SGU REGIONAL AIRPORT MASTERPLAN

PLANNING SUCCESSFUL TOMORROWS

5 – ENVIRONMENTAL OVERVIEW

5. ENVIRONMENTAL OVERVIEW

I. ENVIRONMENTAL REGULATIONS

Projects that require federal funding or approval are subject to the requirements of the National Environmental Protection Act (NEPA). As such the FAA has issued guidance in the form of FAA Orders providing guidance on how NEPA should be followed. The two primary Orders are 1050.1F, *Environmental Impacts: Policies and Procedures* and FAA Order 5050.4B, *National Environmental Act (NEPA) Implementing Instructions for Airport Actions.* The FAA has also issued FAA Order 1050.1F Desk Reference as well as other more specific guidance documents.

As stated in FAA AC 5070-6B, *Airport Master Plans*, considering environmental factors throughout the master planning process provides useful information and planning principles that will help expedite the eventual environmental review of projects. Environmental conditions in an airport area must be reviewed early in the planning process to identify any potential problems that may impact potential future development. The environmental review contained within an airport master plan does not satisfy the requirements of NEPA; however, it can indicate what level of NEPA review would be required for development projects.

Level of Review

If it is determined that there is a federal action and NEPA applies, the FAA will determine the appropriate level of review. The three levels of NEPA review are Categorical Exclusions (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS). Per FAA guidance, the three levels of environmental review can be described as the following:

Categorical Exclusion (CATEX)

A CATEX is a category of actions that neither individually nor cumulatively effect the human environment in a significant way, does not have extraordinary circumstance, and neither an EA nor an EIS is required. A CATEX is not an exemption or a waiver from the NEPA review process. It is itself a level of NEPA review. See Chapter 5 of Order 1050.1F for further information on CATEXs.

Environmental Assessment (EA)

An EA is used to determine if a proposed action has the potential to significantly impact the human environment. An EA is a concise public document that briefly provides evidence and analysis for determining whether to prepare an EIS or a Finding of No Significant Impact (FONSI). An EA must be prepared when the proposed action does not normally require an EIS and does not fall within the scope of a CATEX or falls within the scope of a CATEX but has extraordinary circumstances.

Environmental Impact Statement (EIS)

The FAA must prepare an EIS for actions significantly impacting the quality of the human environment. An EIS is a detailed written statement required under section 102(2)C of NEPA when one or more environmental impacts would be significant and mitigation measures cannot reduce the impact(s) below significant levels. Direct, indirect and cumulative impacts must be considered when determining their significance.

Finding of No Significant Impact (FONSI)

If, during the NEPA process an FAA official reviews a proposed action and an EIS is not appropriate, a FONSI will be produced. The FONSI is a written notice from the FAA concurring with the airport's determination that no significant environmental impacts are caused by the proposed action.

The alternatives chapter provides an analysis of future development projects in relation to these levels of NEPA review.

II. EXISTING ENVIRONMENTAL CONDITIONS

Environmental conditions in the Airport area must be reviewed early in the planning process to identify any potential problems that may impact potential future development. As stated in FAA AC 5070-6B, *Airport Master Plans*, considering environmental factors throughout the master planning process provides useful information and planning principles that will help expedite the eventual environmental review of projects. Per the requirements of FAA Order 1050.1F, Environmental Impacts: Policies and Procedures, FAA Order 5050.4B, National Environmental Act (NEPA) Implementing Instructions for Airport Action, and the National Environmental Policy Act (NEPA), the following sections provide a brief summary of the existing environmental resources that should be evaluated for future airport development.

It should be noted that coastal resources were not evaluated as the Airport is located in Utah and not in proximity to any coastal areas.

Air Quality

The U.S. Environmental Protection Agency (EPA) is the oversight agency for the Clean Air Act (CAA), which is the predominant statute that regulates actions with the potential to affect air quality. The CAA established National Ambient Air Quality Standards (NAAQS) for six pollutants, specifically termed "criteria pollutants" and include carbon monoxide (CO), sulfur dioxide (SO2), nitrogen dioxide (NO2), ozone (O3), particulate matter less than or equal to 10 microns aerodynamic diameter (PM10), fine particulate matter less than or equal to 2.5 microns aerodynamic diameter (PM2.5), and lead.

In accordance with the CAA, all areas within the State of Utah are designated with respect to the NAAQS as being in attainment, nonattainment, maintenance, or unclassifiable. An area with air quality better than the NAAQS is designated attainment, while an area with air quality worse than the NAAQS is designated nonattainment. The Airport is located in Washington County, UT, which is listed by the EPA as being in attainment for all criteria pollutants.

Although the Airport is located in an area designated as being in attainment by the EPA, future projects that involve a federal action (i.e. FAA funding or approval) may require an emissions inventory to ensure the local air quality is maintained.

Biological Resources (including fish, wildlife, and plants)

Biological resources include fish, wildlife, plants, and their respective habitats. There are numerous regulations and guidance related to biological resource including, but not limited to, the Endangered Species Act (16 U.S.C. §§ 1531-1544), the Migratory Bird Treaty Act (16 U.S.C. § 703 et seq.), Executive Order 13112 (Invasive Species), as well as various state and local regulations. The US Fish and Wildlife Service (USFWS) is the federal agency responsible for the Endangered Species Act, the Fish and Wildlife Coordination Act and the Migratory Bird Treaty Act. The Utah Division of Wildlife Resources is the state agency that is responsible for managing and protecting Utah's wildlife.

According to the USFWS's Information for Planning and Consultation (IPaC) tool, there are nine threatened or endangered species that may occur within the Airport property. These species are listed in **Table 5-1**; as depicted, none of the listed species are known to occur within Airport property; however, the critical habitat of several species are in proximity to SGU and future development projects should include a biological analysis to ensure listed species are not impacted. **Table 5-2** lists species protected by the State of Utah; several of these species (noted with an "*") were found to be present within the airport property boundary in the 2006 St. George Municipal Airport Final Environmental Impact Statement.

