

**Draft Environmental Assessment for an Air Tour  
Management Plan for  
Canyon de Chelly National Monument**

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# 1 PURPOSE AND NEED

## 1.1 Introduction

The Federal Aviation Administration (FAA), the National Park Service (NPS) (together, “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 Canyon de Chelly National Monument (hereafter referred to as the “Park”). Due to the unique nature of the Park being entirely located on Navajo Nation Tribal trust lands, the agencies have worked cooperatively with the Navajo Nation in developing the ATMP. 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 Park encompasses approximately 84,000 acres in northeastern Arizona within the Defiance Plateau on Tribal lands held by the United States in trust for the Navajo Nation. Roughly 40 families reside within the Park boundaries.

The Navajo Nation serves in three roles on this project. First, they are a sovereign, or independent, nation in the nation-to-nation consultation with the agencies. The Navajo Nation was invited to be a cooperating agency, and although no formal acceptance was received, they participated as a cooperating agency and engaged in the development of the ATMP. Finally, the Nation is a consulting party for compliance with Section 106 of the National Historic Preservation Act (NHPA). Throughout this document, the terms Navajo Nation, Navajo, and Diné are used. Navajo Nation refers to the government; Navajo refers to the Tribe prior to the formation of the Navajo Nation, and Diné refers to the people, or members, of the Navajo Nation. Navajo/Diné can be used interchangeably.

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.<sup>1,2</sup> Currently, four commercial air tour operators are authorized to conduct air tours over the Park with IOA for 175 commercial air tours annually, but only one commercial air tour operator currently operates. 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 is to develop acceptable and effective measures to mitigate or prevent the significant adverse impacts, if any, of commercial air tour operations on the Park’s

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<sup>1</sup> 49 U.S.C. § 40128(c)(2)(A)(i-ii).

<sup>2</sup> 70 Federal Register 58,778 (Oct. 7, 2005).

resources and values. Because the Park is located entirely on lands held in trust by the United States for the Navajo Nation, the Park's resources and values consist primarily of Navajo Nation cultural resources, including archeological sites, sacred sites, ancestral sites, cultural landscapes, cultural and ceremonial practices, and traditional cultural properties; related natural resources; and the privacy interests of the Navajo Nation residents living within the ATMP planning area. 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 (see 14 CFR § 136.33[d]) 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-mile outside a park's boundary during which the aircraft flies:

- Below 5,000 feet (ft.) above ground level (AGL) (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
- Less than one mile laterally from any geographic feature within the Park (unless more than ½-mile outside the Park boundary).

The area subject to the ATMP is also referred to as the area within the ATMP boundary or the ATMP planning area (Figure 1).



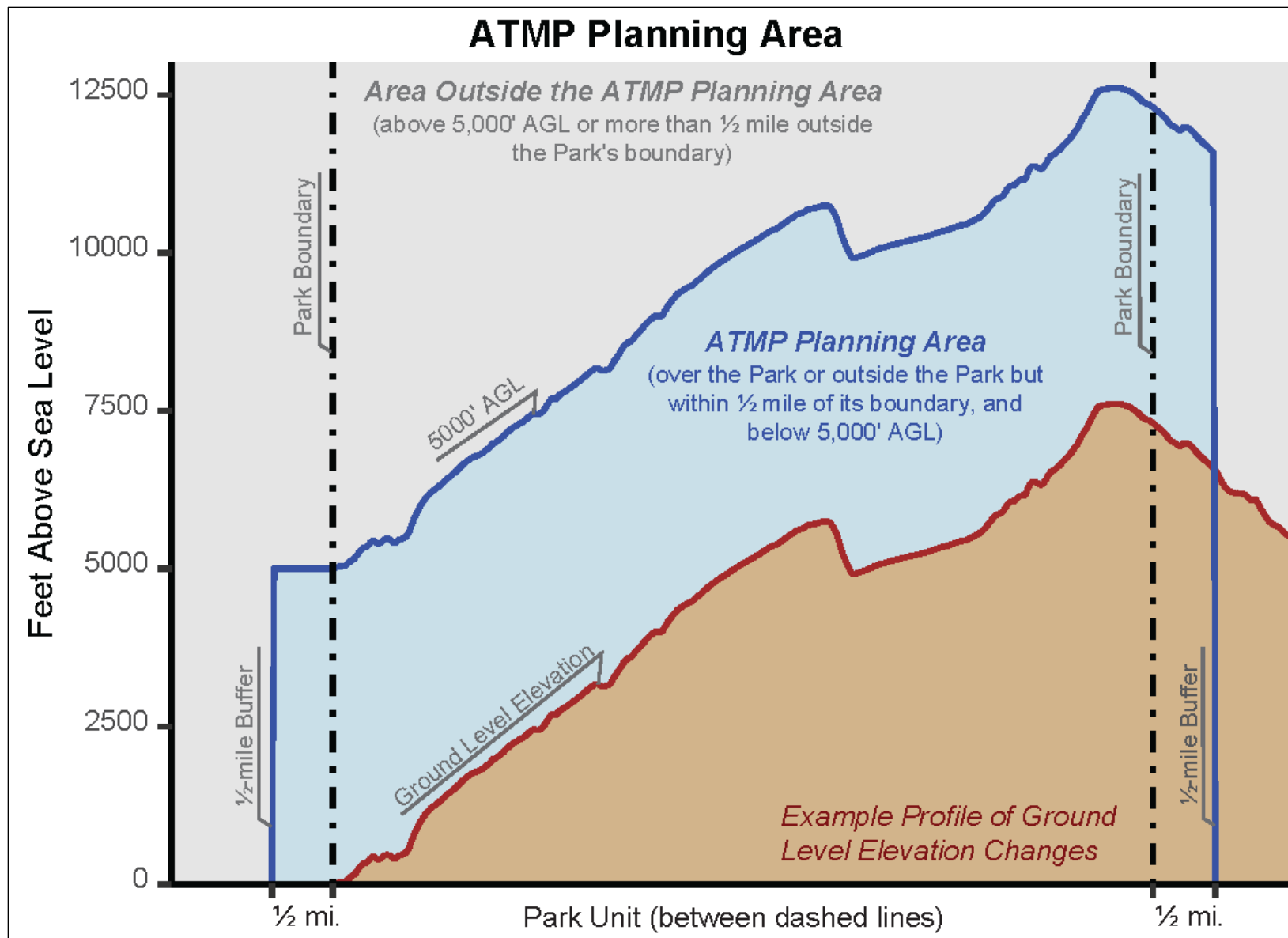


Figure 1. Geographic Depiction of the ATMP Planning Area.

## **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 December 31, 2024 to complete the ATMP for the Park.

The agencies conducted a number of consultations and engagements with Tribal nations and public agencies pursuant to a number of regulations. The FAA, in coordination with the NPS, initiated consultation with the Navajo Nation and 23 additional Native American Tribes (Tribes) under Section 106 of the NHPA in May 2021. From May 2021 thru December 2023 the agencies consulted via letters, meetings, a webinar, and phone calls with the Navajo Nation President's Office, the Navajo Nation Tribal Historic Preservation Officer, Navajo Nation Chapter House Councils and Delegates that overlay the Park, the Navajo Nation Division of Natural Resources and its following offices: Fish and Wildlife, Heritage and Historic Preservation, and Parks and Recreation (Appendix I). In addition, the Division of Transportation and the Tourism Office within the Division of Economic Development were also engaged in meetings during the planning process.

Based on feedback during these consultations, the agencies 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. This document considers and evaluates two alternatives for the Park's ATMP.

## **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 Park was previously exempt from the portion of the Act that requires the agencies to establish an ATMP or voluntary agreement for commercial air tours. On November 2, 2017, the NPS withdrew the Park's exemption (Appendix J). Thus, the Act requires an ATMP or voluntary agreement to be developed for the Park. Air tours have the potential to impact natural and cultural landscapes and resources, Tribal privacy, and Native American TCPs, including Native American sacred landscapes, sites, and ceremonial areas. The Act requires that the agencies develop acceptable and effective measures to mitigate or prevent significant adverse impacts, if any, of commercial air tour operations on these resources.

## **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.

Noise from aircraft has 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 [dB] 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 the experimental design of this study, commercial air tours do not generate continuous noise. In addition, the Proposed Action would eliminate air tours from the ATMP planning area. Therefore, the agencies have determined that noise associated with the ATMP is unlikely to result in impacts on 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. However, the Proposed Action would eliminate air tours from the park and would not result in any emissions in the ATMP planning area; therefore, it is unlikely that there would be any meaningful impact on plants.

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, the NPS has agency-wide policies (see *NPS Management Policies 2006* (NPS, 2006a), 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. The bedrock of the Park predominantly consists of Paleozoic and Mesozoic sedimentary rocks that have been heavily eroded and incised to form Canyon de Chelly, Canyon del Muerto, and smaller tributary canyons. Units mapped within the Park include the Pennsylvanian–Permian Supai Formation, Permian Cutler Group, and the Triassic Chinle Formation (NPS, 2022a). The scenic red cliff exposures in the Park consist of the De Chelly Sandstone of the Cutler Group, which rise from the wash to heights of up to 366 meters (1,200 ft). Many geologic features have cultural significance to associated Tribes and

those associations are analyzed under cultural resources. Under the No Action Alternative, commercial air tours would continue to occur over these features. Commercial air tours currently occur at altitudes between 800 and 1,000 ft. AGL. A review for potential vibrational impacts on 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 features (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). In addition, the Proposed Action would eliminate air tours from the ATMP planning area; therefore, no vibrational impacts to geologic resources within the ATMP planning area would be anticipated under either 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***

While air tours over the Park would not be allowed under the Proposed Action, the agencies cannot speculate if, where, or when an air tour accident or incident may occur or the degree of Park resource damage.

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, contains some areas that are designated as prime farmland if irrigated, and the Diné actively farm some areas of the Park. However, the ATMP would not involve ground disturbance that would have the potential to convert farmland to non-agricultural uses. In addition, the Proposed Action would eliminate

air tours from the ATMP planning area. Therefore, this impact topic 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. In addition, the Proposed Action would eliminate air tours from the park. The impacts on 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. In addition, the Proposed Action would eliminate air tours from the ATMP planning area. 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 action alternative, 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. In addition, the Proposed Action would eliminate air tours from 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.

### ***Wilderness***

There is no eligible, proposed, recommended, potential, or designated wilderness in the Park. Therefore, this topic has not been analyzed in detail in the draft EA.

## **1.6 Park Overview**

The Park consists of approximately 84,000 acres in northeastern Arizona within the Defiance Plateau on Tribal lands held by the United States in trust for the Navajo Nation. Generations of Navajo have lived in Canyon de Chelly, Canyon del Muerto, and Monument Canyon, where they maintain homes, farms, and traditional grazing lands. Approximately 80 Navajo families live in and around the monument or over six hundred individuals live in the canyon community. The Hopi and other modern pueblo Tribes are culturally associated with Canyon de Chelly and its former ancestral inhabitants. The purpose of the Park, as stated in its Foundation Document, is to maintain and preserve an outstanding concentration of archaeological resources, representing thousands of years of continuous occupation and agriculture, as well as other features of scientific, historical, and educational interest. The canyon preserves resources of sacred significance and perpetuates lifeways of past and present cultures ancestrally connected to these landscapes.

Canyon de Chelly National Monument within the Navajo Indian Reservation was established on April 1, 1931, by Presidential Proclamation #1945, with the consent of the Tribal Council of the Navajo Tribe of Indians and authorization of the United States Congress.<sup>3</sup> Congress charged the NPS with the administration of the area of national monument, “so far as it applies to the care, maintenance, preservation and restoration of the prehistoric ruins, or other features of scientific or historical interest within the area.” However, Congress also provided that the legislation authorizing the establishment of the monument shall not “be construed as in any way as impairing the right, title, and interest of the Navajo Tribe of Indians which they now have and hold to all lands and minerals, including oil and gas, and the surface use of such lands for agricultural, grazing, and other purposes, except” for the NPS’s legislatively defined role and responsibilities.

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<sup>3</sup> An Act to authorize the President of the United States to establish the Canyon De Chelly National Monument within the Navajo Indian Reservation, Arizona, 71 Pub. L. 66746 Stat. (1931); Proclamation No. 1945, 47 Stat. 2448 (1932).

In addition to the NPS's Organic Act that applies to resources within the Park, the Navajo Nation has enacted legal protections that apply to the Park. Resolution of the Resources Committee of the Navajo Tribal Council, 1985 (RCS-51-85) – established a protection zone within the boundaries of the Park to protect its resources from activities and developments deemed to be a threat or an adverse impact until a joint management plan between the Navajo Nation, Bureau of Indian Affairs, and the NPS could be developed. That Resolution also established a moratorium on new construction and development within the Park's boundary. The Navajo Nation Cultural Resources Protection Act of 1988 (Navajo Nation Code, Title 19) – Section 1011 requires all cultural properties on Navajo lands, including those in the National Park System, to be included in the Navajo Nation Register of Cultural Properties.

In 2018, the Navajo Nation, the NPS and the Bureau of Indian Affairs entered into a Strategic Agreement for the Cooperative Stewardship of Canyon de Chelly. The parties to the Strategic Agreement recognized that Canyon de Chelly remains the Navajo Nation's Tribal trust lands, over which the Navajo Nation has sovereign authority. The NPS manages the Canyon de Chelly National Monument under federal authority. The Navajo Nation retains authority, in accordance with Navajo Nation and federal law regarding trust assets. In the Strategic Agreement, the parties agreed "[t]o respectfully share stewardship of the Canyon values and to protect and preserve its beauty, resources and culture for the future – Hozho Dooleef." The Strategic Agreement outlined key management roles and responsibilities for the administration of Canyon de Chelly pursuant to existing policies, statutes and regulations. A joint/co-management plan by the Navajo Nation and the NPS is currently underway.

The NPS honors its unique nation-to-nation relationship regarding decisions affecting the Park, particularly because the Park is located on trust lands. The NPS is entrusted with the management of over 85 million acres of Federal lands and waters that are the ancestral homelands of Indian and Alaska Native Tribes, and Native Hawaiians that predate the National Park System. As stewards, the NPS is entrusted to conserve these resources for future generations, including resources, sites, and vistas that hold significance to Indigenous peoples who have lived on and cared for the land since time immemorial. The NPS recognizes and supports the unique, nation-to-nation relationship that exists with the Navajo Nation that is based in the U.S. Constitution, treaties, statutes, and judicial decisions. In managing the Park, the NPS is required to honor its trust responsibilities to protect Tribal interests, pursue an open and collaborative relationship with the Navajo Nation, and provide for the continuation of the cultural and spiritual practices of the Navajo people.

The NPS identified five statements of significance for the Park, or statements explaining why the Park's resources and values are important enough to merit designation as a unit of the National Park System, in the Park's Foundation Document. Those statements include Relationships, Cultural Continuity, and Cultural Resources.



Cultural Continuity refers to the fact that the Park “...preserves one of the longest continually inhabited locations by American Indian communities in the United States, spanning at least 5,000 years. Tséyi’, the place within the rock, sustains a living community connected to a landscape of great historical and spiritual significance—a landscape composed of places infused with collective memory and defining moments in Navajo history. It is essential to the spiritual and traditional lives and cultural identity of many native peoples.”

Cultural Landscapes, Continuing Cultural Connections, Experience of Place, and Partnerships and Relationships are among the Park’s fundamental resources and values identified in its Foundation Document. As the Park’s foundation document explains, “Canyon de Chelly is fundamentally linked to the cultural practices and beliefs of the Navajo and other traditionally associated groups and is central to the perpetuation of their respective cultural identities.” It notes that “[s]pecific places and natural features (e.g., Spider Rock, Fortress Rock, and celestial features) are physical expressions of the defining stories and events in the history of the Navajo people and retain profound spiritual and sacred significance.” It further recognizes that “[f]or the Navajo people (Diné), Canyon de Chelly (Tséyi’) is a physical and spiritual home that sustains the families who live in the canyons as well as a sacred place connecting all Navajo to their cultural heritage and beliefs. Canyon de Chelly also has enduring cultural importance for the other regional native peoples whose ancestors once occupied the canyons.” Consistent with these fundamental resources and values, the NPS prohibits visitors from entering the canyons of Canyon de Chelly National Monument unless accompanied by NPS employees or by authorized guides. 36 CFR § 7.19.

The most significant cultural and natural resources within the ATMP planning area include archeological sites, Tribal sacred sites, traditional cultural properties, and ancestral sites, many of which are listed in National Register of Historic Places (National Register) or are eligible for listing. The Park’s archeological resources provide evidence of occupation through the Archaic, Basketmaker, and Puebloan periods. Many of the sites are cliff dwellings containing large amounts of dry, cultural debris. In addition, 18th, 19th and 20th century A.D. sites of Navajo occupancy remain in the Park. The archeological resources within the Park make up one of the most important and extensive archeological landscapes in the Southwest, expanding over the past 5,000 years. Archeological inventories have resulted in the identification of approximately 1,600 sites throughout the Park, some of which may be considered traditional cultural properties by Tribes. Pre-Columbian archeological sites are a source of spiritual, sacred power to the Navajo people. Offerings are made at these sites, and oral histories (of the people, of ceremonies, of clans) refer to these places. The White House ruins and Spider Rock are two archeological sites and traditional cultural properties within the Park that are still used in ceremony for the Diné People. Both sites are eligible for inclusion in the National Register because of their ancestral connection with cultural practices or beliefs that are rooted in various Southwestern Native American histories and because they are important in maintaining cultural identity.

Today, the Park is occupied by Navajo families who farm and have livestock operations within the canyons, carrying on their traditional practices. Approximately 80 Navajo families live in and around the monument or over six hundred individuals live in the canyon community. This community is one of the longest, continually inhabited Native American communities in the United States.<sup>4</sup>

Visitors can tour the Park's canyons only by hiking, horseback or vehicle with an authorized Navajo guide and after obtaining a backcountry permit from the Navajo Nation's Parks and Recreation Department and the NPS. However, visitors may take a self-guided hike to the White House Overlook and Trail (currently closed due to safety and law enforcement concerns), and scenic drives along the north and south rim from which visitors can access overlooks open year-round and experience expansive views of high desert mesas, vegetation, dark night skies, and distant mountains.

