

## CHAPTER FIVE

### AFFECTED ENVIRONMENT

The purpose of this chapter is to describe the character of the existing environment in the St. George area, presented under the following categories:

- 5.1 Study Areas
- 5.2 Climate and Topography
- 5.3 Public Lands
- 5.4 Biological and Natural Resources
- 5.5 Existing Land Use
- 5.6 Future Land Use Plans and Zoning
- 5.7 Historic, Architectural, Archeological, and Cultural Resources
- 5.8 Socioeconomic Profile
- 5.9 St. George Municipal Airport
- 5.10 Area Airports
- 5.11 Historical and Forecast Aviation Activity
- 5.12 Other Air Traffic in Initial Area of Investigation
- 5.13 Air Traffic Control Environment
- 5.14 Airspace Structure
- 5.15 Published Air Routes and Procedures
- 5.16 Other Actions in Areas Potentially Affected by the Proposed Replacement Airport

The impacts of the proposed replacement airport on these resource categories are described in **Chapter Six, *Environmental Consequences***.

#### 5.1 STUDY AREAS

An initial area of investigation and three separate study areas have been defined as part of this Environmental Impact Statement (EIS). The initial area of investigation covers a large area and contains the three study areas within its boundary. See **Section 5.1.1** of this chapter for detailed information about the initial area of investigation and **Section 5.1.2 through Section 5.1.4** of this chapter for detailed information about the three study areas.

##### 5.1.1 INITIAL AREA OF INVESTIGATION

The initial area of investigation for this EIS, shown in **Exhibit 5.1**, covers approximately 9,200 square miles in portions of southwestern Utah, northwestern Arizona, and southeastern Nevada. The proposed replacement airport lies at the center of the initial area of investigation, which extends approximately 40 nautical miles to the north and south and 44 nautical miles to the east and west.



The initial criterion for determining the size of the initial area of investigation was to include Zion National Park, Cedar Breaks National Monument, Pipe Springs National Monument, and the Wilderness Areas and Wilderness Study Areas in the immediate vicinity of those public lands. The initial area of investigation was then squared off to define a rectangle with the proposed replacement airport near the center. Because a particular purpose of the EIS was to assess the potential effect of aircraft noise in Zion National Park from the proposed replacement airport (as directed by the Court)<sup>1</sup>, this was considered a reasonable delineation of an area for initial study.

A detailed aircraft noise analysis was undertaken within the initial area of investigation in compliance with the directive of the Court. In addition, a noise screening analysis was undertaken at the edges of the area to determine whether potential aircraft noise effects attributable to the proposed replacement airport might be experienced at sensitive areas beyond the limits of the initial area of investigation. This is explained in detail in **Appendix B, Supporting Information on Noise Analysis** and **Chapter Six, Environmental Consequences**.

Within the initial area of investigation, the following three study areas were identified for detailed environmental investigations. See **Section 5.1.2 through Section 5.1.4** of this chapter for detailed information about the three study areas for this EIS:

1. Existing Airport Study Area (see **Section 5.1.2**)
2. Proposed Replacement Airport Study Area (see **Section 5.1.3**)
3. Zion National Park Study Area (see **Section 5.1.4**)

### **5.1.2 EXISTING AIRPORT STUDY AREA**

The existing airport study area is one of the three study areas identified for detailed environmental investigation as part of the EIS. This study area is smaller in scale than the initial area of investigation to accommodate the more detailed analysis of the No-Action Alternative and redevelopment of the existing airport property. The existing airport study area includes all existing airport property and a larger rectangular area centered on the existing airport property, measuring approximately 3.9 statute miles from east to west and 4.7 statute miles from north to south.

St. George Municipal Airport (SGU) is owned and operated by the City of St. George, Utah and is part of the national system of airports. It is an integral component of the transportation infrastructure that serves the City of St. George, Washington City, Washington County, southwestern Utah, southeastern Nevada, and northwestern Arizona.

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<sup>1</sup> United States Court of Appeals for the District of Columbia Circuit. Argued April 11, 2002 Decided May 24, 2002 No. 01-1154. Grand Canyon Trust, Petitioner v. Federal Aviation Administration, Respondent. On Petition for Review of an Order of the Federal Aviation Administration.

SGU is located atop a mesa in the central portion of the City of St. George. When the airport originally opened in 1929, the mesa on which it is located was an isolated area on the western fringe of the City of St. George. Today, various densities of residential areas, commercial development, and light highway development surround the airport.