Table 5-1: Federally Listed Threatened and Endangered Species at SGU

Species	Scientific Name	Federal Status	Habitat Description	Habitat Presence
California Condor	*Gymnogyps californianus*	Experimental Population	Condors roost on large trees or snags, or on isolated rocky outcrops and cliffs. Nests are located in shallow caves and rock crevices on cliffs where there is minimal disturbance. Foraging habitat includes open grasslands and oak savanna foothills that support populations of large mammals such as deer and cattle.	Habitat is not present at SGU.
Mexican Spotted Owl	*Strix occidentalis lucida*	Threatened	Spotted owls are residents of old-growth or mature forests that possess complex structural components (uneven aged stands, high canopy closure, multi-storied levels, high tree density). Canyons with riparian or conifer communities are also important components.	Habitat is not present at SGU.
Southwestern Willow Flycatcher	*Empidonax traillii extimus*	Endangered	For nesting, the Flycatcher requires dense riparian habitats (cottonwood/willow and tamarisk vegetation) with microclimatic conditions dictated by the local surroundings. Saturated soils, standing water, or nearby streams, or pools are a component of nesting habitat that also influences the microclimate and density vegetation component.	Habitat is not present at SGU.
Yellow-billed Cuckoo	*Coccyzus americanus*	Threatened	The Cuckoo prefers a habitat of woodlands, thickets, orchards, streamside groves. It breeds mostly in dense deciduous stands, including forest edges, tall thickets, dense second growth, overgrown orchards, scrubby oak woods, and willow groves around marshes.	Habitat is not present at SGU.
Desert Tortoise	*Gopherus agassizii*	Threatened	Critical Habitat for the Desert Tortoise has been identified north of E Red Hills Pkwy in St. George. The desert tortoise lives in a variety of habitats from sandy flats to rocky foothills, including alluvial fans, washes and canyons where suitable soils for den construction might be found.	Critical habitat is outside of Airport property. As part of previously completed construction projects, portions of the Airport were surveyed for Desert Tortoise in 2016 and 2019; both surveys were negative.
Dwarf Bear-poppy	*Arctomecon humilis*	Endangered	The Dwarf Bear-poppy has traditionally been restricted to certain soil horizons within the Moenkopi Formation; known from the Warner Ridge and White Dome area.	No suitable soils are present at the Airport.
Holmgren Milk-vetch	*Astragalus holmgreniorum*	Endangered	The Holmgren Milk-vetch grows on the shallow, sparsely vegetated soils derived primarily from the Virgin limestone member of the Moenkopi Formation. The species is a principal member of a warm-desert shrub vegetative community.	Critical habitat is outside of Airport property.
Shivwits Milk-vetch	*Astragalus ampullarioide*	Endangered	The Shivwits Milk-vetch grows in the Mojave Desert in creosote bush and Utah juniper plant communities with other warm desert shrubs.	Critical habitat outside of Airport property.
Siler Pincushion Cactus	*Pediocactus sileri*	Threatened	The Siler Pincushion Cactus is restricted to certain soil horizons within the Moenkopi Formation; known from the Warner Ridge and White Dome area.	No suitable soils are present at the Airport.

Source: USFWS IPaC, Accessed November 13, 2020

Table 5-2: State Listed Species in Washington County

Common Name	Scientific Name	State Status
Allen's Big-eared Bat	Idionycteris phyllotis	SPC
American Three-toed Woodpecker	Picoides dorsalis	SPC
American White Pelican	Pelecanus erythrorhynchos	SPC
Arizona Toad	Bufo microscaphus	SPC
Bald Eagle	Haliaeetus leucocephalus	SPC
Big Free-tailed Bat	Nyctinomops macrotis	SPC
Black Swift	Cypseloides niger	SPC
Bluehead Sucker	Catostomus discobolus	CS
Bonneville Cutthroat Trout	Oncorhynchus clarkii utah	CS
Brown (Grizzly) Bear - Historically	Ursus arctos	S-ESA
Burrowing Owl*	Athene cunicularia	SPC
Common Chuckwalla*	Sauromalus ater	SPC
Desert Iguana	Dipsosaurus dorsalis	SPC
Desert Night Lizard	Xantusia vigilis	SPC
Desert Springsnail	Pyrgulopsis deserta	SPC
Desert Sucker	Catostomus clarkii	SPC
Ferruginous Hawk	Buteo regalis	SPC
Flannelmouth Sucker	Catostomus latipinnis	CS
Fringed Myotis	Myotis thysanodes	SPC
Gila Monster*	Heloderma suspectum	SPC
Gray Wolf	Canis lupus	S-ESA
Greater Sage-grouse	Centrocercus urophasianus	SPC
Kit Fox*	Vulpes macrotis	SPC
Lewis's Woodpecker	Melanerpes lewis	SPC
Long-billed Curlew	Numenius americanus	SPC
Mexican Spotted Owl	Strix occidentalis lucida	S-ESA
Mojave Desert Tortoise	Gopherus agassizii	S-ESA
Mojave Rattlesnake	Crotalus scutulatus	SPC
Mountain Plover	Charadrius montanus	SPC
Northern Goshawk	Accipiter gentilis	CS
Pygmy Rabbit	Brachylagus idahoensis	SPC
Short-eared Owl	Asio flammeus	SPC
Sidewinder*	Crotalus cerastes	SPC
Southwestern Willow Flycatcher	Empidonax traillii extimus	S-ESA
Speckled Rattlesnake	Crotalus mitchellii	SPC
Spotted Bat*	Euderma maculatum	SPC
Townsend's Big-eared Bat	Corynorhinus townsendii	SPC
Utah Prairie Dog	Cynomys parvidens	S-ESA
Virgin Chub	Gila seminuda	S-ESA
Virgin Spinedace	Lepidomeda mollispinis	CS
Western Banded Gecko*	Coleonyx variegatus	SPC
Western Red Bat	Lasiurus blossevillii	SPC
Western Threadsnake	Leptotyphlops humilis	SPC
Western Toad	Bufo anaxyrus	SPC
Western Yellow-billed Cuckoo	Coccyzus americanus occidentalis	S-ESA
Wet-rock Physa	Physella zionis	SPC
Woundfin	Plagopterus argentissimus	S-ESA
Zebra-tailed Lizard*	Callisaurus draconoides	SPC