The Park's Foundation Document recognizes that "[a] strong ethic of stewardship for protecting the canyons and the natural world permeates everyday life and is passed on from Navajo elders to younger generations." The Park's natural resources include those that are a result of geological processes of uplift and erosion that have exposed the Park's colorful red cliffs of the de Chelly sandstone which rise from the wash to heights of up to 1,200 feet and contribute to the scenic values of the Park. Towering spires of erosion-resistant sandstone and cap-rock (such as Spider Rock and Face Rock) rise from the canyon floor. Dependable water from springs and seeps, and streams originating from the Chuska Mountains, eventually reach Chinle Wash. Water and the rich soils of the canyons support a variety of native and introduced plants and animals that have sustained canyon residents for thousands of years. A variety of avian species may be found within the Park, including raptors and migratory birds. Species potentially affected by overflights, including two federally listed threatened species – the Mexican spotted owl and yellow-billed cuckoo.

The following Park management objectives relate to the development of this ATMP:

- Preserve one of the longest continually inhabited Native American communities in the United States by protecting residents' right to privacy on their homesites and land use areas, and limiting disruption and noise for Tribal residents who live on Tribal trust lands within the Park with a livelihood through agriculture, livestock grazing, and tourism.
- Protect the cultural landscape of the Park as evidenced by prehistoric, historic, and contemporary land uses adapted to the natural environment of the canyons. The Park has sacred cultural and spiritual value for the Diné, This includes specific places and natural features (e.g., Spider Rock, Navajo Fortress, and celestial features) that are physical expressions of the defining stories and events in the history of the Navajo

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<sup>4</sup> Letter from the Navajo Nation President to FAA and NPS, April 11, 2023

people and retain profound spiritual and sacred significance. Provide outstanding opportunities to study and contemplate the intimate relationships between the land and people of the Park.

- Protect individuals and populations of wildlife species known to be sensitive to the effects of aircraft overflights, primarily migratory birds, and the federally listed Mexican spotted owl.
- Protect visitors' and Navajo residents' opportunities to experience quiet and solitude in a remote natural setting, and to hear and enjoy natural sounds with minimal interference due to noise.
- Protect the remarkable scenic views of the Park's colorful sandstone cliffs, canyons, and rock towers set against a backdrop of ancient cliff dwellings and Navajo communities.

## **2 ALTERNATIVES**

### **2.1 Alternatives Development**

An NPS interdisciplinary team comprising subject matter experts from the NPS's Natural Sounds and Night Skies Division, Environmental Quality Division, Intermountain Regional Office, and the Park developed the action alternative to be considered in this EA in consideration of Park management objectives and based on information and Tribal input received during consultation with the Navajo Nation, specifically the Navajo Nation President Divisions and Departments within the Executive Branch, and local Chapters and Tribal members. The team evaluated the noise impacts of existing air tour routes and operations, the cultural and natural resources within the Park, existing and natural acoustic environment, visitor experience, and visual resources. Because the Park is located entirely on lands held in trust by the United States for the Navajo Nation, impacts on resources within the Park are impacts on Tribal trust resources and Tribal interests.

The NPS and Navajo Nation work in conjunction to manage Park resources and enable traditional and contemporary lifeways. Between March 2021 and December 2023, the agencies engaged with the Navajo Nation President's office and appropriate Departments regarding an ATMP for the Park. In 2022, communications continued with the Navajo Nation with an emphasis on communicating with Chapter House delegates and departmental representation within the Executive Branch. Navajo Chapters play an essential role in shared stewardship of the Canyon de Chelly area as local governmental entities. The Chinle, Tsaile-Wheatfields, Nazlini, Lukachukai, and Sawmill Navajo Chapters, which represent the Diné people that live in and around the Park, passed Resolutions that support an alternative that would not allow air tours over the Park. The Resolutions stated that overflights disturb residential areas, farmers and ranchers, domesticated animals, and wildlife, including endangered species; impact the serenity, peaceful enjoyment, and visitor experience of the natural soundscape; and produce safety and privacy concerns. These Resolutions were sent to the Navajo Nation President. In April 2023, Dr. Buu Nygren, President of the Navajo Nation, sent a letter to the agencies (the President's letter) forwarding the Chapters' Resolutions, all of which oppose air tours over the Park (Appendix I). In his letter President Nygren stated that he "supports the position of the Navajo people (approximately 600 individuals that live in and around the monument) for a Canyon de Chelly Air Tour Management Plan that does not allow any air tours over these sacred lands." Because the Park is located entirely on the Navajo Nation's Tribal trust lands, the agencies relied heavily on the input received from the Chapters, the President of the Navajo Nation, and representatives from Departments in the Executive Branch.

In developing the action alternative, the interdisciplinary team also considered 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 "maintain and preserve an

outstanding concentration of archeological resources, representing thousands of years of continuous occupation and agriculture, as well as other features of scientific, historical, and educational interest. The canyon preserves resources of sacred significance and perpetuates lifeways of past and present cultures connected to these landscapes” (NPS, 2016). The Park is located entirely on lands held by the United States in trust for the Navajo Nation, and Diné families still reside within the Park.

Consistent with the Park’s founding and 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 some of the most significant cultural and natural resources of the Park. The archeological resources in the Park document thousands of years of human presence. It provides the most intact assemblage of perishable materials (e.g., basketry, sandals, reed mats) in the country, and one of the largest concentrations of pictographs and petroglyphs in North America (NPS, 2016). The Park is also inherently tied to the cultural practices and beliefs of the Diné and other traditionally associated groups and is central to the perpetuation of their respective cultural identities. It serves as a physical and spiritual home for the Diné and connects them to their cultural heritage and beliefs (NPS, 2016). Maintaining these resources and values is an essential component of the Park’s purpose.

Importantly, because the Park is located entirely on lands held by the United States in trust for the Navajo Nation, in developing the action alternative the interdisciplinary team carefully considered the United States’ unique trust obligations to the Navajo Nation and how best to safeguard Tribal resources and interests.

The alternative identified by the NPS and justifications for restrictions on commercial air tours were reviewed by the FAA, including the FAA’s local Flight Standards District Office (FSDO) who noted any aviation safety concerns. The two alternatives presented in this draft EA, including the No Action Alternative, represent the alternatives advanced for environmental review and incorporate Tribal feedback received to date on the ATMP planning efforts for the Park. During the NEPA process, the agencies, in consultation with the Navajo Nation, may consider additional alternatives or modifications to the action alternative in response to public, consulting party, agency, and Tribal comments on the draft EA and draft ATMP.

## **2.2 Alternatives Considered but Eliminated from Further Study**

### **2.2.1 Air Tours within the ATMP Planning Area**

The agencies considered but eliminated alternatives that would allow commercial air tours within the ATMP planning area, including at existing or reduced levels. These alternatives were eliminated from further study based on the information and input provided by the five Navajo Nation Chapters that represent the Diné people living in and around the ATMP planning area (Chinle, Tsaile-Wheatfields, Nazlini, Lukachukai, and Sawmill Navajo Chapters), representatives from Departments in the Navajo Nation Executive Branch, and the President of the Navajo

Nation regarding the impacts of air tours on Tribal privacy, Tribal sacred sites, and ceremonial areas and because they do not meet the purpose and need for the ATMP.

In particular, Resolutions from the Tsaile/Wheatfields, Lukachukai, Nazlini, Chinle, and Sawmill Navajo Chapters have expressed that overflights, including commercial air tours, are disruptive and limit Tribal members ability to engage freely in religious and cultural activities in the Park. Representatives from the Navajo Nation 's Executive Offices have also stated that disclosing the time and location of their sacred practices would violate their privacy. They consider the entire landscape of the Park to be sacred and believe air tours are inappropriate and constitute an adverse effect on the cultural landscape, wildlife, and plants. The representatives from the Navajo Nation have stated that overflights, including commercial air tours, have disturbed gatherings and traditional religious practices at sacred sites, impacted viewsheds to sacred geological formations and natural features, are inappropriate to the sacred landscape, and disrupt the tranquility of accessing the lands for reflection or cultural purposes. The Resolutions emphasized that overflights, including commercial air tours, have negative impacts on the cultural heritage of dances, traditional events, agriculture, and hunting, among other events and activities.

Based on Tribal input received from the Chapters, the Navajo Nation's President and Tribal members, the NPS determined that air tours inhibit the NPS's ability to meet the Park's purpose and values, which are described in its Foundation Document (NPS, 2016). The presence of commercial air tours interferes with Tribal connections to the sacred landscape of the Park primarily due to Tribal concerns about privacy. Canyon de Chelly preserves one of the longest continually inhabited locations by American Indian communities in the United States. Tséyi', "the place within the rock," sustains a living community connected to a landscape of great historical and spiritual significance. The Diné reside within the Park and continually practice their traditional and contemporary lifeways within the Park. Based on the information received during consultation, air tour patrons' observation of Tribal members as they carry out traditional activities, such as farming and other daily activities around their residences and religious ceremonies, invades the privacy of those carrying out these activities and diminishes the connections to the sacred landscape.

Air tours encroach on the Diné religious and cultural activities and could interrupt and diminish both the tangible and intangible associations the Diné experience during use of their TCPs, the protection of which is a significant Park purpose. Because continuing cultural connections to the Park and relationships are fundamental values of the Park and are significant to the Park's purpose, air tours and their resultant interference with Tribal connections to the land and Tribal privacy are inconsistent with the Park's purpose and values for which it was established. National Register-listed or eligible cultural resources, including archeological resources, Tribal sacred sites, cultural landscapes, and ancestral sites occur throughout the Park, which is listed in the National Register in its entirety and contains many traditional cultural properties within.

Due to the shape of the Park, which was defined by the canyons and waterways of the landscape, and because sensitive locations are densely distributed throughout the Park, air tours cannot be rerouted to avoid sensitive locations. Also, because the Diné reside on Tribal trust lands within the Park and continually practice their traditional activities and religious ceremonies within the Park, timing of air tours cannot be adapted to avoid these activities. Those activities continuously occur and are central to the Park's purpose of providing connection and relationship of the Diné to the Tribal trust lands and resources within the Park. Thus, provisions, such as time-of-day restrictions or no-fly periods, would be unlikely to be effective in avoiding the impacts identified in the Resolutions and the President's letter and thus would be unlikely to avoid impacting this fundamental Park purpose.

The Park is located on the Navajo Nation's Tribal trust lands. The five Navajo Nation Chapters that represent the Navajo people that live in and around the Park have passed Resolutions opposing air tours over the Park and the Navajo Nation's president supports their position. These Resolutions indicate that air tours interfere with the Diné use of their lands and impact their privacy they carry out traditional activities and religious ceremonies. Based on the above information, allowing commercial air tours within the ATMP planning area is inconsistent with the Park's purpose and values, which include perpetuating traditional Tribal cultural connections to the Park's landscapes. For these reasons, and in consideration of the United States' unique trust obligations to the Navajo Nation, the agencies have considered but eliminated action alternatives that would allow air tours within the ATMP planning area.

## **2.3 ATMP Planning Area**

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 (Figure 2). 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 Park and the area within ½-mile of the boundary of the Park, all of which are the Navajo Nation's Tribal trust lands (Figure 2). 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, above, for a graphic depiction of the ATMP planning area. Although they may occur within the ATMP planning area, general aviation flights, overflights by commercial airlines, and military flights would not be regulated by the ATMP because they are not commercial air tours subject to regulation under the Act.

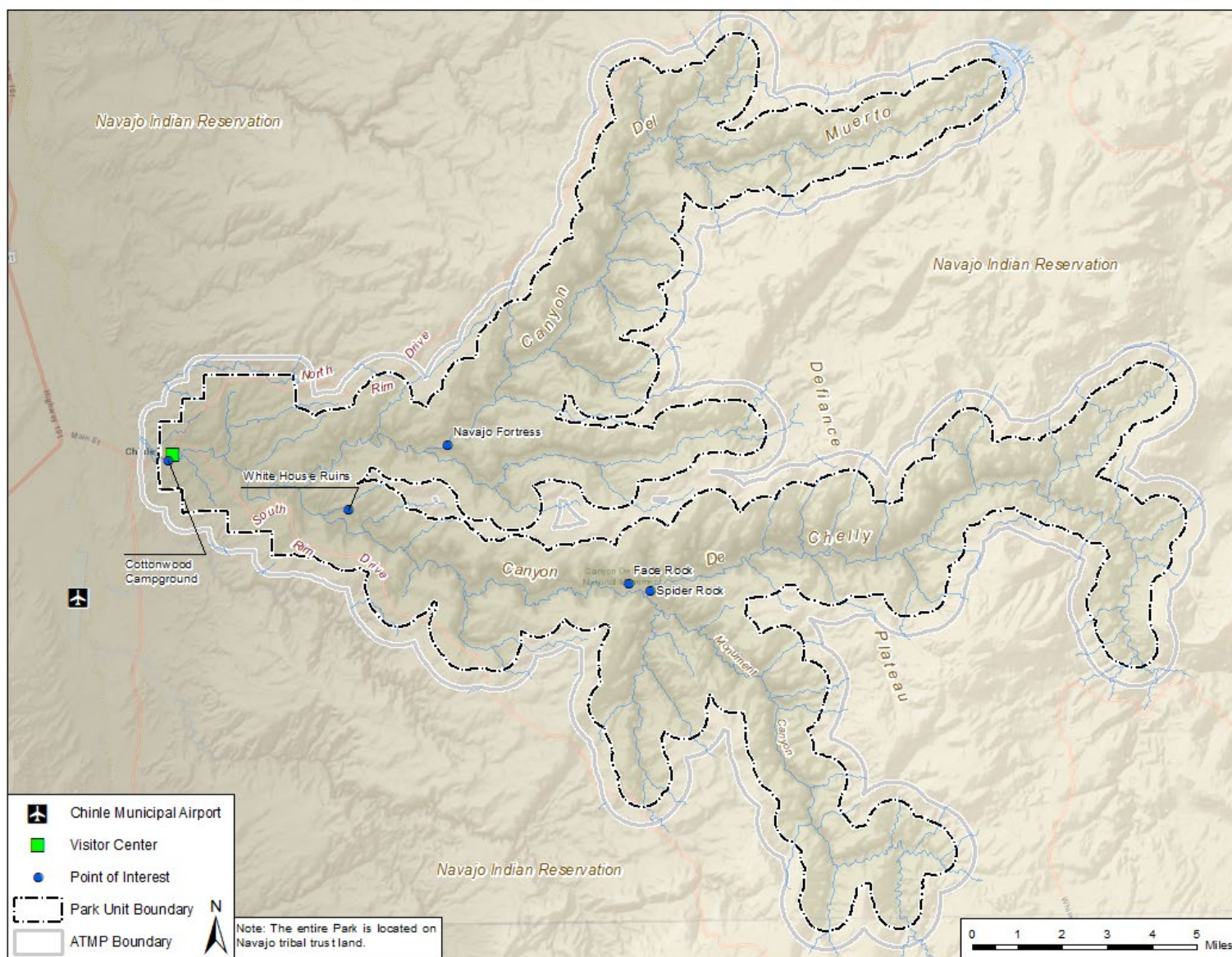


Figure 2. Map of the area subject to the ATMP for Canyon de Chelly National Monument.



## **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 (formerly Special Federal Aviation Regulation 71)). This alternative includes IOA, which the FAA was required to grant to existing operators under the Act (70 Federal Register 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**

Four commercial air tour operators currently hold IOA to fly up to a combined total of 175 commercial air tours per year over the Park (see Table 1). Of those operators, only one flew tours between 2017 and 2019, averaging 43 tours per year (0.12 per day). All air tours were flown by fixed-wing aircraft. The agencies consider the 2017-2019 three-year average the existing baseline for the purpose 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 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.<sup>5</sup>

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<sup>5</sup> Some operators hold IOA over Navajo Nation tribal lands. The only operators that reported having air tours within the Canyon de Chelly ATMP planning area are the operators identified in Table 1.

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

Operator	Aircraft Type (all fixed wing)	2017 Reported Tours	2018 Reported Tours	2019 Reported Tours	Average Number of Reported Air Tours (2017-2019)	Interim Operating Authority (IOA)
Southwest Safaris	Cessna 182 Cessna T207A	38	30	62	43	147
Air Grand Canyon, Inc.	Unknown	0	0	0	0	9
American Aviation	Cessna 172-N, Cessna 206, Cessna 207-T207A	0	0	0	0	14
Grand Canyon Airlines, Inc.	Cessna 208B, de Havilland DHC-6 300	0	0	0	0	5
TOTAL	-	38	30	62	43	175

Sources: NPS, 2017, 2018, 2019

Although 175 commercial air tours per year over the Park are authorized under IOA, the operations reported by air tour operators reflect an average of 43 commercial air tours per year (0.12 per day). IOA was based on numbers reported by operators more than 20 years ago and may not represent current operational data. There are no verifiable data demonstrating that operators have flown the number of commercial air tours authorized by IOA or will fly this number of tours in the future. Thus, the No Action Alternative would be a continuation of existing conditions. This EA uses the reported three-year average of flights from 2017-2019, and impacts of IOA are not analyzed nor included as the baseline condition.

There would be no limit on the daily number of flights, but based on 2017-2019 data, there was only one instance in which flights exceeded one per day (two flights on March 19, 2019).

Under the Act, the FAA was required to grant IOA for commercial air tours over the Park and adjacent lands that are outside of the Park but within ½-mile of its boundary as a temporary measure until an ATMP could be established. As noted above, all lands within the ATMP planning area are the Navajo Nation's Tribal trust lands.