Airport Road, a two-lane, paved major collector roadway, provides access to the existing airport site from downtown St. George. Residential areas to the north of the airport, sharing the mesa, can also be accessed from Airport Road. Interstate 15, providing access to Las Vegas, Nevada to the southwest and Salt Lake City, Utah to the northeast; and State Route 18, providing access to Veyo, Utah to the northwest, and, in the future, the proposed Southern Corridor are accessible from the existing airport site through downtown St. George, via Airport Road.<sup>2</sup>

Sharing the mesa to the immediate north of the airport are single and multi-family developments that take advantage of the panoramic views of the surrounding area that are provided from atop the mesa. To the east of the airport, also atop the mesa, is a hotel and restaurant. The City of St. George, including general commercial businesses and residential neighborhoods, is located below the mesa to the east of the airport. Residential areas are also located to the south and west of the airport, below the mesa. Farmland is located below the mesa to the west.<sup>3</sup>

See **Section 5.2.1, *Topography in Existing Airport Study Area***, and **Exhibit 5.2, *Topography – Existing Study Area***, for more detailed information.

### **5.1.3 PROPOSED REPLACEMENT AIRPORT STUDY AREA**

The proposed replacement airport site is the second of three study areas identified for detailed environmental investigation as part of the EIS and is located approximately five miles southeast of the City of St. George, within the limits of Washington County, the City of St. George, and Washington City.

This study area is smaller in scale than the initial area of investigation to accommodate the more detailed analysis of construction and development-related impacts that would result from the proposed replacement airport. The proposed replacement airport study area includes all property identified as the site for the proposed replacement airport and a larger rectangular area centered on the proposed replacement airport site, extending 6.5 statute miles east to west and 8.0 statute miles north and south.

The Utah State School and Institutional Trust Lands Administration (Utah SITLA), the City of St. George, the State of Utah, the U.S. Bureau of Land Management (BLM), and private entities currently own separate portions of the land at this site. The site encompasses approximately 1,306 acres of mostly open and undeveloped land.<sup>4</sup>

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<sup>2</sup> *St. George City Airport Redevelopment Plan*. Prepared by Creamer & Noble Engineers. June 2000.

<sup>3</sup> *St. George City Airport Redevelopment Plan*. Prepared by Creamer & Noble Engineers. June 2000.

<sup>4</sup> Landrum & Brown analysis, 2004.

The average elevation at the proposed replacement airport site is approximately 2,750 feet above sea level.<sup>5</sup> The land at the proposed replacement airport site is rolling, with a large rock cliff on the western edge. The remains of the old Civil Aeronautics Administration (CAA) Airport runway are on the site, as is a paved road from the west providing access to the old runway. **Exhibit 5.3, *Topography in Proposed Replacement Airport Study Area***, provides a graphical depiction of this study area.

#### 5.1.4 ZION NATIONAL PARK STUDY AREA

Zion National Park (Zion) is the third of three study areas identified for detailed environmental investigation as part of the EIS. Located in southwestern Utah in Washington, Iron, and Kane counties at the junction of the Colorado Plateau, Great Basin, and Mojave Desert provinces, Zion includes a dramatic landscape of sculptured canyons and soaring cliffs that support a diverse community of plant and animal life.<sup>6</sup> Zion is located approximately 26 miles northeast of the proposed replacement airport site.

Zion hosted approximately 2.4 million recreational visits in fiscal year 2003.<sup>7</sup> Visitors to Zion typically engage in camping, hiking, wildlife observation, educational programs for adults and children, and other recreational activities. Ninety percent of the roughly 146,000 acres of land encompassed by Zion is managed as wilderness, under a 1974 wilderness recommendation to the U.S. Congress. Zion is characterized by high plateaus, deep canyons, striking rock formations, and mesas. Most notably, the rock layers at Zion have experienced uplifting, tilting, and erosion over several thousand years, forming a prominent series of colorful cliffs. Elevations at Zion range from 3,666 feet at Coalpits Wash at the southwestern corner of the park, to 8,726 feet at Horse Ranch Mountain at the northern end of the park.<sup>8</sup> **See Section 5.2.3, *Topography in Zion National Park Study Area***, and **Exhibit 5.4** for more detailed information.