Notes: S-ESA: Federally-listed or candidate species under the Endangered Species Act.
SPC: Wildlife species of concern.
CS: Species receiving special management under a Conservation Agreement in order to preclude the need for Federal listing.
**: 2005 St. George Municipal Airport Final Environmental Impact Statement found these species may be present within the project footprint.*
Source: Utah Natural Heritage Program's Biodiversity Tracking and Conservation System, 2017

In addition to the species listed in the above tables, the IPaC report lists eleven birds protected under the Migratory Bird Treaty Act that may occur at the Airport. The list of birds and breeding seasons are listed in **Table 5-3**. Future development projects that occur during the breeding season should consider impacts to the listed species; a nesting bird survey may be required prior to the start of construction.

Table 5-3: Birds Protected by Migratory Bird Treaty Act at SGU

Species	Scientific Name	Breeding Season
Bald Eagle	Haliaeetus leucocephalus	Breeds Dec 1 to Aug 31
Brewer's Sparrow	Spizella breweri	Breeds May 15 to Aug 10
Burrowing Owl	Athene cunicularia	Breeds Mar 15 to Aug 31
Clark's Grebe	Aechmophorus clarkii	Breeds Jan 1 to Dec 31
Golden Eagle	Aquila chrysaetos	Breeds Jan 1 to Aug 31
Long-eared Owl	Asio otus	Breeds Mar 1 to Jul 15
Olive-sided Flycatcher	Contopus cooperi	Breeds May 20 to Aug 31
Rufous Hummingbird	Selasphorus rufus	Breeds elsewhere
Virginia's Warbler	Vermivora virginiae	Breeds May 1 to Jul 31
Willet	Tringa semipalmata	Breeds elsewhere
Willow Flycatcher	Empidonax traillii	Breeds May 20 to Aug 31

Source: USFWS IPaC, Accessed November 13, 2020

Climate

Research has shown that an increase in atmospheric GHG emissions is significantly affecting the Earth's climate. These conclusions are based upon a scientific record that includes substantial contributions from the United States Global Change Research Program (USGCRP)—a program mandated by Congress in the Global Change Research Act to "assist the Nation and the world to understand, assess, predict, and respond to human-induced and natural processes of global change.[1] In 2009, based primarily on the scientific assessments of the USGCRP, as well as the National Research Council (NRC) and the Intergovernmental Panel on Climate Change (IPCC), the EPA issued a finding that it was reasonable to assume that changes in our climate caused by elevated concentrations of GHG in the atmosphere endanger the public health and public welfare of current and future generations.[2] In 2015, EPA acknowledged more recent scientific assessments that "highlight the urgency of addressing the rising concentration of carbon dioxide (CO_2) in the atmosphere".[3]

Although there are currently no federal standards for aviation-related GHG emissions, it is well-established that GHG emissions can affect climate. The CEQ has indicated that climate should be considered in NEPA analyses and in 2016 released the final guidance titled "Final Guidance for Federal Departments and Agencies on Consideration of GHG Emissions and the Effects of Climate Change in NEPA Reviews," for federal agencies on how to consider the impacts of their actions on global climate change in their NEPA reviews, a Notice of Availability for which was published on August 5, 2016 (81 FR 51866). However, pursuant to Executive Order 13783 of March 28, 2017, "Promoting Energy Independence and Economic Growth," the final guidance was withdrawn effective April 5, 2017, for further consideration. Notably, on June 21, 2019, the CEQ submitted draft guidance titled "Draft NEPA Guidance on Consideration of GHG Emissions," to the Federal Register for publication and public comment. The public comment period was originally set to close on July 26, 2019, but was extended to August 26, 2019. If finalized, this guidance would replace the final guidance CEQ issued in August 2016.[4,5]

Future development projects should follow the most current CEQ guidance related to GHG's and climate.

Department of Transportation Act, Section 4(f)

Section 4(f) of the Department of Transportation Act of 1966 (re-codified and renumbered as section 303[c] of 49 U.S.C.), from here on referred to as Section 4(f), provides that the Secretary of Transportation shall not approve any program or project that requires the use of any publicly owned land from a public park, recreation area or wildlife and waterfowl refuge of National, State, or Local significance or land from a historic site of National, State, or Local significance, as determined by the officials having jurisdiction thereof, unless there is no feasible and prudent alternative to the use of such land and such project includes all possible planning to minimize impact. The project also needs comply with Section 6(f) of the Land and Water Conservation Fund which applies to publicly owned land if the property was acquired or developed with Land and Water Conservation Fund program.

The nearest Section 4(f) resources to the Airport, as listed in **Table 5-4**, are the Silkwood Park and the George Washington Academy, both located approximately a mile from SGU. No Section 4(f) resources are located within or adjacent to the Airport. In a more regional context, the southwest portion of the state of Utah is known for its state and national parks. Several national parks surround the Airport; the Zion National Park, Dixie National Forest, Bryce Canyon National Park, and Cedar Break National Monument are all located to the north of the Airport, while the Lake Mead National Recreational Area is located to the southwest, the Grand Canyon -Parashant National Monument is to the south, and the Pipe Springs National Monument to the southeast. State parks in the region include the Beaver Dam State Park, Gunlock State Park, and Snow Canyon State Park to the northwest; Iron Mission State Park and Museum and Quail Creek State Park and Reservoir to the northeast; and Coral Pink Sand Dunes State Park and Sand Hollow State Park to the east.

1 Global Change Research Act of 1990, Pub. L. 101–606, Sec. 103 (November 16, 1990), http://www.globalchange.gov.

2 Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66496 (December 15, 2009).

3 EPA, Final Rule for Carbon Pollution Emission Guidelines for Existing Stationary Sources Electric Utility Generating Units, 80 Fed. Reg. 64661, 64677 (October 23, 2015).

