, and ancestral sites occur throughout the Park, which is considered a traditional cultural property in its entirety, Alternative 3 is unable to reduce impacts to tribes, tribal resources, and tribal privacy by routing air tours to avoid sensitive locations because sensitive locations are densely distributed throughout the Park. Since the locations, timing, and identification of participants involved in traditional use of sacred sites is sensitive and culturally guarded information, pre-emptively disclosing information to reduce air tour effects is not possible, so provisions in the ATMP such as time-of-day restrictions or no-fly periods would be unlikely to be effective in avoiding all impacts to these resources. For these reasons, air tours authorized over the Park under Alternative 3 would be inconsistent with the Park's purpose and values including perpetuating traditional pueblo cultural connections to the Park's landscapes.

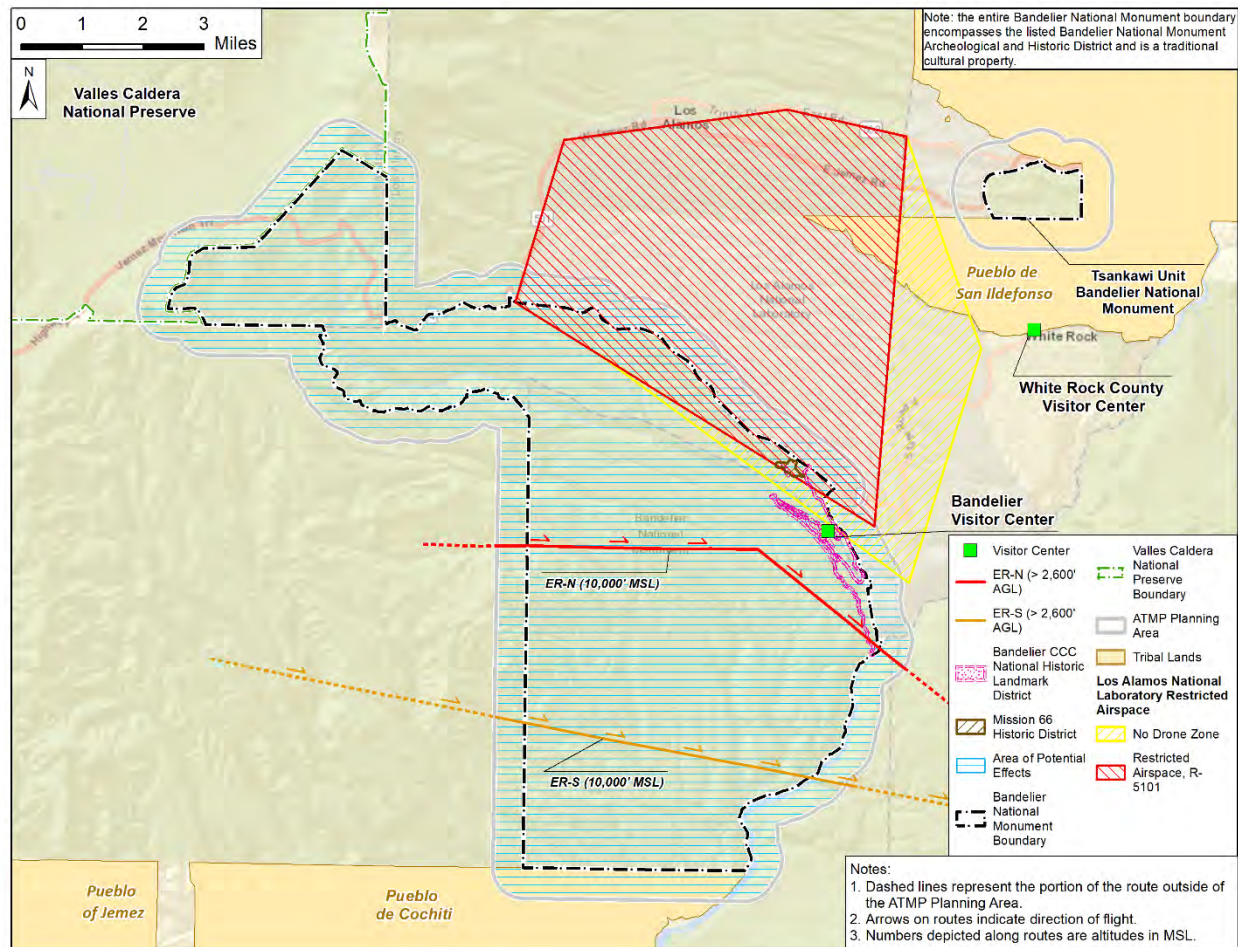


Figure 10. Cultural Resources Environmental Consequences for Alternative 3.

Indirect and Cumulative Effects

Indirect Effects: Indirect effects to cultural resources could occur as a result of noise and visual impacts caused by air tours flying outside of the ATMP planning area. Indirect effects to tribal privacy, religious, and cultural activities that are fundamental to the Park's purpose and values could occur from air tours displaced to outside the ATMP planning area to the extent that those effects were experienced by tribal users of the Park.

Under the No Action Alternative, commercial air tour operations within the APE would remain consistent with existing conditions, although air tour numbers could increase slightly up to IOA, thus there would be no change to cultural resources within the APE and no indirect impacts would be expected to occur under this alternative. As noted in Section 3.1.2, Environmental Consequences for Noise and Noise-Compatible Land Use, indirect noise impacts would have the potential to occur under Alternatives 2 and 3 as these alternatives could result in the displacement of air tours outside the ATMP planning area.

Alternative 2 would prohibit commercial air tours within the ATMP planning area and Alternative 3 would limit the number of commercial air tour routes compared to existing conditions, which would therefore have the potential to result in some displacement of air tours outside of the ATMP planning area. Air tours occurring outside of the ATMP planning area may result in noise that could affect cultural resources. Air tour operators could conduct operations along existing flight paths at or above 5,000 ft. AGL. However, this may be impractical due to the high elevation of the terrain because it would require the operator to fly above 10,000 ft. MSL. Supplemental oxygen use is required in unpressurized aircraft flying over 10,000 ft. MSL for more than 30 minutes (14 CFR Parts 135.89, 135.157); therefore, it is unlikely air tours would fly higher for extended periods of time. For air tours conducted at or above 5,000 ft. AGL, the increase in altitude would likely decrease impacts on ground level resources as compared to current conditions because the noise would be spread over a larger geographical area. Noise from air tours conducted at or above 5,000 ft. AGL would be audible for a longer period, but at lower intensity. Similarly, aircraft are transitory elements in a scene and visual impacts tend to be relatively short, especially at higher altitudes. Some of these air tours could still encroach upon tribal privacy, religious, and cultural activities that are fundamental to the Park's purpose and values, but these impacts would be less likely to occur when air tours were flown at higher altitudes.

It is unlikely that the operator would continue to conduct commercial air tours of the Park by flying along the perimeter of the ATMP planning area because it is difficult to see the predominant features of the Park from outside the ATMP planning area. The operator may fly along the perimeter of the ATMP planning area in order to conduct air tours of destinations other than the Park. Since the operator cannot fly on the northwestern, northern, and northeastern sides of the Park due to restricted air space and lack of authorization to conduct air tours over Valles Caldera National Preserve, it is unlikely there would be any impacts from air tour operators in that area. The operator currently flies multiple tours over different parks and lands in New Mexico (Southwest Safaris, 2022), and they could fly these tours more frequently. The majority of destinations and tours offered by the operator are to the west and northwest of the Park, and the airport used for most flights is located to the southeast of the Park. Due to the flight restrictions to the north and east of the Park, there may be a slight increase in flights to the south and west of the ATMP planning area if air tours were displaced outside of the ATMP planning area. Some of these air tours could still encroach upon tribal privacy, religious, and cultural activities that are fundamental to the Park's purpose and values to the extent that they were experienced by tribal users inside the Park.

It is difficult to predict with specificity if, where, and to what extent any displaced air tours would result in impacts in different and/or new areas under Alternatives 2 and 3. Because Alternative 2 would prohibit commercial air tours from being conducted within the ATMP planning area and Alternative 3 would limit the number of routes on which air tours would be

conducted, Alternative 2 has the most potential to result in the displacement of air tours and could result in more flights over cultural resources that extend beyond the ATMP planning area. While these alternatives could result in some indirect noise and visual impacts to cultural resources within the APE for flights along the perimeter but outside or above the ATMP planning area, these impacts are not anticipated to result in adverse effects to cultural resources as they would be low in intensity and frequency. Indirect effects under Alternative 2 were assessed in the finding of effects letter for Section 106. See Appendix G, *Cultural Resources Consultation and Summary*, for more information. Displaced air tours occurring outside the ATMP planning area could still impact tribal privacy, religious, and cultural activities that are fundamental to the Park's purpose and values to the extent that they were experienced by tribal users of the Park.

Cumulative Effects: Under all alternatives, other ongoing sources of noise within the APE including Park maintenance and management actions such as administrative flights or the use of mechanized equipment for maintenance (see Section 3.1.1, Affected Environment for Noise and Noise-Compatible Land Use for more information on the existing ambient for current conditions) would continue. Ongoing visual impacts within the APE include a wildland fire Type 3 helicopter used by the Park and the Santa Fe National Forest, which is deployed as needed to scout fire reports on Park and federal lands and made available for wildland fire initial attack, and helicopter flights conducted by the Los Alamos Police Department in response to search and rescue incidents within the Park. Ongoing visual impacts within the APE include general aviation flights such as high-altitude jet overflights, which would likely continue in the same frequency and manner under any of the alternatives, as they occur independently of air tours.

Additionally, the Park will begin a construction project in the summer of 2023 that will expand an existing parking lot at the Frey Trailhead within the developed area adjacent to Juniper Campground. Construction sounds will include those made by large, earth-moving equipment and machinery to lay asphalt. In the spring of 2024, the Park will begin construction for a utility replacement project that will rehabilitate and replace most underground utilities at the Park. The project area will include the mesa-top developed area (including NPS housing and Juniper Campground), the Entrance Road, and the main visitor use area in Frijoles Canyon. Construction is expected to last up to one year, including all ground rehabilitation activities. These flights and construction activities would likely continue in the same frequency and manner under any of the alternatives, as they occur independently of air tours.

Because the No Action Alternative would not result in any new direct or indirect impacts compared to current conditions, there would be no cumulative effects from the No Action Alternative. The cumulative effects would be fewer for Alternative 3, which would reduce the number of air tour routes within the ATMP planning area compared to the No Action Alternative, and would be fewest under Alternative 2, which would prohibit air tours within the

ATMP planning area. Ongoing present and future Park management actions and construction activities by the NPS, as well as ongoing general aviation over the Park, would continue to occur under any of the alternatives.

3.5 Wilderness

While Wilderness is not an impact category FAA traditionally examines, the NPS has agency-wide (see NPS Management Policies (2006), Chapter 6, and Director's Order 41, 2013) and Park-specific guidelines for managing designated Wilderness areas within the National Park System. The Wilderness Act of 1964 is the primary federal legislation regulating the management of Wilderness areas. As a managing agency, the NPS is required to preserve Wilderness character. NPS Management Policies, § 6.1 (2006) states,

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

The U.S. Forest Service (USFS) also manages Wilderness within the ATMP planning area. See Figure 11.

The NPS and USFS manages the Wilderness for the following qualities of Wilderness character:¹⁴

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

Since commercial air tours do not land within the Park, the undeveloped quality of Wilderness is not discussed here. Additionally, the authorization of commercial air tours is not an intentional manipulation of the environment, and therefore the untrammeled quality of Wilderness is also not discussed here. Cultural and ethnographic resources within Wilderness

¹⁴ <https://www.nps.gov/subjects/wilderness/wilderness-character.htm>

are discussed in Section 3.4, Cultural Resources. Finally, commercial air tours do not alter or impact the opportunities for primitive and unconfined recreation. Therefore, the analysis below is focused on the opportunity for solitude and natural quality which could be impacted by commercial air tours.

The study area for Wilderness is the designated Wilderness within the ATMP planning area. Refer to Figure 11 for a depiction of the study area for Wilderness.

3.5.1 Affected Environment

Congress designated 23,267 acres of the Park as Wilderness in 1976. The Bandelier Wilderness covers 70% of the Park, which leaves views within the Park largely unimpaired and forms the backdrop to the Park's steep-walled canyons, mesas, and archeological sites (NPS, 2020b). Human activity has occurred throughout the Bandelier Wilderness for over 11,000 years, and many archeological sites are located within the Bandelier Wilderness. See Section 3.4.1, Affected Environment for Cultural Resources, for additional information. The Bandelier Wilderness is subject to near-daily thunderstorms during the summer monsoon seasons, which, in addition to wildfires, contribute to the shifting topography (Cedarbaum, 2016).

The Bandelier Wilderness protects much of the Pajarito Plateau, from its high peaks to the Rio Grande, in addition to the Capulin Creek watershed and the Rito de los Frijoles. The Pajarito Plateau is a layer of volcanic ash several hundred feet thick with canyons and mesas that have been carved by runoff (Cedarbaum, 2016). This area of the Bandelier Wilderness rises nearly 4,000 ft. through dense riparian woodlands of canyon floors to low-elevation juniper grasslands, to ponderosa pine, savannas, alpine meadows, and spruce forests in the mountains (Cedarbaum, 2016).

The Capulin Creek watershed is located inside and outside of the Park's boundary. Within the Park, the NPS manages Capulin Creek watershed for recreational use; outside of the Park, the USFS manages the upper area Capulin Creek watershed for recreation and timber harvest (Jacobs et al., 2015).

The Bandelier Wilderness shares boundaries with the Dome Wilderness in Santa Fe National Forest, the Canada de Cochiti land grant, and is located near the Valles Caldera National Preserve and the Los Alamos National Laboratory. It is thus largely surrounded by other protected spaces and scientific infrastructure.

The Dome Wilderness in Santa Fe National Forest was designated in 1980 and spans 5,200 acres. Elevations range from 5,800 ft. in Sanchez Canyon up to 8,200 ft. at the highest peak (USFS, 2022). The USFS manages the Dome Wilderness. The Dome Fire in 1996 and the Las Conchas Fire in 2011 burned a majority of the Dome Wilderness. Similar to the Park, there are many cultural resources located throughout the Dome Wilderness. See Section 3.4.1, Affected

Environment for Cultural Resources, for additional information on cultural resources. Refer to Figure 11 for a depiction of existing air tour conditions and the affected environment for Wilderness at the Park.

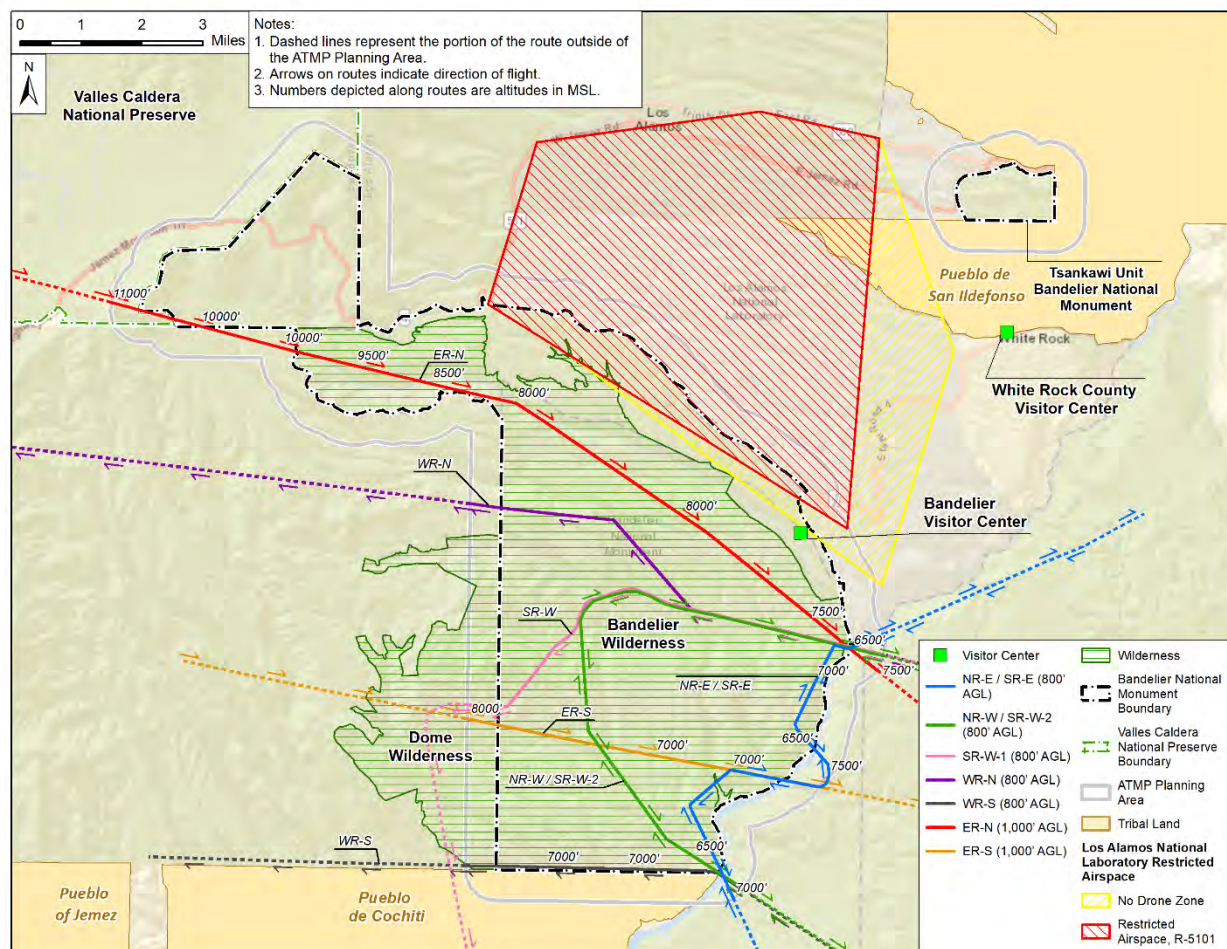


Figure 11. Affected Environment for Wilderness.

Natural

The Bandelier Wilderness supports a range of ecosystems from riparian zones to savannas and aspen groves that are emblematic of the region and support over 700 different species of wildlife (Cedarbaum, 2016). Flooding following the Las Conchas Fire in 2011 extirpated several populations of native fish species throughout Wilderness areas (Cedarbaum, 2016). In addition to native species, the Bandelier Wilderness also provides habitat for threatened and endangered species such as the MSO and Jemez Mountain salamander, in addition to the peregrine falcon, bald eagle, and other birds protected under the MBTA. Although ungulates and other mammals are not commonly observed in the Bandelier Wilderness, the Capulin Creek and Rito de Frijoles watersheds provide opportunities for birdwatching along riparian areas

(Cedarbaum, 2016). See Section 3.3.1, Affected Environment for Biological Resources, for additional information on wildlife.

In the Dome Wilderness, rugged terrain, wildlife habitat, and diverse vegetation that includes wildflowers and strawberries all make up the natural quality of Wilderness character. The main threat to the natural quality of Wilderness character in the Dome Wilderness is invasive species and air quality (USFS, 2022).

Weather events such as fires and floods impact the natural quality of Wilderness character by altering habitat for listed and non-listed species, watershed morphology, and land topography. Notably, the most recent wildfire that occurred in 2011 swept across approximately 14,000 acres of the Bandelier Wilderness and was followed by severe flooding that impacted vegetation, geologic features, cultural artifacts, and designated trails (Cedarbaum, 2016). The Dome Wilderness was also impacted by multiple wildfires over the past several decades, which had similar effects on natural and cultural resources. Capulin Creek watershed has been in the pathway of two wildfires: in 1996, the Dome Fire burned several thousand acres of the watershed, and in 2011, the Las Conchas Fire burned the upper portions of Capulin Creek watershed as well as 60% of land within the Park (Jacobs et al., 2015). Impacts to areas of the Bandelier Wilderness were augmented by subsequent flooding that altered the understory vegetation and geomorphology of Capulin Creek watershed (Jacobs et al., 2015). The Rito de los Frijoles flows eastward from the Sierra de los Valles of the Jemez Mountains into the Rio Grande, and similar to Capulin Creek, was impacted by wildfires: 15,000 acres of the Rito de los Frijoles were burned in the La Mesa Fire in 1977, and were also impacted by the Las Conchas Fire in 2011 (Jacobs et al., 2015).

Historical land use is one of the primary threats to the natural quality of Wilderness character, as a history of overgrazing and fire suppressions have altered the natural fire regime, plant community, and increased soil erosion. Up until the 1980s, the Park experienced low-severity surface fires that rarely resulted in tree mortality or degradation to wildlife habitat. However, a shift to grazing and active fire suppression led to the accumulation of dead and down heavy fuels that promoted large-scale wildfires throughout the Bandelier Wilderness that have caused irreversible damage to vegetation (Cedarbaum, 2016). These effects were compounded with accelerated soil erosion where soils created during a cooler and wetter age are unlikely to regenerate quickly and therefore reduce habitat and nutrients, contributing to desertification (Cedarbaum, 2016).

The NPS has taken Park management actions in order to preserve the natural quality of the Bandelier Wilderness. From 2007 to 2010, the NPS thinned over 4,000 acres of unnaturally dense piñon-juniper woodland and used the woody material as mulch to promote soil and water retention, which resulted in the successful spread of understory vegetation and decrease in runoff (Cedarbaum, 2016). In the Dome Wilderness, management actions that the USFS

takes to preserve the natural quality of Wilderness character include implementing adaptive management and evaluating the potential for restoration of native species (USFS, 2022). Natural processes such as wildfires and floods are not inherently detrimental to Wilderness and the natural capacity for change is considered when evaluating this quality, but the speed at which change is occurring challenge the resiliency of the Bandelier Wilderness and Dome Wilderness ecology and poses additional challenges for natural resource managers (Cedarbaum, 2016).

Opportunities for Solitude

The ability to experience solitude is an integral quality of Wilderness. In preserving this Wilderness quality, NPS places importance on considering the value of maintaining these places where present and future generations have the opportunity to feel free, at peace, and self-reliant (Cedarbaum, 2016). There are several opportunities for solitude throughout the Bandelier Wilderness.

Visitors can observe cultural sites in an environment where these resources are not managed for display purposes along 50 miles of designated trails throughout the Bandelier Wilderness. Camping and hiking throughout Wilderness areas provides additional opportunities for solitude. Camping trips in Bandelier Wilderness are an average of one to two nights and require permits, while Wilderness day use is estimated to be higher and does not require visitors to obtain a permit beforehand (Jacobs et al., 2015). There are no maintained campsites in Wilderness areas, and there are several restrictions on camping: camping is not allowed within 100 ft. of a trail, water source, or archeological site, campfires and rock climbing are prohibited, group sizes have maximum caps, and several areas along Wilderness canyons are closed for visitor use during the monsoon season in order to protect visitors from the risk of flash floods (Cedarbaum, 2016). These restrictions are in place in order to mitigate fire risk and preserve the opportunity for solitude.

Park staff and one NPS-authorized private company lead guided Wilderness hikes. Park staff also occasionally have work crews working in Wilderness areas, whose temporary camp sites can degrade opportunities for solitude if encountered by visitors (Cedarbaum, 2016). Other detractors from opportunities for solitude within the Bandelier Wilderness include light pollution from Los Alamos, Santa Fe, and Albuquerque that interrupt the night skies; traffic and associated noise from State Highway 4; structures associated with the Los Alamos National Laboratory; and commercial air tours.

The Dome Wilderness also provides opportunities for solitude, specifically several hiking trails including Saint Peter's Dome Trail, the Capulin Trail, and the Turkey Springs Trail. The Saint Peter's Dome Trail is a 6.1-mile trail that begins near the Dome Fire Lookout and provides an access point to the Dome Wilderness, while also allowing visitors to view canyon walls,

sweeping vistas, and Sanchez Creek (USFS, 2022a). The two-mile Capulin Trail also begins in the northern Dome Wilderness and ends at the Park boundary.

The Las Conchas Fire in 2011 led to a change in opportunities for solitude. The southwest corner of the Bandelier Wilderness has been made more difficult to access and caused reduced visitation to Capulin Canyon, Painted Cave, and Frijoles Canyon (Jacobs et al., 2015). Similarly, the Dome Wilderness also sees a low level of visitor use, as multiple fires over the last several decades have reduced opportunities for solitude, specifically impacting vegetation, roads, and trails (USFS, 2022). The NPS has several long-term management goals to support and maintain this quality of Wilderness character within the Bandelier Wilderness. This can be accomplished through updating Wilderness trail signs and establishing policies for Wilderness use limits by collecting information on historic use of Wilderness areas and researching standards within other Wilderness areas (Jacobs et al., 2015). The USFS supports similar management actions to maintain this quality of Wilderness character within the Dome Wilderness. Additionally, the USFS utilizes proactive approaches to visitor use management, but will implement adaptive management and corrective measures if overuse causes damage to resources or loss of opportunities for solitude (USFS, 2022).

3.5.2 Environmental Consequences

Section 2(a) of the Wilderness Act states that Wilderness areas “shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as Wilderness, and so as to provide for the protection of these areas, the preservation of their Wilderness character.” The NPS and USFS manage Wilderness to enhance qualities of Wilderness character consistent with the Wilderness Act and generally manages for the natural, untrammeled, undeveloped, solitude and unconfined recreation, and other features of value. Commercial air tours over the Wilderness study area may impact the following qualities of Wilderness character, including the opportunity for solitude or the natural quality of Wilderness character.

Keeping it Wild 2, An Updated Interagency Strategy to Monitor Trends in Wilderness Character Across the National Wilderness Preservation System, 2015 (Landres et al., 2015) notes that solitude includes attributes such as “separation from people and civilization, inspiration (an awakening of the senses, connection with the beauty of nature and the larger community of life), and a sense of timelessness (allowing one to let go of day-to-day obligations, go at one’s own pace, and spend time reflecting)” (Sutter, 2004). A review of research suggests that solitude encapsulates a range of experiences, including privacy, being away from civilization, inspiration, self-paced activities, and a sense of connection with times past (Borrie and Roggenbuck, 2001). Generally, solitude improves when sights and sounds of human activity are remote. Commercial air tours can represent both a sight and sound of human activity and therefore detract from this quality of Wilderness character.

Alternative 1: No Action

Based on operator provided information, the heaviest concentrations of commercial air tours currently fly over the central and east areas of the Bandelier Wilderness. There are also two air tour routes, SR-W-1 and ER-S, that fly over the Dome Wilderness (see Figure 11). Under the No Action Alternative, the existing flight routes, altitudes, number of air tours per year, and other parameters described in Section 2.4, Alternative 1 (No Action Alternative), would continue to occur, with the resultant noise and visual effects that could impact the natural quality of Wilderness character and opportunities for solitude discussed below.

The presence of noise and visual intrusion of commercial air tours is a human activity that detracts from the opportunity for solitude in Wilderness. Noise from commercial air tours can disrupt Wilderness visitors seeking an opportunity for solitude in Wilderness areas within the study area and these potential disruptions would continue to occur under the No Action Alternative. The *Noise Technical Analysis* (see Appendix F, Section 6) provides context for the potential noise effects that would continue to occur under the No Action Alternative and that could detract from the opportunities for solitude and natural quality of Wilderness character. For purposes of the *Noise Technical Analysis*, an average of 101 flights per year and an average of one flight per day (based on a peak month, average day of commercial air tour activity for the three-year average from 2017-2019) was used. This analysis shows that noise above 35 dBA would occur for less than five minutes across 39% of the ATMP planning area (see the *Noise Technical Analysis*, Appendix F, Table 8). This noise could detract from the opportunity for solitude in Wilderness as it introduces sounds of human activity, but impacts would be minimal given the short duration of noise and limited number of flights per year (101 tours) that have the potential to cause effects to the opportunity for solitude in Wilderness. This analysis is based on the three-year average of flights between 2017-2019, but could slightly increase if air tour numbers up to IOA occurred.

Air tours under the No Action Alternative could also detract from the natural quality of Wilderness character. Specifically, the presence of air tours and associated noise can affect species present within the Bandelier Wilderness. As discussed in Section 3.3.2, Environmental Consequences for Biological Resources, the altitudes at which air tours are flown under the No Action Alternative are not in compliance with recommended standoff distances and buffer zones for the MSO, peregrine falcon, and bald eagle. Impacts to these species could detract from the natural quality of the Bandelier Wilderness.

Alternative 2

Under Alternative 2, commercial air tour aircraft would not fly within the ATMP planning area, which would offer the greatest protection to NPS managed Wilderness areas within the Wilderness study area. Compared to the No Action Alternative, Alternative 2 would directly benefit and enhance the natural quality of Wilderness character and opportunities for solitude

by eliminating the source of noise and visual effects originating from within the ATMP planning area. There would be direct beneficial impacts to the natural quality of Wilderness character and opportunities for solitude under Alternative 2.

Alternative 3

Alternative 3 would authorize 101 commercial air tours per year along two flight paths with a minimum altitude requirement of 10,000 ft. MSL, which result in altitudes of at least 2,600 ft. AGL, within the ATMP planning area. While Alternative 3 would still allow tours to be conducted over areas of the Bandelier Wilderness and Dome Wilderness, these tours would be limited to the two designated routes (ER-N red and ER-S orange), so there would be fewer noise impacts to the natural quality of Wilderness character and opportunities for solitude from air tours in this area (see Figure 12). Additional details regarding effects on Wilderness character for Alternative 3 are described below.

Impacts to the natural quality of Wilderness character would be slightly less than the No Action Alternative because the number of air tour routes over Wilderness areas would be reduced, resulting in fewer opportunities for disturbances to wildlife that contribute to the natural quality of Wilderness character. As a result, there would be direct beneficial impacts to the natural quality of Wilderness character under Alternative 3. The *Noise Technical Analysis* (Appendix F, Table 7) shows that on days when air tours occur on the ER-S orange route for Alternative 3, time above 35 dBA would be zero minutes at all locations within the ATMP planning area. For the purposes of the *Noise Technical Analysis*, an average day under Alternative 3 was modeled based on the average number of operations which may occur in a single day – one operation, using the aircraft and route combination most likely to be utilized under Alternative 3 – a Cessna 182 on the ER-S orange route. The Cessna 182-ER-S orange route combination was chosen as the most logical representation of an average day of activity based on best available information for existing conditions, similar to the No Action Alternative. While the noise impacts associated with the No Action Alternative are already minimal, air tours on the ER-S orange route would eliminate all noise above 35 dBA compared to the No Action Alternative, where noise above 35 dBA would occur for less than five minutes a day. These noise reductions also correspond with a reduction in impacts to opportunities for solitude within Wilderness, as ongoing noise from commercial air tours which introduces sounds of human activity would be reduced under Alternative 3. As discussed in Section 3.3.2, Environmental Consequences for Biological Resources, the increased altitudes for air tours under Alternative 3 (minimum 10,000 ft. MSL, which corresponds to altitudes at or above 2,600 ft. AGL) would be in compliance with recommended standoff distances and buffer zones for the MSO, peregrine falcon, and bald eagle, which would provide improved protection to the natural quality of the Bandelier Wilderness as compared to the No Action Alternative.

On days where air tours are conducted on the ER-N red route when the Cessna 207 is flown, no similar comparison is available for existing conditions (refer to Section 3.1.2, Environmental Consequences for Noise and Noise-Compatible Land Use. Based on the modeling results identified for the ER-N red route, noise above 35 dBA would occur for less than five minutes in 53% of the ATMP planning area, portions of which overlap the study area for Wilderness. Refer to Section 3.1.2, Environmental Consequences for Noise and Noise-Compatible Land Use, for additional information on noise effects of the red route under Alternative 3.

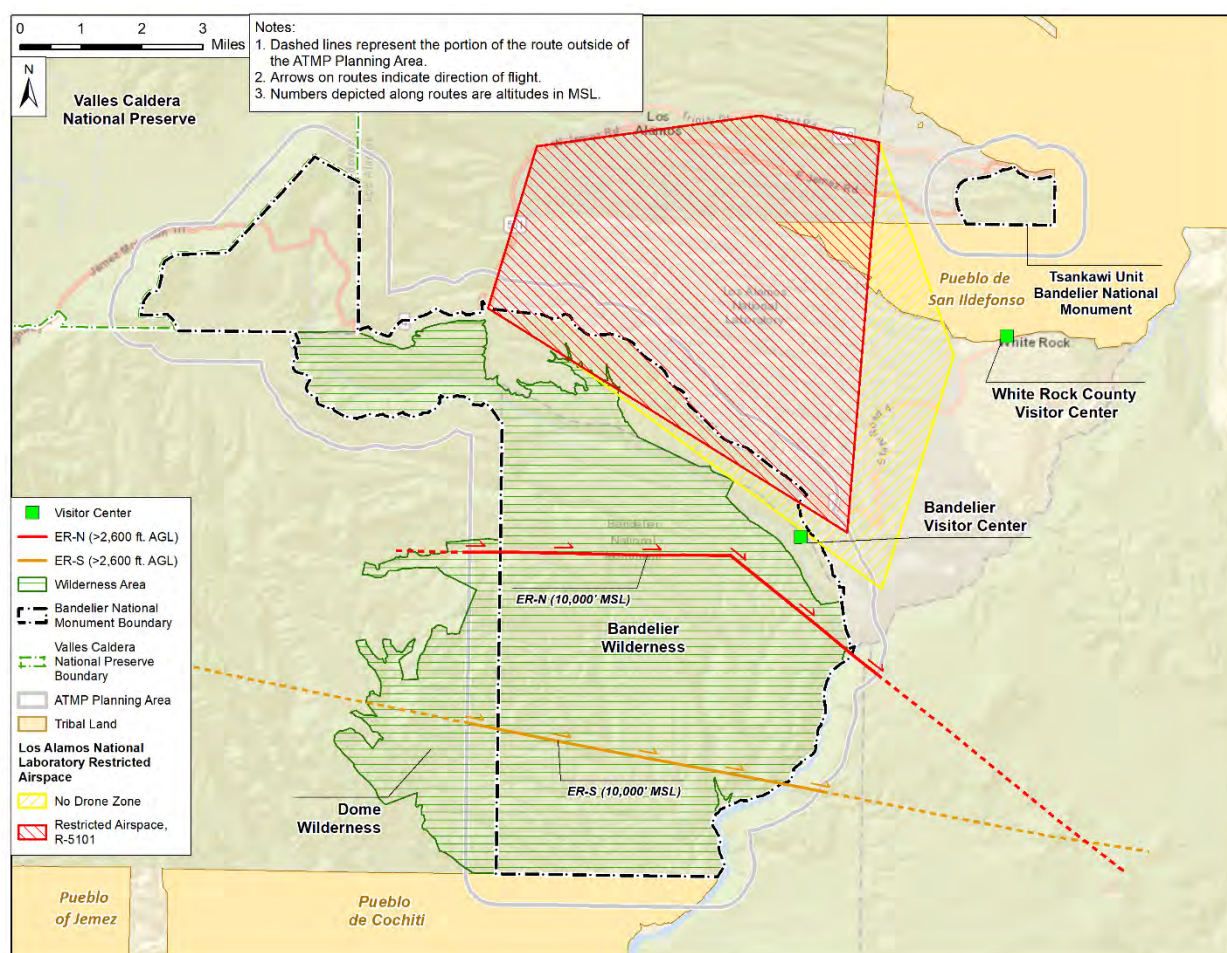


Figure 12. Wilderness Environmental Consequences for Alternative 3.

Indirect and Cumulative Effects

Indirect Effects: Under the No Action Alternative, commercial air tour operations within the ATMP planning area would remain consistent with existing conditions, although air tour numbers could increase slightly up to IOA, thus there would be no changes to Wilderness character within the Wilderness study area and no indirect impacts would be expected to occur under this alternative.

As noted in Section 3.1.2, Indirect and Cumulative Effects for Noise and Noise-Compatible Land Use, indirect noise impacts would have the potential to occur under Alternatives 2 and 3. Alternative 2 would limit the number of flights per year compared to existing conditions, and Alternative 3 would limit the number of commercial air tour routes compared to existing conditions, which would therefore have the potential to result in some displacement of air tours outside of the ATMP planning area. Air tours occurring outside of the ATMP planning area may result in noise that could affect qualities of Wilderness character to the extent that Wilderness is present in areas near where those air tours would be occurring. The operator may choose to fly along existing flight paths but at or above 5,000 ft. AGL. However, this may be impractical due to the high elevation of the terrain because it would require the operator to fly above 10,000 ft. MSL. Supplemental oxygen use is required in unpressurized aircraft flying over 10,000 ft. MSL for more than 30 minutes (14 CFR Parts 135.89, 135.157); therefore, it is unlikely air tours would fly higher for extended periods of time. For air tours conducted at or above 5,000 ft. AGL, the increase in altitude would likely decrease impacts on ground level resources compared to current conditions.

It is unlikely that the operator would continue to conduct commercial air tours of the Park by flying along the perimeter of the ATMP planning area because it is difficult to see the predominant features of the Park from outside the ATMP planning area. Since the operator cannot fly on the north side of the Park due to restricted air space, it is unlikely there would be new or different impacts in that area (which is closest to the Bandelier Wilderness). The operator currently flies multiple tours over different parks and lands in New Mexico (Southwest Safaris, 2022), and they could fly these tours more frequently. The majority of destinations and tours offered by the operator are to the west and northwest of the Park, and the airport used for most flights is located to the southeast of the Park. Due to the flight restrictions to the north and east of the Park, there may be a slight increase in flights to the south and west of the ATMP planning area if air tours were displaced outside of the ATMP planning area. This would be most likely to affect the Dome Wilderness, portions of which are located outside of the ATMP planning area to the west of the Park. For air tours conducted at or above 5,000 ft. AGL, the increase in altitude would likely decrease impacts on ground level resources compared to current conditions.

It is difficult to predict with specificity if, where, and to what extent any displaced air tours would result in impacts in different and/or new areas under Alternatives 2 and 3. Because Alternative 2 would prohibit commercial air tours from being conducted within the ATMP planning area while Alternative 3 would limit the number of routes on which air tours would be conducted, Alternative 2 has the most potential to result in the displacement of air tours and could result in more flights over portions of the Dome Wilderness that extend beyond the ATMP planning area. When compared to the No Action Alternative, this could result in

degradation of the natural quality of wilderness character and opportunities for solitude over portions of the Dome Wilderness.

Cumulative Effects: Solitude in the Bandelier Wilderness and Dome Wilderness is impacted by a wildland fire Type 3 helicopter used by the NPS and Santa Fe National Forest, which is deployed as needed to scout fire reports on Park and other federal lands and made available for wildland fire initial attack; noise from commercial air tours; and helicopter flights conducted by the Los Alamos Police Department in response to search and rescue incidents within the Park. Additionally, the NPS will begin two construction projects at the Park in 2023 and 2024 which will include the use of large, earth-moving equipment and machinery. Noise from these aircraft and construction equipment audibly and visually detract from the natural quality and opportunity for solitude during the Wilderness experience. These would continue under all alternatives.

Because the No Action Alternative would not result in any new direct or indirect impacts compared to current conditions, there would be no cumulative effects from the No Action Alternative. Under Alternatives 2 and 3, aircraft used for wildland fire and search and rescue activities as well as planned construction activities that could impact solitude would continue, but impacts from commercial air tours would be less frequent since commercial air tours would be prohibited from flying under 5,000 ft. AGL over the Bandelier Wilderness and portions of the Dome Wilderness that are located within the ATMP planning area under Alternative 2, and would be required to fly along two designated routes under Alternative 3. In summary, the No Action Alternative would result in no cumulative change in the natural quality of Wilderness character or the opportunity to experience solitude. As a result, Alternatives 2 and 3 would likely result in a net beneficial effect to the natural quality of Wilderness character and opportunity for solitude within the ATMP planning area. However, Alternative 3 would offer less overall net benefit to the natural quality of Wilderness character compared to Alternative 2. Ongoing present and future Park management actions and planned construction activities by the NPS would continue to occur under any of the alternatives.

3.6 Visitor Use and Experience and Other Recreational Opportunities

While visitor use and experience is not an impact category the FAA traditionally examines, NPS has agency wide (see NPS Management Policies (2006), § 8.2) and Park-specific guidelines (NPS, 2015) for managing visitors within the National Park System. This section also examines impacts to air tour customers. Tribes that have ancestral connections to the Park are not considered Park visitors. The impacts to Tribal people connected to Park lands are discussed in Section 3.4, Cultural Resources.

3.6.1 Affected Environment

Trends in Visitation and Visitor Demographics

Between 2017 and 2019, the Park averaged 202,774 visitors. Visitation was approximately 270,000 in 2021 (NPS, 2021a; NPS, 2022b). Scenery, recreation, and wildlife draw large numbers of visitors to the Park each year. Visitors come to the Park for a variety of activities including guided walks, hiking, camping, cross-country skiing, snowshoeing, bird-watching, picnicking, photography, interpretive programs, and special events.