#### 2.4.2 Commercial Air Tour Routes and Altitudes

There would be no designated flight routes or no-fly zones under the No Action Alternative. Figure 3 depicts current commercial air tour routes within the ATMP planning area that would be expected to continue under the No Action Alternative. Commercial air tours would likely be flown around a corridor of the routes provided by operators as depicted in Figure 3. The one air tour operator who currently operates reported five routes ranging in altitudes from 800 to

1000 ft. AGL for the 2017-2019 reporting period. The altitudes of 800 and 1,000 ft. AGL result in the mean sea level (MSL) altitude callouts shown in Figure 3.<sup>6</sup>

All air tour operators are required to report to the FAA and the NPS, on a semi-annual basis, the number of commercial air tour operations they have conducted within the ATMP planning area in accordance with the FAA's Air Tour Reporting Guidance Memo (FAA 2020). The operators must provide the date and time each tour occurred, the make/model of aircraft used, and the route on which the tour was conducted.

### **2.4.3 Commercial Air Tour Operators and Aircraft Types**

One of the four operators that hold IOA for the Park reported flying commercial air tours over the Park between 2013 and 2019. The operator that reported all air tour routes during this period flies fixed-wing aircraft and no helicopters. Table 1, above, summarizes each operator's aircraft type and average number of reported air tours over the Park from 2017-2019, which would be expected to continue under the No Action Alternative.

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<sup>6</sup> 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.

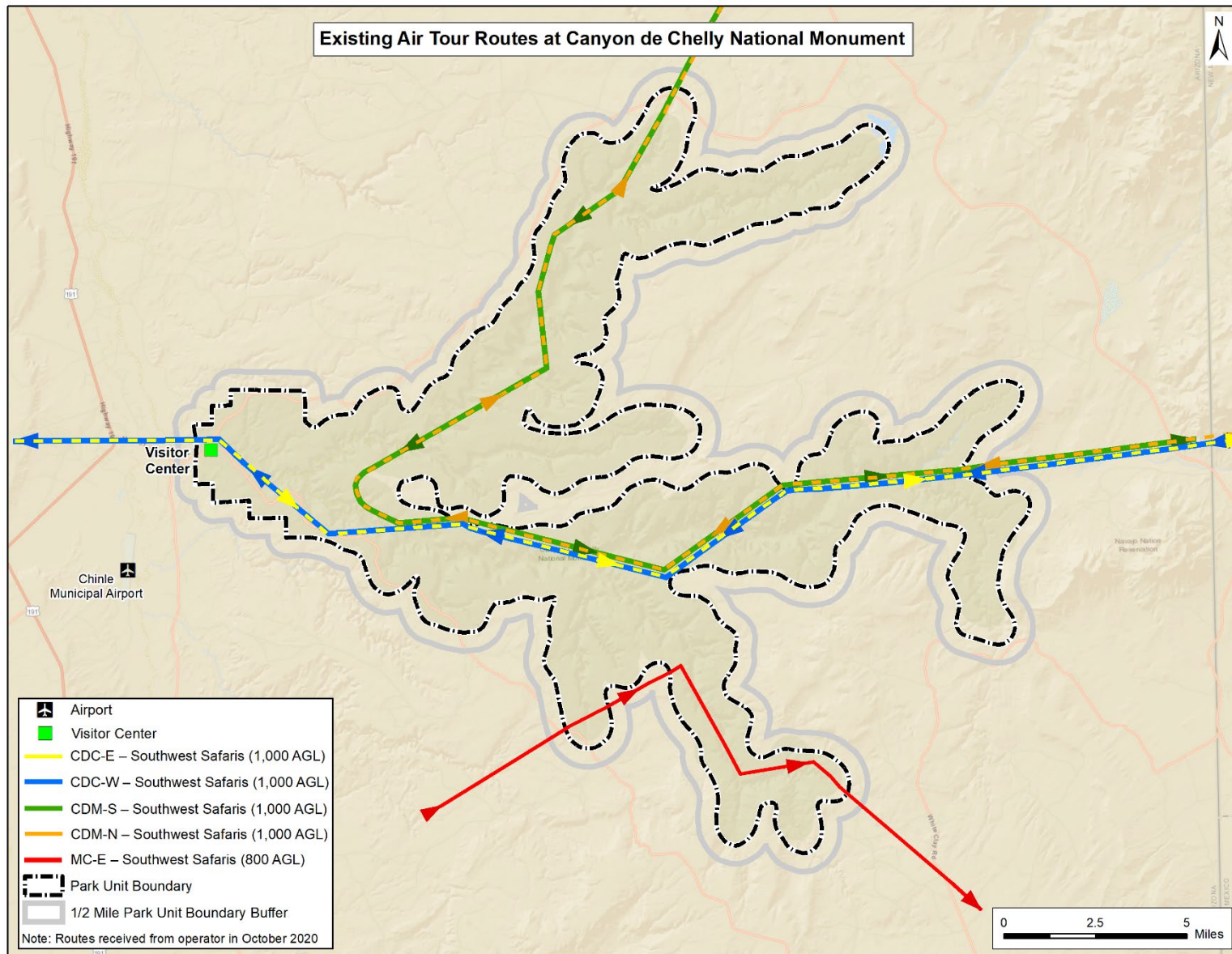


Figure 3. Alternative 1 (No Action).

## 2.5 Alternative 2 (Preferred Alternative)

Alternative 2 provides the greatest level of protection for the purposes, resources, and values of the Park and because the Park is located entirely on the Navajo Nation's Tribal trust lands, best safeguards Tribal resources and interests. (46 Stat 1161, 1931). This alternative would prohibit commercial air tours below 5,000 ft. AGL over the Park and within ½-mile outside the Park's boundary; 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; maintain cultural connections to the Park pursuant to the Park's Foundation Document (NPS, 2016); and prioritize the voices and values of the Navajo living in and around the canyon. Alternative 2 respects the privacy of the Diné actively conducting ceremonial practices by eliminating the opportunity for interruptions from air tours to the sacredness of the land and air space. The Park's Foundation Document (NPS, 2016) recognizes the importance of the Park's cultural resources and cultural continuity, watershed, relationship with the Navajo Nation, and scenic values. 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 are integral to the Diné. The Park preserves one of the longest continually inhabited locations and sustains a modern community connected to a landscape of great historical and spiritual significance to the Diné.

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.

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 agencies would both be responsible for the monitoring and oversight of the ATMP.

All IOA for the Park and Navajo Nation Tribal lands within the ATMP planning area would terminate by operation of law 180 days after the establishment (effective date) of the ATMP, 49 U.S.C. § 40128(e)(2)(E), after which time no operator could continue to rely on any operations

specifications issued under IOA as authority to conduct commercial air tours within the ATMP planning area. Operations specifications would be rescinded or amended to incorporate the operating parameters set forth in the ATMP within 180 days after the effective date of the ATMP.

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 in accordance with FAA regulations. This ATMP and its implementation only apply to the Park and Navajo Nation's Tribal trust lands within a ½ mile of its boundary. 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 (i.e., 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 to conduct air tours of destinations other than the Park or to transport clients to Chinle Municipal Airport (approximately 3 miles outside the ATMP planning area) for ground tours of the Park.

The operator could also choose to move their air tours just above the ATMP planning area. However, it is highly unlikely that the operator would choose to fly above the 5,000-ft. AGL upper limit of the ATMP planning area. The high elevation of the terrain (which ranges from approximately 5,500 ft. MSL at the bottom of the canyon to approximately 7,600 ft. MSL at the canyon rim) would result in the operator being 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)<sup>7</sup>, 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 non-compliance. The agencies

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<sup>7</sup> FAA Advisory Circular 91-36D Visual Flight Rules Flight Near Noise-Sensitive Areas

would both be responsible for the monitoring and oversight of the ATMP. If the NPS or the Navajo Nation identifies instances of non-compliance, the NPS or the Navajo Nation would report such findings to the FAA's Las Vegas FSDO. The FSDO would investigate all reports of non-compliance and would investigate and respond to all written reports consistent with applicable FAA guidance. The public may also report allegations of non-compliance with the ATMP to the FSDO, which may result in an FAA investigation. FAA determination of non-compliance 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*.

## 2.6 Summary Comparison of the ATMP Alternatives

Table 2. Summary Comparison of the ATMP Alternatives.

Alternative Attributes	Alternative 1 (No Action)	Alternative 2 (Preferred Alternative)
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, and the privacy of Tribal practices on the Navajo Nation's Tribal trust lands within the ATMP planning area. Most closely aligns with the purpose and significance for which the Park was established. Consistent with the input from the Navajo Nation Chapter Resolutions and letter from the Navajo Nation President's expressed support for a no air tours alternative.  Air tours could continue to fly in 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 Number of Flights	Considers the three-year average of 43 flights per year (based on 2017-2019 reporting data) as the existing condition, though up to 175 air tours per year could be conducted under IOA.	None in ATMP planning area.
Routes	No mandatory routes or no-fly zones. See Figure 3 for depiction of reported routes.	None in ATMP planning area.
Minimum Altitudes	No mandatory minimum altitudes. See Figure 3 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).
Time of Day	No restrictions.	N/A
Quiet Technology Incentives	None.	N/A

<b>Alternative Attributes</b>	<b>Alternative 1 (No Action)</b>	<b>Alternative 2 (Preferred Alternative)</b>
Interpretative Training and Education	None.	N/A
Annual Meeting	None.	N/A
Restrictions for Particular Events	None.	N/A
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 would 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.
Adaptive Management	None.	N/A
Initial Allocation of Air Tours and Aircraft Types	Reflects existing conditions of one operator with reported data from 2017-2019.	N/A



### **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 the 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. 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. The entire study area, or ATMP planning area, is within Navajo Nation Tribal trust lands.

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; 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 Scenarios for Indirect and Cumulative Impact Analysis**

##### **3.1.1 Indirect Impacts Scenario**

Indirect impacts are impacts that “are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable” (40 CFR 1508.8(b)). Because Alternative 2 would prohibit air tours 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 the alternative 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.

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. As described in Section 2.5.1, it is highly unlikely that the operator would choose to fly above the 5,000-ft. AGL upper limit of the ATMP planning area due to restrictions of flying above 10,000 ft. MSL and oxygen or pressurization requirements. Additionally, flights at or above 5,000 ft. AGL or higher would provide limited value to a sightseeing operation, further minimizing the potential for indirect effects.

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 to conduct air tours of destinations other than the Park or transport clients to Chinle Municipal Airport for ground tours of the Park. The operator currently flies multiple tours over other parks and areas across six states (Southwest Safaris, 2023a) and could fly these tours more frequently. The Park is entirely located on Navajo Nation Tribal trust lands which also surround the Park. There may be a slight increase in flights over Navajo Nation's Tribal trust lands just outside the ATMP planning area if air tours were displaced outside of the ATMP planning area. Because the Park is located between the airport used by the commercial tour operator (Santa Fe Municipal Airport in Santa Fe, New Mexico) and other air tour destinations, flight paths adjacent to the ATMP planning area may still be used while en route to other destinations such as Grand Canyon and Lake Powell. The operator offers several Canyon de Chelly itineraries that combine an air tour and ground tour of the Park, facilitated by a stopover at Chinle Municipal Airport (Southwest Safaris, 2023b).

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 up to IOA (175 flights per year).

### **3.1.2 Cumulative Impacts Scenarios**

Cumulative impacts are defined as "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. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.1(g)(3)). To determine potential cumulative impacts, past, present, and reasonably foreseeable actions and land uses were identified in or near the project area.

For either of the alternatives, the Navajo Nation would continue to conduct management activities on their Tribal trust lands, including within the Park boundary. See, A Strategic Agreement between the Navajo Nation, National Park Service, and Bureau of Indian Affairs for

the Cooperative Stewardship of Canyon de Chelly – June 21, 2018, Appendix A for an overview of roles and responsibilities. The Bureau of Indian Affairs (BIA) also has responsibilities on these lands. NPS would continue current management actions and respond to future Park needs and conditions without major changes in the present courses of action. Aircraft are used infrequently to scout fire reports, suppress fires, respond to search and rescue incidents, and occasional aerial wildlife surveys introduce aircraft into the natural surroundings. General aviation flights, overflights by commercial airlines, and military flights, as well as vehicular guided tours, would also continue to have an adverse impact on the natural scenery and vistas. Park maintenance and operations activities would continue to employ mechanized equipment and ground teams, as needed. Guided tours would also continue.

### **3.2 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 3.5, 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* (NPS, 2006a) 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.

#### **3.2.1 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 (NPS, 2006a) 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.

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, 2006a).

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 North Rim and South Rim Roads, overlooks, the Visitor Center, and trails. Aircraft and road vehicles are noted as common sources of noise at the Park. There are a limited number of regulated vehicular tours that enter the canyon on a routine basis that generate noise. Daily activities associated with living within the Park generate some noise.

To characterize the natural and existing ambient (both with and without air tours), sound level and meteorological measurements were conducted at five locations across the Park in September 2004 (summer) and March 2010 (winter) (Volpe, 2011). The five sites were selected based on characteristics qualifying them as acoustically representative of the variety of regions in the Park. Regions with similar vegetative land cover, wind conditions, and wildlife habitats, for example, are acoustically similar. Forested areas cover 50% of the Park. The remaining two land cover types are primarily shrubland (40%) and grassland (10%). Taking into account land cover, climate conditions, and Park management, three final acoustic zones were developed: frontcountry (above the rim), frontcountry (below the rim), and backcountry. The median or

L<sub>50</sub> sound level (in A-weighted decibels, dBA) is the sound level exceeded 50% of the day (7 am to 7 pm). Four types of median ambient (L<sub>50</sub>) were computed from acoustical and observer-log data: existing ambient, existing ambient without air tours, existing ambient without all aircraft, and natural ambient. The median daytime existing ambient (L<sub>50</sub>) was between 26.2 and 35.8 dBA during the summer and between 23.8 and 32.2 dBA during the winter. The median daytime existing ambient (L<sub>50</sub>) without air tours was between 25.9 and 35.5 dBA during the summer and between 27.6 and 32.1 dBA during the winter. The median daytime existing ambient (L<sub>50</sub>) without all aircraft was between 24.6 and 34.5 dBA during the summer and between 21.4 and 31.5 dBA during the winter. The median daytime natural ambient (L<sub>50</sub>) was between 19.4 and 31.0 dBA during the summer and between 19.1 and 29.2 dBA during the winter. For more explanation of how sound is described, see the *Noise, Air Quality, and Greenhouse Gas Emissions Technical Analysis* (Appendix F, Table 1).

### **3.2.2 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<sub>dn</sub>) metric; the cumulative noise energy exposure from aircraft over 24 hours. The NPS considers various metrics to analyze impacts on Park resources and values from noise, including equivalent continuous sound level (L<sub>Aeq</sub>), 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<sub>max</sub>). 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, Air Quality, and Greenhouse Gas Emissions 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 were not available.

Acoustic metrics were modeled using the FAA's Aviation Environmental Design Tool (AEDT) Version 3e and results are described below for both alternatives. The *Noise, Air Quality, and Greenhouse Gas Emissions Technical Analysis* in Appendix F contains figures and tables showing the detailed results for the noise contour and other noise impact analyses. A noise contour presents a graphical illustration or "footprint" of the area potentially affected by the noise.

Table 3. Primary Metrics Used for the Noise Analysis.

Metric	Relevance and Citation
Equivalent Continuous Sound Level, $L_{Aeq}$ , 12 hr	The logarithmic average of commercial air tour sound levels, in dBA, over a 12-hour day. The selected 12-hour period is 7 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 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 periods (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.
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 (Haralabidis et al., 2008); maximum background noise level inside classrooms (ANSI/Acoustical Society of America, 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 (EPA), Office of Noise Abatement and Control, 1974). This metric represents the level at which one may reasonably expect interference with park interpretive programs, activities that require communication from a distance, and other general visitor communication.
Maximum Sound Level, $L_{max}$	The loudest sound level, in dBA, is 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.

**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, Air Quality, and Greenhouse Gas Emissions 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 (i.e., one operation per day).

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 3) for three general route options and has reported flying two types of fixed-wing aircraft: a Cessna 182 and a Cessna 207. This results in six potential aircraft/route combinations for analysis.

Because the peak month, average day is identified as one operation using a Cessna 182 aircraft (which the operator reports flying exclusively from 2017-2019), for purposes of the *Noise, Air Quality, and Greenhouse Gas Emissions Technical Analysis* (see Appendix F), the No Action Alternative modeled the CDC-E/W route 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 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. 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.*

<b>Metric</b>	<b>Noise Modeling Results under the No Action Alternative</b>
12-hour Equivalent Sound Level	$L_{Aeq,12hr}$ 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*, across 69% of the ATMP planning area. See Figure 4.
Time Above 52 dBA	The maximum time that noise from air tours would be above 52 dBA is less than 5 minutes a day, across 7% of 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 at least 55 dBA, across 5% of the ATMP planning area.

\*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.