## 5.2 CLIMATE AND TOPOGRAPHY

The climate of the St. George area is semi-arid with two separate rainfall seasons in the early spring and late summer, and an average of approximately eight inches of annual precipitation. The average maximum temperatures for the summer months are between 95 and 101 degrees Fahrenheit (F) with low average relative humidity levels. Annual mean temperature is 77.5 degrees F. December is the coldest month with a mean temperature of 38.8 degrees F, and July is the hottest month with a monthly mean temperature of 86.9 degrees F.

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<sup>5</sup> *Final Environmental Assessment for the Proposed Replacement Airport at St. George, Utah, 3.0, Affected Environment*. Prepared by Creamer & Noble Engineers and Barnard Dunkelberg & Company. January 2001.

<sup>6</sup> Zion National Park Web site. On-line at <http://www.nps.gov/zion/>. Retrieved July 12, 2004.

<sup>7</sup> Zion National Park Web site. On-line at <http://www.nps.gov/zion/>. Retrieved July 12, 2004.

<sup>8</sup> *Zion National Park General Management Plan*. Prepared by the National Park Service. August 2001.

### 5.2.1 TOPOGRAPHY IN EXISTING AIRPORT STUDY AREA

The City of St. George lies in the high desert at an elevation of 2,800 feet.<sup>9</sup> As shown in **Exhibit 5.2**, the existing airport site sits atop a mesa overlooking the city at an elevation of 2,941 feet mean sea level (MSL).<sup>10</sup> The mesa on which the airport is located is the southernmost portion of West Black Ridge, which borders the entire western edge of St. George.

The City of St. George lies slightly northeast of the existing airport site in a valley that is closely surrounded by West Black Ridge to the west (peak elevation reaching over 3,300 feet at Devil's Saddle), the Red Hills to the north/northeast (peak elevations of approximately 3,200 feet) and the Middleton Black Ridge to the east (peak elevation of nearly 3,000 feet). Base elevations in the valley occupied by St. George range from approximately 2,700 feet in the northwest to approximately 2,500 feet in the southeast.<sup>11</sup>

The characteristics of the existing airport site were created by ancient lava flows originating from local volcanoes. The land where the City of St. George is now located was originally a region of sand and sandstone. During volcanic eruptions, molten lava flowed from north of present day St. George to the south through then-present washes and channels in the landscape. Through erosion of the sandstone over time, the hardened lava flows were exposed as mesas or plateaus winding down and away from the volcano beds, providing a natural "table top" land surface. Fractured lava can be observed today around the perimeter of the mesa, having been exposed by the erosion of sandstone over many years. Cacti, sagebrush, and desert grasses provide sparse cover atop the mesa.

The City of St. George is designated as a Seismic Zone 2 under the Uniform Building Code. Zone 1 is the least hazardous and Zone 3 is the most hazardous. The St. George area has a history of moderate (i.e. magnitude five and greater), potentially damaging earthquakes. In 1992, a southern Utah earthquake measuring 6.0 on the Richter scale had its epicenter in the Hurricane area, just north and east of the proposed replacement airport site.<sup>12</sup>

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<sup>9</sup> St. George Climate. Available on-line at [www.sgcity.org/aboutsg/weather.php](http://www.sgcity.org/aboutsg/weather.php). Retrieved May 17, 2004.

<sup>10</sup> St. George Municipal Airport FAA Information. On-line at [www.airnav.com/ksgu](http://www.airnav.com/ksgu). April 15, 2004.

<sup>11</sup> Topographic maps of the State of Utah. Utah Division of Water Rights. On-line at <http://nrwrt1.nr.state.ut.us/quads/default.htm>. August 6, 2001.

<sup>12</sup> *Final Environmental Assessment for the Proposed Replacement Airport at St. George, Utah, 3.0, Affected Environment*. Prepared by Creamer & Noble Engineers and Barnard Dunkelberg & Company. January 2001.

### 5.2.2 TOPOGRAPHY IN PROPOSED REPLACEMENT AIRPORT STUDY AREA

The average elevation at the proposed replacement airport site is approximately 2,750 feet above sea level.<sup>13</sup> The topography in the proposed replacement airport study area is shown in **Exhibit 5.3**.