Within the Park, Frijoles Canyon is the most popular visitor use area, drawing 98% of the Park's overall visitors to the archeological sites, trails, and visitor services within it. There are a number of trails within the Park, many of which are accessed in Frijoles Canyon (NPS, 2014a). The 799-acre Tsankawi Unit is 12 miles from the main Park unit. The Tsankawi Unit is home to more than 150 archeological sites. Visitors are primarily drawn to cavates, masonry pueblos, petroglyphs, the Ancestral Pueblo village of Tsankawi on Pajarito Mesa, and other significant cultural resources (refer to Section 3.4.1, Affected Environment for Cultural Resources for more information). The Tsankawi Mesa Trail, roadside parking area, and visitor arrival area are the only developed areas of the Tsankawi Unit. Remaining areas of the unit are open to visitation and are currently managed as a backcountry area without designated trails (NPS, 2014).

Figure 13 depicts key visitor facilities and points of interest within the ATMP planning area.

Visitor Experience

The character and quality of the visitor experience influences perception of natural areas, providing a unique encounter with a place that differentiates it from other areas. Public enjoyment of resources is a fundamental purpose of all national parks (NPS, 2006). Most Park visitors come to the Park to visit archeological sites.

Key visitor facilities within the Park include the following:

- **Frijoles Canyon Visitor Center**, located just inside the northwestern Park entrance. The center has restrooms, public telephone, picnic area, and is open from 9 AM to 5 PM (NPS, 2023).
- **Alcove House**, formerly known as Ceremonial Cave, is located 140 ft. above the floor of Frijoles Canyon. Once home to approximately 25 Ancestral Pueblo people, the elevated site is now reached by four wooden ladders and a number of stone stairs (NPS, 2022c).
- **Painted Cave**, with its numerous pictographs, is a unique archeological site in the backcountry of the Park (NPS, 2018).
- **Juniper Family Campground** is located near the entrance of the Park and is available on a first come, first serve basis (NPS, 2022d).

- **Ponderosa Group Campground** is located six miles west of the Park entrance. The campground has high demand and requires reservations (NPS, 2021b).
- **The Park's trail system** is composed of several trails, including the Pueblo Loop Trail, Fall Trail, Burnt Mesa, Cerro Grande, and Upper Frijoles Canyon Overlook skiing trail (NPS, 2022e).
- **Rio Grande via White Rock Canyon** is accessed by private and commercial boaters throughout the year, with heaviest use during the spring runoff season. Access points are located outside the Park but visits can often include day-use along the banks of the Rio Grande on Park lands.

Park staff and volunteers provide a variety of in-person interpretive and educational programs throughout the year, including fall patio talks, guided tours, and night sky programming. These programs may occur at various locations in the Park but are most frequently provided in the vicinity of visitor centers and along nearby Park trails (NPS, 2022f).

Key visitor use areas and existing air tour routes within the ATMP planning area are shown in Figure 13.

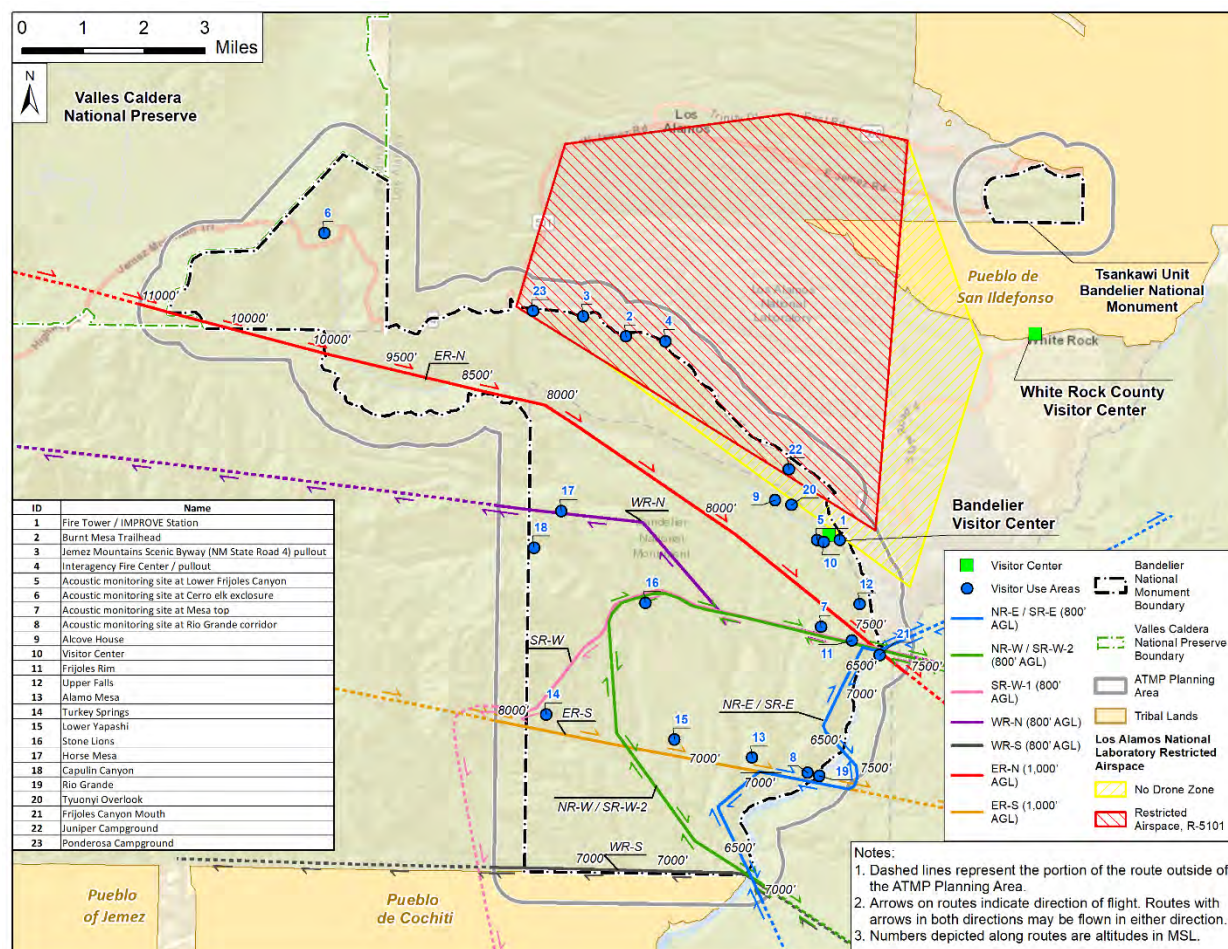


Figure 13. Affected Environment for Visitor Use and Experience.

Other Recreational Opportunities

This category applies to persons recreating within the ATMP planning area through the experience of air tours. An average of 505 air tour customers per year are currently able to experience the Park from another viewpoint.¹⁵ The air tour experience often varies depending on weather conditions and other factors such as length of flight and the Park features that are viewed. Currently, the air tour operator offers various tours over the Park via fixed-wing aircraft and is authorized to fly up to 126 operations over the Park each year.

3.6.2 Environmental Consequences

The NPS allows visitor uses that are appropriate to the purpose for which the park was established and can be sustained without causing unacceptable impacts to park resources or

¹⁵ The estimated 505 air tour visitors is based on reported air tours from 2017-2019 (101), multiplied by an estimated 5 passenger seats per aircraft. The number of air tours visitors likely overestimates the actual number since it assumes every passenger seat is occupied.

values. Unacceptable impacts are impacts that, individually or cumulatively, would unreasonably interfere with park programs or activities including interpretive programs, the atmosphere of peace and tranquility, the natural soundscape maintained in Wilderness, and natural, historic, or commemorative locations within the park (NPS, 2006).

Effects of commercial air tours on park visitor experience have been well documented over many years and one example is the *Report on the Effects of Aircraft Overflights on the National Park System* (Department of Interior and NPS, 1995). The primary effect of commercial air tours is the introduction of noise into the acoustic environment of the park. Numerous studies have identified the value and importance of soundscapes as one of the motivations for visiting parks (McDonald et al., 1995; Haas and Wakefield, 1998; Merchan et al., 2014; Miller et al., 2018), including in a cross-cultural context (Miller et al., 2018). Other studies have focused specifically on the effects of aircraft on the visitor experience both in parks and protected areas, and a laboratory setting, indicating that aircraft noise negatively impacts the visitor experience (Anderson et al., 2011; Mace et al., 2013; Rapoza et al., 2015; Ferguson, 2018;).

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

Alternative 1: No Action

Under existing conditions, air tours are concentrated near visitor points of interest including Frijoles Canyon and the Rio Grande, which would continue under the No Action Alternative. Table 10 below presents a summary of the locations of the Park’s interpretive programs and the corresponding results for noise above 52 dBA (which generally corresponds with noise that would result in speech interference) that would occur under the No Action Alternative based on the best available information for existing air tour conditions.

Table 10. Time Above 52 dBA for Park Visitor Centers and Corresponding Location Points Under the No Action Alternative.

Location	Nearest Modeled Location Point	Distance between Location Point and Visitor Center	Time Above 52 dBA
Alcove House	#1: Alcove House	0.273 miles	0 minutes
Visitor Center	#2: Visitor Center	0 ft.	0 minutes

Location	Nearest Modeled Location Point	Distance between Location Point and Visitor Center	Time Above 52 dBA
Frijoles Canyon	#3: Frijoles Rim #13: Frijoles Canyon Mouth	2.09 miles	0 minutes
Rio Grande Corridor	#11: Rio Grande	3.87 miles	0.1 minutes

This table shows that based on the noise modeling for the No Action Alternative, while speech interference would not be anticipated to occur at the Visitor Center, Alcove House, or Frijoles Canyon, noise from air tours could result in impacts associated with speech interference at the Rio Grande corridor for less than one minute a day. This noise would be expected to have a minimal effect on visitor experience and interpretive programs given the short duration of noise impacts and limited number of occurrences (101 flights per year).

Visitor experience in other areas of the Park, such as along trails, campgrounds, or Wilderness areas, may be impacted by air tour noise since visitors engaging in these activities value natural quiet. The *Noise Technical Analysis* (Appendix F, Section 6) shows that noise above 35 dBA would occur for less than five minutes a day across 39% of the ATMP planning area under the No Action Alternative. For purposes of the *Noise Technical Analysis*, an average of 101 flights per year and an average of one flight per day (based on a peak month, average day of commercial air tour activity for the three-year average from 2017-2019) was used. In these areas where visitors could generally expect to hear natural sounds during their visit, noise from commercial air tours under this alternative could impact visitor experience by temporarily affecting their ability to hear natural sounds. However, given the short duration of noise from air tours that would occur under the No Action Alternative, and the limited number of flights per year (101 air tours), effects on visitor experience would be expected to be minimal. See Section 3.4.2, Environmental Consequences for Cultural Resources, and Section 3.5.2, Environmental Consequences for Wilderness, for discussions on how commercial air tours could impact cultural resources and Wilderness areas that are visitor points of interest. This analysis is based on the three-year average of flights between 2017-2019.

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

Alternative 2

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

Alternative 2 would offer the greatest protection of visitor use and experience.

However, Alternative 2 would not allow commercial air tours within the ATMP planning area, so air tour customers would not be able to view the Park from an aerial vantage point within the ATMP planning area. This would be an adverse effect on those seeking that experience within the ATMP planning area.

Alternative 3

Alternative 3 would authorize 101 commercial air tours per year along two flight paths with a minimum altitude requirement of 10,000 ft. MSL, which result in altitudes of at least 2,600 ft. AGL, within the ATMP planning area (see Figure 14). The authorized routes avoid flying directly over or close to areas of primary importance for visitor use and experience, including the Visitor Center and Alcove House, which would limit the noise effects of commercial air tours in these visitor use areas.

The results for the time above 52 dBA metric from the *Noise Technical Analysis* (see Appendix F, Table 6) provide context for impacts to interpretive programs that would occur under Alternative 3. These results are summarized in Table 11.

Table 11. Time Above 52 dBA for Park Visitor Centers and Corresponding Location Points Under Alternative 3.

Location	Nearest Modeled Location Point	Distance between Location Point and Visitor Center	Time Above 52 dBA (ER-S Orange Route)	Time Above 52 dBA (ER-N Red Route)
Alcove House	#1: Alcove House	0.273 miles	0 minutes	0 minutes
Visitor Center	#2: Visitor Center	0 ft.	0 minutes	0 minutes
Frijoles Canyon	#3: Frijoles Rim #13: Frijoles Canyon Mouth	2.09 miles	0 minutes	Frijoles Rim: 0.4 minutes; Frijoles Canyon Mouth: 0.3 minutes
Rio Grande	#11: Rio Grande	3.84 miles	0 minutes	0 minutes

This analysis shows that under Alternative 3, while speech interference would not be anticipated to occur at the Visitor Center, Alcove House, or the Rio Grande, the ER-N red route would generate noise that would result in speech interference at the Frijoles Canyon corridor for less than one minute a day, which may cause brief interruptions to visitors enjoying and learning about existing Park resources during interpretive programs in this part of the ATMP planning area. Use of the ER-S orange route would not result in noise above 52 dBA, so impacts to interpretive programs would not be expected to occur.

For areas of the Park managed as natural areas, such as trails, canyons, and campgrounds, the time above 35 dBA metric provides context for air tour noise that could impact visitors' ability to hear natural sounds during their visit. The *Noise Technical Analysis* (Appendix F, Table 7) shows that on days when air tours occur on the ER-S orange route for Alternative 3, time above 35 dBA would be zero minutes at all locations within the ATMP planning area. Under Alternative 3 the total air tours authorized per year may not exceed 101 tours. For the purposes of the *Noise Technical Analysis*, an average day under Alternative 3 was modeled based on the average number of operations which may occur in a single day – one operation, using the aircraft and route combination most likely to be utilized under Alternative 3 – a Cessna 182 on the ER-S orange route. The Cessna 182 - ER-S orange route combination was chosen as the most logical representation of an average day of activity based on best available information for existing conditions, similar to the No Action alternative. The results indicate a reduction in the time that noise above 35 dBA would occur compared to the No Action Alternative, where the time above 35 dBA would be less than five minutes a day. Therefore, when compared to the No Action Alternative, the ER-S orange route for Alternative 3 would result in an improvement to visitor use and experience within the Park's natural areas.

Noise was also modeled for the Cessna 207 ER-N red route combination, providing information regarding the potential noise effects of the second authorized aircraft and route. On the ER-N red route, noise above 35 dBA would occur for less than five minutes across 53% of the ATMP planning area. No comparison to current conditions exists for the ER-N red route because that route was not modeled as part of the No Action Alternative. See Section 3.5.2, Environmental Consequences for Wilderness, for a discussion of potential impacts to trails and other features within Wilderness.

Alternative 3 would limit the number of routes that the operator could use to conduct commercial air tours, which could impact those visitors on air tours who wish to view certain features in Park that could not be viewed from the designated routes.

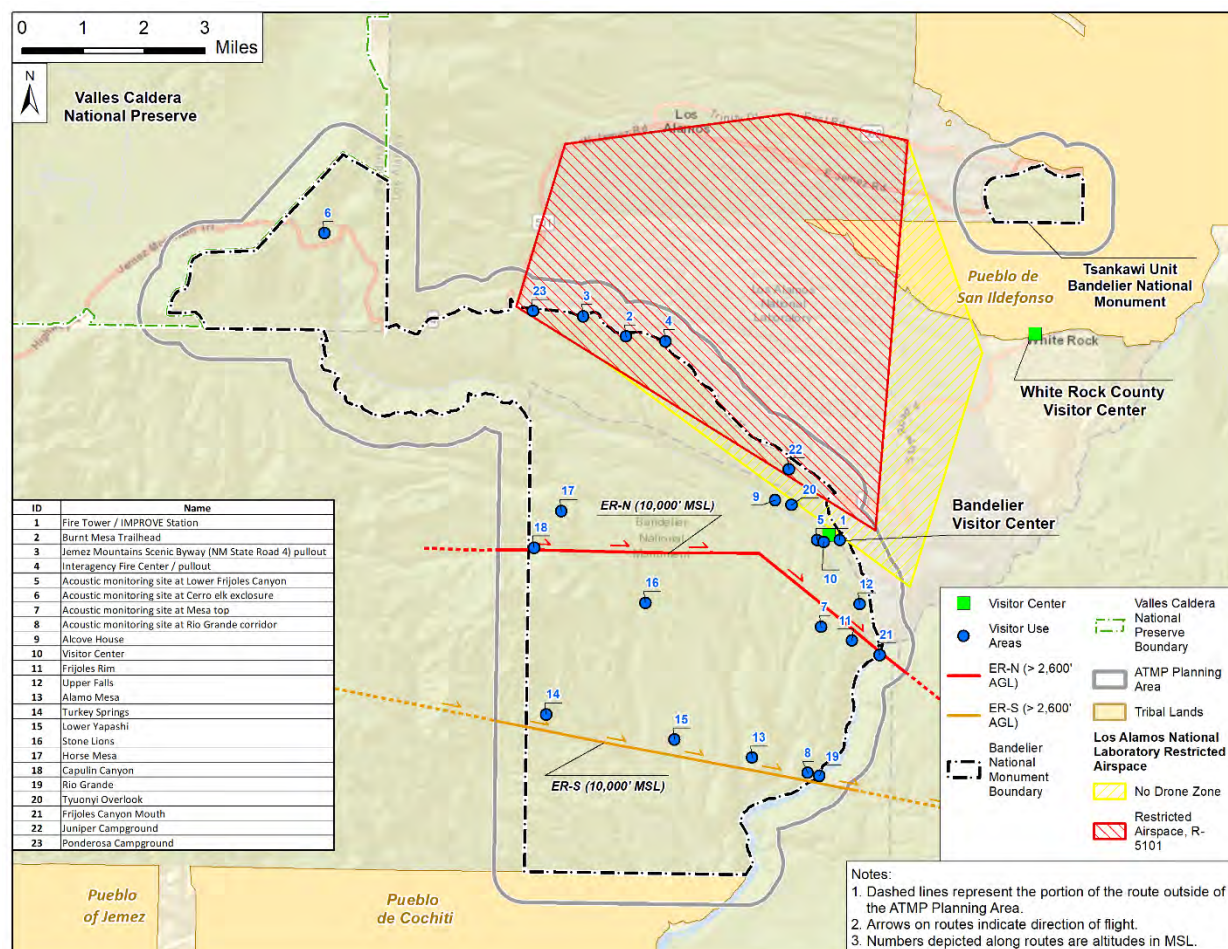


Figure 14. Visitor Use and Experience Environmental Consequences for Alternative 3.

Indirect and Cumulative Effects

Indirect Effects: Under the No Action Alternative, commercial air tour operations within the ATMP planning area would remain consistent with existing conditions, although air tour numbers could increase slightly up to IOA, thus there would be no change to the visitor experience within the ATMP planning area and no indirect impacts would be expected to occur under this alternative.

As noted in Section 3.1.2, Indirect and Cumulative Effects for Noise and Noise-Compatible Land Use, indirect noise impacts would have the potential to occur under Alternatives 2 and 3. Alternative 2 would limit the number of flights per year compared to existing conditions, and Alternatives 2 and 3 would limit the number of commercial air tour routes compared to existing conditions, which would therefore have the potential to result in some displacement of air tours outside of the ATMP planning area. Air tours occurring outside of the ATMP planning area may result in noise that could affect visitor use and experience in areas outside of the Park

where those air tours would be occurring. The operator may choose to fly along existing flight paths but at or above 5,000 ft. AGL. However, this may be impractical due to the high elevation of the terrain because it would require the operator to fly above 10,000 ft. MSL. Supplemental oxygen use is required in unpressurized aircraft flying over 10,000 ft. MSL for more than 30 minutes (14 CFR Parts 135.89, 135.157); therefore, it is unlikely air tours would fly higher for extended periods of time. For air tours conducted at or above 5,000 ft. AGL, the increase in altitude would likely decrease impacts on ground level resources compared to current conditions.

It is unlikely that the operator would continue to conduct commercial air tours of the Park by flying along the perimeter of the ATMP planning area because it is difficult to see the predominant features of the Park from outside the ATMP planning area. Since the operator cannot fly on the north side of the Park due to restricted air space, it is unlikely there would be new or different impacts in that area. The operator currently flies multiple tours over different parks and lands in New Mexico (Southwest Safaris, 2022), and they could fly these tours more frequently. The majority of destinations and tours offered by the operator are to the west and northwest of the Park, and the airport used for most flights is located to the southeast of the Park. Due to the flight restrictions to the north and east of the Park, there may be a slight increase in flights to the west and south of the ATMP planning area if air tours were displaced outside of the ATMP planning area. This could temporarily increase noise-related effects to visitors such as speech interference and inability to hear natural sounds when flights pass overhead.

It is difficult to predict with specificity if, where, and to what extent any displaced air tours would result in impacts in different and/or new areas under Alternatives 2 and 3. Because Alternative 2 would prohibit commercial air tours from being conducted within the ATMP planning area, this alternative has the most potential to result in the displacement of air tours. Alternative 3 would still allow the same number of flights as current conditions but on fewer routes, so fewer flights would likely be displaced. Thus, Alternative 3 would result in more impacts to visitor use and experience within the ATMP planning area while Alternative 2 could result in greater impacts outside the ATMP planning area from displaced air tours.

Cumulative Effects: Visitor use and experience are impacted by a wildland fire Type 3 helicopter used by the Park and Santa Fe National Forest, which is deployed as needed to scout fire reports on Park and other federal lands and made available for wildland fire initial attack; noise from commercial air tours; and helicopter flights conducted by the Los Alamos Police Department in response to search and rescue incidents within the Park. Noise from these aircraft audibly and visually detract from visitor use and experience. However, because these flights generally occur throughout the ATMP planning area (in areas with unrestricted airspace) and are not concentrated in any one area, they are not a source of consistent disruption on the

visitor experience. These flights are anticipated to continue to facilitate resource stewardship projects and scientific research under any of the alternatives.

Because the No Action Alternative would not result in any new direct or indirect impacts compared to current conditions, there would be no cumulative effects from the No Action Alternative. Under Alternatives 2 and 3, aircraft used for wildland fire and search and rescue activities would continue. Under Alternatives 2 and 3, impacts from commercial air tours would be less frequent since commercial air tours would be prohibited from flying over points of interest such as the Visitor Center or Alcove House under Alternative 2, and would be required to fly along two designated routes under Alternative 3. Alternatives 2 and 3 could result in some cumulative beneficial effect to the visitor use and experience in the ATMP planning area by eliminating noise related impacts (Alternative 2) or reducing the area where noise related impacts would occur (Alternative 3). However, Alternative 3 would offer less overall net benefit to visitor use and experience compared to Alternative 2 because air tours would continue to be allowed under Alternative 3.

In addition to current management and maintenance activities, the NPS has two projects planned that would cause temporary disruptions to visitors. One construction project is anticipated to begin in the summer of 2023 which includes the expansion of an existing parking lot at the Frey Trailhead. The NPS is also anticipating rehabilitating and replacing most underground utilities starting in the spring of 2024, which will include NPS housing, Juniper Campground, the Entrance Road, and the main visitor use area in Frijoles Canyon. These activities will cause disturbances to visitor use and experience as the Park may have temporary closures, limited parking, and would experience increased construction equipment and associated noise during construction. Maintenance and construction activities would occur under any of the alternatives. The impacts of these actions, when combined with disruptions to visitors from commercial air tours under the No Action Alternative and Alternative 3, could create additional disturbances to visitor experience in the locations where these activities occur. While these activities would occur under Alternative 2, the overall disruption to visitor experience may be less since commercial air tours over the Park will not occur.

3.7 Environmental Justice and Socioeconomics

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

minority and low-income populations, known as “EJ populations.” For the purposes of this EJ analysis, the FAA will use the minority and low-income definitions provided in DOT Order 5610.2c.¹⁶

Socioeconomics is an umbrella term used to describe aspects of a project that are either social or economic in nature, or a combination of the two. A socioeconomic analysis evaluates how elements of the human environment such as population, employment, housing, and public services might be affected by the proposed action and alternative(s) (FAA, 2020). The CEQ regulations for implementing NEPA (40 CFR Parts 1500-1508), direct economic analyses of federal actions that will affect local or regional economies. The policies and rationale associated with including an evaluation of socioeconomic impacts in the NEPA process are found in Section 1.4.7.1 of NPS Management Policies (2006). The factors of socioeconomics discussed in this draft EA include the air tourism industry and ancillary businesses. U.S. Census Bureau data was used to evaluate social and economic factors of the study area.

The combination of all relevant impact categories represents the potential EJ impact because EJ impacts may be realized in conjunction with impacts to any other impact category. Refer to each environmental impact category’s respective section in this draft EA for a description of the study area limits and Figure 15 for a depiction of the study area used for the EJ and socioeconomic analyses. The analysis incorporates data presented at the county level and from census block groups that are within and adjacent to the study area.

3.7.1 Affected Environment

Environmental Justice

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

¹⁶ See DOT Order 5610.2C Appendix, <https://www.transportation.gov/sites/dot.gov/files/Final-for-OST-C-210312-003-signed.pdf>

that data to the county (appropriate reference community). Data from the block group level was then compared to county level data to determine populations of EJ concern.

For this analysis, a minority census block group of EJ concern is a census block group (unit of analysis) with a minority population percentage greater than the average minority population percentage in the counties (reference community). The average percentage of minority populations at the block group level residing within the counties that include the ATMP planning area is 45.5% (ACS, 2016-2020). Therefore, every census block group with a percentage of minority population greater than the average minority population of approximately 45.5% is designated a census block group of EJ concern. For this analysis, a low-income population census block group of EJ concern is a census block group with a greater percentage of low-income population than the average percentage of low-income population in the counties. The average percentage of low-income populations at the block group level residing in the counties that include the ATMP planning area is 9.0% (ACS, 2016-2020). Therefore, every census block group with a low-income population greater than 9.0% is designated a census block group of EJ concern.

Figure 15 depicts locations of EJ concern by block group within the study area. As shown in the figure, most of the study area overlaps with census blocks that contain EJ populations. Table 12 (ACS, 2016-2020) shows the minority and low-income data for the counties and block groups within the study area. Of these three counties, Sandoval County and Santa Fe County contain block groups with populations of EJ concern.

Table 12. Minority and Low-Income Population Data within the Study Area.

Area	Population	Minority	Low-Income
Los Alamos County	19,330	5,683	715
Sandoval County	151,369	88,854	14,229
Santa Fe County	155,201	87,999	19,090
Block Groups within Study Area	8,243	3,960	693

Source: ACS, 2016-2020

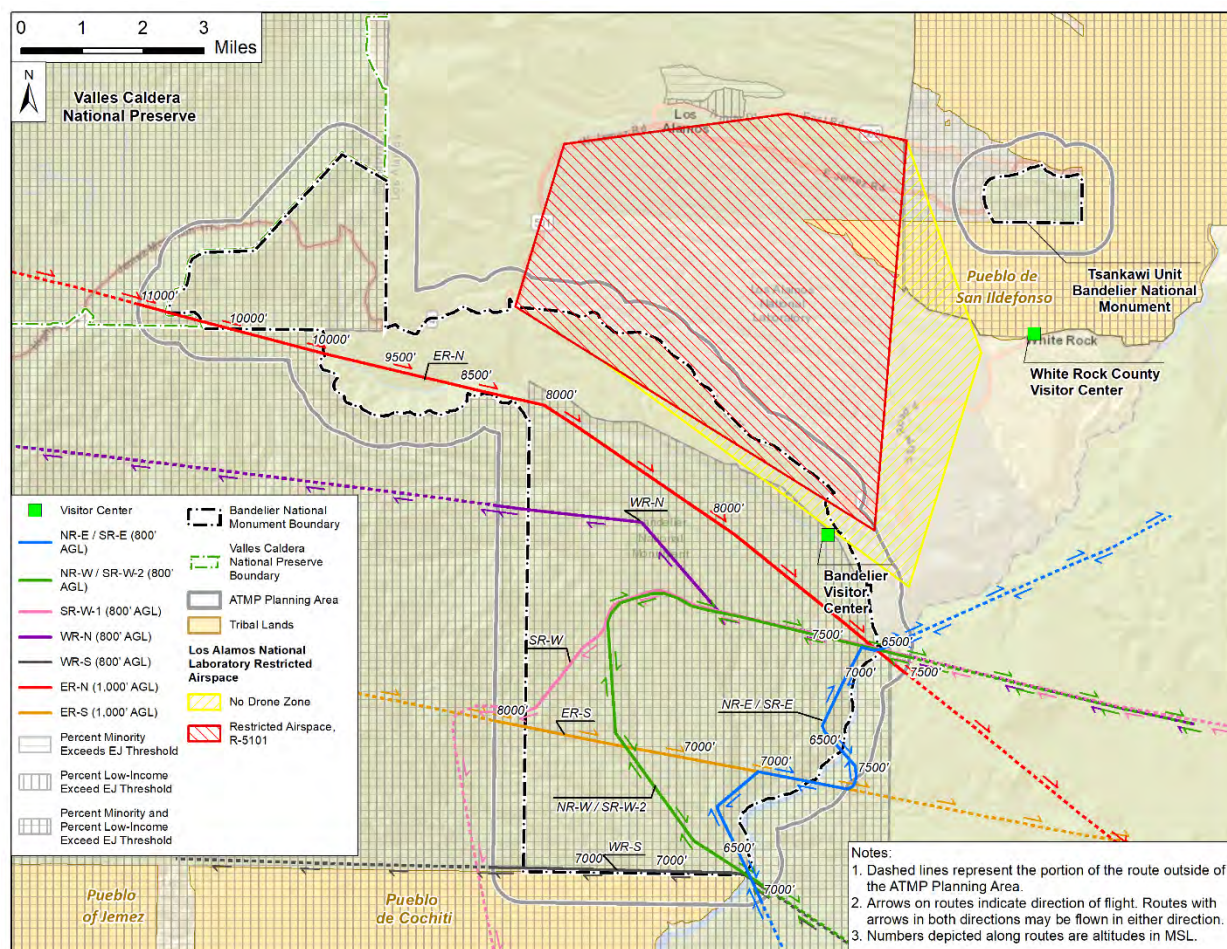


Figure 15. Affected Environment for Environmental Justice.

Socioeconomics

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

Industry

Los Alamos County's most common employment sectors are professional, scientific, and technical services. The Los Alamos National Laboratory has provided employment in these sectors since its establishment in 1943. Other significant sectors include educational services, health care and social assistance, and public administration.

The Park plays a major role in the tourism industry of Los Alamos County. In 2021, 270,716 visitors spent a total of approximately \$19 million at the Park and added a value of approximately \$13.5 million to the local economy. The total labor income generated by this spending equaled approximately \$24.8 million (NPS, 2022f). Entrance fees are required to enter the Park, including the Tsankawi Unit, and range from \$15 to \$25; visitors can also purchase a Park-specific annual pass for \$45. The Park provides seasonal, term, permanent full-time, and part-time positions. The Park offers trails, overnight trips, a museum, bookstore, a 14-minute movie, giftshop, and a snack bar.

Commercial Air Tours

One commercial air tour operator currently holds IOA to conduct a total of 126 commercial air tours per year over the Park. Based on the average of reporting data from 2017-2019, this operator has reported flying an average of 101 air tours per year over the Park.

The price per person for each air tour varies and can range from \$79 to \$499 per person depending on the length of the tour (Southwest Safaris, 2022). The air tour industry employs pilots, mechanics, office administrators, and other types of jobs to conduct business. In addition to people directly employed by the air tour operator, others are indirectly involved with the industry including hotels, tour booking agents, and advertising and marketing professionals. In 2021, the air transportation industry (which includes the air tour industry plus commercial airlines and airport employees), both directly and indirectly, represented 2,140 jobs within the air transportation industry in Los Alamos, Sandoval, and Santa Fe Counties, accounting for less than 1% of Los Alamos, Sandoval, and Santa Fe County's overall employment (ACS, 2016-2020). Employment supported by the air tour industry provides income to workers and indirectly provides revenue to local businesses as a result of employee and operator spending.

3.7.2 Environmental Consequences

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

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

This assessment is provided for each alternative below. As shown in Figure 16, minority and low-income populations of EJ concern are present throughout nearly the entire study area. Specific impacts associated with each alternative are discussed in more detail below.

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

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

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

Alternative 1: No Action

Under existing conditions, air tour routes occur throughout the ATMP planning area except for over the Tsankawi Unit (Figure 15). Some block groups within these areas contain populations of EJ concern or EJ populations though others do not contain EJ populations.¹⁷ Reporting data from 2017-2019 indicates that on a peak month average day, one air tour is conducted within the ATMP planning area, and the maximum number of air tours conducted within this time period on a single day was two tours. Because block groups containing EJ populations are present within the study area, EJ populations currently experience the noise, air quality, and visual effects associated with air tours under current conditions as described in more detail below.

The noise impacts of the No Action Alternative (see Section 3.1.2, Environmental Consequences for Noise and Noise-Compatible Land Use) were modeled based on a peak month, average day

¹⁷ Note that while residential use of the Park is limited to that provided by NPS temporary housing, the block groups encompassing the Park also encompass areas outside of the Park. Because block groups are the smallest unit of analysis for which data is available to identify EJ populations, these geographic areas inside and outside the Park have been lumped together as containing EJ populations, but the Park does not contain residential settlements other than temporary NPS housing.

of commercial air tour activity for the three-year average from 2017-2019 – identified as one operation. The modeling results indicate that the No Action Alternative would not result in noise impacts that would exceed 65 dB DNL. The DNL is expected to be below 35 dB under the No Action Alternative (refer to the *Noise Technical Analysis*, Appendix F, Section 6).

For air quality impacts, the No Action Alternative would not cause pollutant concentrations to exceed one or more of the NAAQS for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations (see Section 3.2.2, Environmental Consequences for Air Quality and Climate Change). The range of total annual GHG emissions resulting from commercial air tours in the ATMP planning area is modeled to be 0.46-1.13 MT of CO₂.

Under the No Action Alternative, impacts to viewsheds would primarily occur at canyon and mesa viewpoints overlooking scenic natural areas (see Section 3.8.2, Environmental Consequences for Visual Effects). Impacts would continue to occur to visual resources under the No Action Alternative as commercial air tours would continue to contrast the scenic vistas and natural areas in the Park, but the visual resources of the Park would still be viewable at times of the day when commercial air tours were not present within the study area (a peak month average day consists of one air tour) (see Section 3.8.2, Environmental Consequences for Visual Effects).

In summary, the modeled impacts of the No Action Alternative would not result in disproportionately high and adverse noise, air quality, or visual effects to EJ populations. This analysis is based on the three-year average of flights between 2017-2019.

Under the No Action Alternative, the number of commercial air tours conducted by the operator would vary from year to year but would likely be consistent with the number of tours reported in the timeframe from 2017-2019, though they could increase up to IOA. Therefore, the amount of income generated for the air tour operator and other ancillary businesses as well as employment would likely be consistent with income generated during that timeframe. The No Action Alternative would not induce substantial economic growth, disrupt or divide physicality of community, cause extensive relocation, disrupt traffic patterns, or produce a substantial change in the community tax base.

Alternative 2

Under Alternative 2, commercial air tours would not be conducted within the ATMP planning area. Therefore, there would be direct beneficial impacts on noise, air quality, and viewsheds within the study area as a result of the elimination of commercial air tours in the ATMP planning area (see Section 3.1.2, Environmental Consequences for Noise and Noise-Compatible Land Use; Section 3.2.2, Environmental Consequences for Air Quality and Climate Change; and Section 3.8.2, Environmental Consequences for Visual Effects). Alternative 2 would result in a

reduction in commercial air tour noise and visual impacts, as well as air emissions compared to those currently occurring under existing conditions; therefore, this alternative would result in a benefit to EJ populations within the ATMP planning area and would not result in disproportionately high and adverse noise, air quality, or visual impacts to EJ populations in the ATMP planning area.

Alternative 2 would not induce substantial economic growth, disrupt or divide physicality of community, cause extensive relocation, or disrupt traffic patterns. Alternative 2 could result in some impacts to employment or the amount of income that the air tour operator and other ancillary businesses could generate from conducting air tours within the ATMP planning area as would occur under the other alternatives. However, as identified above, the air transportation industry represents less than 1% of the total employment in Los Alamos, Sandoval, and Santa Fe Counties, and the prohibition on air tours within the ATMP planning area would not preclude the operator from making up this revenue generation in other ways such as using aircraft for other business ventures or conducting air tours elsewhere within the region (see below for a discussion of indirect socioeconomic effects). Therefore, it is unlikely that Alternative 2 would result in large socioeconomic impacts to the surrounding community, including those associated with changes to the community tax base associated with a loss of industry.

Alternative 3

Alternative 3 would authorize 101 air tours year within the ATMP planning area and would reduce the number of routes on which those air tours could be conducted within the ATMP planning area (see Figure 16). Compared to the No Action Alternative, Alternative 3 would result in fewer direct noise, air quality, and visual impacts as described for each environmental impact category below.

Specifically, for noise impacts (see Section 3.1.2, Environmental Consequences for Noise and Noise-Compatible Land Use), the DNL analysis indicates that Alternative 3 would not result in noise impacts that would exceed 65 dB DNL. The resultant DNL is expected to be below 35 dB under Alternative 3.

For air quality impacts, Alternative 3 would not cause pollutant concentrations to exceed one or more of the NAAQS for any of the time periods analyzed (Section 3.2.2, Environmental Consequences for Air Quality and Climate Change). The range of change in annual GHG emissions for Alternative 3, as compared to the No Action Alternative, would be -0.53 to 0.28 MT CO₂. Compared to the No Action Alternative, Alternative 3 would result in no or negligible benefit/impact to air quality within the ATMP planning area, none of which would have disproportionate or high adverse effects on EJ populations.

Under the Alternative 3, visual impacts associated with air tours would decrease because they would be authorized to occur on fewer routes as compared to existing conditions, which would

reduce the area of the Park that a visitor would have the potential to see an air tour. Visual effects under Alternative 3 would primarily be associated with instances where the aircraft contrasted with natural scenery and would occur no more than 101 instances per year (see Section 3.8.2, Environmental Consequences for Visual Effects). Alternative 3 would provide improved protection of the visual character of the Park and its viewsheds, including the importance, uniqueness, and aesthetic value of the affected visual resources. Other than times of day when commercial air tours were present within the ATMP planning area, this alternative would not contrast with the visual resources and/or visual character in the study area or obstruct views of the visual resources (see Section 3.8.2, Environmental Consequences for Visual Effects).

In summary, Alternative 3 would not result in disproportionately high and adverse noise, air quality, or visual effects to EJ populations.

The socioeconomic effects stated under Alternative 2 (some impacts to employment or the amount of income that the air tour operator and other ancillary businesses could generate from conducting air tours within the ATMP planning area) would be fewer under Alternative 3, including the potential for impacts associated with changes to the community tax base, as some air tours would still occur within the ATMP planning area. Alternative 3 would not induce substantial economic growth, disrupt or divide physicality of the community, cause extensive relocation, or disrupt traffic patterns.

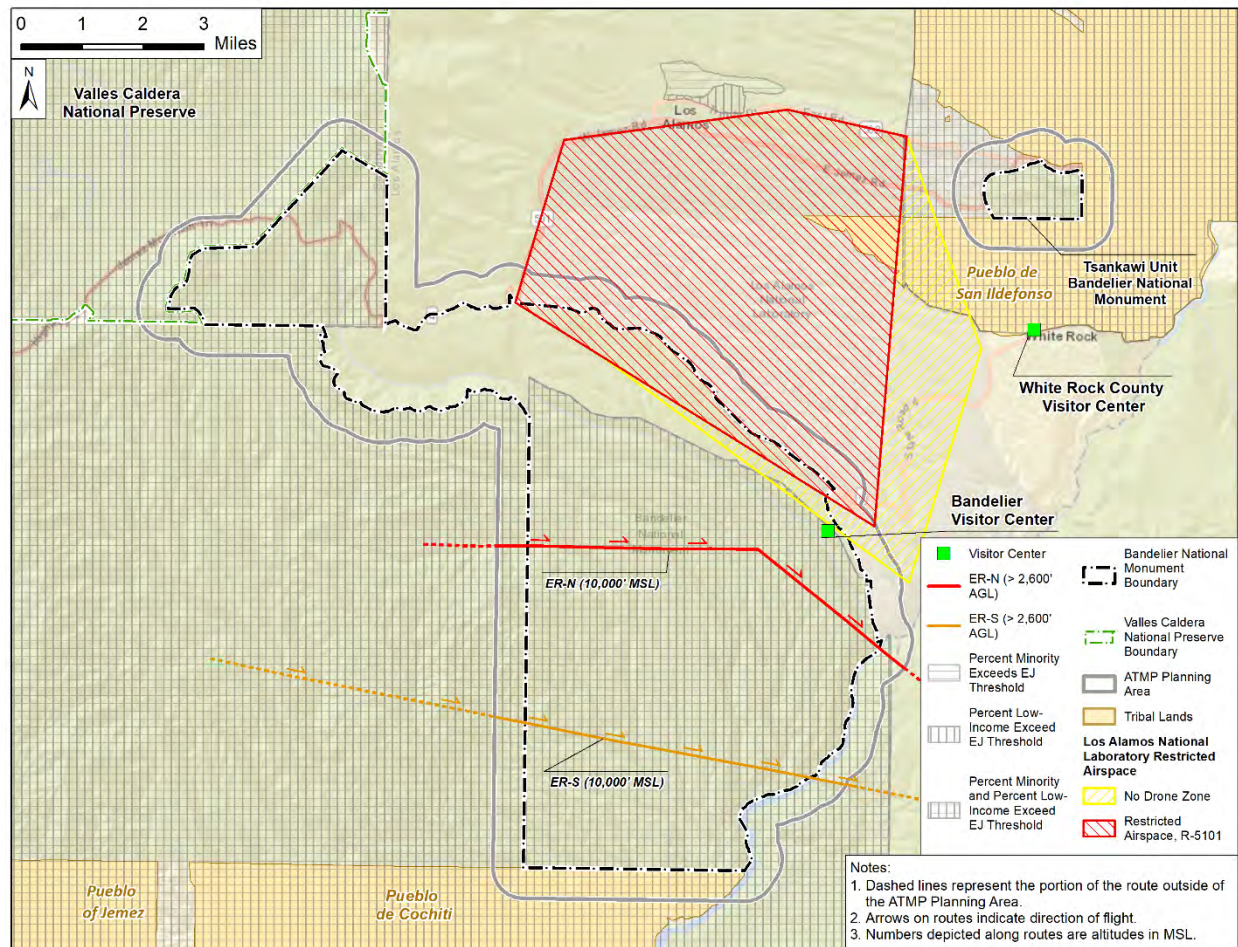


Figure 16. Environmental Justice Environmental Consequences for Alternative 3.