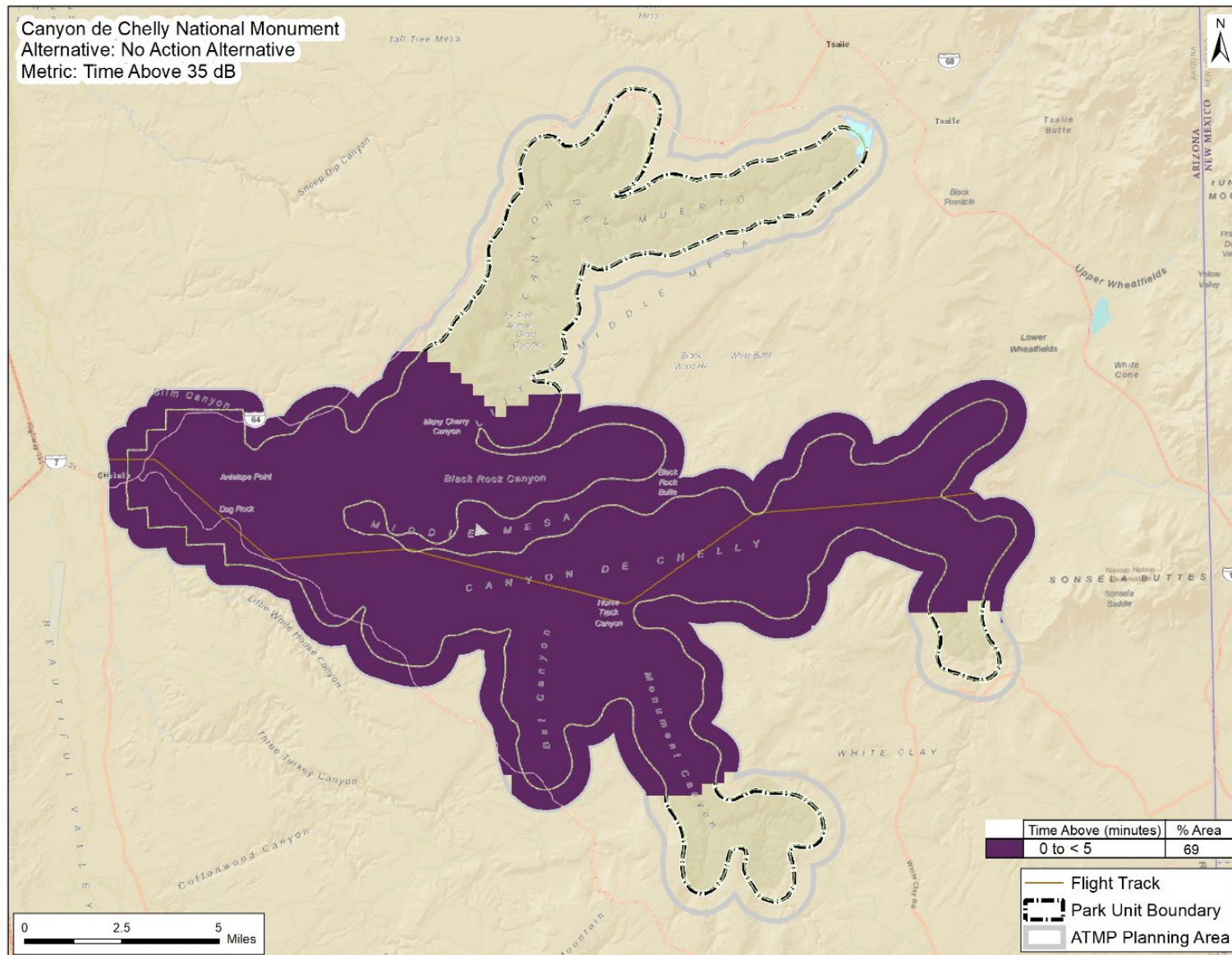


Figure 4. Time Above 35 dBA for Alternative 1 (No Action).



## ***Alternative 2***

Under Alternative 2, commercial air tours would not fly within the ATMP planning area, which would remove this source of noise from within the ATMP planning area. Compared to current conditions, the removal of this noise source under Alternative 2 would result in direct beneficial effects on the acoustic environment within the ATMP planning area. The potential for noise impacts in noise-sensitive areas within the ATMP planning area would be reduced relative to current conditions. However, any direct acoustic benefits would be minimal due to the infrequency of air tours under current conditions (assuming up to one flight per day and on average 43 flights per year) and as indicated by the results of noise modeling detailed in the *Noise, Air Quality, and Greenhouse Gas Emissions Technical Analysis* (see Appendix F). 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, though minimal, beneficial effects compared to the No Action Alternative.

### ***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 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.

Alternative 2 would prohibit air tours within the ATMP planning area. As noted in Section 3.1, this could displace air tours outside the ATMP planning area, which could result indirectly in impacts on acoustic resources and natural soundscapes of the locations where any displaced air tours would occur. In the unlikely event that air tours are displaced above the ATMP planning area (see Sections 2.5.1 and 3.1), flights at or above 5,000 ft. AGL would have minimal potential for indirect effects on the acoustic environment within or outside the ATMP planning area.

The precise 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 1502.21I. 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 (at or above 5,000 ft. AGL) could 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 a lower intensity. Thus, under Alternative 2, 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 Alternative 2 when compared to current conditions. However, the intensity of noise would likely be quite low given the aircraft's 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 Alternative 2, 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. To illustrate this, a conservative, screening-level noise analysis was conducted (see Appendix F), referencing DNL 65 dB as the FAA's threshold of significant noise exposure, below which residential land uses are considered compatible. The results of the screening-level noise analysis indicate it is highly unlikely that displaced air tours would generate noise at or above DNL 65 dB outside the ATMP planning area. The activity level of commercial air tours operating within the ATMP planning area under the No Action Alternative (i.e., 43 flights per year on average from 2017-2019) is well below the screening results. Flying at an altitude of 1,000 ft AGL, 5,970 daily flights of a Cessna 182 would be required to generate a cumulative noise exposure level at or above DNL 65 dB

**Cumulative Effects:** Under either of the alternatives, current management activities of the Navajo Nation, BIA, and National Park Service (including aircraft use for fire management, search-and-rescue, or wildlife surveys and mechanized equipment use by ground teams) would continue to generate noise inside the ATMP planning area. 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 a minimal cumulative beneficial effect on the overall acoustic environment of the Park and Navajo Nation's Tribal trust lands by 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.

### **3.3 Air Quality and Climate Change**

#### **3.3.1 Affected Environment**

##### ***Air Quality***

The Clean Air Act divides federal lands into different classifications based on acreage. The Park and Navajo Nation's Tribal trust lands are not classified as a Class I airshed, which means that it is not 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 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 is in attainment for all NAAQS, the Park's air quality is considered in overall fair condition. Air quality in the park does not meet the NPS Air Resources Division's recommended benchmarks (good condition) for visibility (fair condition), ozone (O<sub>3</sub>, fair condition), or nitrogen deposition (fair condition); air quality does meet the benchmark for sulfur deposition (good condition). Given pollutant exposure, an assessment of air quality indicators and resources sensitive to air pollution, air quality conditions warrant moderate concern (NPS, 2020). A potential source of particulates that affect visibility arises from wildfires, as smoke from wildfires could not only affect visibility but also potentially cause exceedances of the particulate matter standard for NAAQS under certain wind conditions. The NPS has taken measures to mitigate this risk, such as creating a fire management plan for the Navajo Nation and cooperating NPS units (Navajo Nation, NPS, and Bureau of Indian Affairs [BIA], 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.

##### ***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 (CO<sub>2</sub>), water vapor, methane, nitrous oxide (N<sub>2</sub>O), and O<sub>3</sub>. EPA data indicates that commercial aviation contributed to 6.6% of CO<sub>2</sub> 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, 2015). Becoming a certified climate friendly park was identified as an opportunity in the Park's Foundation Document (NPS, 2016).

### 3.3.2 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 5 for the criteria pollutants. Note that O<sub>3</sub> 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 5 describe baseline emissions under existing conditions. 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, all annual flights were assigned to the longest route as a conservative estimate of total emissions. All criteria pollutants aside from carbon monoxide (CO) were estimated at 0.001 tons per year (TPY) or less. Emissions under alternatives can be compared to baseline emissions to indicate potential impacts on air quality within the ATMP planning area.

*Table 5. 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)	0.642
Lead (Pb)	<0.001
Nitrogen dioxide (NO <sub>2</sub> )	0.001
Particulate matter: aerodynamic diameter ≤ 2.5 µm (PM <sub>2.5</sub> )	<0.001
Particulate matter: aerodynamic diameter ≤ 10 µm (PM <sub>10</sub> )	<0.001
Sulfur dioxide (SO <sub>2</sub> )	<0.001

The total annual GHG emissions for all sources of commercial air tour aircraft emissions under the No Action Alternative is modeled to be 1.5 metric tons (MT) of CO<sub>2</sub>. 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 5) and would result in zero emissions from the elimination of commercial air tours within the ATMP planning area; However, emissions could still be generated from displaced air tours (refer to indirect effects analysis below).

### ***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 (175 flights per year), no indirect impacts on 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 Alternative 2, 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 O<sub>3</sub>) and GHGs from the current number of air tours flown over the Park are minimal (43 tours annual average). Operations that may occur outside the ATMP planning area because of Alternative 2 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, it is reasonably foreseeable that the operator could potentially generate revenue by offering air tours in 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 (airspace outside the ATMP planning area) may be exposed to emissions in these scenarios thus affecting the air quality in these areas.

Under Alternative 2, it is unlikely that displaced air tours operating outside the ATMP planning area 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, on 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. Ongoing present and future Park management actions by the NPS would continue to occur under either of the alternatives. Alternative 2 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.

### 3.4 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. To the extent that habitat and species occurrences correlate, impacts on 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* (NPS, 2006a) directs 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 2006* § 4.4.2.3 [NPS 2006a]).

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.

### 3.4.1 Affected Environment

All fish and wildlife in the Park are located on Tribal trust lands, therefore the NPS consults and cooperates with the Navajo Nation regarding the care and management of wildlife. (Strategic Agreement, 2018, A-8). The Park is home to over 800 vascular plant, 6 amphibian, 190 bird, 8 fish, 54 mammal, and 14 reptile species (NPS, 2023a). 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.

#### **Birds**

Breeding bird and wintering bird inventories were conducted in 2003 and 2004 using point count surveys, area searches, and incidental sightings. A total of 152 avian species were documented at the Park, of which 99 were confirmed as breeding or probable breeders (LaRue and Mikesic, 2006). In 2009, 2012, and 2015, bird community monitoring was conducted with a focus on riparian habitats within the Park (Holmes and Johnson, 2016). The riparian woodlands in the Park have undergone extensive restoration through the selective thinning of nonnative plants, primarily Russian olive (*Elaeagnus angustifolia*) and tamarisk or salt cedar (*Tamarix* spp.). The objectives for this restoration have been to reduce the density of nonnatives to reflect historical conditions, increase the native plant cover, and restore the hydrological regime. During the 2015 riparian habitat surveys, 2,923 individuals of 49 bird species were detected (Holmes and Johnson, 2016). The most commonly detected species was the chipping sparrow (*Spizella passerina*), which comprised 12% of the total number of individuals detected and was widespread in the target habitat, being detected in 93% of plots. Other abundant and widespread species included blue-gray gnatcatcher (*Polioptila caerulea*), spotted towhee (*Pipilo maculatus*), house finch (*Carpodacus mexicanus*), and warbling vireo (*Vireo gilvus*).

The Navajo Nation endangered species list includes several birds known to be present in the Park: the yellow-billed cuckoo (*Coccyzus americanus*), southwestern willow flycatcher (*Empidonax traillii extimus*), bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), American dipper (*Cinclus mexicanus*) and Mexican spotted owl (*Strix occidentalis lucida*) (Navajo Nation Department of Fish and Wildlife, 2020). The protection of golden eagle and bald eagle nests from human activities that may cause temporary or permanent disturbance is codified in Navajo Nation policy (Navajo Nation Council, 2008). Federally listed threatened and endangered birds known to occur in the Park include the yellow-billed cuckoo, Mexican spotted owl, and southwestern willow flycatcher. These species are described further later in this section. A total of five bird species found in the Park are currently listed as Tier-1 (i.e., most vulnerable) Species of Greatest Conservation Need by the Arizona Game and Fish Department's Heritage Data Management System (Arizona Game and Fish Department, 2023).

These species are the yellow-billed cuckoo, southwestern willow flycatcher, peregrine falcon (*Falco peregrinus*), bald eagle, and Mexican spotted owl.

### **Mammals**

The NPS performs regular mammal monitoring using wildlife cameras; a diverse range of mammals have been documented in the Park (NPS, 2023a). These mammals include mule deer (*Odocoileus hemionus*), mountain lion (*Puma concolor*), bobcat (*Lynx rufus*), coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), American black bear (*Ursus americanus*), and numerous bat species. The NPS is actively studying bat populations using bio-acoustic technology. Mule deer winter in significant numbers around the canyon rim of Canyon de Chelly (and other arms of the canyon system). None of the mammal species present in the Park are considered endangered by the Navajo Nation, nor are they federally listed. However, two mammal species found in the Park are currently listed as Tier-1 (i.e., most vulnerable) Species of Greatest Conservation Need by the Arizona Game and Fish Department's Heritage Data Management System — Townsend's big-eared bat (*Corynorhinus townsendii*) and Gunnison's prairie dog (*Cynomys gunnisonii*) (Arizona Game and Fish Department, 2023).

### **Reptiles**

An inventory of amphibians and reptiles was conducted at the Park in 2002 and 2003 (Mikesic, 2004). The goals of this study were to document at least 90% of the extant herpetofauna through visual observations, photographs, and/or specimen collection, provide baseline information, and make recommendations, as warranted, for development of future management of zoological resources within the Park. Surveys were conducted at 46 plots, each 1 hectare (2.5 acres) in size, in at least eight distinct habitat types, during the day and night. Thirteen reptile species (nine lizards and four snakes) were documented. The Eastern fence lizard (*Sceloporus undulatus*) was the most common reptile surveyed. No federal threatened or endangered or Navajo Nation endangered reptile species were documented during this study. One reptile species, the lesser earless lizard (*Holbrookia maculata*) that was documented in the Park by Burgess (1970; in Mikesic, 2004) was not detected in 2002 or 2003.

### **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, the agencies determined that air tours would not result in ground disturbances that have the potential to directly or indirectly impact biological resources including fish, amphibians, invertebrates, or plants. Listed species not impacted directly or indirectly by air tours include endangered fish species Colorado Pikeminnow (*Ptychocheilus lucius*) and razorback sucker (*Xyrauchen texanus*), threatened plant species Navajo sedge (*Carex specuicola*) and Zuni fleabane (*Erigeron rhizomatus*), and candidate insect species monarch butterfly (*Danaus plexippus*). Additionally, the endangered Mexican



wolf (*Canis lupus baileyi*) is not found in the Park 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.

### **Birds**

#### *Mexican Spotted Owl*

The Mexican spotted owl is listed as threatened under the ESA and is one of three subspecies of the spotted owl. They are distinguished by their chestnut brown color and white and brown spots. Mexican spotted owls hunt at night and are considered “perch and pounce” predators that use elevated perches to locate prey by sight and sound. The Mexican spotted owl is an indicator species for old-growth habitat, as they consistently avoid managed forests (NPS, 2014). Within the ATMP planning area, the upper reaches of Canyon de Chelly and Canyon del Muerto have been designated as Mexican spotted owl habitat by the Navajo Nation. 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). The Park does not contain federally designated critical habitat for the Mexican spotted owl; however, this species is known to nest and roost in the Park. There are protected activity centers (PACs) located within the Park, which were designated in consultation with the Navajo Nation. The PACs are areas that encompass a minimum of 600 acres surrounding known Mexican spotted owl nests and roost sites. Although breeding season varies across the Mexican spotted owl’s range, courtship typically occurs in late winter (February to March), eggs may be laid between March and April, the eggs hatch sometime in early May, and the owlets fledge four to five weeks later. Young owls typically rely on their parents for food through the summer and then disperse in the fall.

All typical habitats of the Mexican spotted owl (including forests, canyons, and Black Mesa) are characterized by a cool microclimate (Mikesic, 2000). These owls may be relatively intolerant of high temperatures. This preference could explain why Mexican spotted owls generally occupy closed-canopy forests that are typically on north-facing slopes, or deeply incised, shady canyons. The canyons on the Navajo Nation’s Tribal trust lands (including those in the Park) usually have steep, nearly vertical rock walls and a cool microclimate in the shaded, north-facing areas. To date, all canyons used by owls on the Navajo Nation’s Tribal trust lands have some forest structure present, and most often, at least a small number of large Douglas-fir trees are present. These sites have large canyon widths ranging from about 200 to 536 meters (660 to 1,760 ft.), most have pinyon-juniper dominating the mesa tops and south-facing canyon areas, and pine-fir stringers with some riparian vegetation and Gambel oak (*Quercus gambelii*) composing the canyon bottom. Despite the presence of vegetation at all sites, owls have been

found nesting and roosting in small caves, cracks, and ledges in the sandstone walls at several sites (Mikesic, 2000). Therefore, the large number of treeless canyons on Navajo Nation's Tribal trust lands could also serve as potential habitat for the Mexican spotted owl. These canyons are typically much smaller in width than those with significant forest structure and may not have riparian vegetation.

#### *Southwestern Willow Flycatcher*

The southwestern willow flycatcher (flycatcher) is one of four subspecies of willow flycatcher and is listed as endangered under ESA. 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). Within the ATMP planning area, the flycatcher is considered a transient species, with confirmed presence as a migrant in 2004 during surveys of flycatcher that were conducted in May, June, and July of that year (LaRue and Mikesic, 2006). An individual was observed near Sleeping Duck (LaRue and Mikesic, 2006). There is no designated critical habitat for the flycatcher within the ATMP planning area.

#### *Yellow-billed Cuckoo*

The yellow-billed cuckoo is a large insectivore whose yellow bill is almost as long as its head. This species 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. There is no designated critical habitat located inside the ATMP planning area. Surveys were conducted in May, June, and July of 2004 (LaRue and Mikesic, 2006). However, neither LaRue and Mikesic (2006) nor Holmes and Johnson (2016) recorded observations of any yellow-billed cuckoo during their surveys of the Park.

### **3.4.2 Environmental Consequences**

Noise from commercial air tours may impact wildlife in several 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 on these species and developing management actions to address them (Gutzwiller et al., 2017). To capture how noise may affect quieter natural sounds the impact analysis below examines the time above 35 dBA. Refer to the *Noise, Air Quality, and Greenhouse Gas Emissions Technical Analysis* in Appendix F for more information.