4 Executive Office of the President of the U.S., Council on Environmental Quality Initiatives, Fact Sheet: CEQ'S Draft NEPA Guidance on Consideration of GHG Emissions, https://www.whitehouse.gov/wp-content/uploads/2017/11/20190724-FINAL-GHG-Guidance-Fact-Sheet-FR-Notice-Comment-Extension.pdf.

5 Council on Environmental Quality, Draft National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions, [Docket No. CEQ-2019-0002], June 26, 2019. Available at: https://www.govinfo.gov/content/pkg/FR-2019-06-26/pdf/2019-13576.pdf.

Table 5-4: Section 4(f) Resources Near SGU

Resource	Type	Distance
Silkwood Park	*Park*	1 mile
George Washington Academy	*School*	1 mile
Treasure Valley Park	*Park*	1.5 miles
The Fields at Little Valley	*Park*	1.5 miles
Hela Seegmiller Historical Farm	*Park*	1.5 miles
Bloomington Hills Park	*Park*	2.5 miles
Springs Park	*Park*	3 miles
Bloomington Hills Elementary	*School*	3 miles
Bloomington Hills North Park	*Park*	3.5 miles
Larkspur Park Sand Volleyball Courts	*Park*	3.5 miles
Slick Rock Park	*Park*	3.5 miles
Pineview Park	*Park*	3.5 miles
Hidden Valley Park	*Park*	3.5 miles
Fossil Ridge Intermediate School	*School*	4 miles
St. James Park	*Park*	4 miles
Carrie Gaulbert Cox Park	*Park*	4 miles
1100 East Park	*Park*	4 miles
Bloomington Elementary School	*School*	4.5 miles
Bloomington Park	*Park*	5 miles

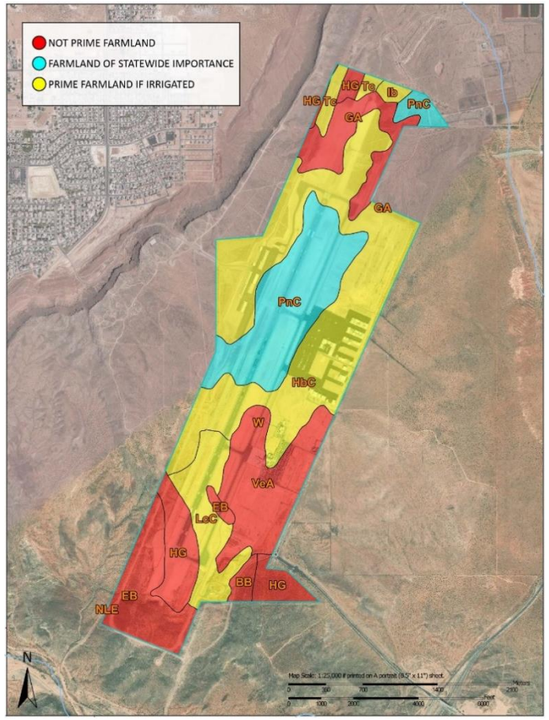
Source: Google Earth and City of St. George website.

Farmlands

The Farmland Protection Policy Act (FPPA) regulates federal actions with the potential to convert important farmland to non-agricultural uses. Important farmland includes all pasturelands, croplands, and forests considered to be prime, unique, or of statewide or locally important lands. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can include forest land, pastureland, cropland, but not land committed to water storage or development.

The Natural Resources Conservation Service (NRCS) Web Soil Survey was used to review soils on and around the Airport. **Figure 5-1** depicts the areas within the Airport property that are considered to be prime farmland. According to the NRCS data, a portion of the existing airfield and northern end of the Airport are considered farmland of statewide importance. The rest of the Airport is either "not prime farmland" or "prime farmland if irrigated". None of the land within the Airport boundary is currently being farmed, nor are there plans to irrigate land and begin farming practices.

Figure 5-1: Soil Map



Source: USDA, Natural Resources Conservation Service, WebSoil Survey, Accessed November 2020

Hazardous materials, solid waste, and pollution prevention

NEPA requires the consideration of hazardous material, pollution prevention, and solid waste impacts for any federally funded, approved, and constructed activities. It is required that an appropriate level of review be undertaken for hazardous materials or wastes to be used, generated, or disturbed by a proposed Federal action. It is also recommended that, to the extent practicable, pollution prevention be considered with respect to a proposed Federal action, addressed in the environmental consequences section, and disclosed in the record of decision.

According to the EPA, no superfund sites or areas listed or proposed to be listed on the National Priorities List are located on or adjacent to the Airport. The EPA lists one on-airport facility, the TSA, as a hazardous waste site. Fuel is also stored on airport property. The FBO owns and maintains six above ground double walled tanks:

- 12,000 gallon Jet A
- 12,000 gallon 100 LL
- 20,000 gallon Jet A (dedicated to SkyWest)
- 24,000 gallon Jet A (dedicated to SkyWest)
- 12,000 gallon Diesel
- 12,000 gallon 100LL (self-serve)

Additionally, Sinclair has one above ground 12,000 gallon motor gas tank and the Airport has one above ground 1,000 gallon red diesel tank.

Solid waste at the Airport consists of waste generated in the FBO/terminal building, individual hangars, and on-airport businesses. Construction and demolition debris are generated on the airfield during construction and maintenance projects. Deplaned waste comes from waste removed from aircraft that land at the Airport. The Airport has a contract with Washington County Solid Waste to collect and dispose of all solid waste.

The FBO actively participates in a recycling program and encourages their users to participate.

Historical, Architectural, Archeological, and Cultural Resources

The National Historic Preservation Act (NHPA) of 1966, as amended, establishes the Advisory Council on Historic Preservation (ACHP) and the National Register of Historic Places (NRHP) within the National Park Service (NPS). The NHPA instructs federal agencies to preserve and use historic buildings and identify, evaluate, and nominate eligible properties under the control or jurisdiction of the agency to the NRHP.