Indirect and Cumulative Effects

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

The prohibition of air tours within the ATMP planning area under Alternative 2 or the reduction in the number of routes within the ATMP planning area under Alternative 3 could limit the potential future economic growth for the commercial air tour operator and other ancillary businesses. Because of the capital investment the air tour operator has in aircraft, facilities, and equipment, the operator could seek to make up lost revenue from air tours within the

ATMP planning area by conducting air tour operations outside of the ATMP planning area to the extent possible. The operator currently flies multiple tours over different parks and lands in New Mexico (Southwest Safaris, 2022), and they could fly these tours more frequently up to IOA. The operator may also choose to retire, surrender their operating certificate, or use their aircraft for other businesses or operations such as search and rescue, fire protection, resource mapping and assessment, and flight for life operations. Alternative 3 continues to allow the same number of flights as compared to the No Action Alternative; however due to limitations on the number of authorized routes within the ATMP planning area, air tour displacement outside the ATMP planning area could still occur, which may not be as desirable to those seeking to take an air tour of the Park. This could mean fewer flights and a loss of revenue. Therefore, although Alternatives 2 and 3 would limit the opportunities for the air tour operator and ancillary businesses to generate revenue from tours conducted within the ATMP planning area, these alternatives would not preclude the operator from making up this revenue generation in other ways such as using their aircraft for other business ventures or conducting air tours elsewhere within the region.

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

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

3.8 Visual Effects

Visual resources include buildings, sites, traditional cultural properties, and other natural or manmade landscape features that are visually important or have unique characteristics. In addition, visual resources can include the cohesive collection of various individual visual resources that can be viewed at once or in concert from the area surrounding the site of the alternatives. Visual character refers to the overall visual makeup of the existing environment where the alternatives would be located. For example, areas in close proximity to densely populated areas generally have a visual character that could be defined as urban, whereas less developed areas could have a visual character defined by the surrounding landscape features, such as open grass fields, forests, mountains, or deserts, etc. Visual effects generally describe the extent to which the proposed action or alternatives would either produce light emissions that create annoyance or interfere with activities; or contrast with, or detract from, the visual resources and/or the visual character of the existing environment. Although there are no federal special purpose laws or requirements specific to light emissions and visual effects, there are special purpose laws and requirements that may be relevant, such as those relating to cultural resources (see Section 3.4, Cultural Resources) or Section 4(f) resources (see Section 3.9, Department of Transportation (DOT) Act Section 4(f) Resources). Additionally, NPS Management Policies (2006) § 1.4.6 provides that scenic views and vistas are park resources that are protected under the NPS Organic Act.

The study area for visual effects is the ATMP planning area, which is also consistent with the cultural resources APE. Refer to Figure 17 for a depiction of the study area used for the visual effects analysis. Acoustic monitoring sites are included on Figure 17 as these sites provide popular locations to view the Park.

3.8.1 Affected Environment

The Park is characterized by deep canyons that reach from the edge of Valles Caldera to the Rio Grande, offering visitors distinct experiences of the Park's visual resources. As discussed in Section 3.6.1, Affected Environment for Visitor Use and Experience and Other Recreational Opportunities, a major attraction for visiting the Park is to experience the scenery and landscape of the Park. As 70% of the Park is Congressionally designated Wilderness, the natural areas and features provide an aesthetic and visual character unique to the Park. Within the Park, visual resources include natural landscape features, like canyons, mesas, and cavates (NPS, 2015). The Park's visual resources also include its archeological sites, such as the Pueblo village of Tsankawi and Alcove House (refer to Section 3.4.1, Affected Environment for Cultural Resources, for more information).

The Frijoles Canyon area of the Park is a viewshed offering visitors views of rock formations and stargazing opportunities. The visual quality of the Tsankawi Unit includes more than 150

archeological sites, including cavates, petroglyphs, and the Ancestral Pueblo village of Tsankawi on Pajarito Mesa (NPS, 2015). The Tsankawi Mesa Trail brings visitors up to the mesa top and provides opportunities for viewing cavates, petroglyphs, Tsankawi Pueblo, and the surrounding environment (NPS, 2014). Other structures and sites with aesthetic visual qualities that are tied to cultural resources are discussed in greater detail in Section 3.4.1, Affected Environment for Cultural Resources.

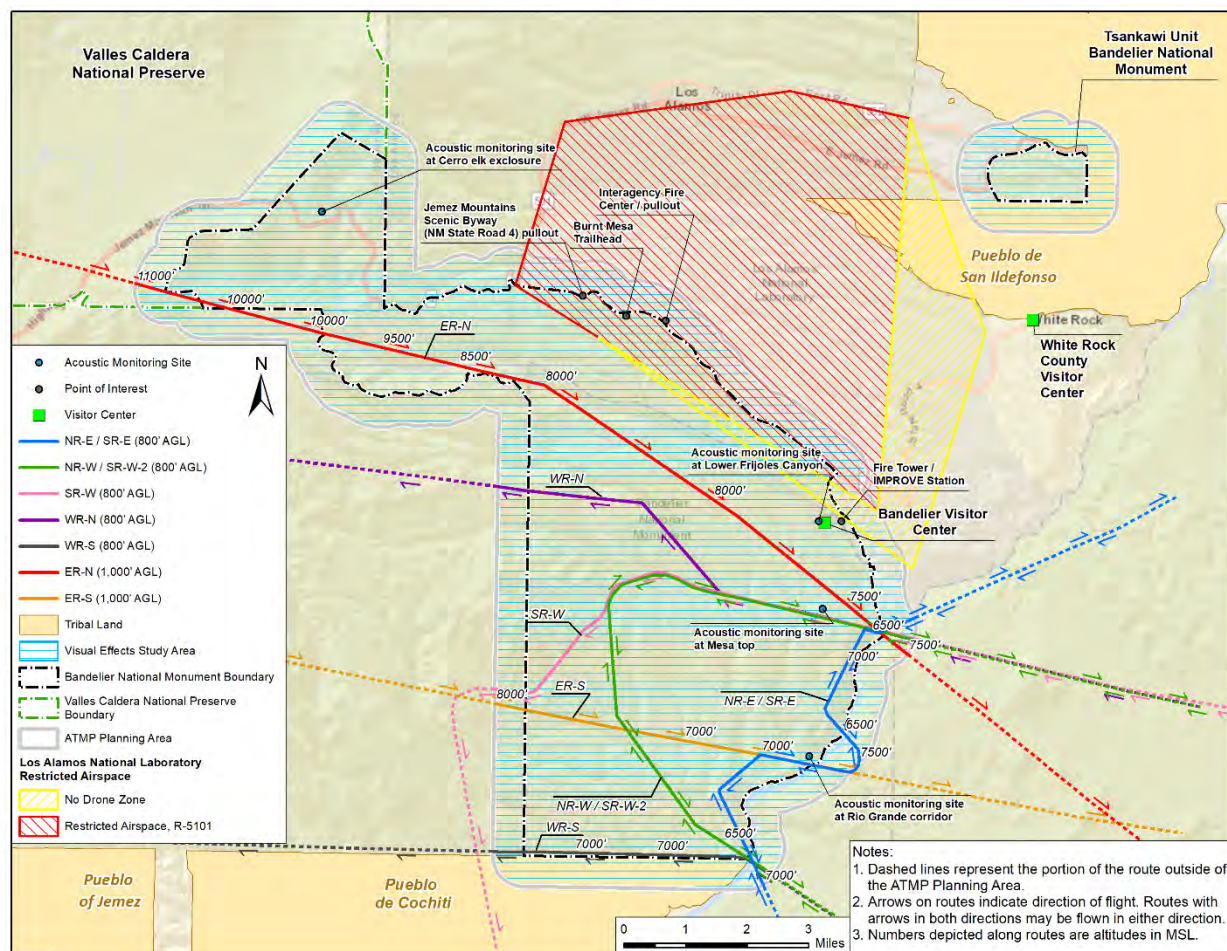


Figure 17. Affected Environment for Visual Effects.

3.8.2 Environmental Consequences

Studies indicate that aircraft noise in national parks can impact human perceptions of aesthetic quality of viewsheds (Weinzimmer et al., 2014; Benfield et al., 2018).

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

- Affect the nature of the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources;
- Contrast with the visual resources and/or visual character in the study area; and
- Block or obstruct the views of visual resources, including whether these resources would still be viewable from other locations.

Alternative 1: No Action

Reporting data from 2017-2019 indicates that visitors have the potential, on average, to see commercial air tour aircraft 101 times per year. On average, air tours are flown on approximately 99 days out of the year, and the maximum number of tours reported over the Park during this time period was two tours in a single day, though most days on which air tours were flown (approximately 98%) consisted of one tour. The altitudes reported from commercial air tours conducted near viewsheds in the ATMP planning area range from 800 to 1,000 ft. AGL, so the aircraft would likely be visible in these areas. Refer to Figure 17 for a depiction of existing air tour conditions in the context of visual points of interest and viewsheds within the Park.

Under existing conditions, commercial air tours are primarily flown over or near ATMP planning area viewsheds in the central and eastern areas of the Park. In the context of the Park's natural scenery consisting of topography of canyons and mesas, 360-degree views of the Pajarito Plateau, the Jemez Mountains, the Rio Grande Valley, native vegetation, masonry pueblos, and cavates, commercial air tours would contrast with the natural scenery in locations where air tours are visible to Park visitors. The viewpoints where this would be most likely to occur are the highest points in the Park in the visual effects study area near the ridges and mesas where the 360-degree views are available. Existing commercial air tour routes are located near these viewpoints and would be seen by visitors overlooking natural scenic areas, which would continue to occur under the No Action Alternative. Since the Park consists primarily of a natural landscape, the encroachment of commercial air tour aircraft on these viewsheds could temporarily detract from the visitor's opportunity to observe these unique scenic vistas and natural resources on days where air tours are flown. This analysis is based on the three-year average of flights between 2017-2019. See Section 3.4.1, Affected Environment for Cultural Resources, for additional information on visual effects associated with cultural resources.

Alternative 2

Under Alternative 2, commercial air tours would not be conducted within the ATMP planning area, which would result in fewer effects to visual resources in the visual effects study area. Therefore, commercial air tours within the visual effects study area would no longer have a direct effect on the visual resources within the ATMP planning area. Visual resources would

experience direct beneficial impacts under Alternative 2 and visual character would improve compared to current conditions. Alternative 2 would provide the greatest protection to Park viewsheds across the three alternatives.

Alternative 3

Under Alternative 3, commercial air tours could be conducted on two routes in the ATMP planning area (the ER-N red route and ER-S orange route), which would reduce impacts to visual resources within the visual effects study area (see Figure 18). Some Park viewsheds could experience temporary impacts when commercial air tours are flying within the ATMP planning area, but those instances would be limited to viewsheds where aircraft could be seen along the designated routes and altitudes. As with the No Action Alternative, visual impacts would primarily be associated with air tour aircraft contrasting natural scenery rather than blocking visitors' views of visual resources.

Although commercial air tours would still be visible from points throughout the Park, Alternative 3 would reduce the number of routes and locations where aircraft would be seen compared to existing conditions. Alternative 3 would require the operator to fly at 10,000 ft. MSL, which results in altitudes of at least 2,600 ft. AGL, which is higher than current conditions (an increase of altitude between 1,600 – 1,800 ft. AGL, depending on the location within the ATMP planning area). Since the number of routes would decrease and altitudes would increase compared to existing conditions, visitors would be less likely to notice aircraft, and impacts to viewsheds within the visual effects study area would decrease as compared to current conditions.

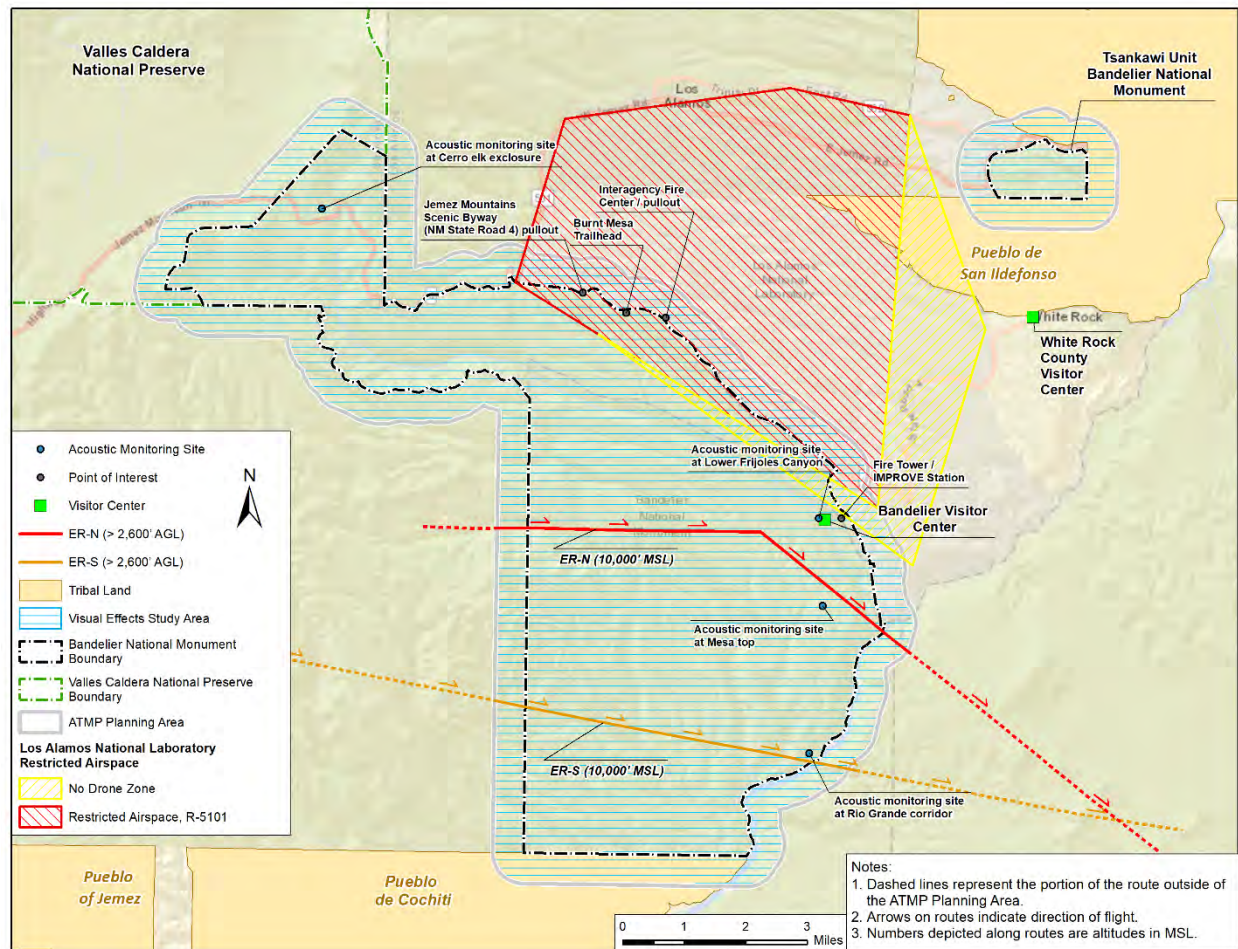


Figure 18. Visual Effects Environmental Consequences for Alternative 3.

Indirect and Cumulative Effects

Indirect Effects: Under the No Action Alternative, commercial air tour operations within the ATMP planning area would remain consistent with existing conditions, although air tour numbers could increase slightly up to IOA, thus there would be no change to viewsheds within the ATMP planning area and no indirect impacts would be expected to occur under this alternative.

Alternative 2 would prohibit air tours within the ATMP planning area, and Alternative 3 would limit the number of commercial air tour routes compared to existing conditions, which would therefore have the potential to result in some displacement of air tours outside of the ATMP planning area. Air tours occurring outside of the ATMP planning area may result in more indirect effects to visual resources. The operator may choose to fly along existing flight paths but above 5,000 ft. AGL. However, this may be impractical due to the high elevation of the terrain because it would require the operator to fly above 10,000 ft. MSL. Supplemental

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

It is unlikely that the operator would continue to conduct commercial air tours of the Park by flying along the perimeter of the ATMP planning area because it is difficult to see the predominant features of the Park from outside the ATMP planning area. Since the operator cannot fly on the north side of the Park due to restricted air space, it is unlikely there would be new or different impacts in that area. The operator currently flies multiple tours over different parks and lands in New Mexico (Southwest Safaris, 2022), and they could fly these tours more frequently. The majority of destinations and tours offered by the operator are to the west and northwest of the Park, and the airport used for most flights is located to the southeast of the Park. Due to the flight restrictions to the north and east of the Park, there may be a slight increase in flights to the south and west of the ATMP planning area if air tours were displaced outside of the ATMP planning area. This could result in air tours outside the ATMP planning area being visible from viewsheds within the ATMP planning area along the western and southeastern boundaries which include Turkey Springs, Capulin Canyon, Horse Mesa and the Rio Grande.

Therefore, under Alternatives 2 and 3, indirect impacts to viewsheds within and outside the ATMP planning area could occur to the extent that they are present if flights were displaced to outside the ATMP planning area. Since Alternative 2 prohibits flights within the ATMP planning area whereas Alternative 3 limits the number of routes that can be flown in addition to other operating parameters as specified in Section 2.5, Alternative 2 (Preferred Alternative) would likely result in more indirect impacts to viewsheds than Alternative 3.

Cumulative Effects: Because the No Action Alternative would not result in any new direct or indirect impacts compared to current conditions, there would be no cumulative effects from the No Action Alternative. Under all alternatives, other sources of ongoing visual impacts within the visual effects study area include general aviation flights, overflights by commercial airlines, military flights, and administrative flights such as those used for maintenance or search and rescue efforts, which would likely continue in the same frequency and manner under any of the alternatives, as they occur independently of air tours. Additionally, the NPS will begin a construction project in the summer of 2023 that will expand an existing parking lot at the Frey Trailhead within the developed area adjacent to Juniper Campground. In the spring of 2024, the NPS will begin construction for a utility replacement project that will rehabilitate and replace most underground utilities at the Park. The project area will include the mesa-top developed area (including NPS housing and Juniper Campground), the Entrance Road, and the main visitor use area in Frijoles Canyon. Construction is expected to last up to one year,

including all ground rehabilitation activities. Visual impacts resulting from earth-moving equipment and machinery will be similar under any of the alternatives.

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

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

Section 4(f) of the Department of Transportation Act of 1966, which was recodified and renumbered as Section 303(c) of 49 U.S.C., provides that the Secretary of Transportation will not approve any program or project that requires the use of any publicly owned land from a public park, recreational area, or wildlife and waterfowl refuge of national, state or local significance; or land from an historic site of national, state or local significance, as determined by the officials having jurisdiction over the land, unless 1) there is no feasible and prudent alternative to the use of such land; and 2) such program or project includes all possible planning to minimize harm resulting from such use. Where federal lands are administered for multiple uses, the federal official having jurisdiction over the lands shall determine whether the subject lands are in fact being used for park, recreational, wildlife, waterfowl, or historical purposes. National Wilderness areas may serve similar purposes and shall be considered subject to Section 4(f) unless the controlling agency specifically determines that, for Section 4(f) purposes, the lands are not being used.

Appendix B of FAA Order 1050.1F describes the FAA's procedures for complying with Section 4(f). Federal Highway Administration/Federal Railroad Administration/Federal Transit Administration regulations and policy are not binding on the FAA; however, the FAA may use them as guidance to the extent relevant to aviation projects.¹⁸ According to FAA Order 1050.1F, significance of impacts is determined based on if the action involves more than a minimal physical use of a Section 4(f) resource or constitutes a "constructive use" based on an FAA determination that the aviation project would substantially impair the Section 4(f) resource.

¹⁸ See 1050.1F Desk Reference, Section 5-3.

The study area for considering Section 4(f) resources in this draft EA corresponds with the APE used for compliance with Section 106 of the NHPA. Refer to Figure 19 for a depiction of the Section 4(f) study area.

3.9.1 Affected Environment

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

Table 13 shows Section 4(f) parks and recreational areas identified in the Section 4(f) study area, and Section 3.4.1, Affected Environment for Cultural Resources, and Appendix G, *Cultural Resources Consultation and Summary*, list historic resources that qualify under Section 4(f). Except in unusual circumstances, Section 4(f) protects only those historic sites that are listed in or eligible for listing in the National Register.¹⁹ There were no wildlife or waterfowl refuges identified in the Section 4(f) study area. Figure 19 shows a map of the Section 4(f) resources analyzed in this chapter, within the Section 4(f) study area.

Table 13. Section 4(f) Resources.

Property Name	Property Type
Bandelier National Monument	National Monument
Valles Caldera National Preserve	National Preserve
Santa Fe National Forest	National Forest
Jemez National Recreation Area	National Recreation Area
Cochiti Reservoir	Recreation Reservoir

Sources: U.S. Geological Survey Protected Areas Database of the U.S.

¹⁹ If a historic site is not National Register listed or eligible, a state or local official may formally provide information to FAA to indicate that a historic site is locally significant. The responsible FAA official may then determine it is appropriate to apply Section 4(f). See FAA Order 1050.1F for further detail.

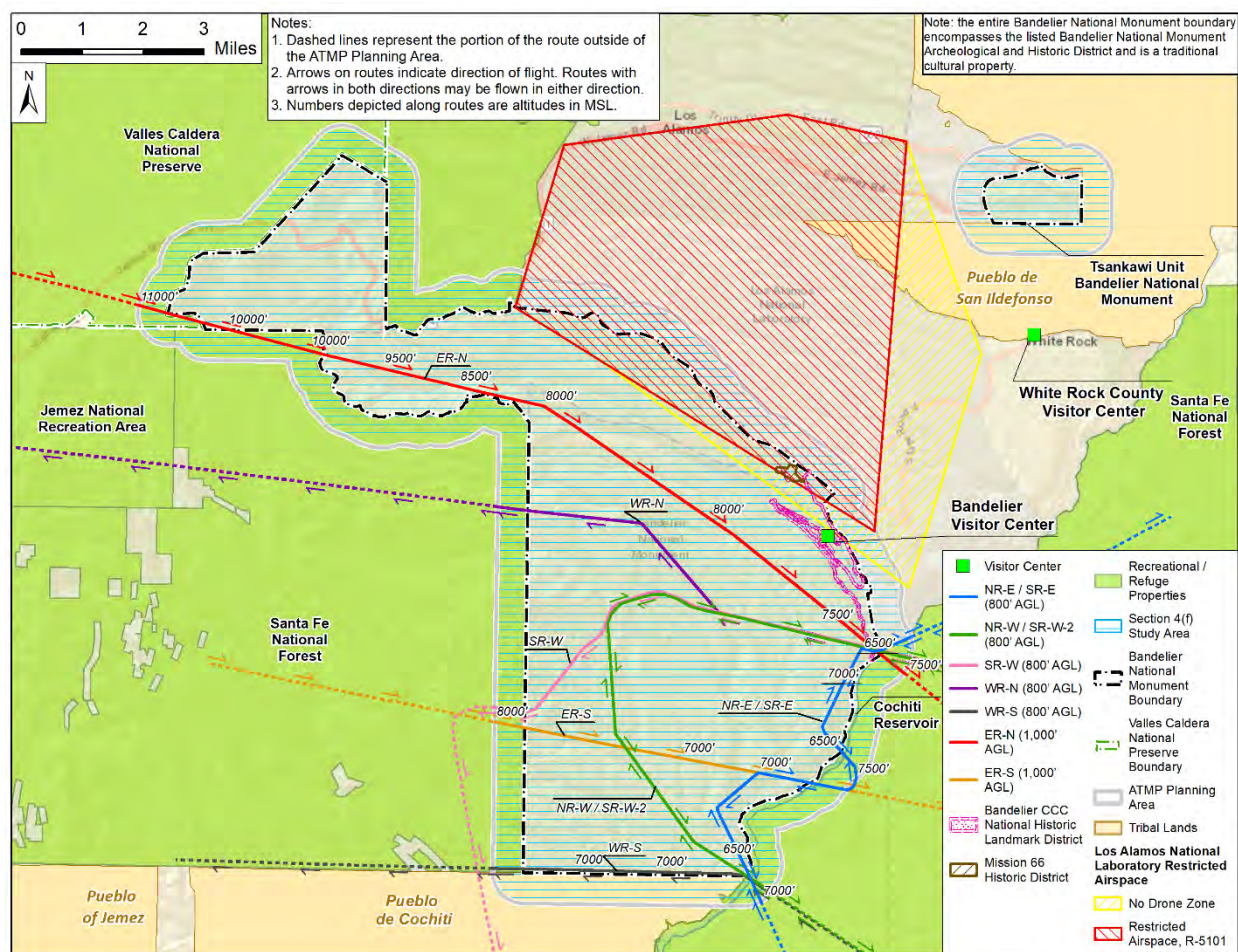


Figure 19. Affected Environment for Section 4(f) Properties.

3.9.2 Environmental Consequences

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

The FAA considered the potential for constructive use of Section 4(f) resources under all alternatives. In accordance with FAA Order 1050.1F, the FAA determined through an initial assessment if the Proposed Action and alternatives would result in use of any of the properties to which Section 4(f) applies. As noted in Section 2.4, Alternative 1 (No Action Alternative), the No Action Alternative provides a basis for comparison within this draft EA but is not a selectable alternative because it does not meet the purpose and need for the ATMP (refer to Section 1.4, Purpose and Need). Furthermore, the FAA consulted with the NPS on the potential for substantial impairment to Section 4(f) resources that would occur under the No Action Alternative, and the NPS determined that the No Action Alternative cannot be altered to avoid or prevent unacceptable impacts to the Park's cultural resources. Therefore, the FAA did not advance the No Action Alternative for detailed Section 4(f) analysis as it is not considered a selectable alternative.

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

Alternative 2

Under Alternative 2 commercial air tours would not be conducted within the ATMP planning area which would reduce this source of noise originating from within the ATMP planning area (Figure 20). The acoustic impacts of Alternative 2 cannot be modeled because, although some speculation about air tour routes can be made, it is unknown where air tours would fly when outside the ATMP planning area (see below for a discussion of indirect effects). Thus, data on the resultant DNL for this alternative is not available. Alternative 2 would provide 365 days per year without air tours within the ATMP planning area.

The FAA also considered the potential for vibrational or visual effects on Section 4(f) resources under Alternative 2. However, since Alternative 2 would not authorize commercial air tours to be conducted within the ATMP planning area, vibrational or visual effects to Section 4(f) resources would not occur from air tours within the ATMP planning area.

As a result, FAA concludes there would be no substantial impairment²⁰ of Section 4(f) resources from noise, visual, or vibrational related effects caused by air tours in the ATMP planning area under Alternative 2. This Section 4(f) determination for historic properties is based on 14 CFR Part 150 Appendix A and is also consistent with the Section 106 no adverse effect determination for Alternative 2 (see Section 3.4.2, Environmental Consequences for Cultural Resources).

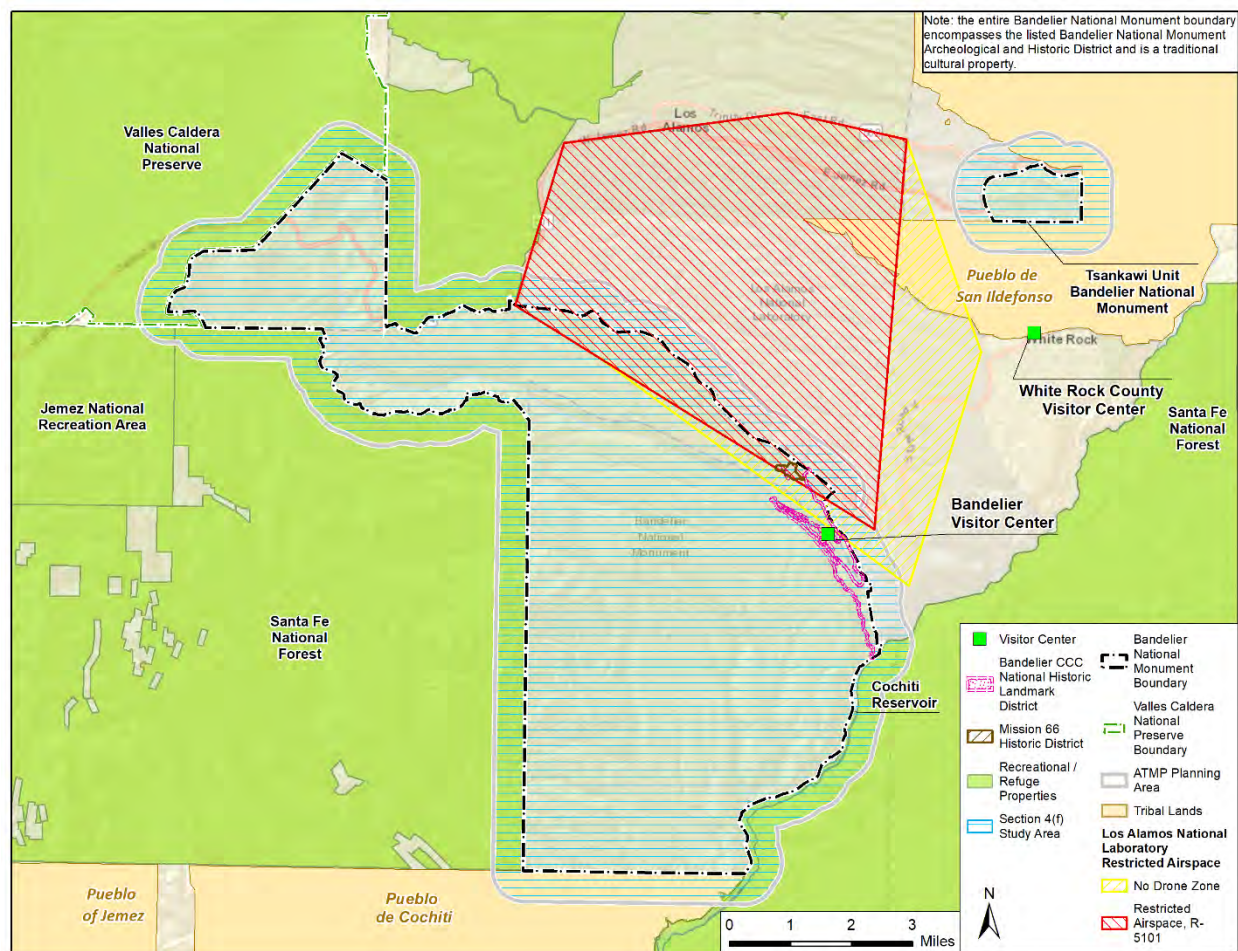


Figure 20. Section 4(f) Environmental Consequences for Alternative 2.

Alternative 3

The FAA evaluated Alternative 3 for potential impacts to Section 4(f) resources. The noise analysis in Section 3.1.2, Environmental Consequences for Noise and Noise-Compatible Land Use, indicates that the resultant DNL due to Alternative 3 is expected to be below DNL 35 dB

²⁰ Substantial impairment would occur when impacts to section 4(f) lands are sufficiently serious that the value of the site in terms of its prior significance and enjoyment are substantially reduced or lost.

and would not cause any reportable noise as there would be no expected increase or change in noise as a result of this alternative.

Alternative 3 would authorize 101 air tours per year to be conducted within the ATMP planning area, consistent with existing conditions based on the three-year average of reporting data from 2017-2019. Refer to Figure 21 for a depiction of air tour routes under Alternative 3 in the context of Section 4(f) properties. Because Alternative 3 would authorize the same number of flights per year, evaluation of NPS supplemental metrics show that impacts to Section 4(f) resources would be similar to impacts currently occurring:

- On days when commercial air tours would occur, noise levels above 35 dBA (an indicator used by NPS to assess the potential for degradation of the natural sound environment) would occur for less than five minutes in 53% of the ATMP planning area for air tours conducted on the ER-N red route, and noise would not exceed levels above 35 dBA in the ATMP planning area for air tours conducted on the ER-S orange route (see *Noise Technical Analysis*, Appendix F, Section 6).
- On days when commercial air tours would occur, noise levels above 52 dBA (which is associated with speech interference) are not anticipated to exceed one minute in the ATMP planning area based on an analysis of location point data. Location points (provided by NPS) are specific points of interest geographically located across the entire Park where noise levels were evaluated (see Appendix I, *Section 4(f) Analysis*, for a summary of the reported ranges of time above 52 dBA for location points within 1.5 miles of each Section 4(f) property).

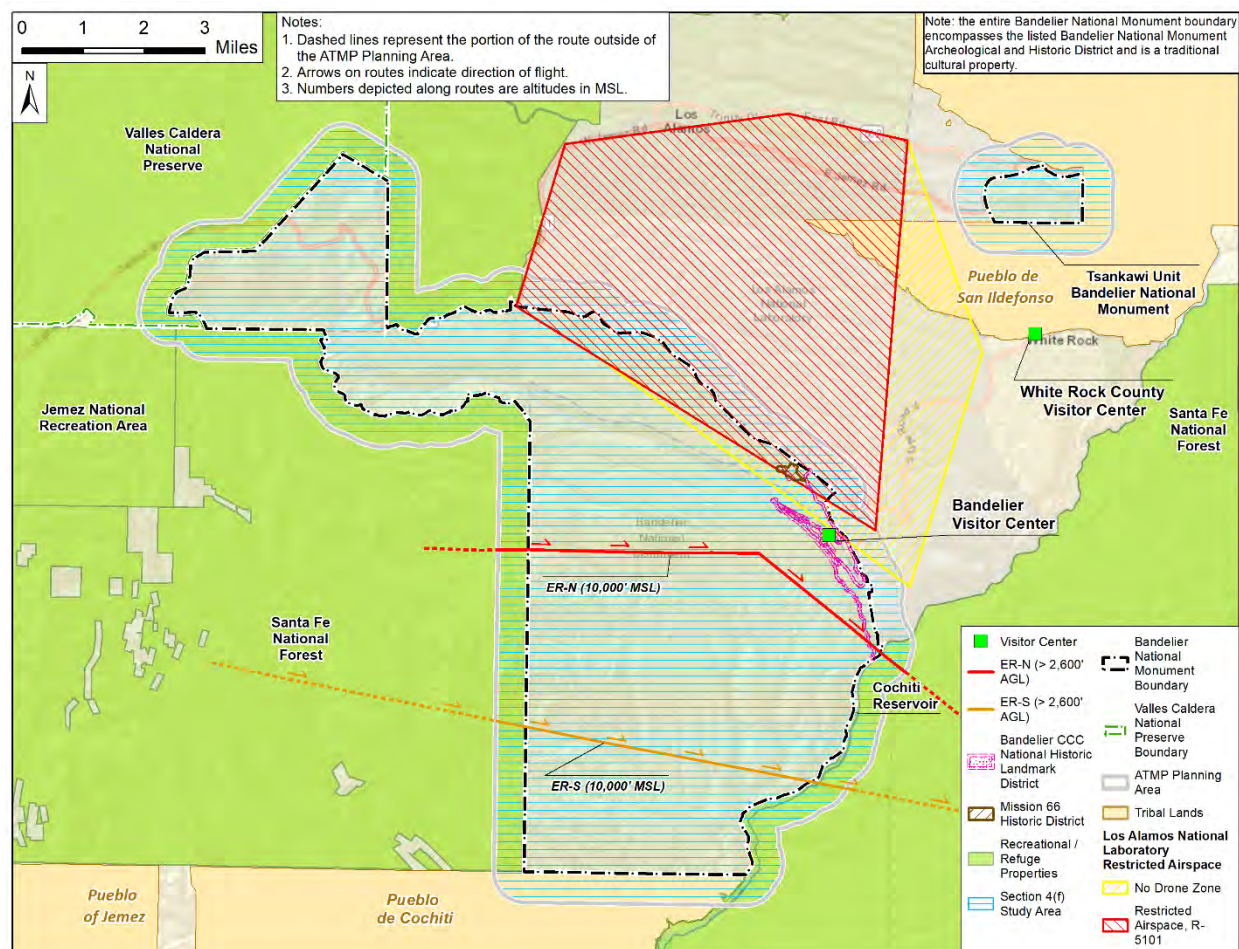


Figure 21. Section 4(f) Environmental Consequences for Alternative 3.

In addition, Alternative 3 would limit the operation of commercial air tours to between two hours after sunrise until two hours before sunsets on any day of the week or extends operations until one hour after sunrise until one hour before sunset if authorized by the agencies for an operator that has converted to quiet technology aircraft. These time restrictions provide times when visitors seeking solitude may experience the Section 4(f) resources without disruptions from commercial air tours. The altitudes required by Alternative 3, which would increase the minimum altitude to 10,000 ft. MSL, which results in a minimum of 2,600 ft. AGL, depending on location within the ATMP planning area as compared to existing conditions, would reduce the maximum noise levels at sites directly below the air tour routes.

As a result, the FAA concludes there would be no substantial impairment²¹ of Section 4(f) resources in the Section 4(f) study area from noise-related effects under Alternative 3. This

²¹ Substantial impairment would occur when impacts to section 4(f) lands are sufficiently serious that the value of the site in terms of its prior significance and enjoyment are substantially reduced or lost.

conclusion supports the FAA's determination that Alternative 3 would not constitute constructive use of Section 4(f) resources in the Section 4(f) study area. This Section 4(f) determination for historic properties is based on 14 CFR Part 150 Appendix A and is also consistent with the impact discussion at the Park for cultural resources (see Section 3.4.2, Environmental Consequences for Cultural Resources).

The FAA also considered the potential for vibrational impacts on Section 4(f) resources under Alternative 3. A review of the potential for vibrational impacts on sensitive structures such as geological resources, historic buildings, parklands, and forests suggests that the potential for damage resulting from fixed-wing propeller aircraft overflights is minimal, as the fundamental blade passage frequency of the aircraft is well above the resonant natural frequency of these structures (i.e., the natural vibrational tendency associated with a structure). Additionally, the vibration amplitude associated with fixed-wing aircraft overflights is well below recommended limits described to avoid structural damage (Hanson et al., 1991; Volpe, 2014). Vibrational impacts are not anticipated to affect surrounding parkland and state forest areas given that aircraft overflights do not contain vibrational energy at levels which would affect outdoor areas or natural features and there is no substantial change from existing conditions.

Recognizing that some types of Section 4(f) resources may be affected by visual effects of commercial air tours, the FAA and the NPS considered the potential for the introduction of visual elements that could substantially diminish the significance or enjoyment of Section 4(f) resources in the Section 4(f) study area. Alternative 3 would limit the number of commercial air tours per year to 101 flights and would limit those routes to two flight paths over the Park. These restrictions would result in the same number of air tours occurring on fewer routes within the Section 4(f) study area, and therefore, fewer Section 4(f) properties, from which a commercial air tour could be visible. Alternative 3 would not introduce visual elements or result in visual impacts that would substantially diminish the activities, features or attributes of a Section 4(f) resource. Therefore, there would be no constructive use from visual impacts of Section 4(f) resources.

Indirect and Cumulative Effects

Indirect Effects: The indirect effects of Alternatives 2 and 3 on Section 4(f) properties reflect those analyzed in the sections for noise and visual effects. Alternatives 2 would prohibit air tours within the ATMP planning area and Alternative 3 would limit the number of routes on which air tours could be conducted within the ATMP planning area as compared to existing conditions and would have the potential to result in some displacement of air tours outside the ATMP planning area. Air tours occurring outside the ATMP planning area, if any, may result in noise or visual effects to Section 4(f) resources to the extent that they are present near the areas that those flights would occur.

The indirect effects analysis conducted in Section 3.1.2, Environmental Consequences for Noise and Noise-Compatible Land Use, indicates that it is highly unlikely that the air tours that are displaced to outside the ATMP planning area under Alternative 3 and would generate a noise exposure level at or above DNL 65 dB in a single location in accordance with FAA Order 1050.1F, including those that overlap with Section 4(f) properties (see Section 3.1.2, Environmental Consequences for Noise and Noise-Compatible Land Use). The indirect effects analysis for Visual Effects identifies that some indirect visual impacts could occur if flights were displaced to outside the ATMP planning area and could be experienced just outside the ATMP planning area (see Section 3.8.2, Environmental Consequences for Visual Effects). Section 4(f) resources are present in these areas and could experience indirect visual effects if air tours were visible from those resources. However, the FAA and the NPS are unable to predict with specificity if, where, and to what extent any displaced air tours would result in visual impacts in different and/or new areas, including Section 4(f) resources.