### ***Alternative 1: No Action***

Under the No Action Alternative, current effects on 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 Mexican spotted owl, bald eagles, and peregrine falcons, are especially sensitive to low-flying aircraft. Some research indicates that perched and incubating eagles rarely responded to fixed-wing aircraft at close approaches ranging from 50 to 150 meters (164 to 492 ft.) from the nest (Watson, 1993). Flushing impacts can occur from helicopters flown at lower altitudes (Stalmaster and Kaiser, 1997). However, 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 and 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 these established standoff distances for bald eagles or peregrine falcons. As a result, there is some potential for mortality to individual bald eagles or peregrine falcons from collisions and disturbances to behaviors that could also affect individual birds; however, due to the infrequent number of flights and short duration of associated noise, any mortality or disturbance would not have population-level effects.

The USFWS seasonal buffer zone recommendation for Mexican spotted owl is ½-mile from March 1 through August 31. This buffer zone during the breeding season is intended to reduce potential impacts on Mexican spotted owl from disturbances including, but not limited to fixed-wing overflights. Although the Park is not considered critical habitat for Mexican spotted owl, this species nests and roosts in the Park with sensitive areas designated by the creation of PACs. All five routes in the No Action Alternative currently fly at altitudes ranging from 800 to 1,000 ft. AGL directly above 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 buffer zone (above 2,640 ft. AGL) for Mexican spotted owl recommended by Colorado Parks and Wildlife (2020) between March 1 and August 31. As a result, there is some potential for mortality to individual Mexican spotted owls from collisions and disturbance, including individuals that are breeding, fledging, or juvenile. However, past studies on the impacts of overflights of fixed-wing aircraft on Mexican spotted owls indicate that owls are fairly resilient to short-duration disturbances caused by overflights (USFWS, 2012). When considering the infrequent number of flights and short duration of associated noise, any mortality and disturbance would not have population-level effects.

Noise from commercial air tours also has the potential to disturb wildlife and could result in changes in wildlife behavior, such as vocal behavior, breeding relocation, and changes in foraging behavior. Wintering big game animals are especially vulnerable to the adverse

energetic consequences of noise disturbance from mid-November through the end of March when the animals are metabolically surviving on fat reserves. Stockwell and Bateman (1991) found that bighorn sheep (*Ovis canadensis nelsoni*) in Grand Canyon National Park were more sensitive to helicopter disturbance during winter (in terms of foraging efficiency) than during spring, possibly due to the lower elevation of spring foraging grounds relative to helicopter flight paths. Their analysis concluded the threshold for helicopter disturbance was between 250 and 450 meters (820 and 1,476 ft). The analysis in Section 3.2.2, Environmental Consequences for Noise and Noise-Compatible Land Use, shows that 69% 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, Air Quality, and Greenhouse Gas Emissions Technical Analysis*, Appendix F, Figure 3). 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 at least 55 dBA, across 5% of the ATMP planning area. This sound level corresponds to the noise level expected in a quiet urban daytime setting or created by someone typing on a keyboard nearby. 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 (attributable in the wildlife context to noise above 35 dBA for less than five minutes) have the potential to cause temporary disturbances in the behavior of birds foraging, mating, or nesting. However, these noise impacts are so infrequent and short in duration and the potential for mortality from collisions is so low, they are not anticipated to cause adverse effects to any of the federally listed species, including southwestern willow flycatcher, yellow-billed cuckoo, Mexican spotted owl, 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 Mexican spotted owl. 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, and potential for collisions with birds would be less than under the No Action Alternative. While the impacts described above under the No Action Alternative in the ATMP planning area are minimal, impacts from air tours would be even less likely to occur or would not occur 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 3.4.1, 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.

### ***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 (up to IOA), thus there would be no change to biological resource impacts within the ATMP planning area and no indirect impacts would be expected to occur under this alternative.

As noted in Section 3.2.2, Indirect and Cumulative Effects for Noise and Noise-Compatible Land Use, indirect noise impacts would have the potential to occur under Alternative 2, as this alternative would eliminate air tours within the ATMP planning area as compared to existing conditions, and some air tour displacement could occur. Outside the ATMP planning area, this would have indirect and minor adverse effects on biological resources compared to current conditions by increasing the potential for noise disturbance (and collision risk) relative to existing conditions. Any indirect effects on wildlife caused by displaced air tours under Alternative 2 would not likely be widespread and would be temporary in nature and infrequent on both a daily and annual basis.

**Cumulative Effects:** Under both alternatives, the Navajo Nation and NPS would continue current management actions and respond to future needs and conditions for biological resources without major changes in the present course. The associated noise levels from infrequent fire suppression and search and rescue activities, as well as mechanized maintenance activities on the ground, and any resultant wildlife disturbance risks within the ATMP planning area would likely continue at current levels.

Because the No Action Alternative would continue to expose designated breeding areas for sensitive, protected bird species (especially the Mexican spotted owl PACs) to noise and collision risk from commercial air tours within the ATMP planning area, cumulative effects on bird reproduction and mortality may be adverse, even though current conditions would not change. Following the same reasoning, Alternative 2 could result in some cumulative beneficial effect on sensitive (e.g., wintering, breeding) wildlife by eliminating the source of noise and resultant wildlife disturbances caused by air tours within the ATMP planning area.

## **3.5 Cultural Resources**

The NHPA (54 U.S.C. §§ 300101 et seq.) is comprehensive federal preservation legislation intended to protect cultural resources. Section 106 of the NHPA (54 U.S.C. § 306108), as implemented in 36 CFR Part 800, requires federal agencies to consider the effects of undertakings on historic properties, should any such properties exist. Historic property is defined in 54 U.S.C. § 300308 and 36 CFR § 800.16(l)(1) as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register. 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 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* (NPS 2006a), 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 Secretarial 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* (NPS 2006a) § 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 2006* identifies and defines 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.

The Navajo Nation Heritage and Historic Preservation Department operates under the Navajo Nation Cultural Resources Protection Act. The department protects and manages the Navajo Nation's cultural heritage, including traditional cultural properties, prehistoric and historic burials, archeological and historic properties, on Navajo Nation lands including Tribal Trust lands. (Strategic Agreement, 2018, A-23). NPS responsibilities include, but are not limited to, maintaining the cultural resource databases, seeking funding to protect cultural resources within the Park, monitoring cultural resources, managing public access to ensure that ceremonies and religious practices are not negatively impacted, and issuing some permits,

development of long-term site protection plans and consulting with the Navajo Nation on projects within the Park (Strategic Agreement, 2018, A-23).

On May 12, 2021, the agencies held a webinar with the Navajo Nation to provide basic background information on ATMPs and the ATMP development process. The Section 106 consultation with the Navajo Nation Tribal Preservation Officer (THPO) was initiated via a formal letter dated May 21, 2021.

The NEPA study area for cultural resources, as well as the ATMP planning area corresponds with the Area of Potential Effects (APE) identified as part of the Section 106 process and encompasses the potential effects of all alternatives under consideration. An APE as defined at 36 CFR § 800.16(d) is the geographic area or areas within which the undertaking may directly or indirectly cause alterations in the character or use of any historic properties, if any such properties exist. The proposed undertaking does not require land acquisition, construction, or ground disturbance, and the agencies anticipate no physical effects on 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.

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 that may take place as a result of the undertaking. Since the undertaking will prohibit commercial air tours within the ATMP planning area, it is reasonable that air tours may potentially operate outside of the planning area and may introduce new noise or visual impacts as a result. Accordingly in establishing the proposed APE, the FAA also requested input on the relocation of air tours outside the ATMP planning area but did not receive any additional input on the issue. Therefore, the FAA is proposing an APE comprising the Park plus ½ mile outside the boundary of the Park, the same as the ATMP planning area depicted in Figure 2.

The Park's Foundation Document identifies five statements of significance for the Park, or statements why the Park's resources and values are important enough to merit designation as a unit of the National Park System. Among these are relationships, cultural continuity, and cultural resources. Relationships are identified as significant because of the Park's location on Navajo Nation Tribal land with a resident community, the establishment of the Park as a national monument with the consent of the Navajo Nation, and the NPS's collaborative work with the Navajo Nation and canyon community to manage Park resources and enable traditional and contemporary lifeways. Cultural continuity refers to the fact that the Park "...preserves one of the longest continually inhabited locations by American Indian communities in the United States, spanning at least 5,000 years. Tséyi', 'the place deep within the rock,' sustains a living community connected to a landscape of great historical and spiritual significance — a landscape composed of places infused with collective memory and defining

moments in Navajo history. It is essential to the spiritual and traditional lives and cultural identity of many native peoples” (NPS, 2016).

The Foundation Document also identifies the Park’s fundamental resources and values, including cultural landscapes, continuing cultural connections, experience of place, and partnerships and relationships. As the Park’s foundation document explains, “Canyon de Chelly is fundamentally linked to the cultural practices and beliefs of the Navajo and other traditionally associated groups and is central to the perpetuation of their respective cultural identities.” It notes that “[s]pecific places and natural features (e.g., Spider Rock, Fortress Rock, and celestial features) are physical expressions of the defining stories and events in the history of the Navajo people and retain profound spiritual and sacred significance.” It further recognizes that “[f]or the Navajo people (Diné), Canyon de Chelly (Tséyi’) is a physical and spiritual home that sustains the families who live in the canyons as well as a sacred place connecting all Navajo to their cultural heritage and beliefs. Canyon de Chelly also has enduring cultural importance for the other regional native peoples whose ancestors once occupied the canyons” (NPS, 2016). Consistent with these fundamental resources and values, the NPS prohibits visitors from entering the canyons of the Park unless accompanied by NPS employees or by authorized guides (36 CFR § 7.19).

The Park’s Foundation Document (NPS, 2016) makes clear that the Park has identified archeological and cultural landscapes associated with Tribal partners as a significant cultural resource that should be protected from any diminishment. NPS-28: *Cultural Resource Management Guideline* (1998) provides the guidance for ensuring that these significant sites are not diminished. In particular, NPS-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 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 EO 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.

The FAA contacted the Navajo Nation and 23 federally recognized tribes via letter on March 26, 2021, inviting them to participate in consultation and requesting their expertise regarding historic properties, including Traditional Cultural Properties (TCPs) that may be located within the APE. 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 four tribes expressing interest in participating in the Section 106 consultation process: Pueblo of Acoma, Pueblo of Isleta, Pueblo of Tesuque, and Pueblo of Picuris.

Five tribes opted out of additional consultation for the undertaking: Pueblo of Pojoaque, Pueblo of Sandia, Pueblo of Santa Ana, San Carlos Apache Tribe, and White Mountain Apache Tribe.

On June 2, 2023, the FAA sent the participating federally recognized tribes a Section 106 consultation letter describing the proposed undertaking in greater detail in which a proposed APE and the results of the preliminary identification efforts of historic properties was provided. The agencies recognize that these tribes have a long-standing and deeply rooted association with the landscape that encompasses Canyon de Chelly National Monument, which includes numerous sites of religious and cultural significance. All of the lands within the Park are Navajo Nation Tribal Trust Lands.

The FAA invited the National Parks Conservation Association (Arizona Field Office) and Apache County to participate in consultation by letter dated June 9, 2021, and August 6, 2021, respectively and included them as consulting parties in subsequent consultation. On June 2, 2023, the FAA also invited the National Trust for Historic Preservation, Southwest Safaris, and Grand Canyon Airlines to consult under Section 106 and provided a Section 106 consultation letter describing the proposed undertaking and proposed an APE. In the June 2, 2023, letter, the FAA also provided the results of our preliminary identification of historic properties.

A letter dated October 26, 2023, sent to all consulting parties, described FAA's further efforts to identify and evaluate historic properties within the APE. The air tour operator did not agree with the FAA's selection of historic sites for inclusion in the APE. The agencies published a notice in the Federal Register, inviting the public to engage in the Section 106 process and provide feedback on the APE and historic property identification. The agencies accepted comments through the NPS's Planning, Environment & Public Comment (PEPC) website from November 2 through December 4, 2023. Three comments were submitted, all supporting the discontinuation of air tours over the Park. On December 28, 2023, the FAA sent letters to the Office of the Navajo Nation President and other consulting parties to notify them of a finding of

“no adverse effect” determination and request review and concurrence on this determination. See Appendix G, Cultural Resources Consultation and Summary, for more information.

### **3.5.1 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. The affected environment, the ATMP planning area and the APE are all the same geographic area. Under existing conditions, based on operator-reported routes, the commercial air tours fly over all three canyons (see Figure 5).

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 the June 2, 2023 letter requesting further input on the identification of historic properties within the proposed APE.

#### ***Cultural Resources List***

Identified cultural resources within the APE, listed in Table 6 and depicted in Figure 5 are described below and can also be found in Appendix G, Cultural Resources Consultation and Summary.

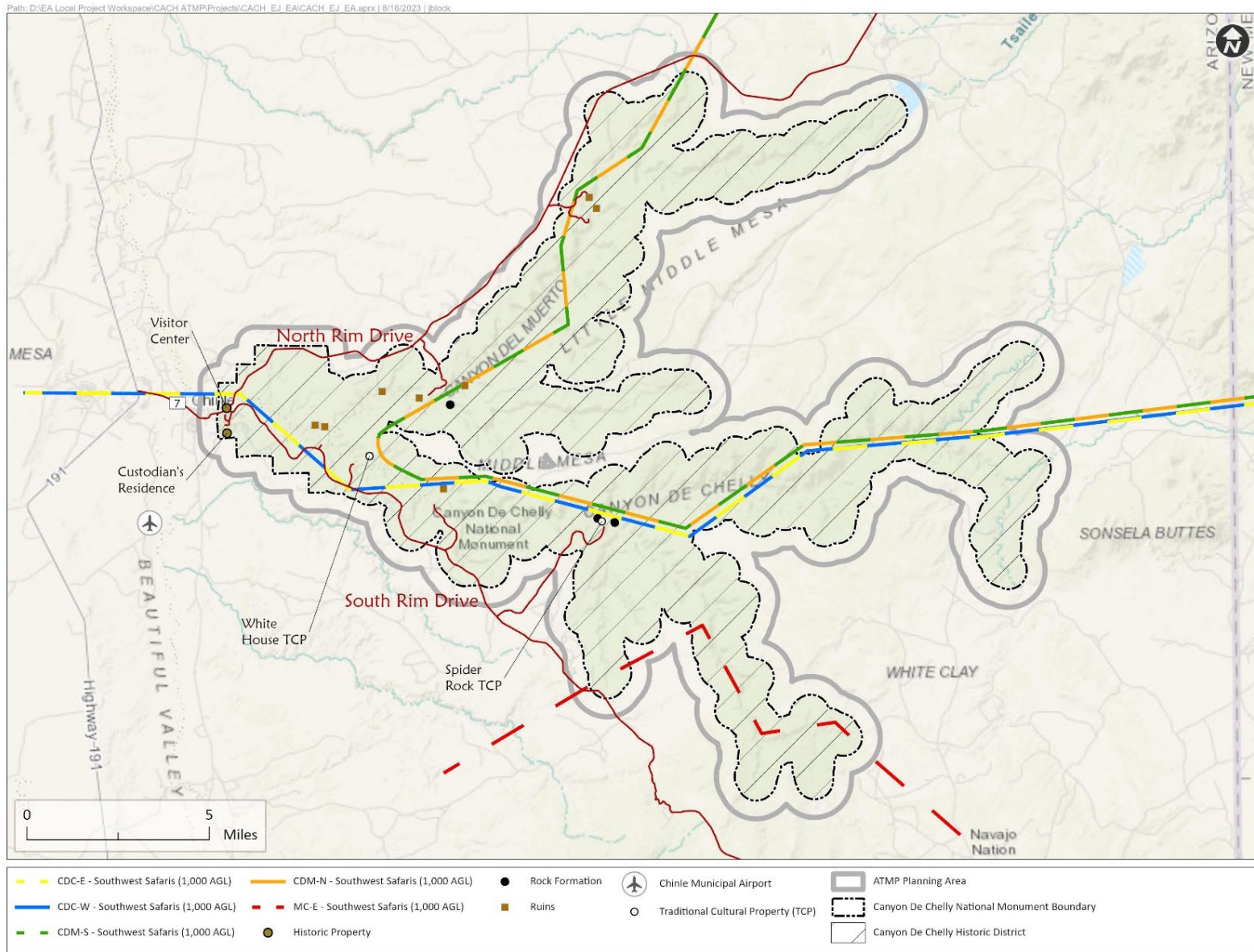


Figure 5. Affected Environment for Cultural Resources and Environmental Consequences for Alternative 1 (No Action).

Table 6. List of Historic Properties in the APE and Description of Historic Characteristics and Section 4(f) Resources.