Prior to construction of the Airport, a cultural resource survey was completed for the area in 2005. However, since 2005, the standards in which cultural resource surveys are completed have changed. Being proactive for future development, a Class III cultural resource survey was completed for the entire airport property again as part of this airport master plan update.

In October 2020, Desert West Environmental, LLC (DWE) was contracted to conduct a Class III cultural resources survey of the Airport property, see **Appendix C**. The study area consisted of the entire 1148 acres of the airport; however only 1,000 acres were surveyed as the remaining 148 acres include rough terrain above a

large drainage, they are unlikely to be developed within the next 10 years.

Four archaeological sites (Sites 42WS3414, 42WS3151, 42WS6468, and 42WS6439), one isolated linear feature, and one isolated occurrence were identified and recorded during the cultural resources survey. These sites include one large scale lithic scatter (Site 42WS3151) that was subject to mitigation activities in 2008 (Montgomery Archaeological Consultants), one historical rubble mound site that is no longer extant (42WS3414) as it is under the runways and maintenance areas of the airport, a historical series of rubble mounds (Site 42WS6468), and a series of modern petroglyphs (vandalism) which mimic prehistoric style (Site 42WS6469). This site was not previously recorded in the area and appeared within the last six years from the date of this report. DWE has recommended that all of these sites are not eligible for nomination to the NRHP. One prehistoric isolated occurrence (IO) and one isolated linear feature were also identified during the cultural resources survey. The IO and linear feature were both evaluated for nomination to the NRHP and are recommended not eligible for nomination.

The results of the survey were not coordinated with the Utah State Historic Preservation Office as part of this Master Plan. The Class III survey should be used for future coordination between the FAA and the Utah SHPO prior to the start of federally funded development projects.

Land use

Compatible land uses around an airport increases safety and aids in minimizing the effects of aircraft noise and environmental impacts. Section 1502.16(c) of the CEQ Regulations requires the discussion of environmental impacts including "possible conflicts between the proposed action and the objectives of Federal, regional, State, and local land use plans, policies and controls for the area concerned." The FAA requires airport operators to ensure that actions are taken to establish and maintain compatible land uses around airports.

Airport property is zoned as "Airport". Land around the airport to the north, east, and west is zoned as Airport Supporting Business Park (ASBP) which is an area where airport supporting businesses and related commercial uses can locate. Land directly to the south of the Airport is a mix of Airport vicinity industrial (AVI), Open Space/Golf Course (GC), open space (OS) and Resort. Land north of the extended runway centerline to the north has been partially developed for residential uses; additional residential development is planned for the future. Future Airport development should consider the proximity of current and future residential and other incompatible land uses encroaching on the Airport.

Natural resources and energy supply

Airport development actions have the potential to change energy requirements or the use of consumable natural resources. The FAA must evaluate potential impacts on supplies of energy and natural resources needed to build and maintain airports.

The Airport's effects on natural resources and energy supply are primarily related to the amount of energy and resources required for aircraft, ground support vehicles, airport and airfield lighting, terminal and hangar buildings, and motor vehicles. The recently constructed terminal has numerous energy efficient enhancements:

- LED lighting
- Electric water heater
- Energy efficient windows
- Low flow/no touch water fixtures

The taxiway is also equipped with LED lighting, reducing the overall consumption of the airfield.

Noise and compatible land use

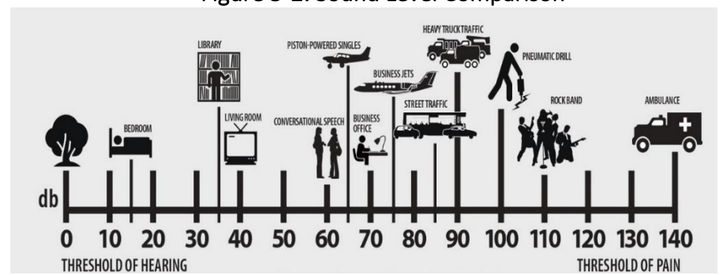
Airport-generated noise is from aircraft operations. Noise, often referred to as unwanted sound, is perceived differently depending on the airport environs. Busy urban areas are surrounded by a diversity of sounds and sound levels, so the population is less sensitive to louder sounds compared to quiet rural communities. Further, sound can be measured in decibels (dB), while noise is more subjective. **Figure 5-2** compares various sound levels for a broad range of activities.

While various sounds can be easily measured, measuring noise exposure from an airport is more complex. To assess a community's noise exposure from an airport for environmental evaluation purposes, the FAA requires noise modeling. The model takes noise source-related input to produce a type of acoustic signature or footprint. Examples of noise modeling input include aircraft fleet mix, runway use, and flight procedures. The results are produced using noise metrics.

Airport noise modeling is presently accomplished with the Aviation Environmental Design Tool (AEDT), an FAA-required environmental analysis. According to the AEDT program information, it provides the predicted noise impact at specified points of interest or in noise contours. Like former airport noise modeling programs (such as the Integrated Noise Model (INM)), the noise descriptor used in AEDT is Day Night Average Sound Level (DNL), which represents the accumulated noise level over 24 hours with a penalty for nighttime operations. Noise modeling results are illustrated with noise contours that represent a constant level of DNL such as 75 DNL, 65 DNL, etc. The larger DNL numbers represent more noise exposure. These noise contours are often presented for existing aircraft operations and forecast operations to help determine where and when there is a need for noise mitigation actions. There are numerous methods to mitigate noise impacts, including:

- Modify flight patterns to minimize, when feasible, the overflight of noise-sensitive areas
- Establish curfews to reduce late night or early morning aircraft operations
- Communicate with airport users regarding noise abatement efforts
- Modify landscape to reduce noise and/or construct engine run-up enclosures
- Install sound insulation or acquire property within significant noise exposure levels

Figure 5-2: Sound Level Comparison



Source: Aircraft Owners and Pilots Association (AOPA)

Under FAA Orders 1050.1F and 5050.4B, an increase of 1.5 DNL over noise sensitive land uses within the 65 DNL contour is considered to constitute a significant adverse noise impact. In accordance with FAA Order 1050.1F, special consideration needs to be given to the evaluation of the significance of noise impacts on noise-sensitive areas within national parks, national wildlife refuges, and historic sites, including traditional cultural properties. For example, the DNL 65 dBA threshold does not adequately address the effects of noise on visitors to areas within a national park or national wildlife refuge where other

noise is very low and a quiet setting is a generally recognized purpose and attribute. This is of important note for the area surrounding SGU at numerous national and state parks are located in the region.