Cumulative Effects: The cumulative effects to Section 4(f) properties reflect those analyzed in the sections for noise and visual effects. The reduced number of air tours under Alternative 2 and the reduced number of routes authorized under Alternatives 2 and 3 within the ATMP planning area would result in a reduction in the intensity of noise directly around and below air tour routes as compared to current conditions. Ongoing present and future Park management actions by the NPS within the ATMP planning area, including administrative helicopter flights, may contribute noise that would continue to negatively affect the acoustic environment of Section 4(f) properties within the ATMP planning area. Other sources of ongoing visual impacts that may affect Section 4(f) properties within the ATMP planning area include general aviation flights, overflights by commercial airlines, military flights, and administrative flights such as those used for maintenance or search and rescue efforts. These activities would likely continue under Alternatives 2 and 3, as they occur independently of air tours.

Section 4(f) Recommended Finding

In summary, the FAA has preliminarily determined that there would be no constructive use to Section 4(f) properties under Alternatives 2 and 3 because noise and visual impacts from commercial air tours under these alternatives would not constitute a substantial impairment of Section 4(f) resources in the Section 4(f) study area. As part of the ATMP and draft EA development, the FAA consulted with the NPS and through the release of the draft ATMP and draft EA, consulted with the NPS and other officials with jurisdiction over Section 4(f) resources in the Section 4(f) study area regarding FAA's preliminary finding of no substantial impairment, and hence, the FAA's proposed no constructive use determination. The FAA has sent letters to each Section 4(f) property's official with jurisdiction with this preliminary finding concurrent with the release of this draft EA for public review. Refer to Appendix I, *Section 4(f) Analysis*, for additional details on this coordination.

3.10 Summary of Environmental Consequences

Table 14 summarizes the environmental consequences described above for each of the alternatives considered across each environmental impact category.

Table 14. Summary of Environmental Consequences of the ATMP Alternatives.

Environmental Impact Category	Alternative 1 (No Action)	Alternative 2 (Preferred)	Alternative 3
Noise and Noise-Compatible Land Use	• 12-hr equivalent sound level: <35 dBA • DNL: <35 dB within the ATMP planning area. • Time above 35 dBA: maximum <5 minutes per day in 39% of ATMP planning area. • Maximum time above 52 dBA: 0.1 minutes at location point #11 (Rio Grande). • Maximum sound level in ATMP planning area: 54.8 dBA at location point #11 (Rio Grande). • No indirect effects expected.	• 365 days per year without air tours within the ATMP planning area and would reduce noise in the most noise sensitive regions of the Park. • Indirect noise impacts may occur due to air tours displaced to outside the ATMP planning area.	• 12-hr equivalent sound level: <35 dBA within the ATMP planning area. • DNL: <35 dB within the ATMP planning area. • Time above 35 dBA: ER-S orange route, 0 minutes across ATMP planning area; ER-N red route, <5 minutes in 53% of ATMP planning area. • Maximum time above 52 dBA: 0.5 minutes at location point #10 (Capulin Canyon). • Maximum sound level in ATMP planning area: 57.7 dBA at location point #10 (Capulin Canyon). • Indirect noise impacts may occur due to air tours being displaced to outside the ATMP planning area.
Air Quality and Climate Change	• GHG emissions: 0.46 to 1.13 MT of CO₂ per year. • Would not cause NAAQS exceedance or increase the frequency or severity of any existing violations. • No indirect effects expected.	• 100% reduction in criteria pollutant emissions within the ATMP planning area. • Reduction in GHG emissions of 0.46 to 1.13 MT CO₂ within the ATMP planning area. • Would not cause NAAQS exceedance or increase the frequency or severity of any existing violations. • Indirect impacts may occur due to air tours outside the ATMP planning area if winds transport emissions to within the ATMP planning area, and some areas not currently exposed	• No to negligible change in criteria pollutant emissions within the ATMP planning area. • No to minimal change to GHG emissions of -0.53 to 0.28 MT of CO₂ per year within the ATMP planning area. • Would not cause NAAQS exceedance or increase the frequency or severity of any existing violations. • Indirect impacts may occur due to air tours outside the ATMP planning area if winds transport emissions to within the ATMP

Environmental Impact Category	Alternative 1 (No Action)	Alternative 2 (Preferred)	Alternative 3
		to emissions from air tours (outside the ATMP planning area) may be exposed to emissions. Highly unlikely that air tours displaced to outside the ATMP planning area would result in air quality impacts under NEPA or change the current attainment status of the Park.	planning area, and some areas not currently exposed to emissions from air tours (outside the ATMP planning area) may be exposed to emissions. Highly unlikely that air tours displaced to outside the ATMP planning area would result in air quality impacts or change the current attainment status of the Park.
Biological Resources	- Commercial air tour noise would continue, having short and infrequent disruptions to wildlife within the ATMP planning area; small risk of direct strikes to airborne species. - Time above 35 dBA: <5 minutes in 39% of ATMP planning area. - Not expected to result in indirect effects to wildlife.	- Direct beneficial effects to biological resources are expected. - No direct impacts to biological resources within the ATMP planning area, but could result in some indirect impacts due to air tour displacement outside the ATMP planning area.	- Would limit flights to two routes and increase altitudes, overall reducing disruptions to wildlife behavior and reducing risk of direct strikes to airborne species. - Time above 35 dBA: ER-S orange route, 0 minutes across ATMP planning area; ER-N red route, <5 minutes across 53% of ATMP planning area. - Could result in indirect effects to wildlife due to air tour displacement outside the ATMP planning area
Cultural Resources	- Cultural resources would continue to be impacted by air tours, as noise and visual effects would impact the feeling and setting of cultural resources. - Interruptions to tribal practices would continue associated with violations to tribal privacy. 12-hr equivalent sound level: 19.3 dBA at location point #11 (Rio Grande). - Time above 35 dBA: <5 minutes across the APE. - Not expected to result in indirect effects to cultural resources within the APE.	- Would reduce the noise and remove visual intrusions from the setting of cultural resources within the APE. - Eliminate disruptions to tribal practices from air tours and improve privacy for tribal users of the Park. - Could result in some indirect impacts to cultural resources within the APE.	- Would reduce noise and visual impacts that could detract from the feeling and setting of cultural resources within the APE. - Would limit flights to two routes, reducing the spatial area across which air tours could interrupt tribal practices, but would still result in violations to tribal privacy from the presence of air tours in the APE. 12-hr equivalent sound level for ER-S orange route, <3 dBA across APE; ER-N red route, <25 dBA across APE.

Environmental Impact Category	Alternative 1 (No Action)	Alternative 2 (Preferred)	Alternative 3
			- Time above 35 dBA: ER-S orange route, 0 minutes across ATMP planning area; ER-N red route, <5 minutes across 53% of ATMP planning area. - Could result in air tour displacement outside the ATMP planning area.
Wilderness	- Current air tour noise within and near NPS Wilderness would continue to have minor detractions from the natural quality and opportunity for solitude. - Time above 35 dBA: <5 minutes in 39% of ATMP planning area. - No indirect effects expected.	- Offers the greatest protection of NPS Wilderness, as commercial air tours would be eliminated over NPS Wilderness. - Could result in indirect impacts to USFS Wilderness areas associated with the sights and sounds of air tours if tours were displaced to outside the ATMP planning area.	- Would limit flights to two routes, overall reducing areas where noise impacts could detract from the natural quality of Wilderness character and opportunities for solitude within NPS Wilderness. - Time above 35 dBA: ER-S orange route, 0 minutes across ATMP planning area; ER-N red route, <5 minutes across 53% of ATMP planning area. - Could result in some indirect impacts to USFS Wilderness areas if tours were displaced to outside the ATMP planning area and the sights and sounds of those tours affected USFS Wilderness areas. Alternative 3 would likely result in fewer indirect impacts than Alternative 2, as some tours would still be permitted within the ATMP planning area.
Visitor Use and Experience and Other Recreational Opportunities	- Current minimal impacts to interpretive programs at the Visitor Center due to sound levels from air tours resulting in speech interference and inability to hear natural sounds would continue. - Minor impacts to visitor experience in natural areas of the Park related to the	- Offers the greatest protection of visitor use and experience but eliminates air tours within the ATMP planning area. - Eliminates the opportunity for those interested in viewing the Park from an aerial perspective. - Air tours occurring outside the ATMP planning area	- Limits flights to two routes, overall reducing areas where noise impacts could detract from visitor use and experience. - Limits the availability of air tours for those interested in viewing the Park from an aerial perspective. - Time above 35 dBA: ER-S orange route, 0 minutes

Environmental Impact Category	Alternative 1 (No Action)	Alternative 2 (Preferred)	Alternative 3
	intrusion of audible air tour noise where visitors would expect natural sounds to prevail during their visit to the Park. • Maintains the current availability of air tours for those that wanted to view the Park from an aerial vantage point. • 39% of the ATMP planning area would experience audible air tour noise at some point in the day. • Audible air tour noise <5 minutes a day in areas most heavily used by visitors. • Time above 52 dBA: <1 minute a day. • No indirect effects expected.	may result in noise in other areas near those flights which could affect the visitor experience. • Indirect impacts to visitor experience and points of interest could occur if flights were displaced to outside the ATMP planning area.	across ATMP planning area; ER-N red route, <5 minutes across 53% of ATMP planning area. • Audible air tour noise zero minutes a day for the ER-S orange route and less than 5 minutes a day for the ER-N red route in areas most heavily used by visitors. • Time above 52 dBA: <1 minute for the ER-S orange route and <1 minute a day for the ER-N red route. • Indirect impacts to visitor experience and points of interest could occur if flights were displaced to outside the ATMP planning area.
Environmental Justice and Socioeconomics	• Would not result in disproportionately high and adverse impacts to EJ populations or impact those populations in ways that are unique to those EJ populations. • DNL: <35 dB • 0.46-1.13 MT CO₂ • Peak month, average day= 1 air tour	• Would not result in disproportionately high or adverse impacts to EJ populations or impact those populations in ways that are unique to those EJ populations. • Could result in changes to employment or the amount of income that the air tour operator and other ancillary businesses generate from conducting air tours within the ATMP planning area.	• Would not result in disproportionately high or adverse impacts to EJ populations or impact those populations in ways that are unique to those EJ populations. • DNL: <35 dB within the ATMP planning area. • Δ -0.53-0.28 MT CO₂ • Could impact employment or the amount of income that the air tour operator and other ancillary businesses generate from conducting air tours within the ATMP planning area; impacts would be less than Alternative 2.
Visual Effects	• Air tours would continue to have minimal impact to viewsheds. • No indirect effects expected. • Peak month, average day = 1 air tour	• Would provide the greatest protection to Park viewsheds and would benefit visual resources and visual character within the Park. • Indirect impacts to viewsheds could occur if	• Would limit flights to two routes, overall reducing the likelihood of impacts to viewsheds. • Indirect impacts to viewsheds could occur if flights were displaced to

Environmental Impact Category	Alternative 1 (No Action)	Alternative 2 (Preferred)	Alternative 3
		flights were displaced to outside the ATMP planning area.	outside the ATMP planning area.
DOT Act Section 4(f) Resources	The FAA consulted with the NPS on the potential for substantial impairment to Section 4(f) resources that would occur under the No Action Alternative, and the NPS determined that the No Action Alternative cannot be altered to avoid or prevent unacceptable impacts to the Park's Section 4(f) resources.	- No substantial impairment of Section 4(f) resources in the ATMP planning area. - No "constructive use" to any Section 4(f) properties.	- No substantial impairment of Section 4(f) resources in the ATMP planning area. - No "constructive use" to any Section 4(f) properties. - DNL: <35 dB within the ATMP planning area. - Time above 35 dBA: ER-S orange route, 0 minutes across ATMP planning area; ER-N red route, <5 minutes across 53% of ATMP planning area. - Time above 52 dBA: Not anticipated to exceed 1 minute per day.

**Appendices for the Draft Environmental
Assessment for an Air Tour Management
Plan for
Bandelier National Monument**

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APPENDIX A

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APPENDIX B

List of Acronyms, Abbreviations, and Glossary

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
CO ₂	Carbon Dioxide
dB	Decibels
dBA	Decibels (A-weighted scale)
DNL	Day-night Average Sound Level (denoted by the symbol L _{dn})
DOT	U. S. 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 ₂ O	Water Vapor
IOA	Interim Operating Authority
L ₅₀	The median 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}	Median Daytime Natural Ambient
MBTA	Migratory Bird Treaty Act
MSL	Mean Sea Level

MSO	Mexican Spotted Owl
MT	Metric Tons
N ₂ O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NHL	Bandelier CCC National Historic Landmark District
NHPA	National Historic Preservation Act
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
National Register	The National Register of Historic Places
O ₃	Ozone
PAC	Protected Activity Center
The Park	Bandelier National Monument
Pb	Lead
PM	Particulate Matter
SHPO	State Historic Preservation Office
SO ₂	Sulfur Dioxide
TCP	Traditional Cultural Property
TPY	Tons per Year
U.S.C.	United States Code
USFS	U. S. Forest Service
USFWS	U. S. Fish and Wildlife Service
VFR	Visual Flight Rules

APPENDIX C

List of Preparers

List of Preparers

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

U.S. DOT Federal Aviation Administration

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APPENDIX D

Distribution List

Distribution List

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

Federal Agencies

- U.S Department of Agricultural - Rural Development
- U.S Department of Agriculture – Santa Fe National Forest
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- U.S. Geological Survey
- U.S. Congress
- U.S. House of Representatives

New Mexico State Agencies

- Department of Game and Fish
- Department of Energy, Minerals, and Natural Resources
- N.M. House of Representatives
- N.M. Senate

County and Local Agencies

- Los Alamos County
- Santa Fe County
- Sandoval County

Community Organizations, Associations, Businesses, and Interest Groups

- Los Alamos Commerce and Development Corporation
- National Parks Conservation Association
- Western National Parks Association
- Friends of Bandelier
- Tewa Women United

Public Review

Copies of the 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/BandelierDraftATMPandEA>

APPENDIX E

Environmental Impact Analysis Methods

Draft Environmental Assessment for an Air Tour Management Plan for Bandelier National Monument

Environmental Impact Analysis Methodology

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 Bandelier National Monument (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 this 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, though in any given year the operator could conduct additional tours up to their IOA or they may fly fewer air tours than in the period from 2017-2019. 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 the operator is used to define the routes for this alternative. There are no altitude restrictions under the No Action Alternative.

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

¹ 49 U.S.C. § 40128(c)(2)(A)(i-ii)

² FR, Vol. 70, No. 194, October 7, 2005, page 58778

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 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 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).³ 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. above ground level (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

³ <https://www.faa.gov/files/gslac/courses/content/25/185/vfr%20weather%20minimums.pdf>

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 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 Continuous Sound Level, $L_{Aeq, 12\text{ hr}}$	The logarithmic average of commercial air tour sound levels, in dBA, over a 12-hour day. The selected 12-hour period is 7 AM to 7 PM to represent typical daytime commercial air tour operating hours.
Day-night Average Sound Level, L_{dn} (or DNL)	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 decibel (dB) penalty on noise events occurring between 10 PM and 7 AM local time. Note: Both $L_{Aeq, 12\text{ hr}}$ 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 $L_{Aeq, 12\text{ hr}}$ and 24-hours for DNL)

Metric	Relevance and citation
	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 (not computed for the Park)	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 an ATMP planning area, including all sounds of nature (i.e., wind, streams, wildlife, etc.), and excluding all human and mechanical sounds. Time audible does not indicate how loud the event is, only if it might be heard.
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), 2007⁴); blood pressure increases in sleeping humans (Haralabidis et al., 2008⁵); maximum background noise level inside classrooms (ANSI/Acoustical Society of America S12.60/Part 1, 2010⁶).

⁴ American National Standards Institute, Inc. (ANSI). (2007). Quantities and procedures for description and measurement of environmental sound — Part 5: Sound level descriptors for determination of compatible land use. *Acoustical Society of America*, ASA S12.9-2007/PART 5 (R2020), 1-20. https://www.techstreet.com/standards/asa-s12-9-2007-part-5-r2020?product_id=1534045

⁵ Haralabidis A.S., Dimakopoulou, K., Vigna-Taglianti, F., Giampaolo, M., Borgini, A., Dudley, M., Pershagen, G., Bluhm, G., Houthuijs, D., Babisch, W. Velonakis, M., Katsouyanni, K. & Jarup, L. (2008). Acute effects of night-time noise exposure on blood pressure in populations living near airports. *European Heart Journal*, 29(5), 658-664. <https://academic.oup.com/eurheartj/article/29/5/658/440015>

⁶ ANSI/Acoustical Society of America. (2010). Acoustical performance criteria, design requirements, and guidelines for schools, Part 1: Permanent schools. *Acoustical Society of America*, ANSI/ASA S12.60-2002/Part 1. [https://webstore.ansi.org/preview-pages/ASA/preview_ANSI+ASA+S12.60+Part+1-2010+\(R2020\).pdf](https://webstore.ansi.org/preview-pages/ASA/preview_ANSI+ASA+S12.60+Part+1-2010+(R2020).pdf)

Metric	Relevance and citation
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, 1974⁷). 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:

⁷ United States Environmental Protection Agency, Office of Noise Abatement and Control (1974). Information on levels of environmental noise requisite to protect public health and welfare with an adequate margin of safety. <https://www.nrc.gov/docs/ML1224/ML12241A393.pdf>

- 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, 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.

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 Environmental Protection Agency (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.⁸ Primary standards protect public health, including sensitive populations such as children and the elderly, while secondary standards 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 (NO₂)
- Ozone (O₃)⁹
- Particulate matter: aerodynamic diameter ≤ 2.5 μm (PM_{2.5})¹⁰ and aerodynamic diameter ≤ 10 μm (PM₁₀)

⁸ NAAQS Table: <https://www.epa.gov/criteria-air-pollutants/naaqs-table>

⁹ 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.

¹⁰ Sulfur dioxide (SO₂), NOX, VOC, and ammonia are considered precursors to PM_{2.5}.

- Sulfur dioxide (SO₂)

The EPA designates geographic areas¹¹ 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 NAAQS.
- 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.¹²

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 data in EPA's Green Book¹³ 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.

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.

¹¹ Current Nonattainment Counties for All Criteria Pollutants:

<https://www3.epa.gov/airquality/greenbook/ancl.html>

¹² General Conformity: <https://www.epa.gov/general-conformity>

¹³ Nonattainment Areas for Criteria Pollutants (Green Book): <https://www.epa.gov/green-book>

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 stringent¹⁴ 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 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)

¹⁴ 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 (PM₁₀, PM_{2.5}, NOX, VOC, and SO₂; ammonia is not considered for aircraft emissions as they relate to ATMPs).

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 Alternative, 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 is 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 CO₂ equivalents (CO₂e) emission factor in metric tons of emissions per gallon of fuel (MT CO₂/gal) for each aircraft. CO₂e emission factors in AEDT are calculated based on the quantity of aircraft fuel burned. Since the proposed action involves only aircraft operations, MT CO₂e will be assumed to be the same as the aircraft MT CO₂.¹⁵

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

For each aircraft type operating over the ATMP planning area, the CO₂e 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

¹⁵ FAA 1050.1F Desk Reference. February 2020. Section 3.3 Environmental Consequences – Climate.

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 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 (2006)¹⁶ 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 American Tribes 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 Park staff and through a records request of the New Mexico State Historic Preservation Office 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* (Appendix F) 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 dBA 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

¹⁶ NPS. (2006). Management policies. https://www.nps.gov/subjects/policy/upload/MP_2006.pdf

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 Appendix G, *Cultural Resources Consultation and Summary*, 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 and to identify potential impacts to solitude within Wilderness areas.

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* (Appendix F) 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. frontcountry), 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 above 35 dBA 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 have 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 Climate Change, 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 current level of air tours reported by the operator.

Given the nature of the alternatives, the agencies do not anticipate impacts to the housing, race, age, or population conditions of the study area; therefore, effects to these socioeconomic characteristics within the study 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. AGL, which corresponds with the ATMP planning area. The study area for visual effects also includes areas within the cultural resources APE. 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, 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. 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 this 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. 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* (Appendix F). 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 dBA is reported for each Section 4(f) resource.

APPENDIX F

Noise Technical Analysis

Noise Technical Analysis: Bandelier National Monument

February 2023

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1. Introduction

The purpose of this report is to present the noise results used in the alternatives impact analysis discussed in the Bandelier National Monument (Park) Air Tour Management Plan (ATMP) draft Environmental Assessment (EA) 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 environmental impact 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. Thus 20 dB would be perceived as twice as loud as 10 dB, 30 dB would be perceived as 4 times louder than 10 dB, 40 dB would be perceived as 8 times louder than 10 dB, etc. (see Table 1).

Table 1. Subjective Effect of Change in Sound Level.

Change in Sound Level	Perceived Change to Human Ear
± 1 dB	Not Perceptible
± 3 dB	Threshold of Perception
± 5 dB	Obvious Change
± 10 dB	Twice / Half as Loud
± 20 dB	Fourfold or ¼ as Loud

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 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

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.

areas, such as the Park, are often lower than those of the ‘common’ outdoor areas shown, in the range of 20-30 dBA.

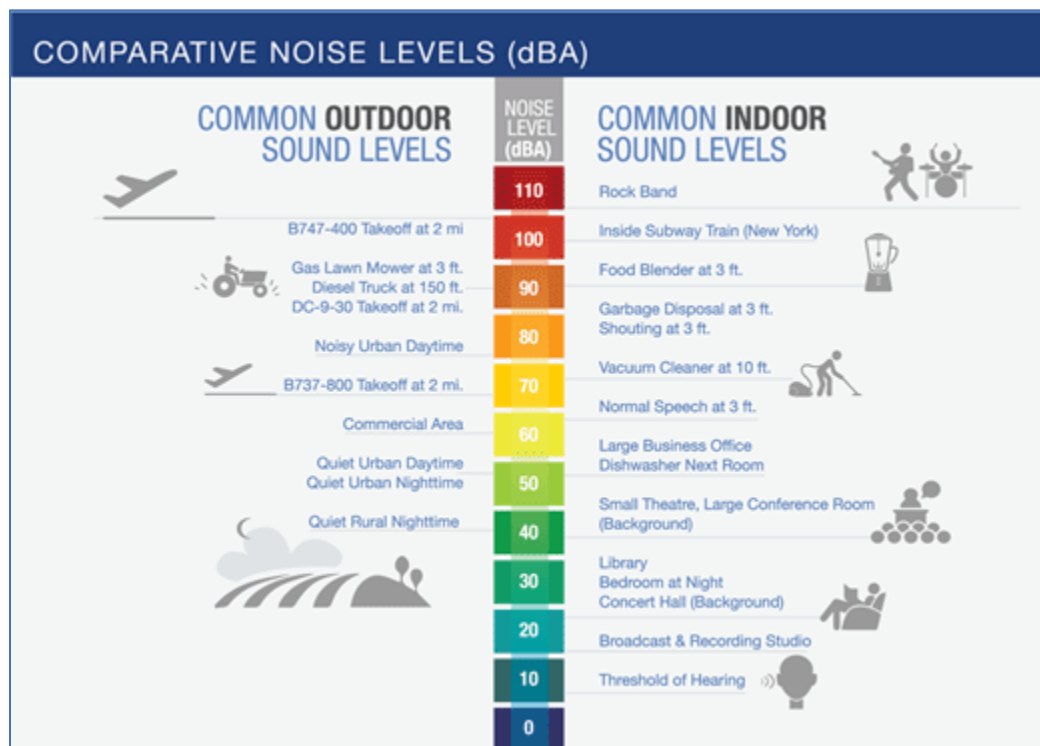


Figure 1. Comparative Sound Levels.²

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

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

effects of noise and park management objectives (e.g., 35 and 52 decibels), and maximum sound level. These metrics are discussed further in Table 2. ***Note that time audible natural ambient was not computed for this Park, as the detailed data required to compute this metric was not available.***

Table 2. Primary Metrics Used for the Noise Analysis.

Metric	Relevance and citation
Equivalent Continuous Sound Level, $L_{Aeq, 12\text{ hr}}$	The logarithmic average of commercial air tour sound levels, in dBA, over a 12-hour day. The selected 12-hour period is selected 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 PM and 7 AM local time. Note: Both $L_{Aeq, 12\text{ hr}}$ 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 $L_{Aeq, 12\text{ hr}}$ and 24-hours for DNL). If there are no nighttime events, then $L_{Aeq, 12\text{ hr}}$ is arithmetically three dBA higher than DNL. 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 (not computed for the Park)	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 has also shown to cause blood pressure increases in sleeping humans

Metric	Relevance and citation
	(Haralabidis et al., 2008); as well as exceeding recommended maximum background noise level inside classrooms (ANSI/Acoustical Society of America 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 (52 dBA), 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 (Environmental Protection Agency, Office of Noise Abatement and Control, 1974).
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.

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. Examples include:

- Sounds produced by birds, chipmunks, frogs, mountain lions, mountain goats, and bighorn sheep to define territories or aid in attracting mates;
- Sounds produced by bats to locate prey or navigate;
- Sounds received by mice or deer to detect and avoid predators or other danger;
- Sounds produced by physical processes, such as wind in the trees, claps of thunder, or falling water.

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, 2006).

The term existing ambient refers to the sound level of all sounds in a given area, and includes all natural sounds as well as all mechanical, electrical, and other human-caused sounds. Human-generated noise sources may include wheeled vehicles on roads, such as passenger vehicles, 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 travel corridors and areas of high visitor use.

To characterize the natural and existing ambient conditions, acoustic monitoring was conducted for the Park in 2012 (White, 2014). The median natural ambient (L_{nat}) was between 20.1 and 30.6 dBA during the summer months, and between 18.5 and 32.0 dBA during the winter months. The median daytime existing ambient (L_{50}) was between 23.2 and 34.9 dBA during the summer months, and between 20.4 and 34.4 dBA during the winter months. Aircraft and automobiles were noted as common sources of noise at the Park.

4. Noise Model Method

The FAA's Aviation Environmental Design Tool (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 information³ 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.

Aircraft Data

The tour aircraft types identified for modeling are the Cessna 182 and Cessna 207 aircraft. The flight routes used for modeling the No Action Alternative and Alternative 3 are shown in Figure 2. A unique flight profile was developed for each modeled 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).

³ 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 the 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 76 degrees Fahrenheit and 71% relative humidity and computed according to SAE-ARP-5534.

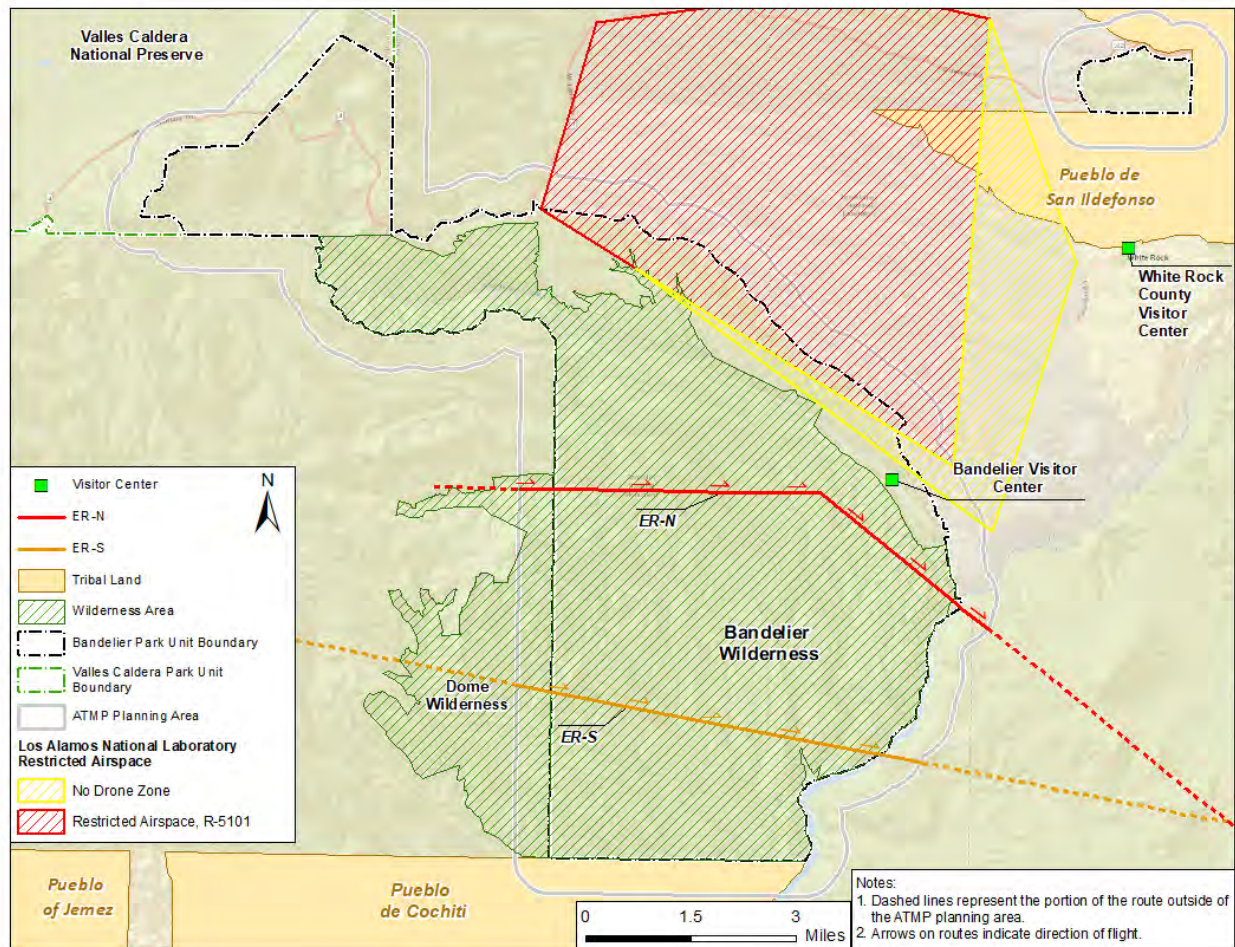


Figure 2. Air Tour Routes Model.

The analysis for the No Action Alternative is based on a peak month, average day⁴ (PMAD) of commercial air tour activity – identified as one operation. 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 Park. The existing commercial air tour operator provided route information for seven general route options and reported flying two types of fixed-wing aircraft – a Cessna 182 and a Cessna 207 – which results in fourteen potential aircraft/route combinations for analysis. Because the PMAD is identified as one operation, for purposes of the *Noise Technical Analysis*, the No Action Alternative modeled the ER-S orange route using a Cessna 182 aircraft (see Table 3). This route and aircraft combination was chosen as a representation of the most frequently utilized route for

⁴ 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.

existing activity based on the best available information. Aircraft altitude was modeled based on information provided by the operator.

Under Alternative 3, air tours may utilize either the ER-N red route or ER-S orange route identified in Figure 2. For the purposes of the *Noise Technical Analysis*, an average day under Alternative 3 was modeled based on the average number of operations which may occur in a single day – one operation, using the aircraft and route combination most likely to be utilized under Alternative 3 – a Cessna 182 on the ER-S orange route. In other words, the Cessna 182 - ER-S orange route combination was chosen as the most logical representation of an average day of activity based on best available information for existing conditions. Additionally, noise modeling was performed for the Cessna 207 - ER-N red route combination, providing information regarding the potential noise effects of the second authorized aircraft and route under this alternative (see Table 3). Effects under the two scenarios not modeled (Cessna 207 – ER-S orange route or Cessna 182 – ER-N red route) are anticipated to be similar to the effects predicted by the modeled scenarios.

The altitude information in Table 3 is expressed as feet (ft.) above ground level (AGL) and mean sea level (MSL). AGL is a measurement of the distance between the ground surface and the aircraft, whereas MSL refers to the altitude of an aircraft above sea level, regardless of the terrain below it. Aircraft flying at a constant MSL altitude would simultaneously fly at varying AGL altitudes, and vice versa, assuming uneven terrain is present below the aircraft.

Table 3. Aircraft, Routes and Number of Operations Modeled.

Route	Aircraft	No Action Alternative (2017-2019 PMAD)	Alternative 3 / ER-N Red Route	Alternative 3 / ER-S Orange Route
ER-S (Orange) 1,000 ft. AGL	Cessna 182	1		
ER-N (Red) 10,000 ft. MSL	Cessna 207		1	
ER-S (Orange) 10,000 ft. MSL	Cessna 182			1
	Total	1	1	1

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 13 location points, geographically located across the ATMP planning area, where noise levels were to be evaluated. These locations are listed in Table 4 and shown geographically in Figure 3.

Table 4. Location Points Modeled for Bandelier National Monument.

Location	Longitude (decimal degrees)	Latitude (decimal degrees)
1. Alcove House	-106.285	35.78887
2. Visitor Center	-106.271	35.779
3. Frijoles Rim	-106.262	35.75563
4. Upper Falls	-106.26	35.76431
5. Alamo Mesa	-106.291	35.7275
6. Turkey Springs	-106.351	35.7371
7. Lower Yapashi	-106.313	35.73156
8. Stone Lions	-106.323	35.76391
9. Horse Mesa	-106.347	35.78553
10. Capulin Canyon	-106.355	35.77673
11. Rio Grande	-106.271	35.72341
12. Tyuonyi Overlook	-106.28	35.7877
13. Frijoles Canyon Mouth	-106.254	35.75233

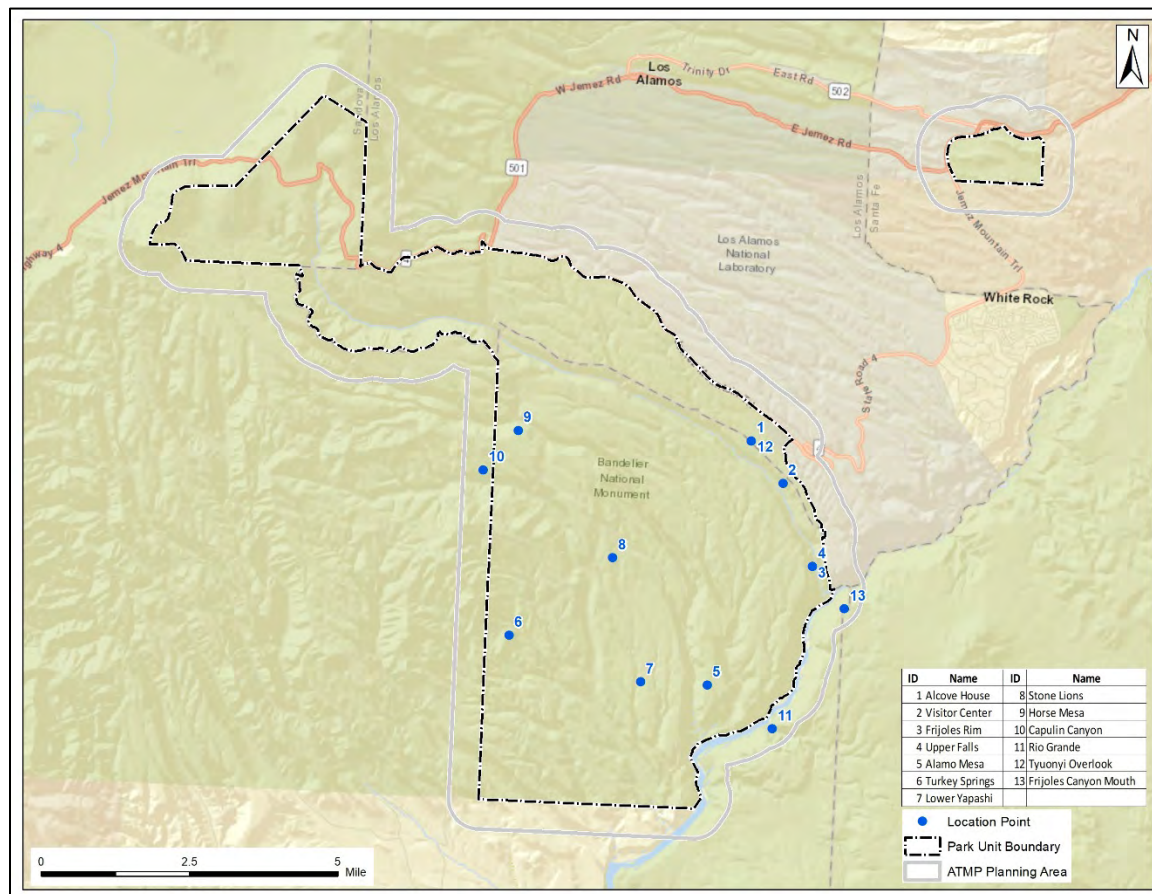


Figure 3. Location Points Modeled.

Table 5. Location Point Results - No Action Alternative.

Location	12-Hour Equivalent Sound Level (dBA)*	Time Above 35 dBA (minutes)	Time Above 52 dBA (minutes)	Maximum Sound Level (dBA)
1. Alcove House	0	0.0	0.0	29.4
2. Visitor Center	0	0.0	0.0	36.4
3. Frijoles Rim	6.9	0.3	0.0	42.2
4. Upper Falls	0	0.0	0.0	34.2
5. Alamo Mesa	15.9	0.6	0.0	50.6
6. Turkey Springs	16.2	0.6	0.0	51.8
7. Lower Yapashi	14.7	0.6	0.0	48.9
8. Stone Lions	3.6	0.0	0.0	34.8
9. Horse Mesa	0	0.0	0.0	30.1
10. Capulin Canyon	0	0.0	0.0	23.0
11. Rio Grande	19.3	0.6	0.1	54.8
12. Tyuonyi Overlook	0	0.0	0.0	30.2
13. Frijoles Canyon Mouth	0	0.0	0.0	37.3

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

Alternative 3 – ER-N Red Route

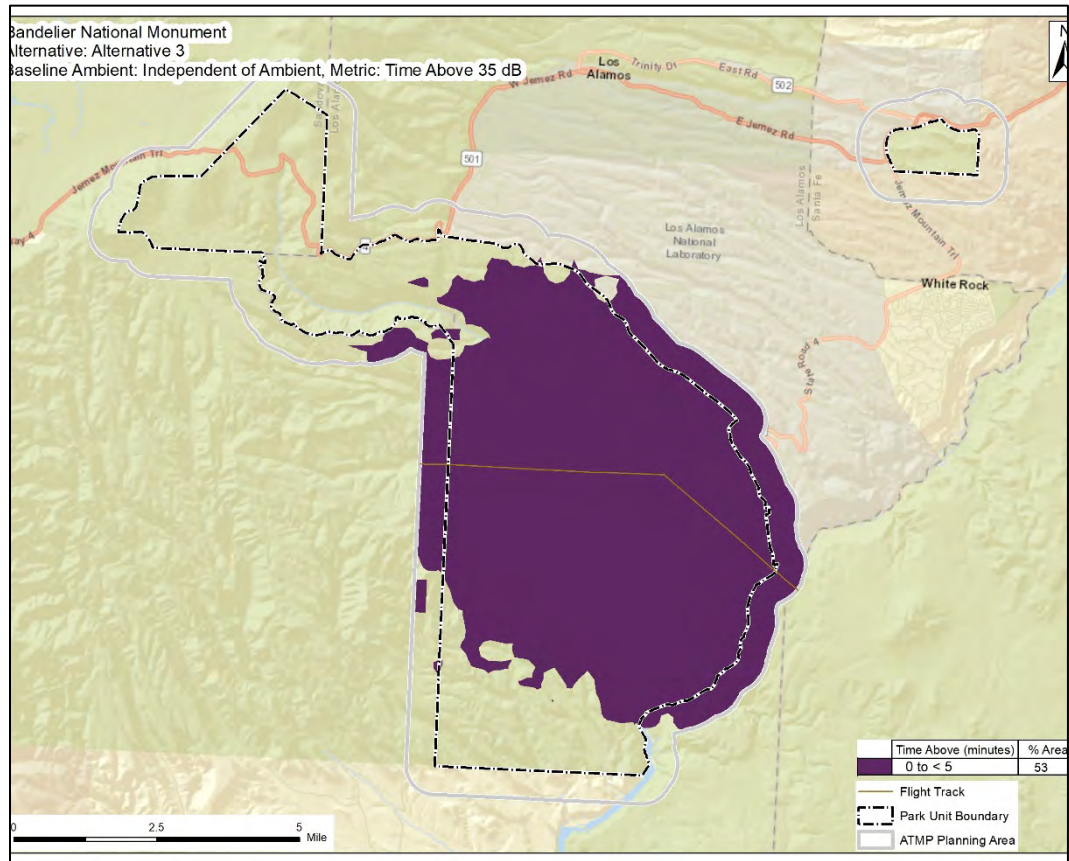


Figure 5. Time Above 35 dBA Map for Alternative 3 – ER-N Red Route.

Table 6. Location Point Results for Alternative 3 – ER-N Red Route.