Property Name	Property Type	Eligibility Status	Significant Characteristics
Canyon de Chelly National Monument	District	Listed	<p>Canyon de Chelly National Monument preserves the remains of aboriginal Anasazi ruins from the Basket Maker II, ca. A.D. 350 through Pueblo III, ca. A.D. 1300, periods. It contains several large and hundreds of small excellently preserved sites of the prehistoric Anasazi. Many of the sites are cliff dwellings containing large amounts of dry, cultural debris. In addition, 18th, 19th, and 20th century A.D. sites of Navajo occupancy remain in the monument. The monument is occupied by families who farm and graze the Canyons today. Canyon de Chelly was the site of Carson's campaign of 1864 which ended the American wars with the Navajo.</p> <p>The remarkable scenery of Canyon de Chelly National Monument reflects the dramatic contrast of brightly colored sandstone walls and rock promontories that tower above sinuous bands of vegetation and agricultural fields along the narrow canyon floors. Canyon rim overlooks provide breathtaking panoramic views into and across the canyons to distant vistas. The presence of Navajo hogans and fields within the canyons set against a backdrop of ancient cliff dwellings visually reinforce the long span of human history and the continuing importance of the canyons for the resident Navajo community.</p>
Custodian's Residence	Building	Eligible	<p>Constructed in 1935-7, the building is an excellent example of Pueblo Revival Architecture. It is a good example of the Southwestern atmosphere of Canyon de Chelly. Although its architectural roots were not Navajo, its design was appropriate for the site in a broader, regional context. Its significance is arguably conveyed through setting and feeling by way of spatial relationships with other historic buildings nearby. The building used to be considered contributing to the Thunderbird Lodge historic district (delisted from the National Register). The character of the building's setting and feeling is still conveyed through its association with these other buildings in the Thunderbird Lodge complex.</p>
Canyon de Chelly National Monument's Mission 66 Visitor Center	Building	Eligible	<p>From 1956 to 1966, the Park Service commissioned over one hundred new visitor centers and additions to existing museum buildings. Local contract architects were responsible for some of the designs, but the bulk of the work went to Park Service architects. The Canyon de Chelly National Monument's Mission 66 Visitor Center was constructed in 1964 by Cecil Doty, an architect from Oklahoma trained in the traditional Park Service Rustic style of design. These buildings were designed to harmonize with the surrounding landscape. Some of them, including the Visitor Center, contain viewing terraces overlooking an area of the Park. The specific visitor center viewsheds at CACH overlook the mouth of the canyon from two (east and west-facing) adjoining courtyard terraces. These viewsheds are likely character defining features of the building as it is sitting at the mouth of the canyon and offers interpretive value from the building's courtyard terraces.</p>

Property Name	Property Type	Eligibility Status	Significant Characteristics
TCPs within the Park boundary <sup>5</sup>	TCPs	Eligible	<p>North: ID#88, ID#395, ID#455</p> <p>West: ID#16, ID#87, ID#172, ID#182, ID#184, ID#217, ID#219, ID#373, ID#375, ID#378, ID#379, ID#392, ID#393, ID#406, ID#414, ID#424, ID#434, ID#435, ID#437, ID#477, ID#552, ID#1052, ID#1058</p> <p>East: ID#202, ID#234, ID#898</p> <p>Setting and feeling are significant characteristics for several of the TCPs that were identified within the APE. For example, some places are used as the person stands on the rim of an overlook and prays, for prayers in general, or as storage places for bundles or offerings that are used during ceremony.</p>
TCPs within the half-mile boundary around the Park. <sup>5</sup>	TCPs	Eligible	<p>ID#32, ID#73, ID#574, ID#1080: Setting and feeling are significant characteristics for several of the TCPs that were identified within the APE. For example, some places are used as the person stands on the rim at the overlook and prays, for prayers in general or as storage places for bundles or offerings that are used during ceremony.</p>
White House TCP (ID#184)	TCP	Eligible	<p>White House Ruins in Canyon de Chelly (Kiníí'na'ígai) has an associated ceremonial history. Pre-Columbian sites can be sources of spiritual, sacred power to Navajo people. Offerings are made at these sites, and oral histories (of the people, of ceremonies, of clans) refer to these places at times when people were still living there. This place has been continuously used for contemplation and prayer by the Navajo people. Significant characteristics of this TCP include the natural scenery and vegetation, which are linked to ceremonial visions.</p>
Spider Rock TCP (ID#414) <sup>(a)</sup>	TCP	Eligible	<p>Spider Rock is a significant TCP for the Navajo. The rock is considered the home of Spider Woman, a benevolent figure who is recognized in many traditional Native American oral stories as a guide, protector and healer, teacher, disciplinarian, adviser and/or spiritual leader. Spider Rock is eligible for inclusion in the National Register because of its association with cultural practices or beliefs that are rooted in various Southwestern Native American histories and because it is important in maintaining cultural identity. Spider Rock's natural surroundings, viewshed and noise constraints are vitally important in conveying respect for Spider Woman and her home, in sharing lessons taught by Spider Woman regarding weaving, and in establishing a geographical context for oral histories as well as healing ceremonies.</p>

Notes:

(a) Location is restricted and therefore cannot be shown on the APE map.

***Historic District (comprising Archeological Resources/Sites, Prehistoric and Historic Structures, and Cultural Landscape)***

Archeological resources are the physical evidence of past human activity, including evidence of the effects of that activity on the environment. Archeological resources include artifacts and features located in a concentrated area, otherwise known as sites, as well as isolated occurrences of cultural material located outside of site boundaries.

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.

As stated above, Congress authorized the establishment of the Park on February 14, 1931, (Public Law 71-667) to protect significant prehistoric archeological sites and ruins. The resources contribute to one of the most important and extensive archeological landscapes in the Southwest (NPS, 2016). The entire Park is listed as an historic district, and it is on the Navajo Nation Register of Cultural Properties. This historic district/cultural property includes all archeological sites and resources.

The Park preserves the remains of aboriginal ruins from the Basketmaker II (ca. A.D. 350) through Pueblo III (ca. A.D. 1300) periods. It contains several large and hundreds of small excellently preserved sites of these prehistoric periods. Many of the sites are cliff dwellings containing large amounts of dry, cultural debris. In addition, 18th, 19th, and 20th century A.D. sites of Diné occupancy remain in the monument. Diné farm and graze the canyons today.

Among the varied archeological resources are stratified occupational deposits that include ceramic, lithic, and occasionally perishable materials (baskets and other objects fashioned from plant fibers); large aboveground structural complexes (e.g., White House, Antelope House, Mummy Cave); smaller structural remains in canyon wall alcoves; pictographs and petroglyphs; and evidence of trails (e.g., handholds/footholds carved into the canyon walls) (NPS, 2016). Smaller or less visible prehistoric sites include archeological resources on remnant alluvial terraces scattered along the canyon floor. These sites are characterized by low mounds, slight depressions, truncated dry-laid sandstone walls, occasional vertical slabs, and scatters of artifacts. Archeological sites can range from a small ephemeral artifact scatter or the fragmentary remains of a Puebloan village (Natural Resources Conservation Service [NRCS], 2000).

Approximately 30% of the Park has been archeologically inventoried resulting in about 1,600 identified and recorded sites (NPS, 2016). Surveys of the north canyon, Canyon del Muerto,

have identified about 750 archeological sites. Although not formally surveyed, the south canyon, Canyon de Chelly, is believed to contain at least the same amount of archeological resources as the north, if not more (NPS, 2022a). The NPS does not disclose the exact locations of sensitive resources.

There are 164 documented prehistoric/historic structures with estimates in the range of 400 additional structures not fully documented. The cliff dwellings and other Puebloan structures are all in the canyons. Navajo rancherias are also present in the canyons and rim areas of the Park. The most distinctive structures at traditional Navajo rancherias are hogans (NPS, 2006b).

### ***Traditional Cultural Properties, Ethnographic Resources, and Sacred Sites***

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

The Diné maintain a cultural connection with the landscape through their continued residency and use of the landscape. The entire Park is listed on the Navajo Nation Register of Cultural Properties and the National Register of Historic Places, and it is considered a TCP. In addition to the prehistoric and historic resources described above, the monument also contains additional TCPs that are individually identified.

White House Ruins in Canyon de Chelly (Kiní'na'ígai) has an associated ceremonial history. Pre-Columbian sites can be sources of spiritual, sacred power to the Diné. Offerings are made at these sites, and oral histories (of the people, of ceremonies, of clans) refer to these places at times when people were still living there.

Specific places and natural features (e.g., Spider Rock, Fortress Rock, and celestial features) are physical expressions of the defining stories and events in the history of the Diné and retain profound spiritual and sacred significance (NPS, 2016). Spider Rock, a tall geological formation (spire), is a significant TCP for the Diné. This sandstone chimney rock is considered the home of Spider Woman, a benevolent figure who is recognized in many traditional Native American oral stories as a guide, protector and healer, teacher, disciplinarian, adviser and/or spiritual leader. It is connected to other natural geological features through stories and ceremonies. The

natural setting, surroundings, and viewshed of Spider Rock are vitally important in conveying respect for Spider Woman and her home, in sharing lessons taught by Spider Woman regarding weaving, and in establishing a geographical context for oral histories, as well as healing ceremonies. Spider Rock is eligible for inclusion in the National Register because of its association with cultural practices or beliefs that are rooted in various Southwestern Native American histories and because it is important in maintaining cultural identity.

Other TCPs within the ATMP planning area have been identified. Some places are used as the person stands on the rim of an overlook and prays, for prayers in general, or as storage places for bundles or offerings that are used during ceremony. For these TCPs, the natural setting and feeling are significant characteristics.

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. For example, the Resolutions stated that the Park contains features that contribute to cultural practices, such as the natural soundscape of the canyon (e.g., birds chirping and winds rustling plants and trees), as well as sensitive cultural artifacts and archaeological sites including adobe ruins, fragile cliffs, and sandstone rock formations.

### ***Historic Buildings***

The Custodian's Residence was constructed between 1935 and 1937 and is an excellent example of Pueblo Revival Architecture. It is a good example of the Southwestern atmosphere of Canyon de Chelly. Although its architectural roots were not Navajo, its design was appropriate for the site in a broader, regional context. The character of the building's setting and feeling is still conveyed through its association with these other buildings that constitute the Thunderbird Lodge complex (but ineligible for the National Register).

From 1956 to 1966, the NPS commissioned over one hundred new visitor centers and additions to existing museum buildings throughout the National Park System. The majority of the buildings were designed by NPS architects. The Park's Mission 66 Visitor Center was designed by Cecil Doty, an architect from Oklahoma trained in the traditional NPS Rustic style of design. Doty made the transition from rustic to modern style, stripped of obvious associates with regional context. Doty's designs were modest and utilitarian. The Canyon de Chelly Mission 66 Visitor Center, described as "stark," includes viewing terraces (Allaback, 2000), some of which overlook the mouth of the canyon from two (east and west-facing) adjoining courtyard terraces. The siting of the Mission 66 Visitor Center at the mouth of the canyon also offers interpretive value from the building's courtyard terraces. Construction was completed in 1964. The Mission 66 Visitor Center (at the western end of the monument) is about 3 miles east of the turnoff to Chinle from U.S. Highway 191 (NPS, 2016).



### **3.5.2 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.

Neither alternative evaluated limits access to Tribal sacred sites nor involves ground disturbance that would adversely affect the physical integrity of sacred sites on federal lands.

#### ***Alternative 1: No Action***

Under the No Action Alternative, commercial air tours would continue to operate fixed-wing aircraft on three routes at altitudes ranging from 800 ft to 1000 ft AGL. The continuation of air tours flying passengers above the Park would continue to result in an invasion of privacy for Diné residents and users. As stated in Section 2.4.1, reporting data from 2017-2019 indicates that air tours fly over the APE approximately 43 times per year, and on days when air tours occur, an average of one tour is flown. Based on the *Noise Technical Analysis* (see Appendix F, Section 2.4), 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), and Section 3.2.2, the maximum time that noise from air tours would be above 35 dBA, the level at which experience is degraded in quiet settings (ANSI 2007), is less than 5 minutes a day, across 69% of the ATMP planning area. Therefore, although some noise and visual intrusions would continue to be present, they would be infrequent and limited to a few minutes per day and approximately 43 instances per year.

The noise associated with existing commercial air tours over the Park is minimal, short in duration, and maximum sound levels are low. Noise from air tours would result in infrequent detractions from the feeling and setting of the Park's cultural resources, including historic districts, cultural landscapes, archeological resources, TCP, sacred sites, ethnographic and natural features, 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 within the ATMP Planning Area, 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. Air tours over the Park interfere with the privacy of the Navajo as they carry out ceremonies and sacred practices, the protection of which is a primary purpose of the Park. Tribal dances are religious ceremonies

and are not public performances. It is a privilege to witness a ceremony. As noted in the Resolutions, commercial air tours may interrupt these practices by their physical presence and invasion of privacy, which denigrates the sacred space that the Park protects.

A letter from the Navajo Nation President stated that overflights, including commercial air tours, have disturbed gatherings and traditional religious practices at sacred sites, impacted viewsheds to sacred geological formations and natural features, are inappropriate to the sacred landscape, and disrupt the tranquility of accessing the lands for reflection or cultural purposes. Resolutions from the Navajo Nation Chapters have emphasized that overflights, including commercial air tours, have negative impacts on the cultural heritage of dances, traditional events, agriculture, and hunting, among other events and activities.

Because continuing cultural connections to the Park is a fundamental resource value of the Park and is significant to the Park's purpose, based on information learned in consultation, 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, the elimination of commercial air tours from the ATMP planning area would eliminate flights and routes within the planning area, the minimal noise impact is expected to be reduced. 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.

### ***Indirect and Cumulative Effects***

**Indirect Effects:** Indirect effects on cultural resources could occur from noise and visual impacts caused by air tours flying outside of the ATMP planning area. Indirect effects on 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 Diné.

Under the No Action Alternative, commercial air tour operations within the APE would remain consistent with existing conditions. Although air tour numbers could increase up to IOA (175 flights per year), 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 3.2.2, Environmental Consequences for Noise and Noise-Compatible Land Use, indirect noise impacts would have the potential to occur under Alternative 2 as this alternative could result in the displacement of air tours outside the ATMP planning area.

As described in Section 3.1.1, Indirect Impacts Scenario, commercial air tours could be displaced to outside of the ATMP planning area. 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 a 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 on 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 if air tours are flown at higher altitudes.

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. Because Alternative 2 would prohibit commercial air tours from being conducted within the ATMP planning area, it has the 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 Alternative 2 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 on cultural resources as they would be low in intensity and frequency. See Appendix G, *Cultural Resources Consultation and Summary*, for more information.

**Cumulative Effects:** As stated in Section 3.1.2, Cumulative Impacts Scenarios, under either of the alternatives, the Navajo Nation, BIA and NPS would continue current management actions and respond to future Park needs and conditions without major changes in the present course. Aircraft, mechanized equipment, ground teams, and vehicular tours would continue to generate noise during normal operations. The noise created by these actions would continue to be short in duration and produce low levels of sound. This would continue to result in infrequent detractions from the feeling and setting of the cultural resources within the Park, including historic districts, cultural landscapes, archeological resources, TCP, sacred sites, ethnographic and natural features, and historic structures that are located closest to these actions.

Ongoing visual impacts within the APE include general aviation flights, which would likely continue in the same frequency and manner under either of the alternatives, as they occur independently of air tours, and be at a much higher elevation. This would continue to result in infrequent detractions from the feeling and setting of the cultural resources in the Park. 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 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 either 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, the NPS has agency-wide (see *NPS Management Policies 2006* (NPS 2006a), § 8.2) and Park-specific guidelines (NPS, 2016) for managing visitors within the National Park System. This section also examines impacts on air tour customers. The Diné and other Tribes that have ancestral connections to the Park are not considered Park visitors. The impacts on Diné and other Tribal members connected to Park lands are discussed in Section 3.5, Cultural Resources.

#### **3.6.1 Affected Environment**

##### ***Visitor Trends and Experience***

Most of the Park's recreational visits are day use, with the highest visitation during the summer months (June, July, and August). Key visitor facilities within the Park include the canyon overlooks, and Puebloan ruins. Visitor services and activities include a Visitor Center, camping, lodging, hiking, jeep and horseback trails and tours, rock art viewing, picnicking, photography, and interpretative programs. Park staff, volunteers, and guides provide a variety of in-person interpretive and educational programs throughout the year. These programs may occur at various locations in the Park but are most frequently provided in the vicinity of visitor centers and along tour routes (NPS, 2023c). With the exception of self-guided hikes at the White House Overlook and Trail, visitor activities occurring within the canyon are allowed only with a Navajo guide. At the time of this environmental assessment, the White House Overlook and trail are closed until further notice for safety reasons.

The character and quality of the visitor experience influence 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, 2006a). The most popular visitor-use areas are the overlooks on South Rim and North Rim Drives. The South Rim and North Rim roads bring visitors to scenic overlooks, archeological sites, trails, and visitor services within. Visitors are primarily drawn to the significant cultural resources (refer to Section 3.5.1, Affected Environment for Cultural Resources for more information), as well as the opportunity to observe wildlife and the Park's outstanding scenery. The Visitor Center, Cottonwood camping, lodging and picnic areas, two rim roads, and overlooks are the only developed areas within the Park. (NPS, 2023c).

Figure 6 depicts key visitor facilities and points of interest within the ATMP planning area.

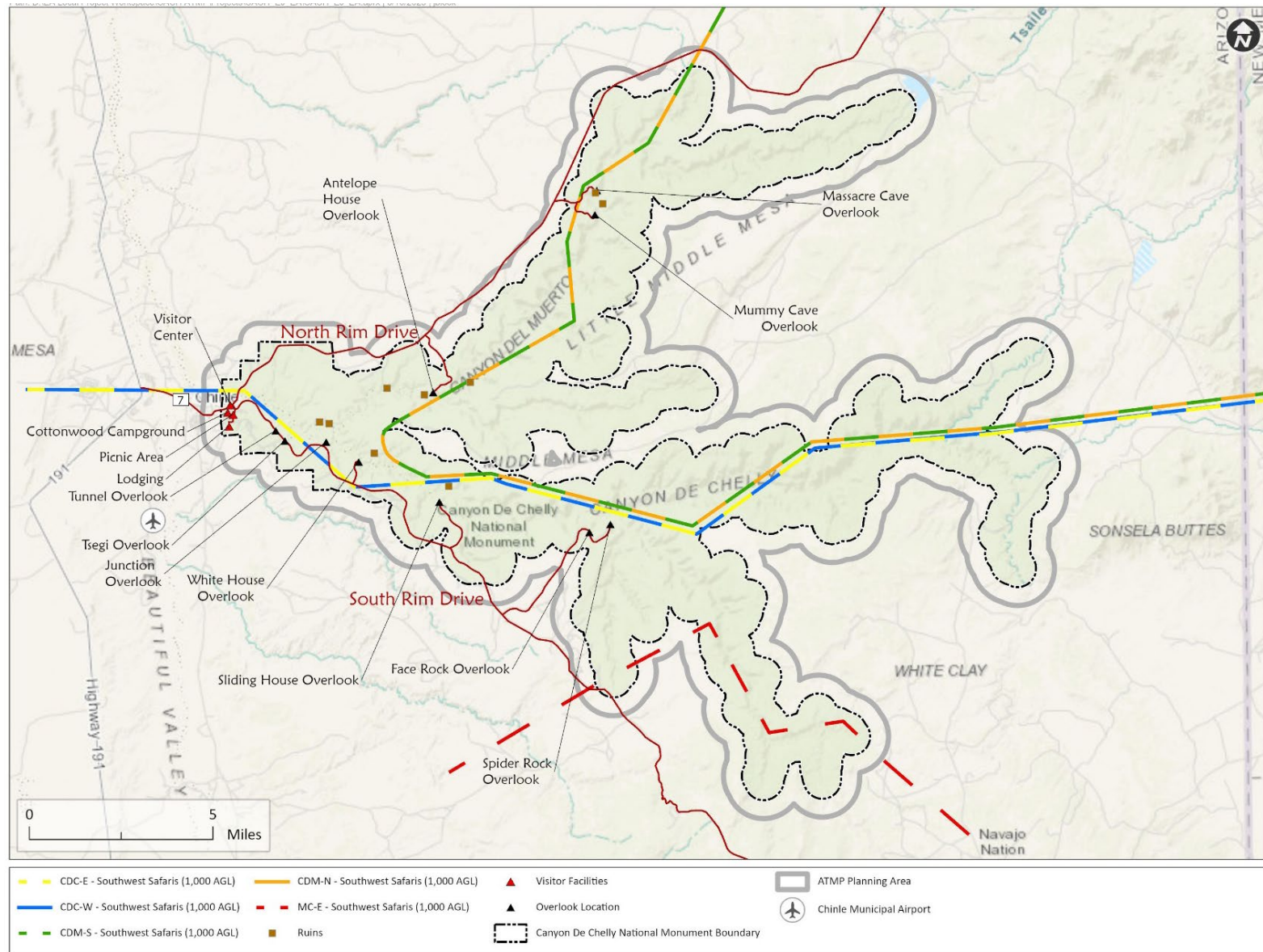


Figure 6. Visitor Facilities and Points of Interest within the ATMP Planning Area.