Airport development projects that have the potential to change an airport's runway configuration; aircraft operations, movements, and types; or aircraft flight characteristics can change the future airport-related noise levels. The following sections provide a brief summary of historic noise studies that have been completed for SGU.

A detailed and in-depth noise analysis was included as part of the 2006 Environmental Impact Statement (EIS) completed for the original construction of the Airport. The analysis included a determination of noise exposure in 2003 for the previous airport location and those forecasted for the new airport (current location) in years 2010 and 2020. The study used the previously accepted FAA noise modeling program INM; the inputs are comparable to what is now required in AEDT, therefore the results are still relevant.

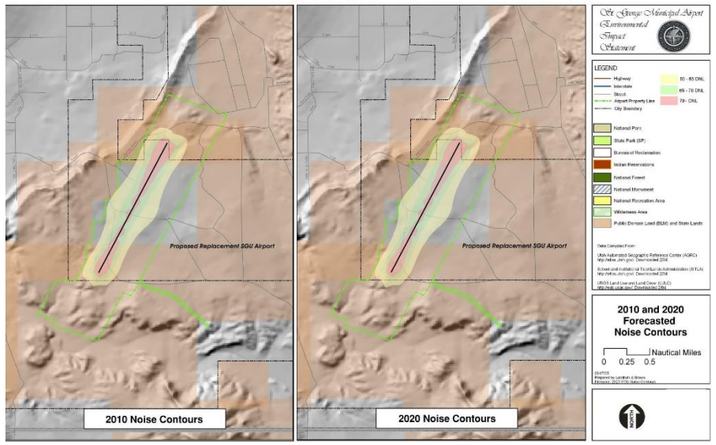
Figure 5-3 depicts the forecasted noise contours for the replaced (current) airport. As depicted, both sets of contours remain nearly entirely on airport property with the exception of a portion of the 60-65 DNL extending off airport property on the west edge of the Airport; no sensitive resources exist or are planned for this area. The operations used to develop the 2010 and 2020 noise contours as well as the actual operations are shown in **Table 5-5**.

Table 5-5: Forecasted and Actual Operations

Activity Category	2010 Forecasted	2020 Forecasted
Passenger	6,940	7,360
Air Cargo	2,184	2,184
Air Taxi	1,260	1,360
General Aviation	36,640	40,070
Military	210	210
Air Tour	77	102
Total	***47,311***	**51,286**

Source: St. George Municipal Airport Environmental Impact Statement, 2006 and SG

Figure 5-3: 2010 and 2020 Forecasted Noise Contours



Source: St. George Municipal Airport Environmental Impact Statement, 2006

Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

49 CFR Part 24, *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970*, E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, and E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks,* regulate development actions that have the potential to create social impacts, health and safety risks to children, and socioeconomic impacts to include moving homes or businesses; dividing or disrupting established communities; changing surface transportation patterns; disrupting orderly, planned development; and creating a notable change in employment.

According to US Census Bureau data, the City of St. George had a population of approximately 89,587, as of July 1, 2019[6]. The population consists of the following demographics:

- 88.5% White
- 0.8% Black or African American
- 1.5% American Indian and Alaska Native
- 0.9% Asian
- 1.3% Native Hawaiian and Other Pacific Islander
- 2.8% Two or more races
- 13.0% Hispanic or Latino
- 25.2% Persons under 18 years
- 22.1% Persons 65 years and over
- 7.7% Persons with a disability, under age 65 years

In 2018 dollars, the median household income of Washington County from 2014 to 2018 was $55,061, which is slightly lower than the median household income of the United States at $60,293. To ensure that no minority and/or economically disadvantaged communities would be negatively impacted by future airport development, if land acquisition is necessary, further socioeconomic research should be conducted.

Visual effects (including light emissions)

The FAA defines visual effects as those impacts involving "light emissions; and visual resources and visual character" in FAA Order 1050.1F. Federal regulations do not specifically regulate airport light emissions; however, the FAA does consider airport light emissions on communities and properties in the vicinity of airports. Visual effects deal broadly with the extent to which the proposed alternatives would either: 1) produce light emissions that create annoyance or interfere with activities; or 2) contrast with, or detract from, the visual resources and/or the visual character of the existing environment.

For clarity and uniformity, visual effects are broken into two categories: 1) Light Emission Effects; and 2) Visual Resources and Visual Character. These will be discussed and analyzed separately in the following section.

Light emissions at airports may include any light that emanates from a light source into the surrounding environment. Examples of sources of light emissions include airfield and apron flood lighting, navigational aids, terminal lighting, parking facility lighting, roadway lighting, safety lighting on launch pads, additional lighting to support nighttime

[6] United State Census Bureau, St. George, UT, https://www.census.gov/quickfacts/fact/table/stgeorgecityutah,US/PST045219, Accessed November 2020

commercial space launches, and light generated from such launches. Glare is a type of light emission that occurs when light is reflected off a surface (e.g., window glass, solar panels, or reflective building surfaces).[7]

The Airport's existing light sources include the following, all of which aid in the safety of Airport operations:

- Runway Lighting: lights outlining the runway(s); classified by the intensity or brightness the lights are capable of producing. Runway 19 is equipped with Medium Intensity Approach Lighting System With Runway Alignment Indicator Lights (MALSR).
- Runway End Identifier Lights (REILs): two synchronized flashing lights located one on each corner of the runway landing threshold.
- Precision Approach Path Indicators (PAPIs): system of lights on the side of an airport runway threshold that provides visual descent guidance information during approach.
- Airport Beacon: a rotating light used to assist pilots in locating the airport from the air.
- Apron/Parking Lights: pole lighting on aprons and parking areas (directed down).