Location	12-Hour Equivalent Sound Level (dBA)*	Time Above 35 dBA (minutes)	Time Above 52 dBA (minutes)	Maximum Sound Level (dBA)
1. Alcove House	19.7	1.6	0.0	51.0
2. Visitor Center	21.1	1.6	0.0	51.4
3. Frijoles Rim	24.4	1.9	0.4	56.0
4. Upper Falls	18.7	0.8	0.1	53.3
5. Alamo Mesa	15.2	2.4	0.0	41.1
6. Turkey Springs	11.5	0.8	0.0	39.7
7. Lower Yapashi	14.9	2.5	0.0	39.6
8. Stone Lions	21.9	2.3	0.0	51.8
9. Horse Mesa	23.3	1.6	0.3	54.6
10. Capulin Canyon	25.2	1.4	0.5	57.7
11. Rio Grande	14.7	1.4	0.0	43.0
12. Tyuonyi Overlook	19.7	1.7	0.0	50.8
13. Frijoles Canyon Mouth	22.7	1.3	0.3	53.9

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

Alternative 3 – ER-S Orange Route

Sound level would not exceed 35 dBA within the ATMP planning area; thus time above 35 dBA would be zero at all locations and contour results are not produced.

Table 7. Location Point Results for Alternative 3 – ER-S Orange Route.

Location	12-Hour Equivalent Sound Level (dBA)*	Time Above 35 dBA (minutes)	Time Above 52 dBA (minutes)	Maximum Sound Level (dBA)
1. Alcove House	0.5	0.0	0.0	23.6
2. Visitor Center	0.9	0.0	0.0	24.4
3. Frijoles Rim	1.8	0.0	0.0	26.5
4. Upper Falls	0.0	0.0	0.0	25.6
5. Alamo Mesa	2.5	0.0	0.0	28.0
6. Turkey Springs	2.5	0.0	0.0	28.2
7. Lower Yapashi	2.5	0.0	0.0	28.0
8. Stone Lions	1.9	0.0	0.0	26.6
9. Horse Mesa	1.0	0.0	0.0	25.2
10. Capulin Canyon	1.5	0.0	0.0	26.0
11. Rio Grande	2.4	0.0	0.0	27.7
12. Tyuonyi Overlook	0.5	0.0	0.0	23.7
13. Frijoles Canyon Mouth	1.8	0.0	0.0	26.3

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

7. Comparison of Alternatives by Metric

This section provides tables showing the detailed noise results, organized by metric for each of the four acoustic metrics modeled. A comparison of impacts between the No Action Alternative and Alternative 3 (Cessna 182 ER-S orange route scenario) is provided below. This scenario provides the most direct comparison between alternatives, including the effects of the altitude requirement that would be authorized for this route. A comparison between the No Action Alternative and the Cessna 207 ER-N red route scenario is not provided as the PMAD under the No Action alternative does not include nor reflect the effects of this aircraft and route combination and comparative results may be misleading. High-level observations of the differences between the No Action Alternative and Alternative 3 (Cessna 182 ER-S orange route) by metric include:

- 12-hour Equivalent Sound Level (Table 9):
 - Compared to the No Action Alternative, the average sound levels for Alternative 3, ER-S orange route are, on average, lower. Under either alternative, the 12-hour equivalent sound level does not exceed 35 dBA; noise footprint contour results are not produced.
- Time Above 35 dBA (Table 8 and Table 10):
 - Compared to the No Action alternative, the time above 35 dBA under Alternative 3, ER-S orange route, is lower. At location points #5 (Alamo Mesa), #6 (Turkey Springs), #7 (Lower Yapashi), and #11 (Rio Grande), it is reduced from 0.6 minutes to zero minutes.

At location point #3 (Frijoles Rim) it is reduced from 0.3 minutes to 0 minutes. At all other locations time above 35 dBA is zero minutes under both the No Action Alternative and Alternative 3 ER-S orange route.

- Time Above 52 dBA (Table 11):
 - Time above 52 dBA is reduced from 0.1 minute to zero minutes at location point #11 (Rio Grande). Time above 52 dBA is zero minutes at all other locations under both the No Action and Alternative 3 ER-S orange route.
- Maximum Sound Level (Table 12):
 - Compared to the No Action Alternative, the maximum sound levels for Alternative 3, ER-S orange route day are on average 13 dBA lower across all modeled location points.

Table 8. Comparison of Contour Results for Time Above 35 dBA.

Time Above 35 dBA Contour Results		% Area for No Action	% Area for Alternative 3 / ER-S Orange Route
	0 to < 5	39	0

Table 9. Comparison of Location Point Results for 12-hour Equivalent Sound Level.

Location	No Action Alternative	Alternative 3 / ER- S Orange Route
1. Alcove House	0	0.5
2. Visitor Center	0	0.9
3. Frijoles Rim	6.9	1.8
4. Upper Falls	0	0
5. Alamo Mesa	15.9	2.5
6. Turkey Springs	16.2	2.5
7. Lower Yapashi	14.7	2.5
8. Stone Lions	3.6	1.9
9. Horse Mesa	0	1.0
10. Capulin Canyon	0	1.5
11. Rio Grande	19.3	2.4
12. Tyuonyi Overlook	0	0.5
13. Frijoles Canyon Mouth	0	1.8

Table 10. Comparison of Location Point Results for Time Above 35 dBA.

Location	No Action Alternative	Alternative 3 / ER- S Orange Route
1. Alcove House	0.0	0.0
2. Visitor Center	0.0	0.0
3. Frijoles Rim	0.3	0.0
4. Upper Falls	0.0	0.0
5. Alamo Mesa	0.6	0.0
6. Turkey Springs	0.6	0.0
7. Lower Yapashi	0.6	0.0

Location	No Action Alternative	Alternative 3 / ER-S Orange Route
8. Stone Lions	0.0	0.0
9. Horse Mesa	0.0	0.0
10. Capulin Canyon	0.0	0.0
11. Rio Grande	0.6	0.0
12. Tyuonyi Overlook	0.0	0.0
13. Frijoles Canyon Mouth	0.0	0.0

Table 11. Comparison of Location Point Results for Time Above 52 dBA.

Location	No Action Alternative	Alternative 3 / ER-S Orange Route
1. Alcove House	0.0	0.0
2. Visitor Center	0.0	0.0
3. Frijoles Rim	0.0	0.0
4. Upper Falls	0.0	0.0
5. Alamo Mesa	0.0	0.0
6. Turkey Springs	0.0	0.0
7. Lower Yapashi	0.0	0.0
8. Stone Lions	0.0	0.0
9. Horse Mesa	0.0	0.0
10. Capulin Canyon	0.0	0.0
11. Rio Grande	0.1	0.0
12. Tyuonyi Overlook	0.0	0.0
13. Frijoles Canyon Mouth	0.0	0.0

Table 12. Comparison of Location Point Results for Maximum Sound Level.

Location	No Action Alternative	Alternative 3 / ER-S Orange Route
1. Alcove House	29.4	23.6
2. Visitor Center	36.4	24.4
3. Frijoles Rim	42.2	26.5
4. Upper Falls	34.2	25.6
5. Alamo Mesa	50.6	28.0
6. Turkey Springs	51.8	28.2
7. Lower Yapashi	48.9	28.0
8. Stone Lions	34.8	26.6
9. Horse Mesa	30.1	25.2
10. Capulin Canyon	23.0	26.0
11. Rio Grande	54.8	27.7
12. Tyuonyi Overlook	30.2	23.7
13. Frijoles Canyon Mouth	37.3	26.3

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

Because Alternative 2 would prohibit air tours within the ATMP planning area and Alternative 3 would reduce the number of routes on which air tours could be conducted within the ATMP planning area, it is reasonably foreseeable that current air tour operators could seek to make up lost revenue resulting from the implementation of those alternatives 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, or over the ATMP planning area at or above 5,000 ft. AGL. This could result in impacts to acoustic resources and natural soundscapes of the locations where displaced air tours would occur.

Indirect Effects to ATMP Planning Area

Displaced air tours, if any, above the ATMP planning area (above 5,000 ft. AGL) would result in noise within the ATMP planning area. Compared to current conditions, the noise would be spread over a larger geospatial area and would be audible for a longer period, but at lower intensity. Thus, under Alternatives 2 and 3, some locations within the ATMP planning area may experience less intense noise but for a longer period when compared to current conditions. Additionally, other locations within the ATMP planning area not currently experiencing air tour noise may experience some noise under these alternatives when compared to current conditions. However, in both cases, the intensity of noise would likely be low given the aircraft altitude; any noise that might result could also be more easily masked by opportunistic sounds such as wind and various anthropogenic noise sources. In summary, while the area 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 highly unlikely that displaced air tours would generate noise at or above DNL 65 dB as air tours under the No Action Alternative do not exceed 35 dBA $L_{Aeq,12hr}$ within the ATMP planning area.

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APPENDIX G

Cultural Resources Consultation and Summary

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
Bandelier CCC National Historic Landmark District	National Historic Landmark and Historic District	Listed	The Bandelier CCC National Historic Landmark was designed by NPS architects and landscape architects and built by the CCC (Civilian Conservation Corps) between 1933 and 1942. The district contains 31 buildings of Pueblo Revival design that serve as office space, residences for employees, and lodging for guests. It is significant for its association with the New Deal era in the areas of Social History and Art. It is also significant for its rustic Pueblo Revival architectural style and the careful design of the entrance road and other non-building elements. As a result of the application of rustic design principles, the cultural landscape today blends with its natural setting and conveys a strong sense of place. The rustic, pueblo revival architecture, the natural canyon setting, views and the experience of archeological sites and the riparian corridor all contribute to the unique feeling that the district conveys.
Bandelier National Monument Archeological and Historic District	Historic District	Listed	The Bandelier National Monument Archeological and Historic District encompasses the entire park boundary and is significant for its association with the Archaic use of the Pajarito Plateau (5500 BCE-600 CE); Ancestral Pueblo occupation of the Pajarito Plateau (600-1600 CE); early historic use of the Pajarito Plateau (1600-1848); early scientific investigations and development of archaeology (1848-1932); early Native Arts revival efforts (1848-1932); homestead-era ranching, farming, and timber extraction (1848-1932); and the New Deal era and the CCC (1932-1942). The district contains 32 contributing buildings, 90 contributing structures, and 2,974 contributing sites¹. Many of the archaeological sites in the park are in good condition and retain a high level of integrity, but there are a series of natural and cultural disturbances that have affected them. The pre-Hispanic sites are associated with habitation of the area by Ancestral Pueblo peoples. The area saw

¹ This number include the archaeological sites that exist within the boundary nominated to the National Register in 1970 and archaeological sites within the post-1970 expanded boundaries of the monument.

Property Name	Property Type	Eligibility Status	Significant Characteristics
			limited occupation in historic times by historic Pueblo groups, nomadic Athabascan groups, Hispanos, and Euro-Americans. During the New Deal era and CCC construction, there was great emphasis on the visual impacts of development. Landscape architects took great care to provide pleasant surroundings in the built-up area to promote spectacular and unobstructed views of archaeological sites that contribute to the Park's history. A trail system was also constructed to direct visitors to scenic overlooks and to enhance their access to various archaeological sites. Areas of significance include archeology (prehistoric, historic), science, conservation, social history (exploration/settlement), commerce, industry, architecture, landscape architecture, art, Native American ethnic heritage, military, and entertainment/recreation.
Mission 66 Historic District	Historic District	Eligible	Bandelier National Monument's staff and public-use village on Frijoles Mesa is a Mission 66 Historic District comprised of a park employee housing area (4 buildings) and the Juniper Family Campground and associated roads and interpretive service structures. The Mission 66 Historic District is significant for its association with the unique Frijoles Mesa land swap between the National Park Service and the Atomic Energy Commission, through a 1961 executive order from President Dwight Eisenhower that made the village and park-services expansion possible. The village also represents a well-considered and largely intact 1963–1964 application of the national NPS Mission 66 program to the unique management challenges at the monument and upon the landform of Frijoles Mesa. The Mission 66 designers carefully sited the Bandelier Mission 66 Village for minimum disturbance of natural Frijoles Mesa vegetation, resulting in desirable privacy for campsites, and screening of the amphitheater and the residential area from campers and automobiles. In addition, siting of the Mission 66 houses in the residential area took advantage of topography and spacing of large pine trees to allow stunning views of St. Peter's Dome and the San Miguel Mountains to the west.

Property Name	Property Type	Eligibility Status	Significant Characteristics
Bandelier National Monument Traditional Cultural Properties ²	TCP	Eligible	Many contributing sites within the Bandelier National Monument Archeological and Historic District are Ancestral Pueblo sites that are considered TCPs. Several tribes have informed the FAA that there are TCPs within the Park boundary and that extend beyond to the larger landscape of the area.

² Location is restricted and therefore cannot be shown on the APE map.



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

March 29, 2021

Re: Initiation of consultation under Section 106 of the National Historic Preservation Act for the development of an Air Tour Management Plan at Bandelier National Monument

Dr. Jeff Pappas
Director and State Historic Preservation Officer
Department of Cultural Affairs
Historic Preservation Division
407 Galisteo Street, Suite 236
Santa Fe, NM 87501

Dear Dr. Pappas:

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 Bandelier National Monument. 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 Bandelier National Monument 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 and, to the extent possible, will limit the number of annual air tour operations to the average flown between 2017 and 2019. At this time we anticipate little or no increase in air tour operations.

In accordance with 36 CFR 800.3 and NPATMA, the agencies have identified and initiated consultation with federally recognized tribes whose lands will be overflowed or 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,



Rob Lowe
Regional Administrator
Southwest Region
Federal Aviation Administration



Paul DePrey
Acting Superintendent
Bandelier National Monument
National Park Service

Attachment A: List of Tribes

ATTACHMENT A
TRIBAL CONSULTATION LIST

Tribe
Comanche Nation, Oklahoma
Fort Sill Apache Tribe of Oklahoma
Hopi Tribe of Arizona
Jicarilla Apache Nation, New Mexico
Kewa Pueblo, New Mexico
Navajo Nation, Arizona, New Mexico & Utah
Ohkay Owingeh, New Mexico
Pueblo of Acoma, New Mexico
Pueblo of Cochiti, New Mexico
Pueblo of Isleta, New Mexico
Pueblo of Jemez, New Mexico
Pueblo of Laguna, New Mexico
Pueblo of Nambe, New Mexico
Pueblo of Picuris, New Mexico
Pueblo of Pojoaque, New Mexico
Pueblo of San Felipe, New Mexico
Pueblo of San Ildefonso, New Mexico
Pueblo of Sandia, New Mexico
Pueblo of Santa Ana, New Mexico
Pueblo of Santa Clara, New Mexico
Pueblo of Taos, New Mexico
Pueblo of Tesuque
Pueblo of Zia, New Mexico
Ysleta Del Sur Pueblo
Zuni Tribe of the Zuni Reservation, New Mexico
Standing Rock Sioux Tribe of North & South Dakota
Apache Tribe of Oklahoma



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

August 27, 2021

Re: Continuing Consultation under Section 106 of the National Historic Preservation Act for the development of an Air Tour Management Plan at Bandelier National Monument

Michelle Ensey
Deputy State Historic Preservation Officer
New Mexico State Historic Preservation Office
407 Galisteo Street, Ste. 236
Santa Fe, NM 87501

Dear Michelle Ensey:

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) for the development of an Air Tour Management Plan (ATMP) at Bandelier National Monument (Park). The FAA initiated consultation with your office in a letter dated March 29, 2021.

This letter presents a description of the proposed undertaking in accordance with 36 CFR 800.3(a) and 800.16(y) and a proposed Area of Potential Effect (APE) pursuant to 36 CFR 800.4(a)(1). The FAA has completed its initial historic property identification effort within the proposed APE in accordance with 36 CFR 800.4. The FAA specifically requests your comments on our proposed APE and initial historic property identification efforts.

Description of the Undertaking

The proposed ATMP would apply to commercial air tours over the Park, within a half-mile outside the boundary of the Park, and over tribal lands within or abutting the Park. The FAA and the NPS have documented the existing conditions for the commercial air tour operations at the Park. The FAA and the NPS consider the existing operations for air tours to be an average of 2017-2019 annual air tours flown, which is 101 air tours. A three-year annual average is used because it reflects the most accurate and reliable air tour conditions, and accounts for variations across multiple years. Commercial air tours over the Park are conducted in a fixed-wing aircraft: CE-182-R. At the park, commercial air tours will fly no lower than 2,600 feet (ft.) above ground level (AGL), depending on the route and location over the park.

The proposed ATMP would authorize commercial air tour operations at the Park in accordance with the following conditions:

- 101 commercial air tours per year;
- Commercial Air tours shall be conducted on the routes shown in **Attachment A**. While over the Park, air tours will fly no lower than 2,600 ft. AGL, referencing the topographic high-point within ½-mile of the flight path;
- The aircraft type authorized to be used for commercial air tours is a CE-182-R fixed wing aircraft. Any new or replacement aircraft must not exceed the noise level produced by the aircraft being replaced;
- Air tours may operate two hours after sunrise until two hours before sunset, as defined by the National Oceanic and Atmospheric Administration (NOAA).¹ Air tours may operate any day of the year, except under circumstances provided in the bullet below;
- If the operator has converted to quiet technology aircraft, the operator will be allowed to conduct tours beginning one hour after sunrise until one hour before sunset on all days that flights are authorized;
- The NPS may establish temporary no-fly periods that apply to commercial air tours for special events or planned Park management. Absent exigent circumstances or emergency operations, the NPS will provide a minimum of 15 days written notice to the operator for any restrictions that temporarily restrict certain areas or certain times of day, or 60 days written notice to the operator for any full-day restrictions in advance of the no-fly period. Events may include tribal ceremonies or rituals as determined by affected tribes;
- Operators would submit semi-annual reports to the FAA and the NPS regarding the number of commercial air tours conducted by the operator over the Park;
- When made available by Park staff, the operator/pilot will take at least one training course per year conducted by NPS staff;
- At the request of either of the agencies, the Park staff, the local FAA Flight Standards District Office (FSDO), and the operator will meet once per year to discuss the implementation of the ATMP and any amendments or other changes to the ATMP;
- For situational awareness when conducting tours of the Park, the operators will utilize frequency 122.9 and report when they enter and depart a route. The pilot should identify their company, aircraft, and route to make any other aircraft in the vicinity aware of their position.

Proposed Areas of Potential Effects

The proposed APE for this undertaking (36 CFR 800.4(a)(1)) as defined at 36 CFR 800.16(d) is the geographic 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 approval 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 that could diminish the integrity of any identified significant historic properties.²

¹ Sunrise and sunset data is available from the National Oceanic & Atmospheric Administration Solar Calculator, <https://www.esrl.noaa.gov/gmd/grad/solcalc/>

² The term historic property is defined in 54 U.S.C. 300308 and 36 CFR 800.16(l)(1).

In establishing the proposed APE, the FAA sought to include areas where any historic property present could be affected by noise from or sight of commercial air tours over the Park or adjacent tribal lands. 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 the National Register of Historic Places (NRHP).

The FAA proposes an APE comprising the area of the Park and a half-mile outside the boundary of the Park, excluding the Tsankawi Section, as depicted in **Attachment A** below.

Preliminary Historic Property Identification

The FAA, in cooperation with the NPS, has undertaken preliminary efforts to identify historic properties within the APE. In so doing, the FAA has taken into consideration the views of consulting parties, past planning, research and studies, magnitude and nature of the undertaking, the degree of Federal involvement, the nature and extent of potential effects on historic properties and the likely nature of historic properties within the APE in accordance with 36 CFR 800.4(b)(1). As such, the historic property identification effort has focused on properties for which setting and feeling are characteristics contributing to the property's NRHP eligibility. The FAA is also considering whether air tours could affect the use of traditional cultural properties (TCPs) associated with cultural practices, customs or beliefs that continue to be held or practiced today. NPS staff at Bandelier National Monument have informed the FAA that a number of tribes have indicated that they consider the entire park is part of a larger sacred landscape.

The FAA, with assistance from the park, has identified two historic properties within the APE for which feeling and setting are characteristics that make the properties eligible for listing on the NRHP. These historic properties are shown in the proposed APE map provided at **Attachment A** and listed in **Attachment B**.

Review Request

The FAA requests that you provide comments you may have regarding the proposed APE and initial historic property identification of historic properties. The FAA also requests your assistance in identifying any other historic properties that may be located within or near the APE. Should you wish to receive additional information regarding this undertaking, please contact Cathy Nadals at Catherine.L.Nadals@faa.gov and (202) 267-0746 or the ATMP team at ATMPTeam@dot.gov. We will reach out in the next couple of weeks to schedule a follow up via phone or video conference.

Sincerely,



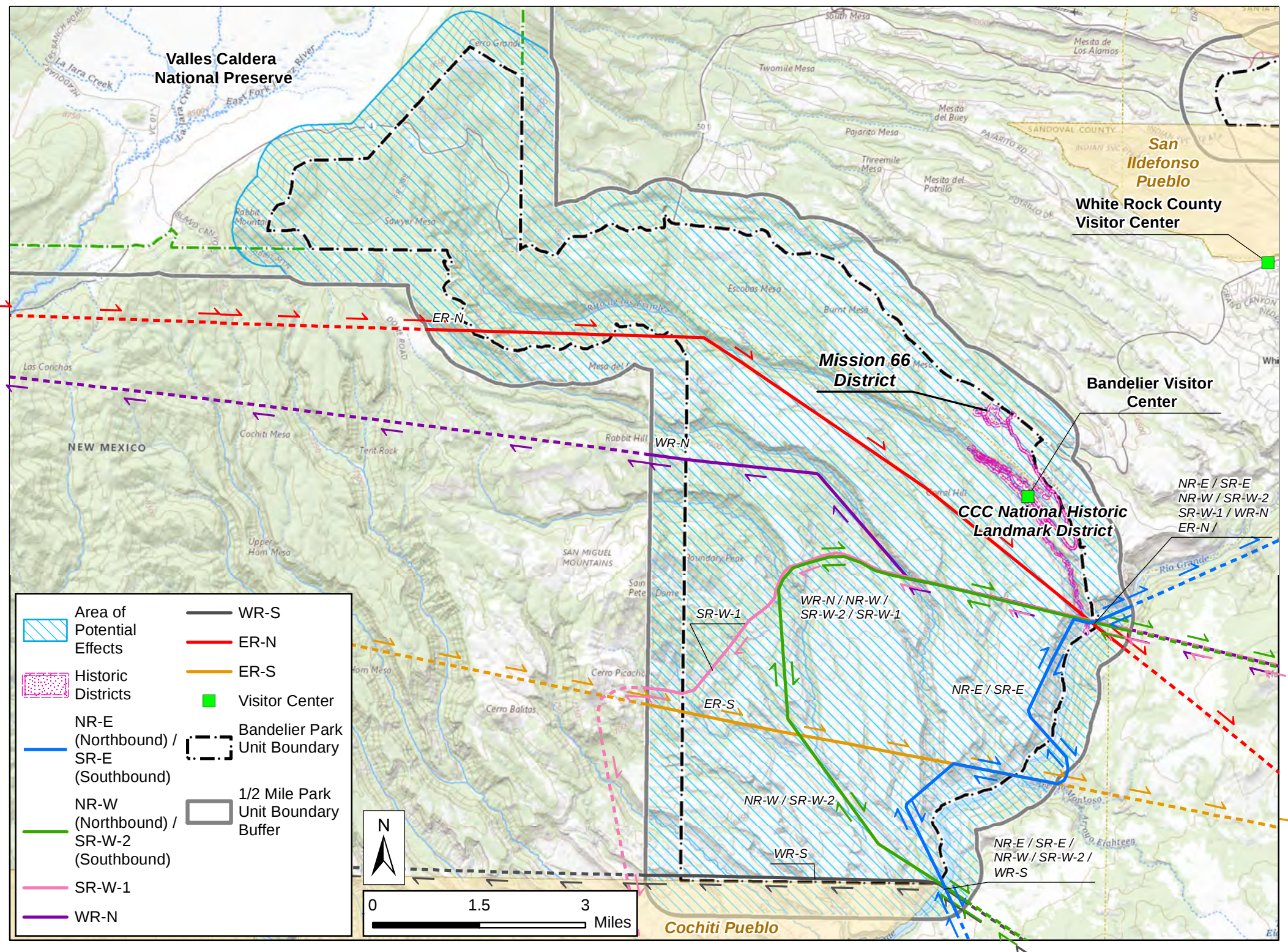
Cathy Nadals
Cultural Resource Specialist
Federal Aviation Administration

Attachments

- A. APE Map including proposed Commercial Air Tour Routes
- B. List of Historic Properties in the APE

**ATTACHMENT A
AREA OF POTENTIAL EFFECT MAP
INCLUDING
COMMERCIAL AIR TOUR ROUTES**

Area of Potential Effects Map for ATMP at Bandelier National Monument



ATTACHMENT B
LIST OF HISTORIC PROPERTIES IN THE APE

ID	Historic Property Name	Historic Status
1	Bandelier CCC National Historic Landmark District	Listed
2	Bandelier National Monument Archeological and Historic District (Mission 66 District)	Listed



Michelle Lujan
Grisham, Governor

STATE OF NEW MEXICO
DEPARTMENT OF CULTURAL AFFAIRS
HISTORIC PRESERVATION DIVISION

BATAAN MEMORIAL BUILDING
407 GALISTEO STREET, SUITE 236
SANTA FE, NEW MEXICO 87501
PHONE (505) 827-6320 FAX (505) 827-6338

September 1, 2021

Cathy Nadels
Cultural Resource Specialist
Federal Aviation Administration
Catherine.L.Nadels@faa.gov

Re: Continuing Consultation under Section 106 for the development of an Air Tour
Management Plan at Bandelier National Monument

Dear Ms. Nadels:

Thank you for your letter regarding the proposed Area of Potential Effects (APE) and preliminary identification efforts for the referenced undertaking. The State Historic Preservation Office has no concerns with the proposed APE or the preliminary identification efforts.

Although Bandelier National Monument encompasses many archaeological sites, I agree that the Bandelier CCC National Historic Landmark District and the Mission 66 District are the two properties likely to be affected by air tours. At this time, I am not aware of any other properties within or near the APE that could be considered but tribal consultation may identify traditional cultural properties, including archaeological sites, that have the potential to be affected.

Please do not hesitate to contact me if you have any questions. I can be reached by telephone at (505) 827-4064 (office), (505) 490-3928 (cell), or by email at michelle.ensey@state.nm.us.

Sincerely,

Michelle M. Ensey
Deputy State Historic Preservation Officer &
State Archaeologist

Log: 115792

From: [Bernstein, Bruce](#)
To: [ATMPTeam](#); [Nadals, Catherine L <FAA>](#)
Cc: [jamie_civitello@nps.gov](#); [Gina_Pearson@nps.gov](#); [karen_belvin@nps.gov](#); [laura_martin@nps.gov](#); [Ashley_Pipkin@nps.gov](#); [sierra_mandelko@nps.gov](#); [phil_wilson@nps.gov](#); [adam_beeco@nps.gov](#); [Manning, Derek \(Volpe\)](#); [Rimol, Kaitlyn \(Volpe\)](#); [Schmidt, Jonathan \(Volpe\)](#); [ctoya@jemezpuablo.org](#); [thpo@sanipueblo.org](#); [jayson.romero@cochiti.org](#); [Ben Chavarria](#); [mamitchell@pueblooftesuque.org](#)
Subject: Re: Section 106 Consultation for Air Tours at Bandelier National Monument_Pueblo of Pojoaque, New Mexico
Date: Wednesday, September 15, 2021 11:05:55 AM
Attachments: [Outlook-plban2fq.png](#)

CAUTION: This email originated from outside of the Department of Transportation (DOT). Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Dear Ms. Nadals,

Thank you for the opportunity to comment on development of an Air Tour Management Plan at Bandelier National Monument. The Pueblo appreciates your agency's efforts to construct a plan to minimize damage to the cultural and natural landscape of the Monument. Nonetheless, it is the Pueblo of Pojoaque's perspective that air tours should not be allowed at Bandelier because it violates the sacred landscape of the area and its continuing use by Pueblo communities and people. Clearly and indisputably, air tours will affect the use of traditional cultural properties (TCPs) and Ancestral sites and shrines located throughout the region. *"The FAA is also considering whether air tours could affect the use of traditional cultural properties (TCPs) associated with cultural practices, customs or beliefs that continue to be held or practiced today. NPS staff at Bandelier National Monument have informed the FAA that a number of tribes have indicated that they consider the entire park is part of a larger sacred landscape."* The EA must take Tribal viewpoints into serious consideration.

It is positive that mentioned in your letter is that the APE will be areas of historic properties that could be affected by noise and sight of aircraft. Historic properties are a broad and unspecific category in which, certainly, Native built and used space is included. There are 5000 Ancestral sites in the region, over 2000 in the Monument so it is uncertain how any of these properties will be avoided and not affected. *"In establishing the proposed APE, the FAA sought to include areas where any historic property present could be affected by noise from or sight of commercial air tours over the Park or adjacent tribal lands."*

"The proposed APE for this undertaking (36 CFR 800.4(a)(1)) as defined at 36 CFR 800.16(d) is the geographic 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 Pueblo of Pojoaque appreciates that the APE includes this consideration, however, as stated above with the density of cultural properties and their continuous use the air tours will contribute to their degradation as well as be intrusive to the privacy of continuous use of the area by Pueblo peoples.

Finally, the Pueblo sincerely hopes that FAA and NPS will take into consequential consideration the permanent effects of visible and audible intrusions from aircraft flights. *"The*

proposed FAA and NPS approval 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 that could diminish the integrity of any identified significant historic properties."

While completing this email, an email was received about a public meeting this evening (September 15). While a public meeting is notably different than a consultation, the Pueblo hopes that the last-minute notification does not presage consultations.

Thank you for your consideration.

Bruce Bernstein, PhD

Tribal Historic Preservation Officer

P'osuwaegheh Owingeh - Pueblo of Pojoaque

O: 505-455-5505

C: 505-795-6152



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From: ATMPTeam <ATMPTeam@dot.gov>

Sent: Friday, August 27, 2021 1:50 PM

To: Bernstein, Bruce <bbernstein@pojoaque.org>

Cc: jamie_civitello@nps.gov <jamie_civitello@nps.gov>; Gina_Pearson@nps.gov <Gina_Pearson@nps.gov>; karen_belvin@nps.gov <karen_belvin@nps.gov>; laura_martin@nps.gov <laura_martin@nps.gov>; Ashley_Pipkin@nps.gov <Ashley_Pipkin@nps.gov>; sierra_mandelko@nps.gov <sierra_mandelko@nps.gov>; phil_wilson@nps.gov <phil_wilson@nps.gov>; adam_beeco@nps.gov <adam_beeco@nps.gov>; Manning, Derek (Volpe) <Derek.Manning@dot.gov>; Nadals, Catherine L <FAA> <catherine.l.nadals@faa.gov>; Rimol, Kaitlyn (Volpe) <Kaitlyn.Rimol@dot.gov>; Schmidt, Jonathan (Volpe) <Jonathan.Schmidt@dot.gov>

Subject: Section 106 Consultation for Air Tours at Bandelier National Monument_Pueblo of Pojoaque, New Mexico

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recognize the sender and know the content is safe.

Dear Bruce Bernstein:

The Federal Aviation Administration (FAA) and the National Park Service (NPS) are continuing our Section 106 consultations with your office for the development of an Air Tour Management Plan (ATMP) at Bandelier National Monument. The FAA is acting as the lead federal agency for purposes of complying with Section 106 for this undertaking.

We are writing you now to present a description of the undertaking in accordance with 36 CFR 800.3(a) and 800.16(y) along with our proposed Area of Potential Effect (APE) pursuant to 36 CFR 800.4(a)(1). FAA has also completed its initial historic property identification in accordance with 36 CFR 800.4 and requests your assistance in identifying additional historic properties that may be located within the proposed APE.

Please let us know if you have any comments regarding our proposed APE and initial historic property identification efforts.

Should you would wish additional information about any of the above, please contact me at catherine.l.nadals@faa.gov or (202) 267-0746 and ATMPTeams@dot.gov.

Thank you for your time and consideration.

Best Regards,
Cathy Nadals



Pueblo de San Ildefonso
Office of the Governor

SI-GC21-163

September 23, 2021

Patrick Suddath
Superintendent
Bandelier National Monument
15 Entrance Rd.
Los Alamos, NM 87544

RE: Air Tour Management Plan

Dear Superintendent Suddath:

We are writing in response to the National Park Service's (NPS) and Federal Aviation Administration's (FAA) proposed Air Tour Management Plan (ATMP) for Bandelier National Monument. We have reviewed the draft Air Tour Management Plan the proposal, participated in the public meeting for the Bandelier National Monument Air Tour Management Plan and reviewed documentation associated with the continuing consultation under Section 106 of the National Historic Preservation Act.

We would like to provide context for the Pueblo de San Ildefonso's comments on the ATMP. The Pueblo de San Ildefonso considers Bandelier to lie within the ancestral domain of the pueblo and considers the documented cultural resources within to be the material evidence of the occupation of the monument by our ancestors whose spiritual presence resides within the domain. In addition, there are extensive resources within the monument that are not documented but are associated with traditional and ceremonial practices conducted since time immemorial into the present.

Given the context above, we feel any form of increased air tours within the boundaries of the monument and its surrounding area, has the potential to affect maintenance of traditional and ceremonial practices by the Pueblo de San Ildefonso. We also believe there is a potential for air tours to affect or contaminate the spiritual domain and presence of our pueblo ancestors. For these reasons we are opposed to any action that authorizes increased air tours over Bandelier.

Regardless of height restrictions, we feel there will be an adverse effect to wildlife, birds and other animals within the confines of the monument and adjacent lands managed by a variety of communities and agencies. These wildlife resources are an extension of the ecosystem important to the maintenance of traditional Pueblo lifeways.

Another item that has not been addressed is the potential for the Air Tour Management Plan to affect restricted airspace over Los Alamos National Laboratory (LANL). Although we do not know the details of LANL's air space, we understand that airspace to include portions of lands included within the ancestral domain of the Pueblo.

With regard to potential adverse effects to historic properties as defined under Section 106 of the National Historic Preservation Act, there is further work that needs to be completed. When discussing the Area of Potential Effect (APE), we have some concerns. Your proposed APE allows for the potential of noise from or sight of commercial air tours over the Monument and adjacent tribal lands. This would adversely affect the qualities that make historic properties eligible for the National Register, without accounting for certain kinds of historic properties that might not be captured during archaeological survey. We feel the inventory of historic properties based upon archaeological survey is incomplete and would benefit from additional inventory documenting ethnographic use within the APE. In addition, your APE appears to consider only Monument lands and adjacent tribal lands. There are lands managed by other jurisdictions including private, municipal, state and federal such as Santa Fe and Los Alamos Counties, Forest Service, BLM and DOE lands.

The Pueblo de San Ildefonso considers the lands of the monument as well as surrounding lands on a variety of land jurisdictions within the ancestral domain to be a traditional cultural landscape of which the archaeological resources form only a part. Based on the ethnographic study of the Tsankawi Unit of Bandelier we assert that Bandelier and surrounding lands are part of the San Ildefonso cultural landscape which.....

“...is a living landscape because the spirits of San Ildefonso ancestors continue to reside at ancestral sites and the San Ildefonso people continue to use the land in cultural practices. This cultural landscape, including Tsankawi, is integral to the identity of San Ildefonso people and crucial in the retention and transmission of San Ildefonso cultural and history. (Spears, Hopkins and Ferguson 2019)”

This statement would hold for all lands contained within the immediate ancestral domain of San Ildefonso encompassing the Pajarito Plateau, the Jemez Mountains, the Rio Grande and the canyon of the Caja del Rio. As such we would maintain that the inventory of historic properties is incomplete and does not account for the additional non-archaeological cultural components of the cultural landscape that have the potential for those components or the larger cultural landscape to be eligible as historic properties. Nor does the inventory account for the potential noise and visual effects to those properties that make the cultural landscape and its components eligible for the National Register.

Aside from the process associated with Section 106 and the environmental analysis for the National Environmental Policy Act (NEPA) it is important for the Monument and the FAA to understand that the Pueblo de San Ildefonso does not support authorization of air tours over Bandelier National Monument under any circumstances or mitigating measures. Furthermore, we would encourage any existing air tours be discontinued immediately.

We thank you for providing the Pueblo de San Ildefonso the opportunity to make our position clear with regard to the Air Tour Management Plan for Bandelier National Monument. Please do not hesitate to contact my office to discuss this matter further.

Sincerely,



Christopher A. Moquino
Governor
Pueblo de San Ildefonso

CC: Catherine Nadals, FAA (Catherine.L.Nadals@faa.gov)
Scott McFarland, NPS
Senator Martin Heinrich
Senator Ben Ray Lujan
Representative Teresa Leger Fernandez
Pueblo de San Ildefonso Tribal Council



P.O. Box 309

Acoma, New Mexico 87034

PUEBLO OF ACOMA
Tribal Historic Preservation Office

TELEPHONE: 505-552-5124

505-552-5127

December 9, 2021

Mr. David C. Suomi
Regional Administrator
Northwest Mountain Region
Federal Aviation Administration
1601 Lind Avenue Southwest
Renton, WA 98057

Dear Mr. Suomi and team,

Thank you for your letter to the Pueblo of Acoma dated March 26, regarding *Initiation of consultation under 36 CFR 800, the National Park Air Tour Management Act, and Invitation for Government-to-Government Tribal consultation pursuant to Executive Order 13175 and FAA Order 1210.20*. The Pueblo of Acoma appreciates the Federal Aviation Administration's (FAA) solicitation of our input and your effort to address our concerns.

The Pueblo of Acoma continues to claim cultural affiliation to many areas in New Mexico, Arizona, Colorado, and Utah including those within the boundaries of Arches National Park, Bandelier National Monument, Canyon de Chelly National Monument, and Canyonlands National Park. Furthermore, the Acoma Tribal Historic Preservation Office (ATHPO), recognizes each of these places contains the cultural and archeological "footprints" of our ancestors, along with cultural landscape, shrines, and gathering places, and because they remain tied to our present-day village of Haak'u, they are also considered Traditional Cultural Properties.

The Pueblo of Acoma has concerns with the proposed Air Tours. Our concerns stem from the direct experience the Pueblo of Acoma has had over the years with both authorized and non-authorized "fly-overs." We have seen the direct effect the flyovers can have on fragile historic structures and sensitive cultural areas in and around the pueblo. Sadly, it has been our experience that although the pueblo has requested "no-fly" periods for tribal ceremonies, non-authorized flights still occur and have lasting consequences on tribal members as they continue mark cultural observances and practice with sensory intrusions from flights.

The average number of tours projected for a three-year period, at Bandelier National Monument, is 101 air tours. The Pueblo of Acoma experiences "fly-overs" on an annual basis, from military aircraft, private aircraft, helicopters, and commercial aircraft, and understands the direct effects on the buildings, sacred

areas, livestock grazing, and wildlife patterns. Although the air tours have operated for over 20 years, the Pueblo remains concerned with the cumulative effects that will occur from direct flyovers, as well as the disruption caused to these sacred places.

The Pueblo of Acoma requests continued consultation on this proposal, as well as feedback from other tribes. Should you have any questions or concerns you can contact me at (505) 552-5124 ext. 5538 or at sconcho@poamail.org.

Respectfully,

A handwritten signature in black ink, appearing to read 'Steven Concho', with a stylized flourish at the end.

Steven Concho
Pueblo of Acoma Tribal Historic Preservation Officer

CC: HPO
Administration
Cathy Nadals
Rob Lowe
Raquel Girvin
Southeast Utah Group, NPS
Bandelier National Monument, NPS
Canyon de Chelly National Monument, NPS

SANTA CLARA

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INDIAN PUEBLO

ESPANOLA, NEW MEXICO
87532
OFFICE OF GOVERNOR

January 18, 2022

Rob Lowe
Regional Administrator
FAA Southwest Region
Federal Aviation Administration

Patrick Suddath
Superintendent
Bandelier National Monument
National Park Service

Catherine Nadals
Cultural Resources Specialist
Office of Environment and Energy
Federal Aviation Administration

John Wensel
Manager
FAA Flight Standards District Office
Federal Aviation Administration

Re: Santa Clara Pueblo Consultation Comments on the FAA's Draft Air Tour Management Plan for Bandelier National Monument

Dear Mr. Lowe, Mr. Suddath, Ms. Nadals, and Mr. Wensel,

On behalf of Santa Clara Pueblo, we respectfully submit the following comments on the Federal Aviation Administration (FAA) and National Park Service's (NPS) Draft Air Tour Management Plan (ATMP) for Bandelier National Monument in New Mexico. Santa Clara Pueblo is a federally recognized sovereign Tribal Nation with deep ties to Bandelier and its surrounding cultural landscape. It is a part of our ancestral migration history and holds a pivotal role in the expression of our Pueblo identity today. As such, it is vital that the parameters for any air tours of the area be designed and implemented through tribal consultation to ensure that our interests in Bandelier are appropriately protected.

The FAA and NPS are responsible for fulfilling the federal government's trust obligations to Tribal Nations, including our Pueblo, by ensuring that our interests are accounted for in all federal actions, programs, and policies that they undertakes. It is Administrator Dickson, Director Sams, and the staff of both agencies' solemn duty to ensure that this responsibility is upheld. Consultation with Tribal Leaders is key to this work.