### ***Other Recreational Opportunities***

This category applies to persons recreating within the ATMP planning area through the experience of air tours. An average of 225 air tour customers per year are currently able to experience the Park from another perspective.<sup>8</sup> The air tour experience often varies depending on weather conditions and other factors, such as length of the 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 175 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 values.

#### ***Alternative 1: No Action***

Under existing conditions, air tours are concentrated near visitor points of interest including the scenic overlooks, ruins, canyon bottoms, visitor center, and campground, which would continue under the No Action Alternative. Table 7 presents a summary of the locations within the Park where sound was measured, the corresponding results of the acoustic monitoring at these locations, and the time that the noise level was above 52 dBA (which generally corresponds with noise that would result in speech interference). These data represent the current conditions, based on the best available information for existing air tour operations, and these conditions would continue under the No Action Alternative.

*Table 7. Average dBA at Acoustic Measurement Locations and Time Above 52 dBA*

Location	Daytime sound level range (approximate)	Time Above 52 dBA
Chinle Wash (canyon bottom)	20 to 40 dBA	0 minutes
Antelope House Ruin	16 to 56 dBA	0 minutes
White House Rock Overlook	18 to 57 dBA	<1 minute
Antelope House Ruin Overlook	21 to 50 dBA	0.1 minutes
Spider Rock Overlook	18 to 41 dBA	<1 minute

Source: Baseline Ambient Sound Levels In Canyon De Chelly National Monument, Appendix A, April 2011 (Volpe 2011)

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<sup>8</sup> The estimated 225 air tour visitors is based on the average reported air tours from 2017-2019 (43), 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.

As illustrated in Figure 5 and Figure 6, the air tour routes fly over many of the popular visitor destinations. Speech interference would not be anticipated to occur at most visitor points of interest. However, Table 7 shows that based on the noise modeling for the No Action Alternative, noise from air tours could result in speech interference impacts at Antelope House Ruin Overlook and Spider Rock Overlook for less than one minute a day (Volpe, 2011). The 2023 Baseline Ambient Sounds Level also concluded that the time above 52 dBA would be 0 to less than 5 minutes for 7% of the Park and primarily in the areas of the Visitor Center, Spider Rock and overlook, and White House Rock (Appendix F). 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 (43 flights per year).

Visitor experience in other areas of the Park, such as along trails or campgrounds may be impacted by air tour noise since visitors engaging in these activities value natural quiet. The *Noise, Air Quality, and Greenhouse Gas Emissions Technical Analysis* (Appendix F, Section 2.4) shows that noise above 35 dBA would occur for less than five minutes a day across 69% of the ATMP planning area (primarily the east-to-west aligned canyons and rims) under the No Action Alternative. For purposes of the *Noise, Air Quality, and Greenhouse Gas Emissions Technical Analysis*, an average of 43 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 very short duration of noise from air tours that would occur under the No Action Alternative, and the limited number of flights per year (43 air tours), effects on visitor experience would be expected to be minimal.

Air tours also introduce aircraft into the visitors' views. However, given the short duration of an air tour over a given area that would occur under the No Action Alternative, and the limited number of flights per year, effects on visitors' views of the resources would be expected to be minimal.

See Section 3.5.2, Environmental Consequences for Cultural Resources for discussions on how commercial air tours could impact cultural resources that are visitor points of interest. This analysis is based on the three-year average of flights between 2017 and 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 expected be consistent with the average number of flights from 2017-2019 but could increase up to 125 air tours per year, 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 and visual intrusion from the ATMP planning area. Therefore, there would be a minimal direct beneficial impact on Park visitor use and experience since the intensity and presence of noise and sight of aircraft from commercial air tours would be less than under the No Action Alternative. Alternative 2 would offer the greatest protection for 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 have an adverse effect on the air tour customers' experience within the ATMP planning area. In recent years, the number of air tours has been limited, so the loss of this experience would affect a very small percentage of visitors.

### ***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 up to IOA (175 flights per year), 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 3.2.2, Indirect and Cumulative Effects for Noise and Noise-Compatible Land Use, indirect noise impacts would have the potential to occur under Alternative 2. Alternative 2 would eliminate air tours, 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. As described in Section 3.1.1, Indirect Impacts Scenario, the operator may choose to fly along existing flight paths but at or above 5,000 ft. AGL. 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 because the noise would be dispersed over a larger geographical area.

The operator currently flies multiple tours over different parks and lands in Arizona (Southwest Safaris, 2023a), and they could fly these tours more frequently. The majority of destinations and tours offered by the operator are to the west, north, and east of the Park, and the airport used for most flights is located west of the Park. There may be a slight increase in flights over Navajo Nation Tribal lands outside of the ATMP planning area, if air tours were displaced outside of the ATMP planning area. This could temporarily increase noise-related effects on visitors, such as speech interference and the 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 Alternative 2. Alternative 2 could result in greater impacts outside the ATMP planning area from displaced air tours.

**Cumulative Effects:** As stated in Section 3.1.2, Cumulative Impacts Scenarios, under either 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. Aircraft, mechanized equipment, ground teams, and vehicular tours would continue to generate noise during normal operations. Noise from this equipment and aircraft audibly and visually detracts from visitor use and experience. These projects and flights are anticipated to continue to facilitate resource stewardship projects and scientific research under the alternatives and could create additional disturbances to visitor experience in the locations where these activities occur. However, because these projects and flights generally occur throughout the ATMP planning area and are not concentrated in any one area, they are not a source of consistent disruption to the visitor experience.

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 would result in minimal cumulative beneficial effects on visitor use and experience in the ATMP planning area by eliminating noise-related impacts from commercial air tours that occur within the ATMP planning area.

### 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.<sup>9</sup>

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

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<sup>9</sup> See DOT Order 5610.2C Appendix, <https://www.transportation.gov/sites/dot.gov/files/Final-for-OST-C-210312-003-signed.pdf>

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* (NPS 2006a). The factors of socioeconomics discussed in this draft EA include the air tourism industry and ancillary businesses. U.S. Census Bureau data were 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 7 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 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 are 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 five-year estimates (2016-2020) from the American Community Survey (ACS) to determine socioeconomic and racial characteristics of the population. 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 considered populations of EJ concern. In this case, the agencies analyzed ACS estimates from seven block groups that coincide with or border the ATMP planning area (i.e., units of analysis) and compared that data to the county-level estimates (i.e., the reference community). The comparison of data from the block group level to the county level data was used to identify 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 minority population percentage in the county (reference community). Minorities are those who identify themselves as Black, Hispanic or Latino, Asian American, American Indian and Alaskan Native, and/or Native Hawaiian or Other Pacific Islander (DOT Order 5610.2C). This definition is equivalent to the population made up of individuals who report their race and ethnicity as any combination other

than both White (alone) and non-Hispanic or Latino. The percentage minority population of the county that contains the ATMP planning area (i.e., Apache County, Arizona) is 82% (U.S. Census Bureau, 2023a). Therefore, every census block group with a percentage minority population greater than 82% is designated a population 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 percentage of low-income population in the county. Low-income individuals are those living in households with an annual income less than the national poverty level. The percentage of low-income population in the county that contains the ATMP planning area (i.e., Apache County, Arizona) is 34% (U.S. Census Bureau, 2023b). Therefore, every census block group with a low-income population greater than 34% is designated a population of EJ concern.

Figure 7 depicts populations of EJ concern by block group within the study area. Residents of Canyon De Chelly are represented in the data; however, the exact locations of residences are not shown or analyzed. As shown in the figure, the entire study area overlaps with census blocks that contain EJ populations. Table 8 shows the minority and low-income population estimates for Apache County, Arizona and block groups within the study area. Of the seven block groups within the study area, (i.e., overlapping the ATMP planning area), all seven contain populations of EJ concern based on minority population estimates, and all but three contain populations of EJ concern based on low-income population estimates. In addition, when considered collectively, the seven block groups in the study area exceed the thresholds for minority population and low-income population to be considered (together) a population of EJ concern (Table 8. Minority and Low-Income Population Data within the Study Area.).

*Table 8. Minority and Low-Income Population Data within the Study Area.*

Census Area	Total Population	Minority Population	Low-Income Population
Apache County	70,448 <sup>(a)</sup> to 71,714 <sup>(b)</sup>	82%	34%
Block Group 1, Census Tract 9440	1,745	100%	30%
Block Group 3, Census Tract 9441	909	100%	51%
Block Group 4, Census Tract 9441	1,695	88%	53%
Block Group 1, Census Tract 9442.02	1,703	100%	67%
Block Group 2, Census Tract 9442.02	887	100%	29%
Block Group 3, Census Tract 9442.02	917	99%	28%
Block Group 1, Census Tract 9443.02	1,090	100%	50%
All Block Groups in the Study Area	7,201 <sup>(c)</sup>	98% <sup>(d)</sup>	46% <sup>(d)</sup>

Source: U.S. Census Bureau, 2023a, b

Notes:

(a) Total population for whom household income relative to federal poverty level is estimated

(b) Total population for whom race and ethnicity (i.e., whether of Hispanic or Latino origin) is estimated

(c) Sum

(d) Weighted average

## ***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 or within 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 the region, specifically the one active 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**

Apache County's largest civilian employment sectors are health care and social assistance, educational services, and public administration (U.S. Census Bureau, 2023c). Other significant sectors include construction, retail trade, and accommodation and food services (U.S. Census Bureau, 2023c).

The Park plays a major role in the tourism industry of Apache County. In 2021, 184,191 visitors spent a total of almost \$14 million at the Park and added a value of approximately \$8.5 million to the local economy (NPS, 2022b). The total labor income generated by this spending equaled approximately \$4.8 million (NPS, 2022b). Entrance fees are not required to enter the Park. The Park provides seasonal, term, permanent full-time, and part-time positions. The Park offers trails, ranger programs, guided canyon tours, and a Visitor Center with a Park store.

### **Commercial Air Tours**

Four commercial tour operators hold IOA to conduct a combined total of 175 tours per year over the Park. Based on the average of reporting data from 2017-2019, only one operator has reported flying an average of 43 air tours per year over the Park. The operator advertises day trips to the Park that include a round-trip flight from Santa Fe to Chinle Municipal Airport, where passengers are taken on ground tours of the Park (Southwest Safaris, 2023b).

The price per person for the operator's air tours varies and can cost up to \$795 per person for itineraries that include Canyon de Chelly (Southwest Safaris, 2023a, b). 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. The air tour operator that is active in the Park offers sightseeing tours departing from Santa Fe Airport, in Santa Fe County, New Mexico. 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.

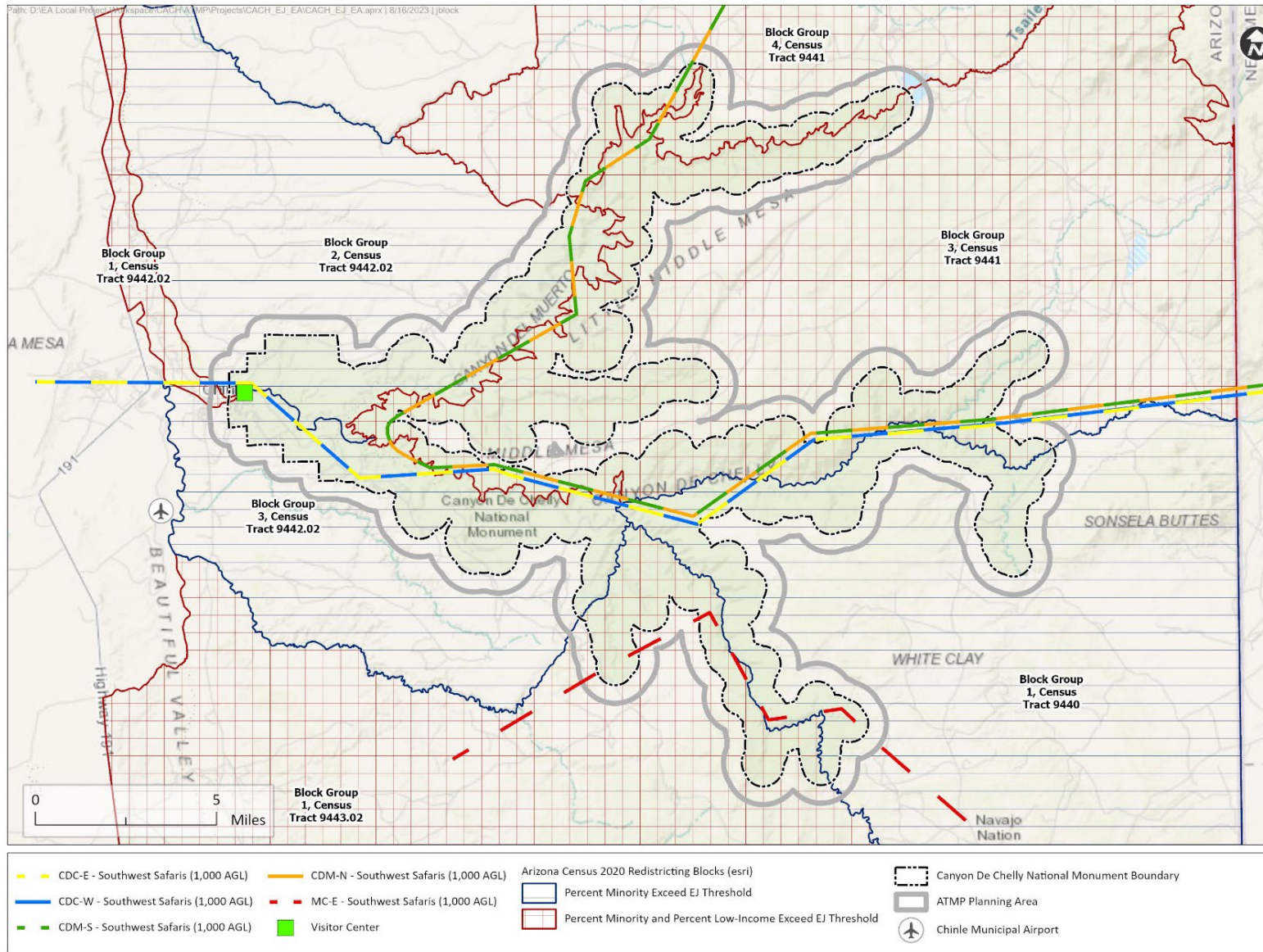


Figure 7. Affected Environment for Environmental Justice and Socioeconomics, and Environmental Consequences for Alternative 1 (No Action).

### **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 on 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 7 minority and low-income populations of EJ concern are present throughout 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 is provided below. The analysis below reflects the results of the impact analysis for noise, visual, air quality, and cultural 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 (Figure 7). The block groups within these areas contain populations of EJ concern. Because block groups containing EJ populations are present within and around the ATMP planning 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.



Acoustic environmental effects under the No Action Alternative would not have a unique or significant impact on populations of EJ concern in the ATMP planning area. The noise impacts of the No Action Alternative (see Section 3.2.2, Environmental Consequences for Noise and Noise-Compatible Land Use) were 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. The modeling results indicate that the No Action Alternative would result in a maximum sound level (i.e., the loudest sound level generated by the loudest event independent of the number of operations) of at least 55 dBA, across 5% of the ATMP planning area. This sound level corresponds to that of a quiet urban daytime setting or created by someone typing on a keyboard nearby. The maximum time that noise from air tours would be above 52 dBA is less than 5 minutes a day, across 7% of the ATMP planning area, and the maximum time that noise from air tours would be above 35 dBA is less than 5 minutes a day, across 69% of the ATMP planning area. During the brief periods when sound levels reach 52 dBA, residents within the 7% impacted area of the ATMP planning area may experience mild and temporary impacts, such as speech interference. Air tours are conducted during the day; therefore, noise from air tours would not impact residents of the ATMP planning area at night. As for a resident's cumulative exposure to sound from air tours over a 24-hour period, the DNL is expected to be below 35 dB under the No Action Alternative (refer to the *Noise, Air Quality, and Greenhouse Gas Emissions Technical Analysis*, Appendix F, Section 2.4).