The visual setting of the Airport consists largely of a ridgeline to the northwest that ranges from 25 to 170 feet higher in elevation than the Airport. Warner Ridge is located to the east of the Airport and ranges from 300 to 600 feet higher in elevation than the Airport. A view of the Airport is largely only available from the south, which is an undeveloped area. A limited view of the Airport is also available from the northeast, which is also undeveloped. Residential development exists to the north and south of the Airport, with additional residential development planned in similar areas.

Water resources

The Clean Water Act (CWA) in conjunction with the Fish and Wildlife Coordination Act, Rivers and Harbors Act, the Safe Drinking Water Act, and other local statutes establish regulations that protect the Nation's water resources. Water resources include all surface waters and groundwaters - wetlands, floodplains, surface waters, groundwater, and wild and scenic rivers. These resources are crucial in providing drinking water and in supporting recreation, transportation and commerce, industry, agriculture, and aquatic ecosystems.

Wetlands

Executive Order 11990, Protection of Wetlands, require Federal agencies to avoid and minimize the impact of construction projects on wetlands. Wetlands are defined as areas inundated by surface or groundwater with a frequency sufficient to support vegetation or aquatic life requiring saturated or seasonally saturated soil conditions for growth and reproduction. Waters of the U.S. are within the jurisdiction of the US Army Corps of Engineers (USACE) pursuant to the CWA. Waters of the U.S. include wetlands, ponds, lakes, territorial seas, rivers, tributary streams, including any definable intermittent waterways, and some ditches below the Ordinary High-Water Mark. Manmade water bodies are also included, such as quarries and ponds no longer actively being mined or constructed.

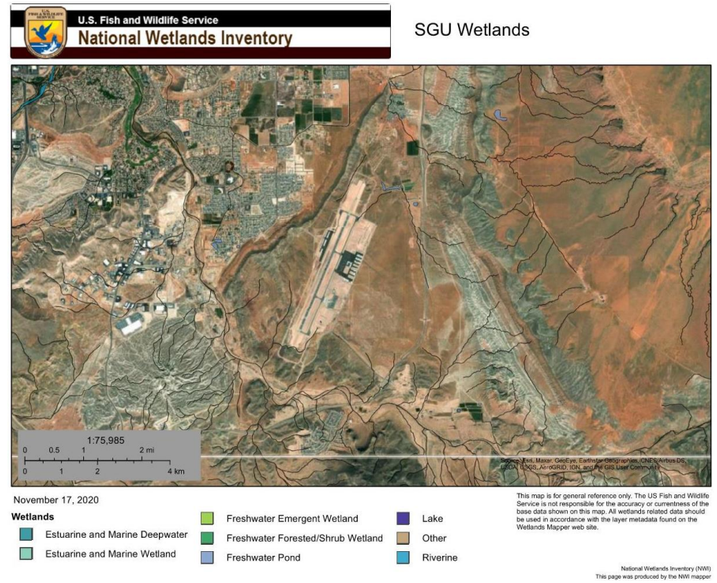
According to the U.S. Fish and Wildlife Service's Wetland Mapper, the National Wetlands Inventory (NWI) no wetlands exist on or adjacent to the Airport, as depicted in **Figure 5-4**. However, the NWI does show several riverines intersecting the Airport. In 2019, it was determined by the USACE that the southern riverine was considered a protected water of the U.S. and falls under the USACE's jurisdiction. As such, future projects that result in changes to the riverines should be coordinated with the USACE to determine permit requirements.

Floodplains

Executive Order 11988, *Floodplain Management*[8] directs federal agencies to "avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative." Floodplains are those areas subject to a one percent or greater chance of flooding in any given year.

The Airport is located on Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) #49053C1042G, effective date of 04/02/2009; #49053C1065G, effective date 4/2/2009; and #49053C1044G, effective date 4/2/2009 as depicted in Appendix D. The Airport is located in flood zone "X", an area considered to be an area with minimal flood hazard. **Figure 5-5** indicates identified national flood hazards near the airport.

Figure 5-4: NWI near SGU

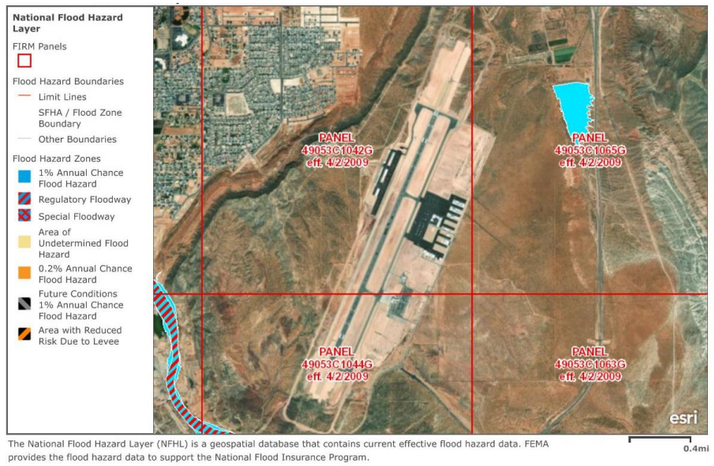


Source: U.S. Fish and Wildlife Service, National Wetland Inventory. https://www.fws.gov/wetlands/data/mapper.html, Accessed November 2020

[7] FAA, FAA Order 1050.1F Desk Reference, July 2015

[8] Executive Order 11988, *Floodplain Management*, 1977

Figure 5-5: National Flood Hazards near SGU



Source: FEMA, FIRM #49053C1042G, effective date of 04/02/2009; #49053C1065G, effective date 4/2/2009; and #49053C1044G, effective date 4/2/2009

Surface Waters and Groundwater

Surface waters include streams, rivers, lakes, ponds, estuaries, and oceans. As discussed previously, the NWI depicts several riverines intersecting the Airport; these waters have historically been under the jurisdiction of the USACE. The Airport's surface water flows northeast to southwest towards Fort Pearce Wash, which flows to the Virgin River; and are part of Utah's Lower Colorado River Basin.