We would like to thank the FAA and NPS for holding a one-on-one virtual consultation with our Pueblo prior to the submission of these written comments. Direct engagement between agency leadership and Pueblo leadership on a one-on-one basis is the strongest form of consultation. It honors the political government-to-government relationship that exists between our Pueblo and

the United States. It also enables for meaningful consultation around emergent issues in a way that fosters robust dialogue and mutually agreed upon outcomes. We encourage the FAA and NPS to continue to engage in high level, one-on-one tribal consultations going forward.

In the spirit of this consultation to advance the protection of the culturally important and sacred area of the Bandelier National Monument, I express the following comments and concerns on behalf of Santa Clara Pueblo, with due and utmost respect.

I. Santa Clara Pueblo's Opposition to Air Tours over Bandelier National Monument

Our Pueblo opposes the continuation of air tours over Bandelier National Monument. We request the full termination of such tours to best protect this critical and irreplaceable cultural landscape.

The lands that today comprise Bandelier National Monument are part of Santa Clara Pueblo's ancestral homeland. The lands are directly linked to our oral tradition, culture, and migration history. They also form a living part of the spiritual sanctuary of our people. Our ancestors continue to occupy Bandelier, and our people regularly access these lands for ceremonial purposes. The strong cultural and spiritual connections we hold extend throughout and beyond Bandelier's current boundaries. These ties are also shared by our sister Pueblos and other Tribal Nations.

The designation of Bandelier as a National Monument in 1916 imposed artificial boundaries across this key cultural landscape. There are thousands of documented tribal cultural properties (TCPs) within Bandelier, as well as countless unregistered sacred and culturally significant sites. The Draft ATMP itself recognizes the cultural significance of Bandelier, noting that it includes "one of the largest concentrations of Ancestral Pueblo archeological sites in the American Southwest" to which "[a]ffiliated pueblo Indian groups still have strong traditional associations and ties." See Draft ATMP at Section 2.1.

Our Tribal Historic Preservation Office strives to protect these sites in accordance with applicable law, but our limited available resources, lack of co-management authority, and inconsistencies in tribal consultation make this a steady challenge.

Flyovers from air tours in any quantity or capacity pose an unacceptable risk to Bandelier. While we can understand the draw of experiencing such a beautiful landscape from above, the potential and actual harm that arises in connection with each flight is far too great. An accident or discharge from an aircraft could permanently damage or destroy parts of the National Monument. Further, the noise and visual pollution of the air tours disrupts the conduct of ceremonies, the tranquility of our people accessing the lands for reflection or cultural purposes, and stresses wildlife. Our tribal interests in protecting our cultural heritage and religious expression—which are beyond value must be found to inherently outweigh those of recreational tourism.

Further, terminating the conduct of air tours over Bandelier would be consistent with the no-fly zones currently in place over the adjacent Valles Caldera Park Unit and the Los Alamos National Laboratory. Designating Bandelier as a similar no-fly zone would lead to greater uniformity in the protection of these important cultural and natural landscapes in New Mexico.

II. Comments on the Draft ATMP

Our Pueblo, as stated herein, opposes the operation of air tours over Bandelier National Monument. Should the FAA and NPS continue to authorize this activity it is essential that the preferences of our Pueblo and other Tribal Nations be incorporated into the applicable ATMP to the greatest extent possible. To that end, we offer the following recommendations on the Draft ATMP.

Section 1.0 – Introduction

We recommend that the Introduction be amended to include specific reference to tribal cultural protection and tribal consultation. Congress expressly found in the National Parks Air Tour Management Act of 2000, as amended—which mandates the development and implementation of applicable ATMPs—that "the protection of tribal lands from aircraft overflights is consistent with protecting the public health and welfare and is essential to the maintenance of the natural and cultural resources of Indian tribes." *See* Pub. L. 106-181 at Sec. 802(4). The Introduction should directly address this Congressionally-established priority.

Further, we recommend that the Introduction include discussion on the federal requirement that Tribal Nations be actively involved in the decision-making process related to the ATMP and any associated voluntary agreement. NPS and FAA are required "to solicit the participation of any Indian tribe whose tribal lands are, or may be, overflown by aircraft involved in a commercial air tour operation over the park or tribal lands to which the plan applies, as a cooperating agency," 49 U.S.C. § 40128(b)(4)(D), as well as to "consult with any Indian tribe" whose lands are or may be overflown pursuant to a voluntary agreement, 49 U.S.C. § 40128(b)(7)(C). Tribal involvement decisions related to overflight activities is a matter of sovereignty that should be emphasized in the opening section of the ATMP.

It is important to stress that such involvement not be cabined to the development of this ATMP or the initial negotiation and operation of a voluntary agreement. Tribal engagement and active input into the overflight activities are *ongoing* requirements that honor our sovereign, permanent interests in the land being overflown. We must be engaged at all stages of the overflight process to ensure our interests are accounted for, including through periodic reassessment as to whether amendment to or even suspension of the ATMP or a voluntary agreement is appropriate.

Section 2.0 – Applicability

We recommend that the agencies include a new additional management objective under Section 2.1 to "Protect tribal and pueblo natural resources and cultural heritage and the exercise of indigenous religious beliefs and ceremonial practices." The existing management objective to "Protect sensitive cultural and historic sites" is insufficient, in our view, to address tribal concerns. The FAA and NPS have legal, moral, and trust obligations to safeguard tribal interests through the operation of this ATMP. Incorporation of our suggested management objective would be consistent with these obligations by providing greater specificity as to higher interests of Tribal Nations that are at stake in Bandelier that must be protected. It would also better demonstrate the agencies' commitment to honoring our tribal sovereignty.

It is our understanding that the provisions in this section related to the above ground level and lateral location requirements are carried forth from the implementing regulations for the National Parks Air Tour Management Act at 14 C.F.R. § 136.33(d). We suggest that the FAA and NPS consider a regulatory change to raise the above ground level minimum threshold for applicability from "below 5,000 feet" to "below 7,500 feet." A heightened minimum threshold would capture more flights and be consistent with the use of alternate thresholds for certain national parks. *See, e.g., Pub. L. 100-91 at Section 2(b).*

Section 3.0 – Conditions for the Management of Commercial Air Tour Operations at the Park

As previously stated, we strongly prefer that no tours take place at all to best protect our cultural interests, archeological resources, the tranquility of the site for visitors and ceremonial experiences, and the welfare of local wildlife. In the alternative, our Pueblo supports the imposition of tighter restrictions on the operation of commercial air tours at Bandelier. We recommend the following conditions be imposed under the ATMP.

Section 3.1 – Annual Commercial Air Tours Authorized. Authorization of seventy-five (75) annual commercial flights which are strictly limited to air tour operator Mr. Bruce M. Adams of Southwest Safaris. Our proposed annual limit is intended to further limit the potential disturbances caused by commercial air tours, particularly as domestic and international tourism within the National Parks System continues to escalate.

Section 3.2 – Commercial Air Tour Routes and Altitudes. Air tours should not fly below 3,800 feet above ground level (ABL) with reference to the topographic high-point within ½ mile of the applicable flight path. An expansion of the minimum ABL is justifiable as a matter of privacy to better protect those engaged in spiritual practices or ceremony at or near Bandelier, as well as to better insulate the covered area from noise pollution. We also believe that a heightened minimum ABL threshold would better advance the management objective of protecting raptor and migratory bird populations within Bandelier that typically fly at altitudes ranging from 700 feet to 3000 feet. Avoiding collisions with low-flying aircraft would be better achieved with a heightened ABL minimum threshold that is consistent with these avian flight behaviors.

We ask that the SR-E (Southbound) route proposed in the Draft ATMP be eliminated due to concerns over the route's proximity to and direct overlap with known Pueblo traditional cultural properties. This area is highly sensitive to our Pueblo. The overflight of any aircraft, though particularly those at lower altitudes as used in air tours, along route SR-E is disruptive to and disrespectful of this living cultural landscape.

We are concerned about the direct overflight of route SR-W-1 and proximity of route SR-W-2 (Southbound) to Cochiti Pueblo lands. With deference to any recommendations that may be made directly by Cochiti Pueblo, we recommend that these routes be shifted east of the Rio Grande so that they no longer crossover Cochiti Pueblo lands.

Section 3.3 – Aircraft Type. Our Pueblo supports the restriction of aircraft type to the CE-182-R (small four seat fixed engine plane). Larger aircraft and helicopters are highly disruptive

to the experience of being in nature or in a sacred space. The Draft ATMP's proposal to limit the only authorized aircraft type to CE-182-R fixed engine planes would prohibit those nuisances.

Section 3.4 – Day/Time. Authorization of no more than two (2) flights on a daily basis, which may begin only after the sun has been risen for two hours and must conclude at least two hours prior to sunset, as those times are defined by the National Oceanic and Atmospheric Administration. Air tours may operate throughout the year, except for on a day or period of days designated as culturally significant by a Tribal Nation or for other occasions, as provided in the following section.

Section 3.5 – Restrictions for Particular Events. Tribal ceremonies and cultural events due not lend themselves to Western notions of advance planning for the purposes of providing notice to air tour operators within a set period of days. The imposition of such a requirement is culturally insensitive and largely inappropriate. We recommend that the ATMP state that for annual recurring events, which are to be designated by the relevant Tribal Nation. However, our people have the religious right to access Bandelier as they deem necessary for the conduct of personal and community ceremonies. These may be undertaken with minimal notice of as short as twenty-four (24) hours. Honoring this right of our people to their religious exercise must be a part of the final ATMP. Accordingly, we recommend that it state an air tour operator can expect to receive notice of a restricted route or routes within ten (10) days of a recurring annual event and within twenty-four (24) hours of a private or community requested event. Such restrictions may apply only for a portion of the day or as a full-day prohibition on air tours depending on the circumstances.

Section 3.6 – Required Reporting. We recommend that this section be amended to include a statement that the FAA and NPS will share the semi-annual operator reports with local Tribal Nations, subject to any redactions that may be required to protect the personal identification data (such as social security number or home address) and confidential financial information of the air tour operator. Tribal access to these reports is important for understanding how routes are being used and at what frequency. Such information will facilitate informed decision-making by Tribal Nations as to whether to request consultation on or amendment to the ATMP.

3.7 – Additional Requirements. We suggest that the operator/pilot training course set forth under Section 3.7A be amended to include the participation of a tribal representative alongside NPS staff. The tribal representative would further the operator/pilot's understanding of the cultural significance of Bandelier to Tribal Nations, which will in turn "enhance the interpretive narrative" for visitors and, thus, advance the mission and management objectives of the ATMP. The direct participation of a tribal representative, who shall be designated by local Tribal Nations, also demonstrates the NPS and FAA's respect for tribal sovereignty, our mutual interests in Bandelier and other federally protected lands, and the Nation-to-Nation relationship that exists between Tribal Nations and the United States.

We also ask that Section 3.7B be amended to include the participation of a tribal representative or tribal representatives in the annual meeting between the NPS, FAA Flight Standards District Office, and the operator. Tribal Nations, including our Pueblo, have direct interests in effective implementation of the ATMP for Bandelier. We must be given a seat at the table where discussions about its strengths and weaknesses take place. The absence of a tribal representative at the annual

meeting is a glaring omission that must be corrected in the next iteration of this document. Further, we suggest that Section 3.7B be amended so that an annual meeting can also be called at the request of a Tribal Nation.

Section 3.8 – Quiet Technology Incentives. We recommend making the adoption of quiet technology aircraft a requirement for conducting air tours over Bandelier. Facilitating peaceful enjoyment of the area is a key goal that advances the recreational, spiritual, and other uses of Bandelier. It also mitigates the stress to wildlife, particularly protected species, otherwise caused by low-flying aircraft.

Section 3.9 – Violations; Forfeiture of Flights. We strongly recommend the incorporation of a new section providing for the imposition of penalties in the event of violations of the conditions for the management of commercial air tours at Bandelier or of this ATMP generally. Upon the report of an alleged violation of this ATMP, we suggest that the air tour operator be directed to suspend all flights within forty-eight (48) hours of receipt of notice of said violation. The air tour operator should be given at least twenty-one (21) days to cure the said violation, provided that extenuating circumstances may require a longer period of time for compliance (such as for supply chain accommodations). In the event that the violation cannot be cured within the stipulated time, the approval of the air tour operating to conduct flights should be suspended for a reasonable period of time of not less than one (1) month. In the event that an air tour operator engages in an egregious violation of this ATMP—such as conducting a flight during a tribally designated prohibited period or within sight of a ceremonial activity, for example—we request that no period of cure be provided and the air tour operator's approval to conduct flights be immediately suspended for the remainder of the calendar year. Respect for tribal sovereignty and religious practices lies at the heart of this ATMP. Sanctions must be strong enough to incentivize compliance with its provisions, otherwise it is merely guidance and will not adequately protect our interests.

Section 4.0 – Justification for Measures Taken

We have no comment on this section.

Section 5.0 – Compliance

Our Pueblo recommends that Section 5.0 be amended so as to impose a twenty-one (21) day requirement for modifying the existing Interim Operating Agreement's Operations Specifications for compliance with the final ATMP. As written, there is no deadline stipulated for when the existing Operations Specifications would need to be modified to require such compliance which causes concern.

Section 6.0 – New Entrants

We strongly oppose the granting of any "new entrant" operating authority at Bandelier. It is our position that no air tours should take place over this culturally, historically, and spiritually significant landscape. Should any air tours take place, we do not support their extension beyond the current operator, Southwest Safaris, that has been in operation for an established period of time. Expansion of air tour operations to new entrants will only lead to increased noise pollution,

,heightened risks of accidents and damage to cultural properties, disruption of wildlife habitat, and the overall diminishment of visitors' experiences at the National Monument.

In the event that an option for new entrants is maintained, our Pueblo asks that the number of annual flights permitted over Bandelier remain capped at a total of seventy-five (75) flights among all operators servicing the National Monument. Any new entrant should be subject to the same restrictions as currently proposed for Southwest Safaris in terms of permitted aircraft type and operating hours.

Section 7.0 – Competitive Bidding

We ask that additional environmental review—which should include impacts on wildlife and on tribal cultural properties—be held as mandatory in relation to any new entrant application without exception. A Tribal Historic Preservation Officer (THPO) should be directly involved in the review process alongside FAA and NPS officers. Countless tribal cultural properties occupy Bandelier that are both documented and unidentified. As such, it is vitally important that a THPO or THPOs be an active part of the review. Only Pueblo and other Native people with ties to the Bandelier cultural landscape will have the traditional knowledge to identify sites and assess potential impacts on them by air tour related activities. Their knowledge cannot be substituted by federal officials or other third parties.

Section 8.0 – Adaptive Management

We do not consider changes to routes, altitudes, or other operating parameters as "minor" for the purposes of justifying the use of an adaptive management measure that may not require a formal ATMP amendment. As a Pueblo with deep and living ties to Bandelier we view any change to operating activities, routes, and altitudes, among others, as a direct concern. Adaptive management measures should not be used to circumvent the Nation-to-Nation relationship nor as a means of excluding Tribal Nations. We should be informed of all proposed changes via a timely and official communication from the FAA and NPS that is issued before any decisions are made in relation to the changes so that we have an opportunity to comment on them through consultation. We recommend strongly that this section be amended so that adaptive management measures apply only to strictly administrative factors and not to operating activities, and that a requirement for the timely communication of any proposed modifications to the ATMP to Tribal Nations be added.

Section 9.0 – Amendment

Our Pueblo recommends that Section 9.0 be amended to provide that a Tribal Nation with ancestral and/or contemporary ties to Bandelier may notify the FAA and NPS that it has determined the ATMP is not adequately protecting the National Monument's resources, is adversely affecting aviation safety, or new information or changed circumstances have arisen. As currently written, the amendment process may only be initiated by a federal agency. To honor the Nation-to-Nation relationship and the interests of Tribal Nations that the FAA and NPS are duty-bound to protect pursuant to the trust obligation and federal law, it would be appropriate for Tribal Nations to also hold the option of requesting an amendment to the ATMP.

Section 10.0 – Conformance of Operations Specifications

We have no comment on this section.

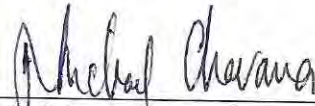
Section 11.0 – Effective Date

We have no comment on this section.

III. Conclusion

On behalf of Santa Clara Pueblo, thank you for conducting this consultation on the Draft ATMP for Bandelier National Monument. It is critical that the FAA and NPS continue to engage in collaborative discussions with our Pueblo and other Tribal Nations whose ancestral history and contemporary interests are directly impacted by the management of this vital cultural landscape. Such follow-up should include the meaningful incorporation of revisions into the Draft ATMP that are reflective of the comments we raise herein, as well as the opportunity for Tribal Leaders to review and comment on those revisions prior to their internal finalization at the FAA and NPS.

Kunda; Thank you,

A handwritten signature in dark ink, appearing to read "J. Michael Chavarria", is written over a horizontal line.

J. Michael Chavarria, Governor
Santa Clara Pueblo

Phillip Quintana
Governor



David C. Gordon
Lt. Governor

**P.O. Box 255
255 Cochiti Street
Cochiti Pueblo, NM 87072-0255
PH# (505) 465-2244 FAX# (505) 465-1135**

February 21, 2022

Submitted Via Email

National Park Service
Natural Sounds and Night Skies Division
BAND ATMP
1201 Oakridge Dr., Suite 100
Fort Collins, CO 80525

Re: Pueblo de Cochiti Comments on Bandelier National Monument Draft Air Tour Management Plan

The Pueblo de Cochiti ("Pueblo") submits the following comments as a National Environmental Policy Act ("NEPA") consulting party in response to the Bandelier National Monument Draft Air Tour Management Plan ("ATMP") issued jointly by the Federal Aviation Administration ("FAA") and National Park Service ("NPS") on September 3rd, 2021, and as a consulting Tribe on the associated National Historic Preservation Act ("NHPA") Section 106 Process. The ATMP provides terms and conditions for commercial air tours conducted over Bandelier National Monument (Monument) pursuant to the National Parks Air Tour Management Act with the objective to develop acceptable and effective measures to mitigate or prevent the significant adverse impacts of commercial air tours on natural and cultural resources, visitor experiences, and tribal lands.

As a preliminary matter, the Pueblo is concerned with the inadequate level of consultation the FAA and NPS has provided to our Pueblo as a NEPA and NHPA consulting party leading to the development of the draft ATMP. The two letters issued and providing notice do not constitute meaningful tribal consultation or engagement in development of the draft ATMP, which is severely inadequate in its protections for traditional cultural properties, cultural resources, and sacred sites. Meaningful tribal consultation is a comprehensive, responsive, and ongoing process in which federal agencies and representatives work together to ensure development of a project and subsequent decision-making protects tribal interests with the goal of reaching free, prior, and informed consent. We look forward to continued engagement with the FAA and NPS in development of a ATMP that implements our Pueblo's cultural and technical expertise, guidance, and recommendations to preserve, to the maximum extent possible, cultural resources and sacred sites by prohibiting, in whole, commercial air flights over the Bandelier National Monument, a non-renewable and already heavily-impacted Pueblo cultural landscape. For our

Pueblo, this invaluable cultural landscape is a place of retreat and prayer to ensure the strength of our community and continued way of life, and we will continue to ensure its protection for generations to come, just as we have done since time immemorial.

The Pajarito Plateau, including the Monument's designated areas, is a vast, multi-layered living cultural landscape consisting of separate overlapping cultural landscapes of individual Pueblos and Tribes. This area's cultural and historical resources are the focal point of the Monument, and the primary reason for the Monument's establishment. As noted in the draft ATMP, this region holds one of the largest concentrations of Ancestral Pueblo archaeological sites in the Southwest including over 3,000 sites, and many more that are not documented. Since time immemorial, our Cochiti Pueblo people have occupied and ecologically stewarded extensive areas of this cultural landscape, including areas encompassed by the Monument. The Pueblo maintains a strong cultural affinity in ongoing interactions including through story, song, prayer, ceremony, and pilgrimage with this landscape and the gifts considered by the Pueblo to be both cultural and natural resources—plants, animals, air, soil, and water. The entirety of this area, including individual sites, are central to the maintenance and revitalization of our cultural knowledge, histories, and practices. Protection of the ecological and spiritual relationships between our Pueblo and the resources this landscape holds is central to the longevity of our identity as Cochiti Pueblo people and remains a priority in our legacy preservation efforts.

Cochiti Pueblo continues to be an active steward of the Bandelier cultural landscape and significantly involved in its management through the NPS. Our Pueblo oral histories and traditional ecological knowledges reaffirmed by the richness of cultural resources in this area connect us back to our ancestors' time in Frijoles Canyon, now encompassed by the Monument boundaries. In 2000, a study by the National Park Service identified Cochiti Pueblo as traditionally associated with the Monument designated area and was included in the formation of a Tribal Advisory Committee in 2003, where the Pueblo has since advocated for meaningful management-level tribal decision-making in protection of cultural resources and maintenance of historical and cultural context and setting for ongoing religious cultural use. Unfortunately, the regulatory mechanism for NPS consultation continues to be unsuccessful as consultation is continually devolved into a procedural "checking the box" requirement. As a result, our Pueblo continues to document the myriad of cases in which NPS has up to this point, proven ineffective at safeguarding cultural sites and maintaining historic cultural setting within the Monument. Ongoing, unsustainable tourist visit levels have—and continue to—result in disturbance and removal of sacred Pueblo cultural items, vandalism and destruction of sites, disrespectful and inappropriate use of sites, and disturbance of tribal cultural and religious activities. NPS has not made a concerted effort to inventory and remedy this situation, provide alternatives for cultural resource management and preservation, and advocate for tribal regulatory authority for Pueblos to engage in management-level decision making in protection of cultural resources.

Our Pueblo also continues to advocate for resources not archaeological in nature, including traditional cultural properties, sacred sites, shrines, springs, plant and mineral gathering places, viewsheds, and other important natural features and sites. The Pueblo continues to contribute to

ecological and watershed management and restoration activities of this landscape and is well aware that ecologies of plants and animals of this landscape severely damaged by five historic wildfires are in need of immediate protection and further restoration activities. Vegetation including juniper savannas, piñon-juniper woodlands, canyon-wall shrublands, ponderosa, pine forests, riparian forests, mixed conifer forests, and montane grasslands all provide important cultural resources, medicines, and foods that are of ongoing use to our community. Similarly, populations of wildlife including migratory birds and endangered species like the Mexican spotted owl also have important cultural roles. In addition, the NPS air tour assessments from other Parks have documented some concern that the rotor wash from helicopters approaching too close to cliff dwellings could disturb materials in context (e.g., pollen, soils, etc.). To allow continued commercial air tours would only cause, both directly and indirectly, further vulnerability and damage to the precious and sensitive vegetation and wildlife, especially during important species-specific breeding and rearing seasons not yet studied and incorporated into the Monument's management plan. Vegetation and wildlife in this area are in need of continued public avoidance and joint agency-tribal restoration activities to ensure their longevity and continued health of the region's ecology overall.

Allowing the continuation of commercial air tours will only exacerbate the existing challenges NPS and Tribes continue to experience in protecting cultural resources and tribal religious use by enabling continued viewing access to Monument visitors, noise pollution, and wildlife disruption. Commercial air tour operations also result in noise-induced vibration that can cause significant short-term and long-term adverse effects on the integrity of natural and man-made structures, objects, and sites. Depending on the character of the sound, the effects range from audible rattle, to items "walking" across surfaces, to fatigue cracking, and potentially to direct or indirect structural damage (Hanson et al, 1991).¹ Even though one flight may be insignificant, there have been hundreds of flights conducted over the past, which may have resulted in a serious unmitigated, cumulative, and irreversible impacts to the Monument's cultural resources, structures, objects, and sites. Environmental reviews including noise modeling have been conducted, results reviewed, and incorporated into ATMPs at other National Parks including at Big Cypress National Preserve and Biscayne National Park to ensure management objectives are met. Accordingly, we request that NPS fulfill obligations under Public Law 100-91 requiring the assessment and evaluation of the effects of aircraft overflights on historical and cultural resources within the Bandelier National Monument.

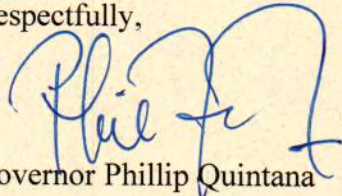
In consideration of our Pueblo's concerns, we request, as part of the NHPA Section 106 process, an assessment be undertaken by NPS to inventory the full extent of existing damages, theft, inappropriate use of sites, intrusion on privacy of tribal religious practices, and other impacts resulting from undermanagement of tourism and visitors to the Monument. This should necessarily include any noise and vibrational impacts to sites, structures, wildlife, and vegetation that may have occurred as a result of unchecked commercial air tours operating before and under interim authority, and an inventory of sites vulnerable and subject to potentially damaging sound

¹Hansen, A.J. Conserving Biodiversity in Managed Forests. 1991. Available at: https://www.researchgate.net/publication/255559506_Conserving_Biodiversity_in_Managed_Forests

exposures. We request this assessment and its findings be reviewed, evaluated, and incorporated into the final ATMP decision to avoid further adverse impacts to the Monument's precious cultural and natural resources. For the reasons discussed above, Cochiti Pueblo fully opposes the continuation of air tours over Bandelier National Monument and urges the NPS and FAA to use the administrative authority granted under the National Parks Air Tour Management Act of 2000 to prohibit, in whole, commercial air tour operations over the Monument. The Pueblo also urges the FAA and NPS to conduct a full environmental impact statement alongside ongoing NHPA Section 106 consultations to ensure the development a robust analysis informing an ATMP that will prevent any significant impacts to cultural resources, traditional cultural properties, and sacred sites in consultation with Pueblos and Tribes.

For years, our Pueblo has urged NPS to carry out the statutory obligation to meaningfully consider and protect Bandelier's cultural resources and its historic qualities for use by Pueblos, Tribes, and all those who come to learn from our past. We look forward to continue working with NPS and FAA to ensure decision-making on the ATMP that is reflective of the critical need to preserve this sacred and irreplaceable cultural landscape for generations to come.

Respectfully,



Governor Phillip Quintana
Cochiti Pueblo



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

January 26, 2023

Re: Continuing Consultation under Section 106 of the National Historic Preservation Act for the development of an Air Tour Management Plan for Bandelier National Monument

Michelle Ensey
Deputy State Historic Preservation Officer
New Mexico State Historic Preservation Office
407 Galisteo Street, Suite 236
Santa Fe, NM 87501

Dear Michelle Ensey:

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) for the development of an Air Tour Management Plan (ATMP) at Bandelier National Monument (the Park). At this time, FAA requests your comments on the historic properties we have identified within the area of potential effects (APE), in accordance with 36 CFR 800.4, as detailed below.

The FAA initiated consultation with your office in a letter dated March 29, 2021. In a follow-up letter dated August 27, 2021, we described the proposed undertaking in more detail, proposed the APE, and provided the results of our preliminary identification of historic properties within the proposed APE. On September 1, 2021, your office concurred with the APE and the initial historic property identification efforts.

This letter describes FAA's further efforts to identify and evaluate historic properties within the APE depicted in **Attachment A** and the results of those efforts, as summarized below.

Identification of Historic Properties

The FAA, in cooperation with the NPS, coordinated with park staff to identify known historic properties located within the APE. The FAA also coordinated with the New Mexico Historic Preservation Division (State Historic Preservation Office) to collect data for previously identified properties that may be listed in or eligible for listing in the National Register of Historic Places (National Register). Data from the New Mexico Preservation Division was received on February 10, 2022 and updated on December 16, 2022. The FAA also consulted with the federally recognized tribes among the list of consulting parties enclosed as **Attachment B** regarding the identification of any other previously unidentified historic properties that

may also be located within the APE. In addition to the previously identified historic properties, Park staff and tribes have informed FAA there are Traditional Cultural Properties (TCPs) located within the APE. While the TCPs are noted in **Attachment C** in a general manner, these are not mapped in Attachment A to ensure confidentiality.

The historic property identification effort has focused on identifying properties for which setting and feeling are characteristics contributing to a property's National Register eligibility, as they are the type of historic property most sensitive to the effects of aircraft overflight. These may include isolated properties where a cultural landscape is part of the property's significance, rural historic districts, outdoor spaces designed for meditation or contemplation and certain TCPs. The FAA has taken into consideration the views and input of consulting parties, past planning, research and studies, magnitude and nature of the undertaking, degree of Federal involvement, nature and extent of potential effects on historic properties, and the likely nature of historic properties within the APE in accordance with 36 CFR 800.4(b)(1). The presence of TCPs and the historic characteristics of the previously identified historic districts have been added to the preliminary list of historic properties to generate the revised historic property list enclosed as **Attachment C**.

Consultation Summary

The FAA contacted 27 federally recognized tribes via letter on March 26, 2021 inviting them to participate in consultation and request their expertise regarding historic properties, including TCPs that may be located within the APE. On August 27, 2021, the FAA sent the identified federally recognized tribes a Section 106 consultation letter describing the proposed undertaking in greater detail in which we proposed an APE and provided the results of our preliminary identification of historic properties. On December 3, 2021 and December 9, 2021, the FAA sent follow up emails to the federally recognized tribes once again inviting them to participate in Section 106 consultation.

On December 15, 2021 and December 20, 2021, the FAA followed up with phone calls to those tribes that did not respond to our prior consultation requests. The FAA received responses from six tribes expressing interest in participating in the Section 106 consultation process: Pueblo of Acoma, Pueblo of Isleta, Pueblo de San Ildefonso, Pueblo of Tesuque, Pueblo of Picuris, and Pueblo of Santa Clara. Two tribes asked to opt out of additional consultation for the undertaking: Pueblo of Sandia and Pueblo of Santa Ana.

On September 15, 2021 the FAA received comments from the Pueblo of Pojoaque via email informing the FAA that there are 5,000 Ancestral sites in the region, over 2,000 of which are within the Park. They also noted that TCPs and ancestral sites and shrines located throughout the region continue to be in use by the community.

The FAA received comments from Governor Christopher A. Moquino in a letter dated September 23, 2021, which notes that the Pueblo de San Ildefonso considers the Park to lie within the ancestral domain of the Pueblo de San Ildefonso and considers the documented cultural resources within the Park to be the material evidence of the occupation of the monument by their ancestors, whose spiritual presence continues to reside within this domain. The letter points out that there are extensive resources within the Park that are not documented and are associated with traditional and ceremonial practices conducted since time immemorial into the present. The Pueblo de San Ildefonso considers the lands of the Park, as well as lands beyond the Park boundary, to be a traditional cultural landscape of which the archaeological resources form only a part.

The FAA received comments from Acoma Tribal Historic Preservation Officer (THPO) Steven Concho of the Pueblo of Acoma in a letter dated December 9, 2021. In those comments, the Pueblo of Acoma noted they continue to claim cultural affiliation to many areas in New Mexico, Arizona, Colorado, and Utah. The THPO recognizes each of these places contains the cultural and archaeological “footprints” of their ancestors, along with cultural landscapes, shrines, and gathering places. In their comments, the Pueblo of Acoma informed the FAA that there are TCPs within the Park.

In a letter dated January 18, 2022, the FAA received comments from the Santa Clara Pueblo’s Governor, Michael Chavarria. The letters explains that the Santa Clara Pueblo has deep ties to the Park and its surrounding cultural landscape. The letter notes that the Park is part of their ancestral migration history and holds a pivotal role in the expression of the Santa Clara Pueblo’s identity today. The letter also informed the FAA that there are thousands of documented tribal cultural properties within the Park, as well as countless unregistered sacred and culturally significant sites.

The FAA also received comments from Governor Phillip Quintana of the Cochiti Pueblo in a letter dated February 21, 2022. In those comments, the Cochiti Pueblo expresses concern regarding the level of consultation the FAA and NPS have provided for the Pueblo. They mention that the two consultation letters they received in March and August of 2021 do not constitute meaningful consultation. The Cochiti Pueblo also expressed that Bandelier National Monument is an invaluable cultural landscape and a place of retreat and prayer to ensure the strength of their community and continued way of life. The letter mentions that the Cochiti Pueblo maintains a strong cultural affinity in ongoing interactions including through story, song, prayer, ceremony, and pilgrimage with this landscape and the gifts considered by the Cochiti Pueblo to be both cultural and natural resources - plants, animals, air, soil, and water. The entirety of this area, including individual sites, are central to the maintenance and revitalization of their cultural knowledge, histories, and practices.

As a result of comments received asking for more meaningful consultation, the FAA has held meetings under EO 13175 and Section 106 with Pueblo de Cochiti, Pueblo of Pojoaque, Pueblo de San Ildefonso, and Pueblo of Santa Clara.

The tribes whom the FAA contacted as part of this undertaking are included in the list of consulting parties is enclosed as **Attachment B**.

Review Request

In accordance with 36 CFR 800.4, the FAA has made a reasonable and good faith effort to identify historic properties within the APE. Those efforts resulted in the identification of two historic districts within the APE, including the entire park that encompasses many contributing properties, and TCPs within the Park boundary that extend beyond to the larger landscape. The identified historic properties are listed in **Attachment C** and shown in the APE map provided in **Attachment A**.

The FAA requests that you provide any comments you may have regarding the historic property identification efforts. In particular, we would appreciate your views regarding the significant characteristics of listed or eligible properties, and any information you might have that would help us to identify additional properties for which setting or feeling is a characteristic of significance.

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

Sincerely,

A handwritten signature in black ink, appearing to read 'Judith Walker', with a stylized flourish extending to the right.

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

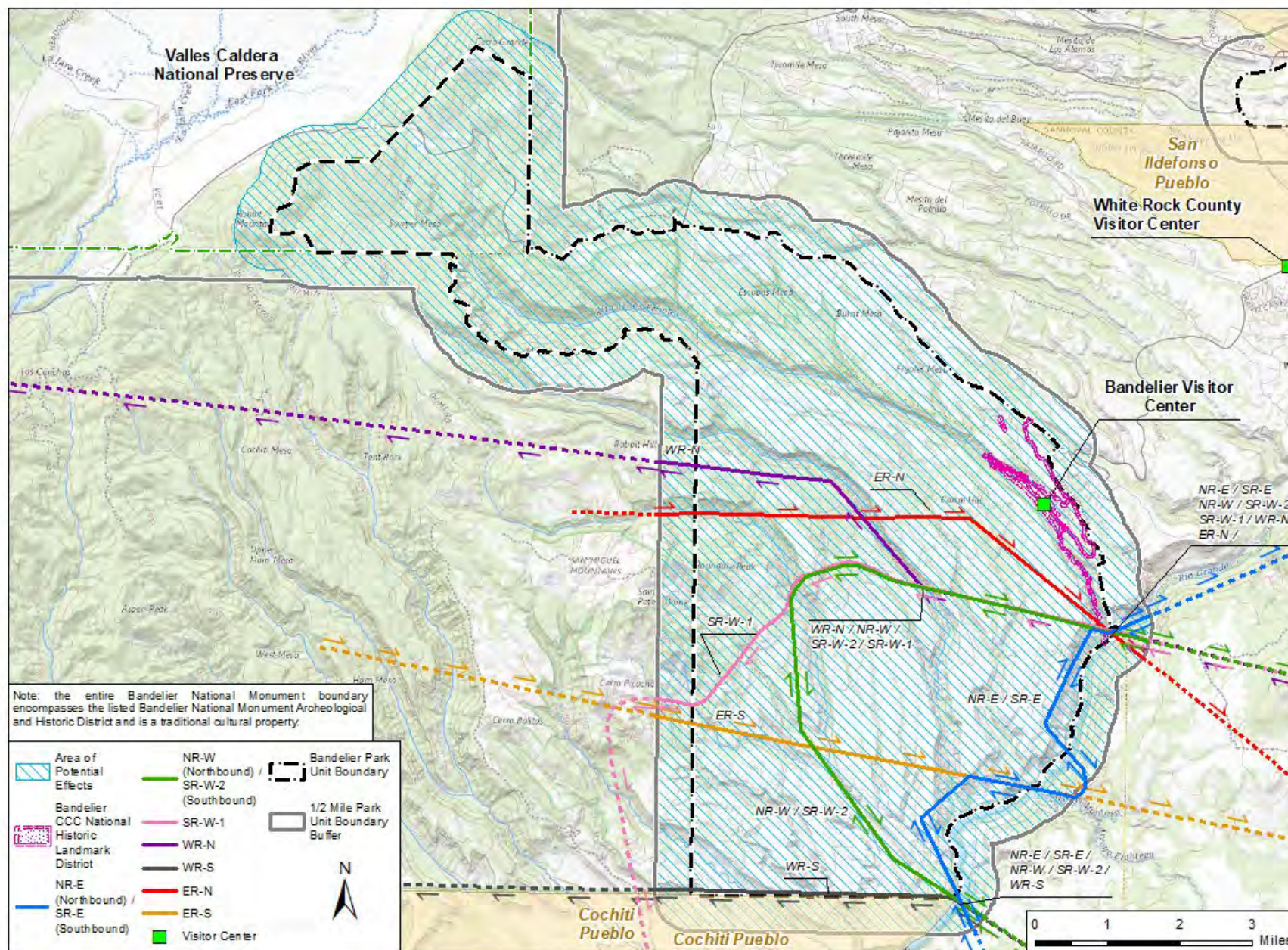
Attachments

- A. APE Map Including Existing Commercial Air Tour Routes
- B. List of Parties Invited to Participate in Consultation for the Undertaking
- C. List of Historic Properties in the APE and Description of Historic Characteristics

ATTACHMENT A

**Area of Potential Effects Map
Including Existing
Commercial Air Tour Routes**

Area of Potential Effects Map for ATMP at Bandelier National Monument



ATTACHMENT B

List of Additional Consulting Parties Invited to Participate in Section 106 Consultation

Adams, Bruce M. (Southwest Safaris)
Apache Tribe of Oklahoma
Comanche Nation, Oklahoma
Fort Sill Apache Tribe of Oklahoma
Hopi Tribe of Arizona
Jicarilla Apache Nation, New Mexico
Kewa Pueblo, New Mexico
Los Alamos National Laboratory ¹
National Trust for Historic Preservation
Navajo Nation, Arizona, New Mexico & Utah
New Mexico State Land Office
Ohkay Owingeh, New Mexico
Pueblo de Cochiti, New Mexico
Pueblo de San Ildefonso, New Mexico
Pueblo of Acoma, New Mexico
Pueblo of Isleta, New Mexico
Pueblo of Jemez, New Mexico
Pueblo of Laguna, New Mexico
Pueblo of Nambe, New Mexico
Pueblo of Picuris, New Mexico
Pueblo of Pojoaque, New Mexico
Pueblo of San Felipe, New Mexico
Pueblo of Sandia, New Mexico ¹
Pueblo of Santa Ana, New Mexico ¹
Pueblo of Santa Clara, New Mexico

Pueblo of Taos, New Mexico
Pueblo of Tesuque
Pueblo of Zia, New Mexico
Santa Fe National Forest
Standing Rock Sioux Tribe of North & South Dakota
Tewa Women
Ysleta Del Sur Pueblo
Zuni Tribe of the Zuni Reservation, New Mexico

¹Consulting party has opted out of further Section 106 consultation for the undertaking.

ATTACHMENT C

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

Property Name	Property Type	Eligibility Status	Significant Characteristics
Bandelier CCC National Historic Landmark District	National Historic Landmark and Historic District	Listed	The Bandelier CCC National Historic Landmark was designed by NPS architects and landscape architects and built by the CCC (Civilian Conservation Corps) between 1933 and 1942. The district contains 31 buildings of Pueblo Revival design that serve as office space, residences for employees, and lodging for guests. It is significant for its association with the New Deal era in the areas of Social History and Art. It is also significant for its rustic Pueblo Revival architectural style and the careful design of the entrance road and other non-building elements. As a result of the application of rustic design principles, the cultural landscape today blends with its natural setting and conveys a strong sense of place. The rustic, pueblo revival architecture, the natural canyon setting, views and the experience of archeological sites and the riparian corridor all contribute to the unique feeling that the district conveys.
Bandelier National Monument Archeological and Historic District (Mission 66 District)	Historic District	Listed	The Bandelier National Monument Archeological and Historic District (Mission 66 District) encompasses the entire park boundary and is significant for its association with the Archaic use of the Pajarito Plateau (5500 BCE-600 CE); Ancestral Pueblo occupation of the Pajarito Plateau (600-1600 CE); early historic use of the Pajarito Plateau (1600-1848); early scientific investigations and development of archaeology (1848-1932); early Native Arts revival efforts (1848-1932); homestead-era ranching, farming, and timber extraction (1848-1932); and the New Deal era and the CCC (1932-1942). The district contains 32 contributing buildings, 90 contributing structures, and 2,974 contributing sites*. Many of the archaeological sites in the park are in good condition and retain a high level of integrity, but there are a series of natural and cultural disturbances that have affected them. The pre-Hispanic sites are associated with habitation of the area by Ancestral Pueblo peoples. The area

			saw limited occupation in historic times by historic Pueblo groups, nomadic Athabascan groups, Hispanos, and Euro-Americans. During the New Deal era and CCC construction, there was great emphasis on the visual impacts of development. Landscape architects took great care to provide pleasant surroundings in the built-up area to promote spectacular and unobstructed views of archaeological sites that contribute to the Park's history. A trail system was also constructed to direct visitors to scenic overlooks and to enhance their access to various archaeological sites. Areas of significance include archeology (prehistoric, historic), science, conservation, social history (exploration/settlement), commerce, industry, architecture, landscape architecture, art, Native American ethnic heritage, military, and entertainment/recreation.
Bandelier National Monument Traditional Cultural Properties	TCP	Eligible	Several contributing sites within the Bandelier National Monument Archeological and Historic District are Ancestral Pueblo sites that are considered TCPs. Several tribes have informed the FAA that there are TCPs within the Park boundary and that extend beyond to the larger landscape of the area.