Air quality effects under the No Action Alternative would not have a unique or significant impact on populations of EJ concerns in the ATMP planning area. 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 3.3.2, Environmental Consequences for Air Quality and Climate Change). The total annual GHG emissions resulting from commercial air tours in the ATMP planning area are modeled to be 1.5 MT of CO<sub>2</sub>.

Under the No Action Alternative, impacts to viewsheds would primarily occur at the canyon viewpoints overlooking scenic natural areas (see Section 3.8.2, Environmental Consequences for Visual Effects), and would not have a unique or significant impact on populations of EJ concern in the ATMP planning area. Minimal 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).

An impact category with a potentially unique effect on residents of the ATMP planning area is the matter of privacy, as discussed in Section 3.5.2, Environmental Consequences for Cultural Resources. Under the No Action Alternative, populations of EJ concern that reside in the ATMP planning area have up to a 12% chance of an air tour flight within sight of their homes and

communities on any given day, assuming a total of 43 air tours per year. While the privacy interests of ATMP planning area residents have not been directly quantified in this draft EA, nation-to-nation consultation has indicated that commercial air tours in the ATMP planning area constitute an invasion of the privacy to which the Diné people are entitled in their cultural practices and daily lives. The perceived or actual loss of privacy among low-income and minority communities in the ATMP planning area due to the continued operation of commercial air tours under the No Action Alternative has potentially adverse social and cultural implications.

In summary, EJ populations occur throughout the ATMP planning area and are therefore the populations primarily and disproportionately affected by the potential noise, air quality, visual, and cultural impacts of commercial air tours under the No Action Alternative. However, the modeled impacts of the No Action Alternative do not constitute impacts to the noise, air quality, or visual environments within the ATMP planning area that would uniquely or significantly impact populations of EJ concern. The issue of privacy for EJ populations in the ATMP planning area is a unique and potentially adverse social and cultural impact noted in this draft EA. Under the No Action Alternative, noise, air quality, visual, and cultural impacts would be consistent with current conditions, and therefore there is no change in impacts and effects on EJ populations.

Under the No Action Alternative, there would be no socioeconomic change relative to existing conditions. 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 the IOA of 175 flights per year). 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. Because the No Action Alternative would not change economic conditions, would not involve ground-disturbing activities, and would not add ground-based motor vehicles or equipment, it would not induce substantial economic growth, disrupt or divide the physicality of the 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, viewsheds, and cultural resources (i.e., privacy) within the study area as a result of the elimination of commercial air tours in the ATMP planning area (see Section 3.2.2, Environmental Consequences for Noise and Noise-Compatible Land Use; Section 3.3.2, Environmental Consequences for Air Quality and Climate Change; Section 3.8.2, Environmental Consequences for Visual Effects; and Section 3.5.2, Environmental Consequences for Cultural Resources). Alternative 2 would result in a reduction in commercial air tour noise and visual impacts, air



emissions, and privacy concerns for residents 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, visual, or privacy impacts to EJ populations in the ATMP planning area.

Alternative 2 has the potential to minimally impact socioeconomic conditions in the ATMP planning area and the Park. Alternative 2 would not involve ground-disturbing activities and would not add ground-based motor vehicles or equipment; therefore, it would not induce substantial economic growth, disrupt or divide the physicality of the community, cause extensive relocation, or disrupt traffic patterns. Alternative 2 could result in some adverse impacts on 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. The active air tour operator in the Park offers day tour itineraries that land at Chinle Municipal Airport to allow passengers to go on ground tours of the Park. Under Alternative 2, these trip offerings could continue, with flights diverted outside the ATMP planning area, or they could reduce in frequency as a result of reduced demand for Canyon de Chelly itineraries that do not offer air tours over the Park. In addition, the air transportation industry represents less than 1% of the total employment in the tri-county area where the operator is based (Sante Fe Municipal Airport in Santa Fe, New Mexico), 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 either to the region surrounding the Park or the region where the air tour operator is based, including those associated with changes to the community tax base associated with a loss of industry.

### ***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 up to IOA (i.e., 175 flights per year), 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 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

the southwest (Southwest Safaris, 2023a), and they could fly these tours more frequently. 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. Although Alternative 2 would eliminate opportunities for the air tour operator and ancillary businesses to generate revenue from tours conducted within the ATMP planning area, this alternative 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 displaced to outside the ATMP planning area would result in indirect noise, air quality, visual, or privacy impacts on EJ populations. The EJ populations identified within the ATMP planning area do extend into areas outside the ATMP planning area. Therefore, 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 may shift the burden of air tour impacts to other low-income and minority communities. However, the noise, air quality, and visual effects on EJ communities are neither significant nor unique. While it is unlikely that commercial air tours would continue outside the ATMP planning area, where visual points of interest are not concentrated, the potential for increased privacy concerns among EJ populations outside the ATMP planning area due to displaced air tours is a possibility. In summary, EJ populations disproportionately comprise the populations immediately outside the ATMP planning area that may experience indirect effects of Alternative 2. However, significant adverse indirect noise, air quality, visual, or privacy impacts on EJ populations are not expected to occur.

**Cumulative Effects:** Under either 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.

Low-income and minority populations are more vulnerable to the cumulative impacts of environmental hazards than other socioeconomic groups and the general populace, which explains the need for EJ analysis. The No Action Alternative would not result in any new direct or indirect impacts compared to current conditions; however, the cumulative effects of the existing noise, air quality, visual, and cultural impacts attributable to commercial air tours within the ATMP planning area (however negligible individually) could potentially adversely impact the health, safety, and wellbeing of EJ populations. Based on this same reasoning, Alternative 2 could result in some cumulative beneficial effects on the EJ populations in the ATMP planning area, due to the minor reductions in commercial air tour influence on the acoustic environment, air quality, visual impacts, and privacy concerns.

### **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, 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 3.5, 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* (NPS 2006a) § 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 5 for a depiction of the study area used for the visual effects analysis.

#### **3.8.1 Affected Environment**

The Park is characterized by brightly colored sandstone walls and rock promontories that tower above sinuous bands of vegetation and agricultural fields along the narrow canyon floors. Canyon rim overlooks provide visitors with breathtaking panoramic views into and across the canyons to distant vistas. The presence of Navajo hogans and fields within the canyons set against a backdrop of ancient cliff dwellings visually reinforces the long span of human history and the continuing importance of the canyons for the resident Navajo community. 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. Within the Park, visual resources include views of the natural landscape features, especially from canyon overlooks (NPS, 2016). The Park's visual resources also include its archeological sites and rock (refer to Section 3.5.1, Affected Environment for Cultural Resources, for more information).

### **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 on 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 43 times per 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 99%) 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 5 and Figure 6 for a depiction of existing air tour routes in the context of important cultural resources, visual points of interest, and viewsheds within the Park. In the context of the Park's natural scenery consisting of dramatic canyons, rims, geological formations, and Ancestral Pueblo ruins, the 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 where 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. However, due to the minimal number of tours, the encroachment of commercial air tour aircraft on these viewsheds could minimally and temporarily detract from the visitor's opportunity to observe these unique scenic vistas and natural resources on days when air tours are flown. See Section 3.5.1, 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 on 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 between the two alternatives.

### ***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 up to IOA (175 flights per year), 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.

As described in Section 3.1.1, Indirect Impacts Scenario, commercial air tours could be displaced to outside of the ATMP planning area under Alternative 2. Air tours occurring outside of the ATMP planning area may result in more indirect effects on visual resources. The operator may choose to fly along existing flight paths but at or above 5,000 ft. AGL, minimizing the potential for indirect effects.

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, further minimizing the potential for indirect effects. The operator currently flies multiple tours over different parks and lands in the Southwest (Southwest Safaris, 2023a), and they could fly these tours more frequently. The majority of destinations and tours offered by the operator are to the west, north, and east of the Park, and the airport used for most flights is located in Santa Fe, New Mexico, to the east of the Park. There may be a slight increase in flights over Navajo Nation Tribal lands outside of the ATMP planning area, if air tours were displaced.

Therefore, under Alternative 2, 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.

**Cumulative Effects:** As stated in Section 3.1.2, Cumulative Impacts Scenarios, under either 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. Aircraft, mechanized equipment, ground teams, and vehicular tours would continue. Aircraft and vehicular guided tours would continue to have a short-term adverse impact on the natural scenery and vistas. Park maintenance and restoration activities would continue to have a temporary adverse effect on the natural landscape and scenery. The cumulative visual effects of these ongoing flights and maintenance 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 the fewest under Alternative 2 as there would be no tours permitted within the ATMP planning area.

### **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.<sup>10</sup> According to FAA Order 1050.1F, significance of impacts is determined based on whether the action involves more than a minimal physical use of a Section 4(f) resource or constitutes a "constructive use" based on an FAA determination that the aviation project would substantially impair the Section 4(f) resource.

The study area for considering Section 4(f) resources in this draft EA corresponds with the APE used for compliance with Section 106 of the NHPA. Refer to Figure 5 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 3.5, Cultural Resources). Each resource that intersected the Section 4(f) study area (i.e., some portion of the

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<sup>10</sup> See 1050.1F Desk Reference, Section 5-3.

property fell within the Section 4(f) study area) was included in the Section 4(f) analysis (see Appendix I, *Section 4(f) Analysis*).

The only non-historic Section 4(f) resource identified in the study area is the Canyon de Chelly National Monument. Section 3.5.1, *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.<sup>11</sup> There were no wildlife or waterfowl refuges identified in the Section 4(f) study area. Figure 5 shows a map of the Section 4(f) resources analyzed in this chapter, within the Section 4(f) study area.

### **3.9.2 Environmental Consequences**

In the context of Section 4(f) resources, the term “use” refers to both physical and constructive impacts on Section 4(f) resources. 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 would result in the 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). Therefore, the FAA did not advance the No Action Alternative for detailed Section 4(f) analysis as it is not considered a selectable alternative.

To assess noise impacts on 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

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<sup>11</sup> 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.

of impacts on 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. 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 are 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, the FAA concludes there would be no substantial impairment<sup>12</sup> 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 3.5.2, Environmental Consequences for Cultural Resources).

### ***Indirect and Cumulative Effects***

**Indirect Effects:** The indirect effects of Alternative 2 on Section 4(f) properties reflect those analyzed in the sections for noise and visual effects. Alternative 2 would prohibit air tours 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 on Section 4(f) resources to the extent that they are present near the areas where those flights would occur.

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<sup>12</sup> 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.



The indirect effects analysis for visual effects identifies that some indirect visual impacts could occur if flights were displaced 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. Ongoing present and future Park management actions by the NPS within the ATMP planning area, including periodic administrative flights, such as those used for maintenance, search and rescue efforts, aerial wildlife surveys, wildland fire response, and occasional chain saw use, 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 noted above. These activities would likely continue under Alternative 2, as they occur independently of air tours. The removal of air tours and routes under Alternative 2 within the ATMP planning area would result in a reduction in the noise directly around and below air tour routes as compared to current conditions. This would result in a minimal benefit to the overall cumulative effects on Section 4(f) properties.

#### ***Section 4(f) Recommended Finding***

In summary, the FAA has determined that there would be no constructive use to Section 4(f) properties under Alternative 2 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, and hence, the FAA's proposed a 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 9. Summary of Environmental Consequences of the ATMP Alternatives. summarizes the environmental consequences described above for both of the alternatives considered across each environmental impact category.

Table 9. Summary of Environmental Consequences of the ATMP Alternatives.

Environmental Impact Category	Alternative 1 (No Action)	Alternative 2 (Preferred)
Noise and Noise-Compatible Land Use	<ul style="list-style-type: none"> <li>• 12-hr equivalent sound level: &lt;35 dBA</li> <li>• DNL: &lt;35 dB within the ATMP planning area.</li> <li>• Time above 35 dBA: Up to 5 minutes per day, across 69% of ATMP planning area.</li> <li>• Maximum time above 52 dBA: Up to 5 minutes per day, across 7% of the ATMP planning area.</li> <li>• Maximum sound level in ATMP planning area: 55 dBA across 5% of the ATMP planning area.</li> <li>• No indirect effects are expected.</li> <li>• No cumulative effects are expected.</li> </ul>	<ul style="list-style-type: none"> <li>• 365 days per year without air tours within the ATMP planning area would reduce the potential for noise from air tours in the most noise-sensitive regions of the Park.</li> <li>• Minimal adverse indirect noise impacts may occur outside the ATMP planning area due to potential air tour displacement.</li> <li>• Minimal beneficial cumulative effects are expected in the overall acoustic environment.</li> </ul>
Air Quality and Climate Change	<ul style="list-style-type: none"> <li>• GHG emissions: 1.5 MT of CO<sub>2</sub> per year.</li> <li>• Would not cause NAAQS exceedance No indirect effects are expected.</li> </ul>	<ul style="list-style-type: none"> <li>• 100% reduction in criteria pollutant emissions within the ATMP planning area.</li> <li>• Reduction of 1.5 MT of GHG emissions (as CO<sub>2</sub>) within the ATMP planning area.</li> <li>• Would not cause NAAQS exceedance.</li> <li>• Indirect impacts may occur due to air tours outside the ATMP planning area if winds transport emissions within the ATMP planning area, and some areas not currently exposed to emissions from air tours (outside the ATMP planning area) may be exposed to emissions.</li> <li>• 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.</li> </ul>
Biological Resources	<ul style="list-style-type: none"> <li>• Commercial air tour noise would continue, potentially disturbing protected species and other wildlife for short and infrequent periods (up to five minutes per day above 35 dBA across 69% of the ATMP planning area)</li> <li>• Continued minimal risk of direct strikes to birds and bats.</li> <li>• Not expected to result in indirect effects on wildlife.</li> <li>• Minimal adverse cumulative effects are expected due to the sensitivity of some breeding birds to disturbance from aircraft flying near nesting and roosting sites.</li> </ul>	<ul style="list-style-type: none"> <li>• Although minimal, direct beneficial effects on biological resources are expected due to elimination of potential air tour noise-related disturbance and collision risk.</li> <li>• No adverse impacts to wildlife within the ATMP planning area but could indirectly increase the potential for noise disturbance and collision risk outside the ATMP planning area due to air tour displacement.</li> <li>• Minimal beneficial cumulative effects may be expected for species that are sensitive to human disturbance, especially the Mexican Spotted Owl.</li> </ul>

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Cultural Resources	<ul style="list-style-type: none"> <li>• Cultural resources would continue to be minimally impacted by presence and sound of air tours potentially impacting the feeling and setting of cultural resources.</li> <li>• Interruptions to Tribal practices would continue associated with intrusion into Tribal privacy.</li> <li>• Time above 35 dBA: &lt;5 minutes across the APE.</li> <li>• Not expected to result in indirect effects on cultural resources within the APE.</li> </ul>	<ul style="list-style-type: none"> <li>• Although very minimal, would reduce noise from air tours and remove visual intrusions from the setting of cultural resources within the APE.</li> <li>• Eliminate disruptions to Tribal practices from air tours and improve privacy for Tribal residents and users of the Park.</li> <li>• Could result in minimal indirect impacts on cultural resources outside the APE.</li> </ul>
Visitor Use and Experience and Other Recreational Opportunities	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Minimal impacts on visitor experience in natural areas of the Park related to the intrusion of audible air tour noise where visitors would expect natural sounds to prevail during their visit to the Park.</li> <li>• Maintains the current availability of air tours for those who want to view the Park from an aerial vantage point.</li> <li>• 69% of the ATMP planning area would experience air tour noise above 35 dBA for &lt;5 minutes on days when air tours occurred.</li> <li>• 7% of the ATMP planning area would experience air tour noise above 52 dBA for &lt;5 minutes on days when air tours occurred.</li> <li>• No indirect effects are expected.</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce effects, although very minimal, to interpretive programs at the Visitor Center, where sound levels from air tours result in speech interference and inability to hear natural sounds.</li> <li>• Offers the greatest protection of visitor use and experiences from the ground but eliminates air tour experiences within the ATMP planning area.</li> <li>• Eliminates the opportunity for those interested in viewing the Park from an aerial perspective.</li> <li>• Indirect impacts on visitor experience and points of interest could occur if flights were displaced to outside the ATMP planning area.</li> </ul>

Environmental Impact Category	Alternative 1 (No Action)	Alternative 2 (Preferred)
Environmental Justice and Socioeconomics	<ul style="list-style-type: none"> <li>• Populations in the ATMP planning area are made up disproportionately of EJ populations, however noise, air quality, and visual impacts on EJ populations would be neither significantly adverse nor unique to those communities.</li> <li>• Adverse and unique impact on EJ population privacy (a cultural resource) due to commercial air tours.</li> <li>• No indirect effects are expected.</li> <li>• Some minimal potential for adverse cumulative effects.</li> </ul>	<ul style="list-style-type: none"> <li>• Populations in the ATMP planning area are made up disproportionately of EJ populations, therefore the minimal improvements in noise environment, air quality, visual impacts, and privacy would result in minimal benefits to EJ populations.</li> <li>• 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 resulting in minimal adverse impact on the EJ populations in the ATMP planning area.</li> <li>• Potential, but minimal, indirect effects are expected for EJ populations immediately outside the ATMP planning area, due to displaced air tours.</li> <li>• Some potential for minimal beneficial cumulative effects.</li> </ul>
Visual Effects	<ul style="list-style-type: none"> <li>• Air tours would continue to have minimal impact on viewsheds.</li> <li>• No indirect effects are expected.</li> <li>• Peak month, average day = 1 air tour</li> </ul>	<ul style="list-style-type: none"> <li>• Would improve protection of Park viewsheds and would minimally benefit visual resources and visual character within the Park.</li> <li>• Indirect impacts to viewsheds could occur if flights were displaced to outside the ATMP planning area.</li> </ul>
DOT Act Section 4(f) Resources	<ul style="list-style-type: none"> <li>• The No Action Alternative cannot be altered to avoid or prevent unacceptable impacts to the Park's Section 4(f) resources.</li> </ul>	<ul style="list-style-type: none"> <li>• No "constructive use" to Section 4(f) properties.</li> </ul>