Groundwater is subsurface water that occupies the space between sand, clay, and rock formations. The term aquifer is used to describe the geologic layers that store or transmit groundwater, such as to wells, springs, and other water sources. The Airport is located in the Virgin River Basin which withdrawals from the consolidated-rock aquifers found in the Navajo Sandstone and the Kayenta Formation. These are referred to as the Navajo and Kayenta aquifers. Ground water consumption is largely used for irrigation and public drinking water. These aquifers provide a majority of the potable water for St. George and area recharged primarily through precipitation events.

Wild and Scenic Rivers

Rivers identified in the Nationwide Rivers Inventory and protected under The Wild and Scenic Rivers Act of 1968, as amended[9], are classified as wild, scenic, or recreational. Each river in the National System is administered with the goal of protecting and enhancing the values that caused it to be designated. A designated river is neither prohibited from development nor does it give the federal government control over private property. Protection of the river is provided through voluntary stewardship by landowners and river users and through regulation and programs of federal, state, local, or tribal governments. In most cases, not all land within boundaries is, or will be, publicly owned, and the Act limits how much land the federal government can acquire from willing sellers.[10]

There is one designated Wild and Scenic River in the drainage basin associated with the Airport, the Virgin River. The segments of the Virgin River that are designated as Wild and Scenic are located approximately 30 miles northeast and upstream of SGU. Changes to storm flows leaving the Airport should consider potential impacts to the Virgin River.

III. EXISTING AIRPORT PERMITS

The EPA in addition to the State of Utah require facilities, such as airports, to obtain and maintain certain permits to ensure water quality is protected during operation and construction activities. Typically, these include a National Pollutant Discharge Elimination System (NPDES) permit, Storm Water Pollution Prevention Plan (SWPPP), and a Spill Prevention, Control, and Countermeasure (SPCC) Plan.

NPDES Permit

Per the EPA, the Clean Water Act prohibits anybody from discharging "pollutants" through a "point source" into a "water of the United States" unless they have an NPDES permit. The permit contains limits of what can be discharged, monitoring and reporting requirements, and other provisions ensuring water quality is maintained.

SGU holds and maintains a NPDES permit through the State of Utah's Department of Environmental Quality, Division of Water Quality. The latest permit was issued on April 5, 2016 and will expire on December 31, 2022.

SPCC Plan

Facilities such as airports that use, store, and handle oil are often required to prepare, follow and maintain a SPCC plan. Specifically, facilities that meet the following criteria must have a SPCC Plan in place:

- Store > 1,320 gallons of oil
- Start counting at 55 gallons (typically drums and totes)
- Have a "reasonable expectation of an oil discharge" to water

The plans described the equipment, workforce, procedures, and training to prevent, control, and provide adequate countermeasures to a discharge of oil.

SGU prepared a SPCC plan dated September 26, 2012. A review of the Plan is required every five years and should be amended to include changes in the facility design, construction, operation, or maintenance that materially affects the Airport's potential for discharge.

SWPPP

A SWPPP is required under a construction general permit and ensure that stormwater runoff from construction sites does not cause significant harm to rivers, lakes, and coastal waters. A SWPPP is more than just an erosion control plan; it includes all the construction site operator's activities to prevent stormwater contamination, control sedimentation and erosion, and comply with the requirements of the Clean Water Act.

All construction projects that occur at SGU must prepare and submit with their general permits to the State of Utah, a SWPPP. These are typically prepared and obtained by the general contractors.

[9] U.S. Code, The Wild and Scenic Rivers Act of 1968, 16 USC 1271-1287, 1977

[10] National Wild and Scenic Rivers System, www.rivers.gov, accessed July 2014

Summary of Potential Resources

Resource Category	Development Concerns
Air Quality	Although the Airport is located in an area designated as being in attainment by the EPA, future projects that involve a federal action (i.e. FAA funding or approval) may require an emissions inventory to ensure the local air quality is maintained.
Biological Resources	Future development projects should consider potential impacts to federally and state listed threatened and endangered species as well as birds protected by the Migratory Bird Treaty Act. Biological surveys may be needed to ensure specie protection.
Climate	There are no standards by which the emissions of GHG can be evaluated; however, future development should consider impacts to the climate.
Coastal Resources	No coastal barriers or zones are located near SGU.
Department of Transportation Act, Section 4(f)	Section 4(f) resources are not located within or adjacent to Airport property.
Farmlands	None of the land within the Airport boundary is currently being farmed, nor are there plans to irrigate land and begin farming practices.
Hazardous Materials, Solid Waste, and Pollution Prevention	Hazardous sites were not identified on Airport property. Future development projects should consider techniques to reduce waste and reuse materials when possible.
Historic, Architectural, Archaeological, and Cultural	NRHP eligible resources were not identified on airport property. The Class III survey should be used for future coordination between the FAA and the Utah SHPO prior to the start of federally funded development projects.
Land Use	As projects are proposed and developed on Airport property, community land use should be considered to ensure compatibility is maintained.
Natural Resources and Energy Supply	Future development projects should consider techniques to reduce waste, use recycled material, and reuse materials when possible.
Noise and Compatible Land Use	Future development projects should consider changes to aircraft operations or land use that may result in increased noise in areas that area noise sensitive.
Socioeconomic, Environmental Justice, and Children's Environmental Health and Safety Risks	Minority populations are present within the City of St. George. To ensure that no minority and/or economically disadvantaged communities would be negatively impacted by future airport development, if land acquisition is necessary, further socioeconomic research should be conducted.
Visual Effects	Residences do not currently live in proximity to the Airport; however, additional residential development is planned for areas north and south of the Airport. Future development projects that include vertical development or additional light emissions should consider impacts to the visual setting of the area.
Water Resources	Future airport development projects that would modify the existing drainage patterns of the area should be reviewed as part of the environmental documentation to ensure water quality is maintained. Permits through the USACE may be required if future development projects would impact the drainage channels traversing the Airport.

Source: Jviation, 2020.