* This number include the archaeological sites that exist within the boundary nominated to the National Register in 1970 and archaeological sites within the post-1970 expanded boundaries of the monument.



Michelle Lujan
Grisham, Governor

STATE OF NEW MEXICO
DEPARTMENT OF CULTURAL AFFAIRS
HISTORIC PRESERVATION DIVISION

BATAAN MEMORIAL BUILDING
407 GALISTEO STREET, SUITE 236
SANTA FE, NEW MEXICO 87501
PHONE: (505) 827-6320
EMAIL: nm.shpo@dca.nm.gov

February 10, 2023

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

SENT VIA EMAIL ONLY

Re: Continuing Consultation under Section 106 of the National Historic Preservation Act for the development of an Air Tour Management Plan at Bandelier National Monument

Dear Ms. Walker:

Thank you for your letter regarding the Federal Aviation Administration's (FAA) efforts to identify historic properties within the area of potential effects (APE).

As noted in your letter, several Native American tribes consider Bandelier National Monument to be a traditional cultural landscape. There are many traditional cultural properties (TCPs) within the Monument; however, Attachment C states, "Several contributing sites within the Bandelier National Monument Archaeological and Historic District are Ancestral Pueblo sites that are considered TCPs." I recommend replacing "Several" with "Many." According to the National Register Nomination for the District, there are nineteen shrines within Bandelier National Monument. In addition, thousands of archaeological sites are Ancestral Puebloan and many of these archaeological sites, such as kivas, rock art sites, and trails may be considered traditional cultural properties by the tribes.

Please do not hesitate to contact me if you have any questions. I can be reached by telephone at (505) 827-4064 (office), (505) 490-3928 (cell), or by email at michelle.ensey@dca.nm.gov.

Sincerely,

Michelle M. Ensey
Deputy State Historic Preservation Officer &
State Archaeologist

Log: 115792



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 20, 2023

Re: Continuing Consultation and Finding of No Adverse Effect under Section 106 of the National Historic Preservation Act for the development of an Air Tour Management Plan for Bandelier National Monument

Michelle Ensey
Deputy State Historic Preservation Officer
New Mexico State Historic Preservation Office
407 Galisteo Street, Suite 236
Santa Fe, NM 87501

Dear Michelle Ensey:

Introduction

The Federal Aviation Administration (FAA), in coordination with the National Park Service (NPS) (together, the agencies), seeks to continue consultation with your office under Section 106 of the National Historic Preservation Act (NHPA) for the development of an Air Tour Management Plan (ATMP) for Bandelier National Monument (the Park). At this time, the FAA requests your concurrence with its proposed finding that the undertaking would have no adverse effect on historic properties, in accordance with 36 CFR 800.5(c). On this date, we are also notifying all consulting parties of this proposed finding and providing the documentation below for their review.

In accordance with the requirements of 36 CFR 800.11(e), this letter provides: a description of the undertaking - an ATMP that would not permit commercial air tours in the planning area (the preferred alternative under the National Environmental Policy Act (NEPA)); the Area of Potential Effects (APE); a description of steps taken to identify historic properties; a description of historic properties in the APE and the characteristics that qualify them for listing in the National Register of Historic Places (National Register); and an explanation of why the criteria of adverse effect do not apply to this undertaking. This letter also describes the Section 106 consultation process and public involvement for this undertaking.

The FAA initiated Section 106 consultation with your office by letter dated March 29, 2021. In a follow-up letter dated August 27, 2021, we described the proposed undertaking in more detail, proposed a preliminary APE, and provided our initial list of historic properties identified within the APE. In a letter dated January 26, 2023, we provided an updated list of historic properties identified within the APE for

review and comment. Similar letters were sent to all consulting parties listed in **Attachment A**. Section 106 consultation with tribes is further described below.

Public participation for this undertaking was integrated with the National Parks Air Tour Management Act (NPATMA) process. The agencies published a notice of availability of the draft ATMP in the Federal Register on September 3, 2021. The public comment period on the draft ATMP was from September 3, 2021, through October 3, 2021. A public meeting was held on September 15, 2021. The draft ATMP authorized the same number of annual flights as the average number of flights from 2017-2019 and maintained routes and altitudes similar to what is currently flown under existing conditions. The agencies received 2,237 discrete comments, of which 197 were about potential effects on cultural resources and 348 were about tribal concerns. The rest of the comments were not relevant to Section 106. Some of the relevant comments noted the draft ATMP did not acknowledge compliance with the NHPA and should not be signed by the NPS until it does. Many commenters expressed opposition to the draft ATMP due to impacts to the cultural landscape. Commenters also referenced the sacred importance of the Park to tribal culture. Since the publication of the draft ATMP, and in response to objections from the public and tribes to continuing air tours at existing conditions, the agencies changed the draft ATMP to eliminate air tours within the planning area (see description of undertaking below).

Description of the Undertaking

The undertaking for the purposes of Section 106 compliance is implementing an ATMP that applies to all commercial air tours over the Park and within ½ mile outside the Park's boundary. Under NPATMA and its implementing regulations, 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, or within ½ mile of its boundary, during which the aircraft flies:

- (1) Below 5,000 feet 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).

The area regulated by the ATMP is referred to as the ATMP planning area. Overflights that do not meet the definition of a commercial air tour above are not subject to NPATMA and are thus outside the scope of the ATMP.

The agencies have documented the existing conditions for commercial air tour operations over the Park. One commercial air tour operator, Southwest Safaris, currently conducts tours over the Park. The agencies consider the existing operations for commercial air tours to be an average of 2017-2019 annual air tours flown, which is 101 air tours that occurred, on average, 99 days per year (thus, a single tour occurred on most days). A three-year average is used because it reflects the most accurate and reliable air tour conditions, and accounts for variations across multiple years. Under existing conditions, commercial air tours over the Park are conducted using a fixed wing aircraft, CE-182-R. The fixed-wing operator flew 101 tours in 2017, 76 tours in 2018, and 125 tours in 2019. Southwest Safaris conducts commercial air tours on the nine routes depicted in **Attachment B**. Reported minimum altitudes range

from 800 ft. to 1,000 ft. AGL, depending on the route¹. Under existing conditions, the operators are not required to use these routes and may change the routes without notice to the agencies.

The proposed undertaking would prohibit commercial air tour operations within the ATMP planning area. A summary of the undertaking elements is shown in the table below:

SUMMARY OF ATMP ELEMENTS

General Description and Objectives	Prohibits air tours within the ATMP planning area to maximize achievement of Park management objectives. Air tours could continue to fly outside the ATMP planning area (i.e., at or above 5,000 feet AGL or more than ½-mile outside of the Park's boundary).
Annual/Daily Number of Flights	None in ATMP planning area.
Routes	None in ATMP planning area.
Minimum Altitudes	Flights over the Park at or above 5,000 feet AGL could occur as they are outside the ATMP planning area. Flights more than ½-mile outside the Park boundary could similarly still occur as they are also outside the ATMP planning area.
Time of Day	N/A
Day of Week	N/A
Seasonal	N/A
Quiet Technology (QT) Incentives	N/A
Annual Meeting, Operator Training and Education	N/A
Restrictions for Particular Events	N/A
Adaptive Management	N/A
Initial Allocation, Aircraft Type, Competitive Bidding, and New Entrants	N/A
Monitoring and Enforcement	Monitoring would occur to ensure operators are complying with the terms and conditions of the ATMP.
Interim Operating Authority²	Terminates 180 days from the effective date of the ATMP.

¹ Altitude expressed in units above ground level (AGL) is a measurement of the distance between the ground surface and the aircraft, whereas altitude expressed in median sea level (MSL) refers to the altitude of aircraft above sea level, regardless of the terrain below it. Aircraft flying at a constant MSL altitude would simultaneously fly at varying AGL altitudes, and vice versa, assuming uneven terrain is present below the aircraft.

² Commercial air tours over the Park are currently conducted under interim operating authority (IOA) that the Act required the FAA to grant air tour operators. Interim operating authority does not provide any operating parameters (routes, altitudes, etc.) for commercial air tours other than an annual limit. Under the Act, IOA for a park terminates by operation of law 180 days after an ATMP is established for that park.

Area of Potential Effects (APE)

The undertaking does not require land acquisition, construction, or ground disturbance. In establishing the APE, the FAA sought to include areas where any historic property present could be affected by noise from or sight of commercial air tours that may take place under any of the selectable draft alternatives, including those over the Park or those that are reasonably foreseeable to take place adjacent to the ATMP planning area. The FAA considered 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, or elimination of, noise levels that may result in alteration of the characteristics of historic properties qualifying them for listing in the National Register.

The APE was delineated based on the undertaking's potential effects in consultation with the SHPO and in consideration of input by consulting parties. The APE for this undertaking comprises the Park plus ½ miles outside the boundary of the Park, excluding the Tsankawi Unit, which is currently not overflown by commercial air tours, as depicted in **Attachment B** below.

The APE for the undertaking was proposed in the Section 106 consultation letter dated August 27, 2021, which was sent to all consulting parties. Your office concurred with the proposed APE in a letter dated September 1, 2021. The agencies also received a comment from Pueblo de San Ildefonso in a letter dated September 23, 2021, noting concerns that the APE did not include additional lands that are managed by other jurisdictions beyond the Park and adjacent tribal lands. The agencies met with the Pueblo de San Ildefonso to discuss their concerns. No additional comments were received regarding the APE. Therefore, the APE has not changed.

Summary of Section 106 Consultation with Tribes

The FAA contacted 27 federally recognized tribes via letter on March 26, 2021, inviting them to participate in consultation and requesting their expertise regarding historic properties, including TCPs that may be located within the APE. On August 27, 2021, the FAA sent the identified federally recognized tribes a Section 106 consultation letter describing the proposed undertaking in greater detail in which an APE was proposed and the results of the preliminary identification of historic properties were provided. On December 3, 2021, and December 9, 2021, the FAA sent follow up emails to the federally recognized tribes once again inviting them to participate in Section 106 consultation.

On December 15, 2021, and December 20, 2021, the FAA followed up with phone calls to those tribes that did not respond to prior consultation requests. The FAA received responses from six tribes expressing interest in participating in the Section 106 consultation process: Pueblo of Acoma, Pueblo of Isleta, Pueblo de San Ildefonso, Pueblo of Tesuque, Pueblo of Picuris, and Pueblo of Santa Clara. Two tribes asked to opt out of additional consultation for the undertaking: Pueblo of Sandia and Pueblo of Santa Ana.

On September 15, 2021, the FAA received comments from the Pueblo of Pojoaque via email informing the FAA that there are 5,000 Ancestral sites in the region, over 2,000 of which are within the Park. They also noted that TCPs and ancestral sites and shrines located throughout the region continue to be in use by the community. Pueblo of Pojoaque expressed that air tours should not be allowed at Bandelier National Monument because they would violate the sacred landscape of the area and its continued use by Pueblo communities and people. They also noted that air tours would affect the use of TCPs and ancestral sites and shrines located throughout the region.

The FAA received comments from Pueblo de San Ildefonso Governor Christopher A. Moquino in a letter dated September 23, 2021, which notes that the Pueblo de San Ildefonso considers the Park to lie within the ancestral domain of the Pueblo de San Ildefonso and considers the documented historic properties within the Park to be the material evidence of the occupation of the monument by their ancestors, whose spiritual presence continues to reside within this domain. The letter further points out that there are extensive resources within the Park that are not documented and are associated with traditional and ceremonial practices conducted since time immemorial into the present. The Pueblo de San Ildefonso considers the lands of the Park, as well as lands beyond the Park boundary, to be a traditional cultural landscape of which the archaeological resources form only a part. Additionally, Pueblo de San Ildefonso expressed that air tours within the boundaries of Bandelier National Monument and its surrounding area has the potential to affect traditional and ceremonial practices by the Pueblo de San Ildefonso. The tribe also noted that there is a potential for air tours to affect the spiritual domain and presence of the Pueblo de San Ildefonso's ancestors.

The FAA received comments from Acoma Tribal Historic Preservation Officer (THPO) Steven Concho of the Pueblo of Acoma in a letter dated December 9, 2021. In those comments, the Pueblo of Acoma noted they continue to claim cultural affiliation to many areas in New Mexico, Arizona, Colorado, and Utah. The THPO recognized each of these places contains the cultural and archaeological "footprints" of their ancestors, along with cultural landscapes, shrines, and gathering places. In their comments, the Pueblo of Acoma informed the FAA that there are TCPs within the Park. The Pueblo of Acoma also expressed concerns about the impacts of air tours on fragile historic structures and sensitive cultural areas in and around the Pueblo. Pueblo of Acoma stated that although they have "no-fly" periods for tribal ceremonies, unauthorized flights still occur and have lasting consequences on tribal members as they continue to mark cultural observances and practice with sensory intrusions from flights. The Pueblo additionally expressed concern about cumulative effects that occur from direct flyovers. The FAA invited the Pueblo to engage in Government-to-Government consultation with FAA and NPS leadership at the Park pursuant to Executive Order 13175.

In a letter dated January 18, 2022, the FAA received comments from the Pueblo of Santa Clara's Governor, Michael Chavarria. The letters explain that the Pueblo of Santa Clara has deep ties to the Park and its surrounding cultural landscape. The letter notes that the Park is part of their ancestral migration history and holds a pivotal role in the expression of the Pueblo of Santa Clara's identity today. The letter also informed the FAA that there are thousands of documented tribal cultural properties within the Park, as well as countless unregistered sacred and culturally significant sites.

The FAA also received comments from Governor Phillip Quintana of the Pueblo de Cochiti in a letter dated February 21, 2022. In those comments, the Pueblo de Cochiti expressed concern regarding the level of consultation the FAA and NPS have provided for the Pueblo. They mention that the two consultation letters they received in March and August of 2021 do not constitute meaningful consultation. The Pueblo de Cochiti also expressed that Bandelier National Monument is an invaluable cultural landscape and a place of retreat and prayer to ensure the strength of their community and continued way of life. The letter mentions that the Pueblo de Cochiti maintains a strong cultural affinity in ongoing interactions including through story, song, prayer, ceremony, and pilgrimage with this landscape and the gifts considered by the Pueblo de Cochiti to be both cultural and natural resources - plants, animals, air, soil, and water. The entirety of this area, including individual sites, is central to the maintenance and revitalization of their cultural knowledge, histories, and practices. The Pueblo de

Cochiti notes that allowing the continuation of commercial air tours will exacerbate the existing challenges NPS and tribes continue to experience in protecting cultural resources and tribal religious use by enabling continued viewing access to the Park's visitors, noise pollution, and wildlife disruption. Commercial air tour operations also result in noise-induced vibration that can cause significant short-term and long-term adverse effects on the integrity of natural and man-made structures, objects, and sites.

As a result of comments received asking for more meaningful consultation, the FAA has held meetings under Executive Order 13175 and Section 106 with Pueblo de Cochiti, Pueblo of Pojoaque, Pueblo de San Ildefonso, and Pueblo of Santa Clara. Through this consultation, the tribes have repeatedly stated that they consider the entire landscape of the Pajarito Plateau to be sacred and believe air tours are inappropriate and adversely impact the cultural landscape and TCPs throughout.

The tribes whom the FAA contacted as part of this undertaking are included in the list of consulting parties enclosed as **Attachment A**.

Identification of Historic Properties

In accordance with 36 CFR 800.4, the FAA has made a reasonable and good faith effort to identify historic properties within the APE. As the undertaking would not result in physical effects, the identification effort focused on identifying properties where setting and feeling are characteristics contributing to a property's National Register eligibility, as they are the type of historic properties most sensitive to the effects of aircraft overflights. These may include isolated properties where a cultural landscape is part of the property's significance, rural historic districts, and outdoor spaces designed for meditation or contemplation. The FAA is specifically considering whether air tours could affect the use of TCPs associated with cultural practices, customs or beliefs that continue to be held or practiced today. In so doing, the FAA has taken into consideration the views of consulting parties, past planning, research and studies, the magnitude and nature of the undertaking, the degree of Federal involvement, the nature and extent of potential effects on historic properties, and the likely nature of historic properties within the APE in accordance with 36 CFR 800.4(b)(1).

The initial identification of historic properties relied upon data submitted by the NPS regarding known historic properties in the Park. The FAA also coordinated with the New Mexico Historic Preservation Division (State Historic Preservation Office) to collect data for previously identified properties that may be listed in or eligible for listing in the National Register. Data from the New Mexico Preservation Division was received on February 10, 2022 and updated on December 16, 2022. The FAA also consulted with the federally recognized tribes among the list of consulting parties enclosed as **Attachment A** regarding the identification of any other previously unidentified historic properties that may be located within the APE. In a letter dated September 23, 2021, the Pueblo de San Ildefonso expressed that air tours would adversely affect the qualities that make historic properties eligible for the National Register, without accounting for certain kinds of historic properties that might not be captured during archaeological survey. The Pueblo de San Ildefonso noted that the inventory of historic properties based upon archaeological survey is currently incomplete and would benefit from additional inventory documenting ethnographic use within the APE.

In addition to the previously identified historic properties, Park staff and affiliated tribes have informed FAA there are TCPs located within the APE. While the TCPs are noted in **Attachment C** in a general manner, these are not mapped in **Attachment B** to ensure confidentiality.

A preliminary list of historic properties was provided to all consulting parties for their review and comment in a letter dated August 27, 2021. A letter dated January 26, 2023, sent to all consulting parties, described FAA's further efforts to identify and evaluate historic properties within the APE and provided results of those efforts. Your office provided a response in a letter dated February 10, 2023, in which you agreed that several Native American tribes consider Bandelier National Monument to be a traditional cultural landscape. You also recommended that the agencies replace the word "several" with "many" when referring to the contributing sites within the Bandelier National Monument Archaeological and Historic District. The agencies have made that change in the description of significant characteristics in **Attachment C**. The agencies did not receive comments from other consulting parties identifying additional historic properties within the APE.

The effort described resulted in the identification of four historic properties within the APE for which feeling and setting are characteristics that make the properties eligible for listing on the National Register, which are listed in **Attachment C**. Those historic properties identified with available non-restricted location data are shown in the APE map provided in **Attachment B**. There are thousands of additional below-ground archaeological sites within the APE; however, these below-ground archaeological resources are not further described in this letter because feeling and setting are not characteristics that make these properties eligible for listing on the National Register and there is no potential for the undertaking to affect these resources.

Assessment of Effects

The undertaking could have an effect on a historic property if it alters the characteristics that qualify the property for eligibility for listing or inclusion in the National Register. The characteristics of the historic properties within the APE that qualify them for inclusion in the National Register are described in **Attachment C**. Effects are considered adverse if they diminish the integrity of a property's elements that contribute to its significance. The undertaking does not include land acquisition, construction, or ground disturbance and will not result in physical effects to historic properties. The FAA, in coordination with the NPS, focused the assessment of effects on the potential for adverse effects from the introduction of audible or visual elements that could diminish the integrity of the property's significant historic features.

Assessment of Noise Effects

To assess the potential for the introduction of audible elements, including changes in the character of aircraft noise, the agencies considered whether there would be a change in the annual number, daily frequency, routes, or altitudes of commercial air tours, as well as the type of aircraft used to conduct those tours. The level of commercial air tour activity under the ATMP is expected to improve the protection of cultural resources within the APE.

The ATMP prohibits commercial air tours within the ATMP planning area and would reduce noise effects to historic properties. Therefore, the undertaking would not alter the characteristics of historic properties within the APE in comparison to existing conditions. The elimination of air tours within the ATMP planning area will reduce maximum noise levels at sites directly below commercial air tour routes compared to existing conditions. All historic properties within the APE would experience a reduction in noise from air tours.

For purposes of assessing noise impacts from commercial air tours on the acoustic environment of the Park under NEPA, the FAA noise evaluation is based on Yearly³ Day Night Average Sound Level (L_{dn} or DNL); the cumulative noise energy exposure from aircraft over 24 hours. The DNL analysis indicates that the undertaking would not result in any noise impacts that would be “significant” or “reportable” under the FAA’s policy for NEPA.⁴

As part of the ATMP noise analysis, the NPS provided supplemental metrics to further assess the impact of commercial air tours in quiet settings: time above 35 dBA and time above 52 dBA. These metrics account for the amount of time in minutes that aircraft sound levels are above a given threshold (i.e., 35 dBA and 52 dBA). In quiet settings, outdoor sound levels exceeding 35 dB degrade experience in outdoor performance venues (American National Standards Institute (ANSI), 2007). Interference with Park interpretive programs would reasonably occur at 52 dBA. **Attachment D** provides further information about the supplemental noise metrics and presents the results of modeling.

Attachment D presents noise contours (i.e. graphical illustration depicting noise exposure) for existing conditions and the representative location point analysis. Under existing conditions, noise related to commercial air tours is greater than 35 dBA for less than 1 minute a day within the ATMP planning area. All historic properties within the APE will experience the elimination of noise related to commercial air tours within the ATMP planning area. Because noise is modeled using conservative assumptions (see **Attachment D**) and implementing the ATMP would eliminate flights and routes within the ATMP planning area, noise is expected to be reduced within the ATMP planning area. The elimination of air tours within the ATMP planning area will also reduce the likelihood that an air tour would interrupt traditional practices such as ceremonies, as compared to existing conditions. Therefore, the undertaking would not diminish the integrity of any historic property’s significant historic features.

Assessment of Visual Effects

Recognizing that some types of historic properties may be affected by visual effects of commercial air tours, the agencies considered the potential for the introduction of visual elements that could alter the characteristics of a historic property that qualify it for inclusion in the National Register. Aircraft are transitory elements in a scene and visual impacts tend to be relatively short. The elimination of flights within the ATMP planning area make it unlikely a historic property within the ATMP planning area would experience a visual effect from the undertaking. The agencies also considered the experience of tribal members who may be conducting ceremonies or practices that could involve looking toward the sky. The elimination of air tour aircraft overhead represents an improvement over existing conditions.

The ATMP prohibits commercial air tours within the ATMP planning area and would not introduce visual elements that would alter the characteristics of any historic property that qualifies it for inclusion in the National Register. All historic properties within the APE would experience a reduction in visual intrusions from air tours, therefore the undertaking would not introduce visual elements that would alter the characteristics of any historic property that qualifies it for inclusion in the National Register.

³ Yearly conditions are represented as the Average Annual Day (AAD)

⁴ Under FAA policy, an increase in the Day-Night Average Sound Level (DNL) of 1.5 dBA or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dBA noise exposure level, or that will be exposed at or above the DNL 65 dBA level due to a DNL 1.5 dBA or greater increase, is significant. FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, Exhibit 4-1. Noise increases are “reportable” if the DNL increases by 5 dB or more within areas exposed to DNL 45-60 dB, or by 3 dB or more within areas exposed to DNL 60-65 dB. FAA Order 1050.1F, Appendix B, section B-1.4.

Indirect Effects

Because the undertaking would eliminate air tours within the ATMP planning area, the agencies also considered the potential for indirect effects on historic properties within the APE that could occur from air tours displaced outside the ATMP planning area as a result of the undertaking. It is unlikely that the operator would continue to conduct commercial air tours of the Park by flying along the perimeter of the ATMP planning area because it is difficult to see the predominant features of the Park from outside the ATMP planning area. Since the operator cannot fly on the north side of the Park due to restricted air space, it is unlikely there would be new or different impacts in that area. Flights at or above 5,000 ft. AGL are unlikely due to the Park's elevation and safety requirements for unpressurized aircraft flying over 10,000 ft. MSL for more than 30 minutes. If air tours are conducted at or above 5,000 ft. AGL over the ATMP planning area, the increase in altitude would likely decrease impacts on ground level resources as compared to current conditions because the noise would be dispersed over a larger geographical area. Noise from air tours conducted at or above 5,000 ft. AGL would be audible for a longer period, but at lower intensity. Similarly, aircraft are transitory elements in a scene and visual impacts tend to be relatively short, especially at higher altitudes.

Finding of No Adverse Effect Criteria

To support a Finding of No Adverse Effect, an undertaking must not meet any of the criteria set forth in the Advisory Council on Historic Preservation's Section 106 regulations at 36 CFR 800.5(a). This section demonstrates the undertaking does not meet those criteria. The undertaking would not have any physical impact on any property. The undertaking would not result in any alteration or physical modifications to historic properties. The undertaking would not remove any property from its location. The undertaking would not change the character of any property's use or any physical features in any historic property's setting. As discussed above, the undertaking would not introduce any auditory or visual elements that would diminish the integrity of the significant historical features of any historic properties in the APE. The undertaking would not cause any property to be neglected, sold, or transferred.

Proposed Finding and Request for Review and Concurrence

FAA and NPS approval of the undertaking would not alter the characteristics of any historic properties located within the APE in a manner that would diminish its integrity as there would be a reduction in audible or visual effects from existing conditions. Based on the above analysis, the FAA proposes a finding of no adverse effect on historic properties. We request that you review the information and respond whether you concur with the proposed finding within 30 days of receiving this letter.

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

Sincerely,

A handwritten signature in black ink, appearing to read 'Judith Walker', with a long horizontal flourish extending to the right.

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

Attachments

- A. List of Consulting Parties
- B. APE Map including existing Commercial Air Tour Routes
- C. List of Historic Properties in the APE and Description of Historic Characteristics
- D. Summary of Noise Technical Analysis from NEPA Review

ATTACHMENT A
List of Consulting Parties

Adams, Bruce M. (Southwest Safaris)
Apache Tribe of Oklahoma
Comanche Nation, Oklahoma
Fort Sill Apache Tribe of Oklahoma
Hopi Tribe of Arizona
Jicarilla Apache Nation, New Mexico
Kewa Pueblo, New Mexico
Los Alamos National Laboratory*
National Trust for Historic Preservation
Navajo Nation, Arizona, New Mexico & Utah
New Mexico State Land Office
Ohkay Owingeh, New Mexico
Pueblo de Cochiti, New Mexico
Pueblo de San Ildefonso, New Mexico
Pueblo of Acoma, New Mexico
Pueblo of Isleta, New Mexico
Pueblo of Jemez, New Mexico
Pueblo of Laguna, New Mexico
Pueblo of Nambe, New Mexico
Pueblo of Picuris, New Mexico
Pueblo of Pojoaque, New Mexico
Pueblo of San Felipe, New Mexico
Pueblo of Sandia, New Mexico*
Pueblo of Santa Ana, New Mexico*
Pueblo of Santa Clara, New Mexico
Pueblo of Taos, New Mexico

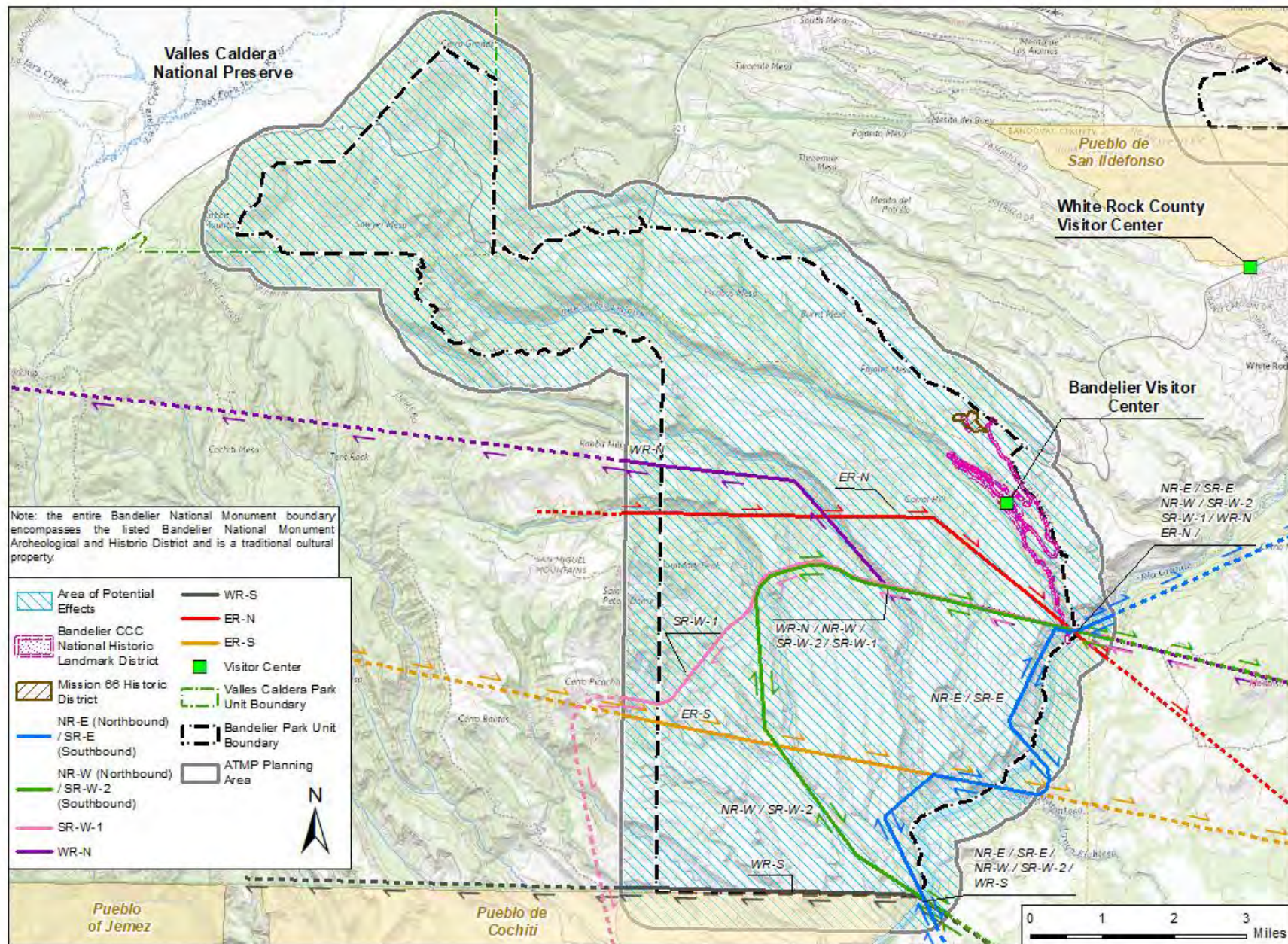
Pueblo of Tesuque
Pueblo of Zia, New Mexico
Santa Fe National Forest
Standing Rock Sioux Tribe of North & South Dakota
Tewa Women
Ysleta Del Sur Pueblo
Zuni Tribe of the Zuni Reservation, New Mexico

*Consulting party has opted out of further Section 106 consultation for the undertaking.

ATTACHMENT B

**Area of Potential Effects Map
Including
Existing Commercial Air Tour Routes**

Area of Potential Effects Map for ATMP at Bandelier National Monument



ATTACHMENT C

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

Property Name	Property Type	Eligibility Status	Significant Characteristics
Bandelier CCC National Historic Landmark District	National Historic Landmark and Historic District	Listed	The Bandelier CCC National Historic Landmark was designed by NPS architects and landscape architects and built by the CCC (Civilian Conservation Corps) between 1933 and 1942. The district contains 31 buildings of Pueblo Revival design that serve as office space, residences for employees, and lodging for guests. It is significant for its association with the New Deal era in the areas of Social History and Art. It is also significant for its rustic Pueblo Revival architectural style and the careful design of the entrance road and other non-building elements. As a result of the application of rustic design principles, the cultural landscape today blends with its natural setting and conveys a strong sense of place. The rustic, pueblo revival architecture, the natural canyon setting, views and the experience of archeological sites and the riparian corridor all contribute to the unique feeling that the district conveys.
Bandelier National Monument Archeological and Historic District	Historic District	Listed	The Bandelier National Monument Archeological and Historic District encompasses the entire park boundary and is significant for its association with the Archaic use of the Pajarito Plateau (5500 BCE-600 CE); Ancestral Pueblo occupation of the Pajarito Plateau (600-1600 CE); early historic use of the Pajarito Plateau (1600-1848); early scientific investigations and development of archaeology (1848-1932); early Native Arts revival efforts (1848-1932); homestead-era ranching, farming, and timber extraction (1848-1932); and the New Deal era and the CCC (1932-1942). The district contains 32 contributing buildings, 90 contributing structures, and 2,974 contributing sites⁵. Many of the archaeological sites in the park are in good condition and retain a high level of integrity, but there are a series of natural and

⁵ This number include the archaeological sites that exist within the boundary nominated to the National Register in 1970 and archaeological sites within the post-1970 expanded boundaries of the monument.

Property Name	Property Type	Eligibility Status	Significant Characteristics
			cultural disturbances that have affected them. The pre-Hispanic sites are associated with habitation of the area by Ancestral Pueblo peoples. The area saw limited occupation in historic times by historic Pueblo groups, nomadic Athabascan groups, Hispanos, and Euro-Americans. During the New Deal era and CCC construction, there was great emphasis on the visual impacts of development. Landscape architects took great care to provide pleasant surroundings in the built-up area to promote spectacular and unobstructed views of archaeological sites that contribute to the Park's history. A trail system was also constructed to direct visitors to scenic overlooks and to enhance their access to various archaeological sites. Areas of significance include archeology (prehistoric, historic), science, conservation, social history (exploration/settlement), commerce, industry, architecture, landscape architecture, art, Native American ethnic heritage, military, and entertainment/recreation.
Mission 66 Historic District	Historic District	Eligible	Bandelier National Monument's staff and public-use village on Frijoles Mesa is a Mission 66 Historic District comprised of a park employee housing area (4 buildings) and the Juniper Family Campground and associated roads and interpretive service structures. The Mission 66 Historic District is significant for its association with the unique Frijoles Mesa land swap between the National Park Service and the Atomic Energy Commission, through a 1961 executive order from President Dwight Eisenhower that made the village and park-services expansion possible. The village also represents a well-considered and largely intact 1963–1964 application of the national NPS Mission 66 program to the unique management challenges at the monument and upon the landform of Frijoles Mesa. The Mission 66 designers carefully sited the Bandelier Mission 66 Village for minimum disturbance of natural Frijoles Mesa vegetation, resulting in desirable privacy for campsites, and screening of the amphitheater and the residential area from campers and automobiles. In addition, siting of the Mission 66 houses in the residential area took advantage of topography and spacing of large pine

Property Name	Property Type	Eligibility Status	Significant Characteristics
			trees to allow stunning views of St. Peter's Dome and the San Miguel Mountains to the west.
Bandelier National Monument Traditional Cultural Properties ⁶	TCP	Eligible	Many contributing sites within the Bandelier National Monument Archeological and Historic District are Ancestral Pueblo sites that are considered TCPs. Several tribes have informed the FAA that there are TCPs within the Park boundary and that extend beyond to the larger landscape of the area.

⁶ Location is restricted and therefore cannot be shown on the APE map.

ATTACHMENT D

Summary of Noise Technical Analysis from NEPA Review

There are numerous ways to measure the potential impacts from commercial air tours on the acoustic environment of a park, including intensity, duration, and spatial footprint of the noise. The metrics and acoustical terminology used for the ATMPs are shown in the table below.

Metric	Relevance and citation
Equivalent sound level, $L_{Aeq, 12\text{ hr}}$	The logarithmic average of commercial air tour sound levels, in dBA, over a 12-hour day. The selected 12-hour period is selected 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 PM and 7 AM local time. Note: Both $L_{Aeq, 12\text{ hr}}$ 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 $L_{Aeq, 12\text{ hr}}$ and 24-hours for DNL) If there are no nighttime events, then $L_{Aeq, 12\text{ hr}}$ is arithmetically three dBA higher than DNL. 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 Above 35 dBA ⁷	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 dB 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).

⁷ 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.

Metric	Relevance and citation
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 (52 dB), 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).

Aircraft, Routes and Number of Operations Modeled

Route	Aircraft	Existing Conditions
ER-S (Orange) 1,000 ft. AGL	Cessna 182	1
ER-N (Red) 10,000 ft. MSL	Cessna 207	
ER-S (Orange) 10,000 ft. MSL	Cessna 182	
	Total	1

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 13 location points, geographically located across the ATMP planning area, where noise levels were to be evaluated. These locations are geographically shown in Figure 1 and listed in Figure 2.

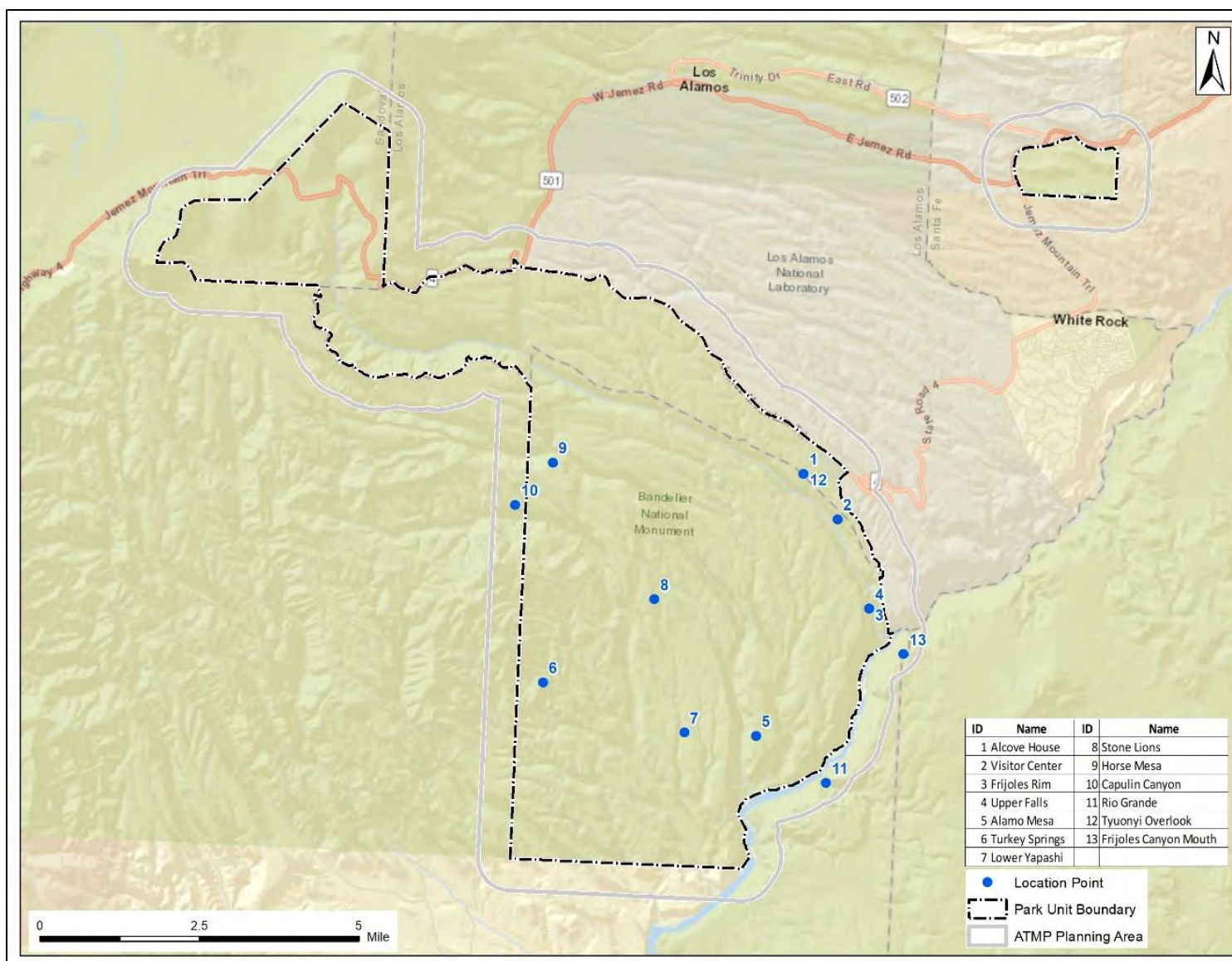


Figure 1. Location Points Modeled

Figure 2. Location point results – Existing Conditions

Location	12 Hour Equivalent Sound Level (dBA)*	Time Above 35 dBA (minutes)	Time Above 52 dBA (minutes)
1. Alcove House	0	0.0	0.0
2. Visitor Center	0	0.0	0.0
3. Frijoles Rim	6.9	0.3	0.0
4. Upper Falls	0	0.0	0.0
5. Alamo Mesa	15.9	0.6	0.0
6. Turkey Springs	16.2	0.6	0.0
7. Lower Yapashi	14.7	0.6	0.0
8. Stone Lions	3.6	0.0	0.0
9. Horse Mesa	0	0.0	0.0
10. Capulin Canyon	0	0.0	0.0
11. Rio Grande	19.3	0.6	0.1
12. Tyuonyi Overlook	0	0.0	0.0
13. Frijoles Canyon Mouth	0	0.0	0.0

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

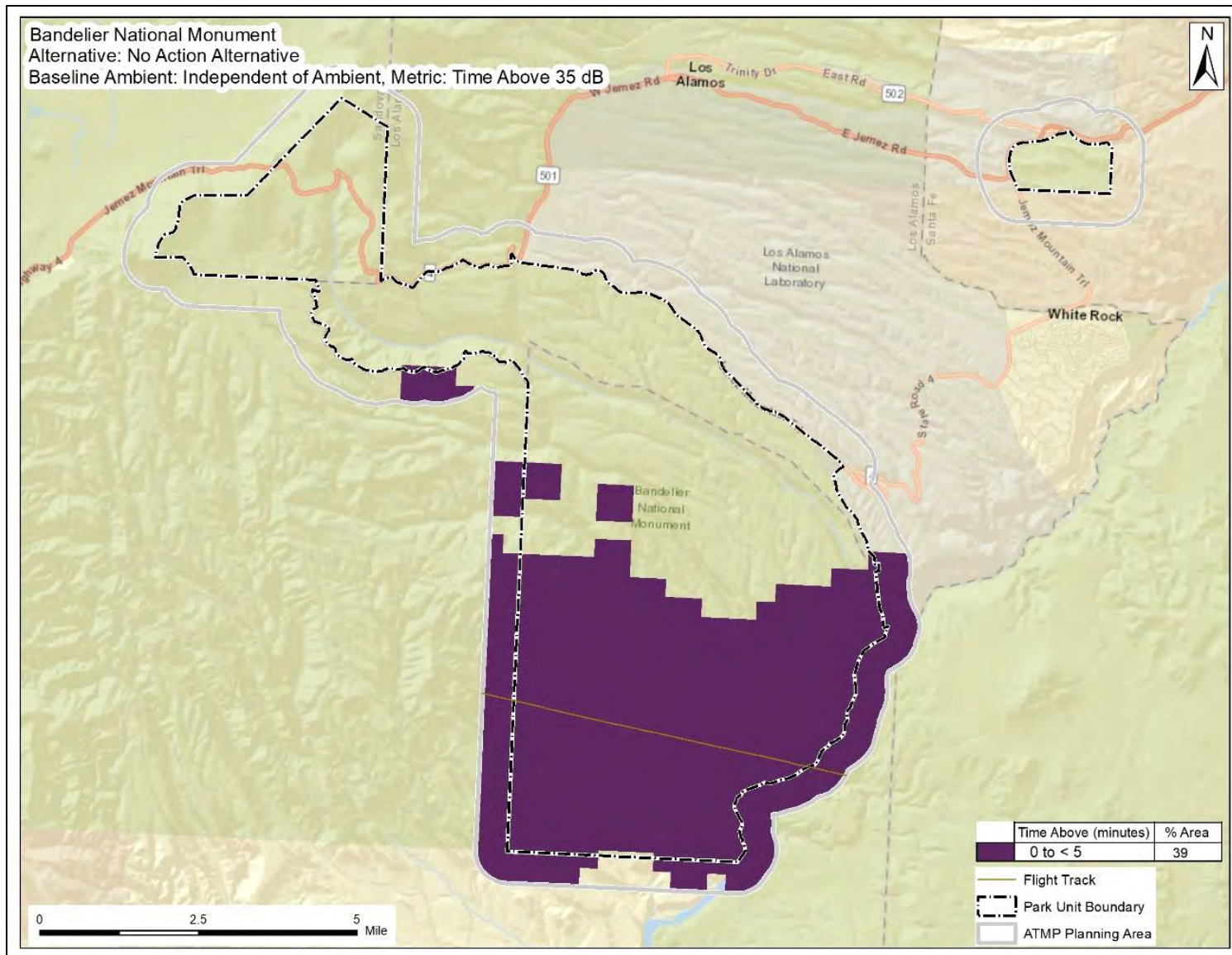


Figure 3. Time Above 35 dBA map for existing conditions

APPENDIX H

Section 7 Consultation



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

May 31, 2023

Re: Section 7 Endangered Species Act No Effect Determination for Bandelier National Monument Air Tour Management Plan

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 Bandelier National Monument (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 memorandum documents the agencies' *No Effect* determination associated with the proposed action for the purpose of compliance with Section 7 of the Endangered Species Act (the ESA). In addition, this memorandum documents the analysis for birds protected under the Migratory Bird Treaty Act (MBTA).

Action Area

The action area is the area that includes all direct and indirect effects within the action area, which includes the Park and the land within a ½-mile boundary from the Park depicted in Figure 1. The draft 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 feet (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 action area are outside the jurisdiction of the ATMP, there would be no limitations on the annual number of air tours that could occur, and no designated routes could be set outside of the action area.

Northeast of the Park and within the action area, there is restricted airspace over Los Alamos National Laboratory. No commercial air tour operators have the authority to fly over this airspace nor do they have the authority to fly over Valles Caldera National Preserve, which is located to the northeast of the Park's boundary.

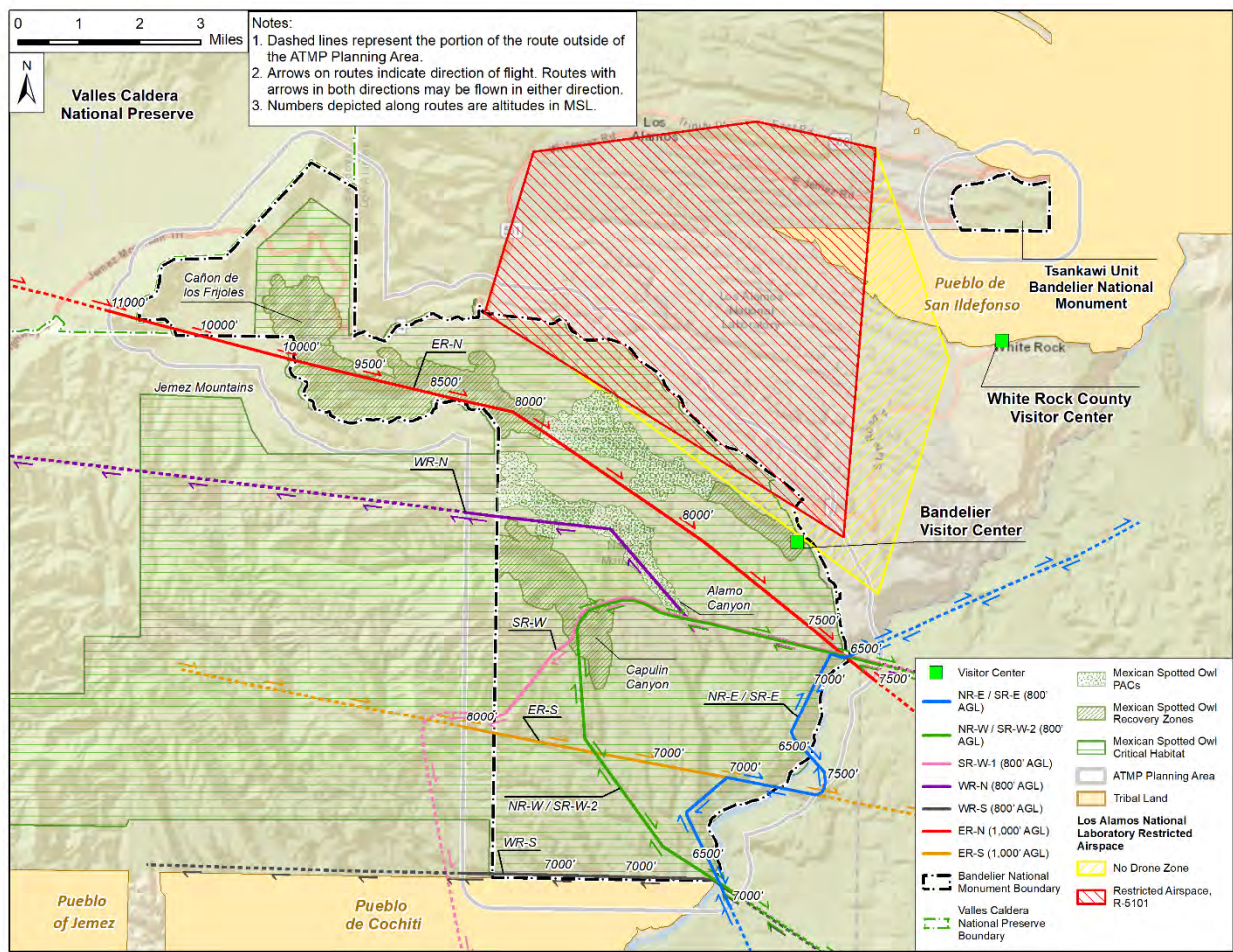


Figure 1. Species Habitat and Commercial Air Tour Routes Under Existing Conditions at Bandelier National Monument

Description of the 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 reinstate consultation pursuant to 50 CFR 402.16. The relevant operating parameters of the ATMP are discussed in detail below.

The proposed action prohibits commercial air tours within the action area (i.e., below 5,000 ft. AGL over the Park and outside the Park but within ½-mile of its boundary). Additionally, commercial air tours cannot fly in nearby restricted air space over Los Alamos National Laboratory nor over Valles Caldera National Preserve. Therefore, air tours could only be conducted outside the action area in unrestricted areas. Air tours outside of the action area would not be regulated under the ATMP. An unknown number of air tours may continue to fly more than ½-mile outside of the Park's boundary, in

unrestricted airspace, or over the action area at or above 5,000 ft. AGL. There would be no limitations on the number of such air tours that could occur.

Aircraft monitoring and enforcement would occur under the proposed action to ensure that the commercial air tour operator is complying with the terms and conditions of the ATMP by not conducting tours below 5,000 ft. AGL over the action area. The NPS and the FAA would both be responsible for the monitoring and oversight of ATMP implementation.

Listed Species and Critical Habitat Evaluated for Effects

The U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation tool and the NPS species list 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, the agencies identified the following species and/or critical habitats that have the potential to occur within this area (see Table 1).

The agencies analyzed potential impacts for all federally listed species with suitable habitat within the action area with a focus on several federally listed species, some of which are noise sensitive species that occur within the action area (see Table 1).

Because the proposed action would prohibit commercial air tours within the action area, it is reasonably foreseeable that current air tour operators could offer air tours outside of the action area, as the areas beyond the action area would not be regulated by the draft 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 action area, some of which could result in impacts to wildlife to the extent that they are present near the locations where the displaced air tours would occur. It is difficult to predict with specificity if, where, and to what extent any air tours would be displaced to areas outside the action area, including at altitudes above 5,000 ft. AGL. It is reasonably foreseeable that the operator would continue to fly to points of interest outside of the action area. The operator would be unlikely to continue to conduct tours of the Park by flying along the perimeter of the ATMP planning area because it is difficult to see the predominant features of the Park from outside the ATMP planning area, but the operator may fly along the perimeter of the ATMP planning area in order to conduct air tours of destinations other than the Park. The operator currently flies multiple tours over other parks and lands across six states and could fly these tours more frequently. The majority of destinations and tours offered by the operator are to the west and northwest of the Park, and the airport used for most flights is located to the southeast of the Park. The northwest corner of the Park borders Valles Caldera National Preserve, another National Park Service Unit for which there is currently no authority to conduct air tours over this area, and the northern and eastern sides of the Park border restricted airspace over Los Alamos National Laboratory. Due to flight restrictions to the north and east of the Park, it is unlikely that displaced air tours would result in new or different impacts in these areas. Due to these flight restrictions, there may be a slight increase in flights to the west and south of the ATMP planning area if air tours were displaced outside of the ATMP planning area.

The indirect effects of dispersed air tours on threatened and endangered species were considered in the Draft Environmental Assessment for an Air Tour Management Plan for Bandelier National Monument. As part of that assessment, the current impacts of commercial air tours conducted within the action area and those displaced by the proposed action to threatened and endangered species were identified in order to compare the effects of the proposed action to the current conditions. It is noted that no

adverse effects to species were identified in the current conditions, which includes the potential impacts of 101 commercial air tours per year (based on the three-year average of flights between 2017-2019). The noise impacts resulting from these air tours were identified to be very low and infrequent, thus not resulting in impacts to species. Additionally, it was concluded that any indirect effects to wildlife caused by dispersed air tours under any of the alternatives evaluated would not likely be widespread and would be temporary in nature and infrequent on both a daily and annual basis.

Table 1. Listed Species Potentially Occurring in the Action Area with No Effect Determination

Birds Scientific Name	Birds Common Name	Birds Status (Federal)	Birds Critical Habitat (Y/N)	Birds Occurrence in the Park
<i>Coccyzus americanus</i>	Yellow-billed Cuckoo	Threatened	N	Present
<i>Empidonax traillii eximius</i>	Southwestern Willow Flycatcher	Endangered	N	Present
<i>Strix occidentalis lucida</i>	Mexican Spotted Owl	Threatened	Y	Present
Mammals Scientific Name	Mammals Common Name	Mammals Status (Federal)	Mammals Critical Habitat (Y/N)	Mammals Occurrence in the Park
<i>Canis lupus baileyi</i>	Mexican Wolf	Endangered	N	Not Present
<i>Zapus hudsonius luteus</i>	New Mexico Meadow Jumping Mouse	Endangered	N	Possibly Present
Amphibians Scientific Name	Amphibians Common Name	Amphibians Status (Federal)	Amphibians Critical Habitat (Y/N)	Amphibians Occurrence in the Park
<i>Plethodon neomexicanus</i>	Jemez Mountains Salamander	Endangered	Y	Present
Fish Scientific Name	Fish Common Name	Fish Status (Federal)	Fish Critical Habitat (Y/N)	Fish Occurrence in the Park
<i>Hybognathus amarus</i>	Rio Grande Silvery Minnow	Endangered	N	Not Present
<i>Oncorhynchus clarkii virginalis</i>	Rio Grande Cutthroat Trout	Candidate	N	Present
Insects Scientific Name	Insects Common Name	Insects Status (Federal)	Insects Critical Habitat (Y/N)	Insects Occurrence in the Park
<i>Danaus plexippus</i>	Monarch Butterfly	Candidate	N	Unknown

Table 1 includes the species identified by USFWS as potentially occurring in the area. A Section 7 determination for each species listed as threatened or endangered under the ESA is provided below. The proposed action does not involve ground-disturbing activities or other activities with the potential to impact aquatic or terrestrial habitat. Therefore, the agencies determined the proposed action will have *No Effect* on amphibians (including the Jemez Mountains salamander), fish, and invertebrates. The

endangered Mexican spotted wolf (*Canis lupus baileyi*) is not found in the Park, nor does the Park contain adequate habitat for this species, and therefore is not included in this discussion.

Yellow-Billed Cuckoo

The threatened yellow-billed cuckoo (*Coccyzus americanus*) is a large insectivore whose yellow bill is almost as long as its head. Riparian habitat is important for the survival of this species, as yellow-billed cuckoos nest in riparian areas and use river corridors as travel routes during migration. Within the action area, suitable habitat for this species is located in riparian areas along the Rio Grande. Three individuals have been documented in the Park, however after multiple surveys, no nesting pairs have been observed. There is no designated critical habitat located inside the action area.

Effect Determination

While the yellow-billed cuckoo can be found in riparian areas and are known to use river corridors in the Park as travel routes, under the proposed action, commercial air tours would not be conducted within the action area. The presence of noise from commercial air tours being conducted within the action area would be eliminated. Therefore, the agencies have determined the proposed action would have **No Effect** on the yellow-billed cuckoo.

Southwestern Willow Flycatcher

The endangered southwestern willow flycatcher (*Empidonax traillii extimus*) (flycatcher) is one of four subspecies of willow flycatcher. Flycatchers are small insectivores that winter in Central America and southern Mexico. Habitat for this species includes riparian corridors with trees that have complex branching patterns that can support flycatcher nests (NPS, 2014). Although there is no active NPS survey of this species, flycatchers have been observed in the Park along the Rio Grande, one of the most populous breeding sites for this species (USFWS, 2013). The breeding season occurs from May to September.

Effect Determination

While the southwestern willow flycatcher has been observed in the Park, under the proposed action, commercial air tours would not be conducted within the action area. The presence of noise from commercial air tours within the action area would be eliminated, removing the potential impact caused by commercial air tours. Therefore, the agencies have determined the proposed action would have **No Effect** on the southwestern willow flycatcher.

Mexican Spotted Owl

The threatened Mexican spotted owl (*Strix occidentalis lucida*) (MSO) is listed as threatened under the ESA and is one of three subspecies of spotted owl and are distinguished by their chestnut brown color and white and brown spots. Their diet consists of small mammals. MSO hunt at night and are considered a “perch and pounce” predator that use elevated perches to locate prey by sight and sound. The prey base of MSO is strongly affected by climatic variation, and the annual survival and reproduction of MSO has been positively correlated with previous year’s precipitation (Jacobs et al., 2015).

MSO are an indicator species for old growth habitat, as they consistently avoid managed forests (NPS, 2014). Most of the suitable habitat for MSO in the action area is located in the Bandelier Wilderness.

Nesting-roosting zones cover about 20% of the Park and have steep slopes (Jacobs et al., 2015). Preferred habitat for breeding includes mixed-conifer forest habitat associated with relatively steep-walled canyons, and the Douglas fir (*Pseudotsuga menziesii*) is the most common tree used for nesting (NPS, 2014). Nesting pairs have been documented in the Upper Alamo Canyon and Frijoles Canyon, and surveys for this species within the Park are ongoing.

Mated pairs of MSO are territorial and adults remain on the same territory each year, although not all birds nest every year. The breeding season is sporadic, but nesting occurs March through August and juveniles typically leave their natal territory in September (NPS, 2015). The clutch size of MSO is one to three eggs, which hatch in early May.

This species has designated critical habitat and protected activity centers (PACs), which are areas that encompass a minimum of 600 acres surrounding known MSO nest and roost sites. The Park is considered critical habitat for this species, and PACs are located within the Park (see Figure 1).

Effect Determination

There are many documented MSO in the Park. However, under the proposed action, air tours would not be conducted within the action area, which would eliminate this source of noise as a potential impact to MSO behavior. Additionally, no commercial air tours would be conducted to pose a threat to MSO from potential collisions in the action area. Therefore, the agencies have determined the proposed action would have **No Effect** on the Mexican spotted owl.

New Mexico Meadow Jumping Mouse

The endangered New Mexico meadow jumping mouse (*Zapus hudsonius luteus*) (jumping mouse) is a subspecies of the meadow jumping mouse listed as threatened under the ESA that is dark yellow to brown in color with elongated feet and a long, bicolored tail. This subspecies lives in densely-vegetated riparian areas from southern Colorado and central New Mexico to eastern Arizona. Suitable habitat for the jumping mouse includes tall sedges and forbs in wetland vegetation that has reached full growth potential associated with seasonally available, flowing water (USFWS, 2020).

The jumping mouse has critical habitat designated outside of the action area in Colorado, Arizona, and other counties of New Mexico. While the Park does not contain designated critical habitat, it does contain suitable habitat for jumping mouse in the canyon areas.

The jumping mouse is active from late May to early October in high elevation areas and mid-May to late October in low elevation areas along the Rio Grande River. They nest in dry soils and have been observed in the Park along the stream in the upper regions of Frijoles Canyon (Bogan et al., 2007). Floods in the Park may have washed away populations of jumping mouse; the Park will conduct monitoring for this species from 2023 to 2024.

Effect Determination

Suitable habitat for the New Mexico meadow jumping mouse can be found within the Park in various areas. However, under the proposed action, air tours would not be conducted within the action area. The removal of commercial air tours within the action area would eliminate this source of noise from

having potential impacts to the New Mexico meadow jumping mouse. Therefore, the agencies have determined the proposed action would have **No Effect** on the New Mexico meadow jumping mouse.

Summary of Determinations for ESA-Listed Species

A *No Effect* determination under the ESA means that there would be no consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other connected activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action.

As discussed, the proposed action prohibits air tours within the action area, which provides the greatest protection to threatened and endangered species. Therefore, the ATMP results in no meaningful, measurable, or noticeable impacts on the species listed in Table 1. In accordance with Section 7 of the ESA, the agencies have determined that the proposed action will have **No Effect** on the species present within the action area including the yellow-billed cuckoo (*Coccyzus americanus*), the southwestern willow flycatcher (*Empidonax traillii extimus*), the Mexican spotted owl (*Strix occidentalis lucida*), and the New Mexico Meadow jumping mouse (*Zapus hudsonius luteus*).

Species Protected Under the MBTA

The agencies also analyzed potential impacts to non-ESA listed species that are protected under the MBTA (see Table 2).

Because the proposed action would prohibit commercial air tours within the action area, it is reasonably foreseeable that current air tour operators could offer air tours in unrestricted airspace outside of the action area, as the areas beyond the action area would not be regulated by the ATMP. Commercial air tours cannot fly in nearby restricted air space over Los Alamos National Laboratory nor do any operators have operating authority to fly over Valles Caldera National Preserve. It is difficult to predict with specificity if, where, and to what extent any air tours would be displaced to unrestricted airspace outside the action area, including at altitudes above 5,000 ft. AGL. However, air tours outside of the action area are outside the jurisdiction of the ATMP.

Based on the analysis below, there would be no impacts from the proposed action on species protected under the MBTA.

Table 2. Species Protected Under the Migratory Bird Treaty Act Potentially Occurring in the Action Area

Scientific Name	Common Name	Occurrence in the Park
<i>Accipiter gentilis</i>	Northern Goshawk	Present
<i>Aquila chrysaetos</i>	Golden Eagle	Present
<i>Falco peregrinus</i>	Peregrine Falcon	Present
<i>Haliaeetus leucocephalis</i>	Bald Eagle	Unknown

Northern Goshawk

Northern goshawk (*Accipiter gentilis*) are birds of prey that can be identified by their broad wings and long, rounded tails. Their diet includes small rodents and songbirds. Although northern goshawks are a perch and pounce predator, they have also been documented pursuing prey on foot in forested habitats (USFWS, 2011).

They are medium distance migrants that do not begin migration until forced to do so by winter weather or lack of food, although fall migration in the western U.S. typically occurs from August to November (USFWS, 2011). The range of the northern goshawk spans the U.S., and this species has been documented in the Park but are not actively being monitored.

Northern goshawk nest in the lower branches of large conifers or deciduous trees. They return to their nesting sites in March and nest in late April to early May. The main threat to populations of northern goshawk is loss of preferred nesting habitat due to logging. Under the proposed action, no impacts to northern goshawks would occur.

Golden Eagle

Golden eagles (*Aquila chrysaetos*) are large aerial predators with a diet that consists of small mammals and occasionally reptiles. Suitable habitat for this species includes grasslands, woodlands, and canyonlands near hills, cliffs, and bluffs. Golden eagles migrate from Canada and the northeastern U.S. to other regions of the U.S. with a milder winter and less snow cover. They migrate during midday along cliff lines and escarpments.

Nesting season occurs from March to August. Golden eagles tend to avoid nesting in urban or densely forested habitat, and construct their nests on cliffs, tall trees that provide aerial views of the surrounding habitat, or man-made structures like towers. Nests are large and heavy, and can be up to 8 ft. in diameter and 20 ft. deep (USFWS, 2021).

Golden eagles have been observed in the Park, but the NPS is not actively monitoring this species. Similar to bald eagles, golden eagles are protected under the Bald and Golden Eagle Protection Act, the MBTA, and the Lacey Act, which has helped their populations recover from hunting. Under the proposed action, no impacts to golden eagles would occur.

Peregrine Falcon

The peregrine falcon is a carnivorous bird of prey with a diet that consists primarily of other birds and is augmented by rare intakes of small mammals, reptiles, or insects. This species nests along remote cliffs and ledges in mountainous areas, where their nests, called scrapes, are just small depressions in gravel. Nesting occurs from mid to late May through early August and their clutch size is two to three eggs. Peregrine falcons have been observed in the Park and nest in Frijoles and Alamo Canyon cliff exposures, and peak migration occurs in May and September through early October.

Pollutants such as dichloro-diphenyl-trichloroethane (DDT) caused egg-shell thinning, resulting in the listing of this species as endangered under the ESA in 1973 (NPS, 2021). Limiting the use of DDT allowed populations to recover, and this species was delisted in 1999, where their populations have since slowly increased and are now considered to be stable. Threats to peregrine falcons include poisoning from DDT-based pesticides and illegal shooting.

When peregrine falcons were exposed to helicopters and fixed-wing aircraft overflights from 1,000 meters (3,281 ft.) or less, or at slant distances of 550 meters (1,804 ft.), 2-3% of individuals had in-flight responses; when active nests were approached at the same slant distances, peregrine falcons have been observed attacking these aircraft (Nordmeyer, 1999). Studies suggest that although peregrine falcons have shown reactions to aircraft, they display stronger reactions and are therefore more sensitive to disturbance from humans, other animals, and boats than they are to overflights from helicopters or fixed-wing aircraft (Nordmeyer, 1999; Roby et al., 2002; Palmer et al., 2003). Studies recommend a standoff distance of 2,640 ft. between from active nest for human activities (Richardson and Miller, 1997; Colorado Division of Wildlife, 2020). Under the proposed action, no impacts to peregrine falcons would occur.

Bald Eagle

Bald eagles (*Haliaeetus leucocephalis*) are large birds of prey with a diet that consists primarily of rodents. Bald eagles inhabit seacoasts, forest valleys, mountain regions, lakes, and rivers, and only occur in the Park as winter migrants. Bald eagles mate for life and aggressively defend nests during the breeding season. In New Mexico, bald eagle nests are constructed in large cottonwood or ponderosa pine trees near water sources (NPS, 2014). Clutch sizes are one to three eggs, and adults will use the same nests each year. Chicks hatch and fledge throughout the spring.

In 2007, the USFWS estimated there were 9,789 breeding pairs across the southern U.S., which led to the bald eagle being delisted in those regions from the ESA and later removed from the federal list of endangered species. The population size of this species has increased since 2007, and continues to increase, as bald eagles are provided protection under both the MBTA and the Bald and Golden Eagle Protection Act.

In 2007, the USFWS prepared National Bald Eagle Management Guidelines. These guidelines provide landowners, land managers, and others who share public and private lands with bald eagles with procedures for when and under what circumstances the Bald and Golden Eagle Protection Act applies to project activities. Additionally, the guidelines include standoff distances of 1,000 ft. for aircraft at nests during the breeding season, foraging areas, and communal roost sites. In 2016, the USFWS released the Final Programmatic Environmental Impact Statement for the Eagle Rule Revision, which analyzed the effects of revised incidental take permit regulations. In 2022, USFWS published a proposed rule and draft EA proposing additional changes to the eagle incidental take permitting program. Threats to bald eagles include habitat loss from development in coastal areas, pesticide poisoning, and illegal shooting.

In consideration of the effects of aircraft on bald eagles, when helicopters flew at altitudes of 60 – 120 meters (197 – 394 ft.), bald eagles flushed from perching or nesting about half of the time, with juveniles flushing more often than adults, and eagles feeding or standing on the ground flushing more often than perched eagles (Stalmaster and Kaiser, 1997). Eagles rarely flushed when helicopter overflights were conducted at altitudes greater than 300 meters (984 ft.) (Stalmaster and Kaiser, 1997). Nesting eagles were more likely to flush than non-nesting eagles during helicopter overflights, but nesting eagles rarely responded to fixed-wing aircraft at altitudes of 50 – 150 meters (164 – 492 ft.) (Watson, 1993). Under the proposed action, commercial air tours will not be conducted in the action area and therefore are not expected to be stressors on bald eagles nor inhibit foraging, feeding, breeding or nesting.

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In Reply Refer To:

April 17, 2023

Project Code: 2023-0069739

Project Name: Bandelier National Monument - 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:

Thank you for your recent request for information on federally listed species and important wildlife habitats that may occur in your project area. The U.S. Fish and Wildlife Service (Service) has responsibility for certain species of New Mexico wildlife under the Endangered Species Act (ESA) of 1973 as amended (16 USC 1531 *et seq.*), the Migratory Bird Treaty Act as amended (16 USC 701-715), and the Bald and Golden Eagle Protection Act as amended (16 USC 668-668(c)). We are providing the following guidance to assist you in determining which federally imperiled species may or may not occur within your project area, and to recommend some conservation measures that can be included in your project design.

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the ESA of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-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 ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the ESA 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 ESA 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 affect threatened and endangered species and/or designated critical habitat.

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 (NEPA; 42 USC 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 are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that 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. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. 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/pdf/TOC-GLOS.PDF>.

Candidate Species and Other Sensitive Species

A list of candidate and other sensitive species in your area is also attached. Candidate species and other sensitive species are species that have no legal protection under the ESA, although we recommend that candidate and other sensitive species be included in your surveys and considered for planning purposes. The Service monitors the status of these species. If significant declines occur, these species could potentially be listed. Therefore, actions that may contribute to their decline should be avoided.

Lists of sensitive species including State-listed endangered and threatened species are compiled by New Mexico State agencies. These lists, along with species information, can be found at the following websites.

Biota Information System of New Mexico (BISON-M): www.bison-m.org

New Mexico State Forestry. The New Mexico Endangered Plant Program:
<https://www.emnrd.nm.gov/sfd/rare-plants/>

New Mexico Rare Plant Technical Council, New Mexico Rare Plants: nmrareplants.unm.edu

Natural Heritage New Mexico, online species database: nhnm.unm.edu

WETLANDS AND FLOODPLAINS

Under Executive Orders 11988 and 11990, Federal agencies are required to minimize the destruction, loss, or degradation of wetlands and floodplains, and preserve and enhance their natural and beneficial values. These habitats should be conserved through avoidance, or mitigated to ensure that there would be no net loss of wetlands function and value.

We encourage you to use the National Wetland Inventory (NWI) maps in conjunction with ground-truthing to identify wetlands occurring in your project area. The Service's NWI program website, www.fws.gov/wetlands/Data/Mapper.html, integrates digital map data with other resource information. We also recommend you contact the U.S. Army Corps of Engineers for permitting requirements under section 404 of the Clean Water Act if your proposed action could impact floodplains or wetlands.

MIGRATORY BIRDS

In addition to responsibilities to protect threatened and endangered species under the ESA, there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the Service (50 CFR 10.12 and 16 USC 668(a)). For more information regarding these Acts see <https://www.fenws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a Federal nexus) or a Bird/Eagle Conservation Plan (when there is no Federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>. We also recommend review of the Birds of Conservation Concern list (<https://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>) to fully evaluate the effects to the birds at your site. This list identifies migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent top conservation priorities for the Service, and are potentially threatened by disturbance, habitat impacts, or other project development activities.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 thereby provides additional protection for both migratory birds and migratory bird habitat. Please visit <https://www.fws.gov/migratorybirds/pdf/management/executiveordertoprotectmigratorybirds.pdf> for information

regarding the implementation of Executive Order 13186.

We suggest you contact the New Mexico Department of Game and Fish, and the New Mexico Energy, Minerals, and Natural Resources Department, Forestry Division for information regarding State protected and at-risk species fish, wildlife, and plants.

For further consultation with the Service we recommend submitting inquiries or assessments electronically to our incoming email box at nmesfo@fws.gov, where it will be more promptly routed to the appropriate biologist for review.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

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:

New Mexico Ecological Services Field Office

2105 Osuna Road Ne

Albuquerque, NM 87113-1001

(505) 346-2525

PROJECT SUMMARY

Project Code: 2023-0069739

Project Name: Bandelier National Monument - 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/@35.784677,-106.31147206191574,14z>



Counties: Los Alamos , Sandoval , and Santa Fe counties, New Mexico

ENDANGERED SPECIES ACT SPECIES

There is a total of 9 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 Fisheries¹, 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.

-
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
Mexican Wolf <i>Canis lupus baileyi</i> Population: Wherever found, except where listed as an experimental population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3916	Endangered
New Mexico Meadow Jumping Mouse <i>Zapus hudsonius luteus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7965	Endangered

BIRDS

NAME	STATUS
Mexican Spotted Owl <i>Strix occidentalis lucida</i> There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8196	Threatened
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

AMPHIBIANS

NAME	STATUS
Jemez Mountains Salamander <i>Plethodon neomexicanus</i> There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4095	Endangered

FISHES

NAME	STATUS
Rio Grande Cutthroat Trout <i>Oncorhynchus clarkii virginalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/920	Candidate
Rio Grande Silvery Minnow <i>Hybognathus amarus</i> Population: Wherever found, except where listed as an experimental population There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1391	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

There are 2 critical habitats wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Jemez Mountains Salamander <i>Plethodon neomexicanus</i> https://ecos.fws.gov/ecp/species/4095#crithab	Final
Mexican Spotted Owl <i>Strix occidentalis lucida</i> https://ecos.fws.gov/ecp/species/8196#crithab	Final

IPAC USER CONTACT INFORMATION

Agency: Department of Transportation

[REDACTED]

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Aviation Administration

[REDACTED]

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 study area. All data sources were accessed the week of January 30, 2023.

Table 1. Section 4(f) Parks and Recreational Resources in the Study Area.

Property Name	Official(s) with Jurisdiction	Property Type	Description	Approximate Size (acres)
Bandelier National Monument	National Park Service	National Monument	Bandelier National Monument protects over 33,000 acres of canyon and mesa country as well as evidence of a human presence going back over 11,000 years.	33,000 ac (33,000 ac within study area)
Valles Caldera National Preserve	National Park Service	National Preserve	The preserve is known for its huge mountain meadows, abundant wildlife, and meandering streams.	88,900 ac (1,900 ac within study area)
Santa Fe National Forest	U.S. Forest Service	National Forest	The Santa Fe National Forest is 1.6 million acres of mountains, valleys and mesas ranging from 5,000 to 13,000 feet in elevation.	1.6 million ac (7,530 ac within study area)
Jemez National Recreation Area	U.S. Forest Service	National Recreation Area	The Jemez Ranger District is home to the Jemez National Recreation Area, located within the Jemez Mountains.	57,700 ac (68 ac within study area)
Cochiti Reservoir	U.S. Army Corps of Engineers	Recreation Reservoir	Cochiti Lake is a U.S. Army Corps of Engineers managed lake located in Sandoval County, New Mexico, and within the boundaries of the Pueblo de Cochiti Nation on the Rio Grande about 50 miles upstream from Albuquerque.	1,570 ac (262 ac within study area)

Noise Effects Analysis on Section 4(f) Resources

Noise modeling for Bandelier National Monument (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 dBA. Location point results present the metric results at specific points of interest. The NPS provided a list of 13 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 ATMP, 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.

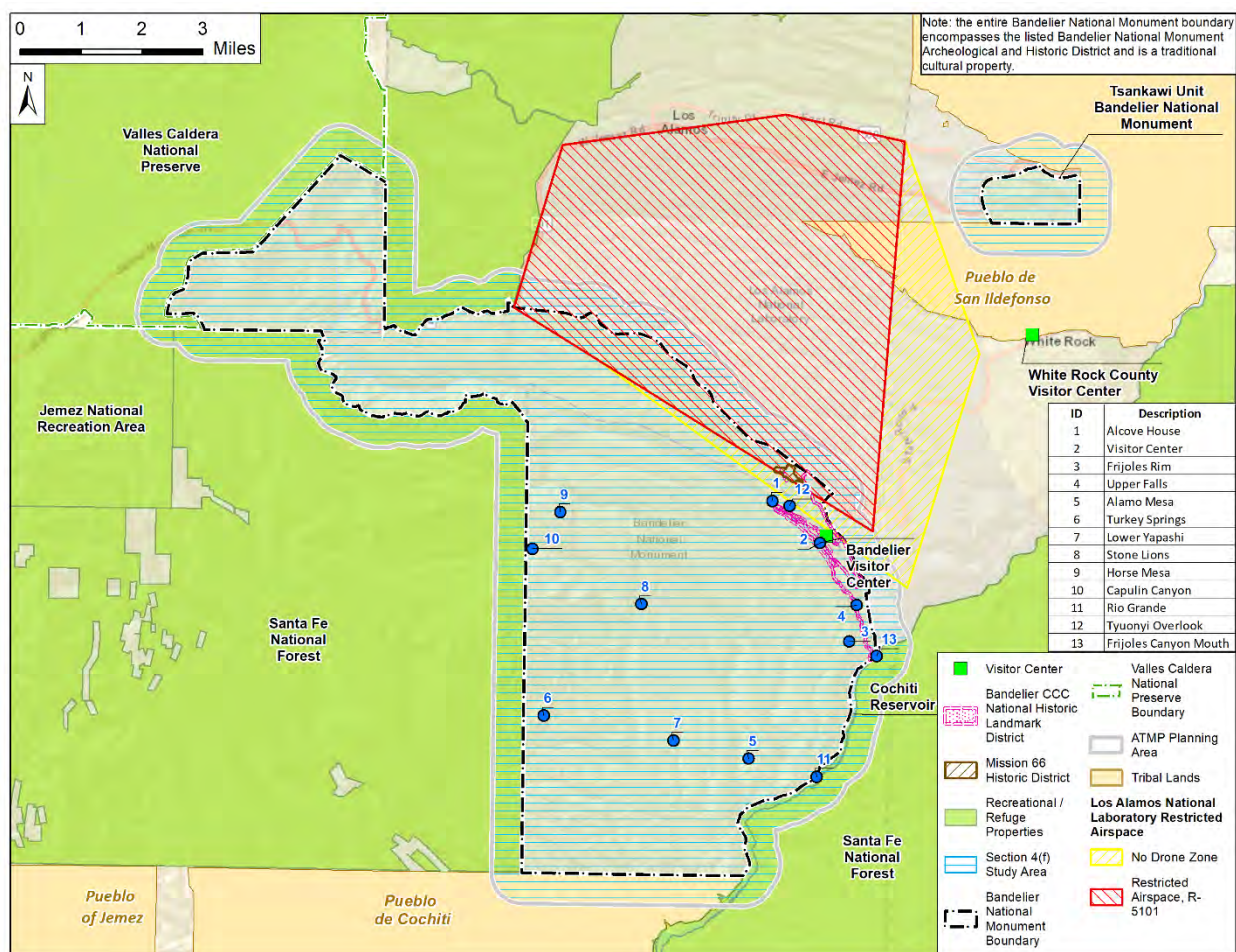


Figure 1. Section 4(f) Resources and Location Points in the Study Area.

Table 2 shows the low and high modelled time above 52 dBA values under Alternative 3 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 dBA in the study area on days when air tours occur is 0.5 minutes.

Table 2. Low and High Modelled Values for Time Above 52 dBA Under Alternative 3 for Section 4(f) Resources.

Section 4(f) Resource	Time Above 52 dBA – Low (minutes)	Time Above 52 dBA – High (minutes)
Bandelier CCC National Historic Landmark and Historic District	0	0.4
Cochiti Reservoir	0	0.4
Santa Fe National Forest	0	0.5
Mission 66 Historic District	0	0
Jemez National Recreation Area*	N/A	N/A
Valleys Caldera National Preserve*	N/A	N/A

*No noise modeling points within 1.5-miles of resource.

Table 3. Section 4(f) Resources and Corresponding Location Point Data for Air Tours Under Alternative 3.

Section 4(f) Resource	Location Point ID	Location Point Name	Distance to Location Point (Miles)	Time Above 52 dBA under Alternative 3 / ER-S Orange Route (Minutes)	Time Above 52 dBA under Alternative 3, ER-N Red Route (Minutes)
Bandelier CCC National Historic Landmark District	1	Alcove House	0	0	0
Bandelier CCC National Historic Landmark District	12	Tyuonyi Overlook	0.09	0	0
Bandelier CCC National Historic Landmark District	4	Upper Falls	0	0	0.1
Bandelier CCC National Historic Landmark District	3	Frijoles Rim	0.25	0	0.4
Bandelier CCC National Historic Landmark District	13	Frijoles Canyon Mouth	0.09	0	0.3
Bandelier CCC National Historic Landmark District	2	Visitor Center	0	0	0
Cochiti Reservoir	13	Frijoles Canyon Mouth	1.02	0	0.3
Cochiti Reservoir	11	Rio Grande	0	0	0
Cochiti Reservoir	3	Frijoles Rim	1.18	0	0.4
Cochiti Reservoir	5	Alamo Mesa	0.73	0	0

Section 4(f) Resource	Location Point ID	Location Point Name	Distance to Location Point (Miles)	Time Above 52 dBA under Alternative 3 / ER-S Orange Route (Minutes)	Time Above 52 dBA under Alternative 3, ER-N Red Route (Minutes)
Mission 66 Historic District	1	Alcove House	0.43	0	0
Mission 66 Historic District	2	Visitor Center	1.03	0	0
Mission 66 Historic District	12	Tyuonyi Overlook	0.40	0	0
Santa Fe National Forest	6	Turkey Springs	0.33	0	0
Santa Fe National Forest	9	Horse Mesa	0.56	0	0.3
Santa Fe National Forest	10	Capulin Canyon	0.11	0	0.5
Santa Fe National Forest	11	Rio Grande	0.06	0	0
Santa Fe National Forest	13	Frijoles Canyon Mouth	0.025	0	0.3

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

Entity Name	Address
National Park Service	15 Entrance RD Los Alamos, NM 87544
National Park Service	Valles Caldera National Preserve PO Box 359 Jemez Springs, NM 87025
U.S. Army Corps of Engineers	82 Dam Crest Road Pena Blanca, NM 87041-5015
U.S. Forest Service	11 Forest Lane Santa Fe, NM 87508