Key topographic features in the vicinity of the proposed replacement airport include Washington Dome to the northeast (peak elevation of approximately 3,300 feet), Warner Ridge to the east (peak elevation of approximately 3,500 feet), Little Black Mountain to the southeast, which straddles the Utah/Arizona border (peak elevation of approximately 3,450 feet, located in Arizona), and White Dome to the southwest (peak elevation of over 2,800 feet).<sup>14</sup> A small ridge nearly parallels the proposed runway to the northwest; with the City of St. George located just beyond. The land to the northeast of the proposed runway, following the extended centerline, is gently sloping and creates a relatively narrow valley between Washington Dome and Warner Ridge. Dry washes and numerous dirt roads dissect the area. A utility line for an abandoned well crosses to the southeast area of the site. Livestock fencing is on the east and middle portions of the area. A large wash, Fort Pearce Wash, is located adjacent to the southern boundary.<sup>15</sup>

Soil information for the proposed replacement airport study area was obtained from a soil survey of Washington County, conducted by the U.S. Department of Agriculture, Soil Conservation Service (USDA). Specific soil types in the proposed replacement airport study area are listed in **Table 5.1**. The following three soil associations dominate the proposed replacement airport study area.<sup>16</sup>

- *Tobler-Harrisburg-Junction*: Well-drained, nearly level to moderately steep, moderately deep and deep fine sandy loams and silty clay loams; on alluvial fans, floodplains, and mesas.
- *Badland-Eroded*: Rolling to very steep badland and eroded land in desert basins and on uplands.
- *Rock Outcrop-Rock*: Gently sloping to very steep bare bedrock and very shallow soils over bedrock in desert basins and on uplands.

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<sup>13</sup> *Final Environmental Assessment for the Proposed Replacement Airport at St. George, Utah, 3.0, Affected Environment*. Prepared by Creamer & Noble Engineers and Barnard Dunkelberg & Company. January 2001.

<sup>14</sup> Topographic maps of the State of Utah. Utah Division of Water Rights. On-line at <http://nrwrt1.nr.state.ut.us/quads/default.htm>. August 6, 2001.

<sup>15</sup> *Final Environmental Assessment for the Proposed Replacement Airport at St. George, Utah, 3.0, Affected Environment*. Prepared by Creamer & Noble Engineers and Barnard Dunkelberg & Company. January 2001.

<sup>16</sup> *Final Environmental Assessment for the Proposed Replacement Airport at St. George, Utah, 3.0, Affected Environment*. Prepared by Creamer & Noble Engineers and Barnard Dunkelberg & Company. January 2001.

**Table 5.1**  
**SOIL TYPES IN PROPOSED REPLACEMENT AIRPORT STUDY AREA**

SOIL TYPE	DESCRIPTION
Badland	Nearly barren multicolored beds of actively eroding shale, shale interbedded with sandstone, and shale interbedded with layers of gypsum. Severely dissected, rolling landscape with channels of intermittent streams form a branching pattern.
Eroded Land	Stratified shale and gypsum. Slopes are gently rolling to steep and are strongly dissected. Active erosion. High sediment production.
Gullied Land	Areas so cut by gullies that any soil profiles have been destroyed. These areas support little or no vegetation and most have shallow soil material.
Harrisburg Fine Sandy Loam	Well-drained soils underlain by a carbonate-cement hardpan at a depth of 24 to 40 inches. Nearly level to sloping soil on mesas. Formed in residuum weathered from sandstone and windblown sediments derived from sandstone, volcanic ash, and shale.
Hobog-Rock Land Association	Fifty percent Hobog (very cobbly loam), 40 percent Rock land, and 10 percent other soils. Soils are shallow, well-drained over bedrock. Formed in material weathered from sandstone. The Hobog soil is on mesas, and Rock land is on ridges and sharp breaks along drainageways.
LaVerkin Fine Sandy Loam	Well-drained soils in alluvial fans, in valleys, and on stream terraces. Formed in mixed alluvium washed from limestone, sandstone, and shale.
Pintura Loamy Fine Sand	Undulating soil on desert slopes. Reddish profile with yellow loamy fine sand and fine sand to a depth of 65 inches or more. Runoff is very slow and erosion is slight to moderate.
Vekol Sandy Loam	Well-drained soils on valley plains and alluvial fans. Soils formed in mixed alluvium washed from shale, sandstone, and limestone.
Nikey Sandy Loam	Well-drained soil on desert alluvial fans and desert foothill slopes. Surface profile of brown sandy loam and yellowish-red fine sandy loam to about 26 inches. Lower profile of the underlying material is 1-10 percent, by volume, fine to medium crystals of gypsum. Medium runoff and erosion.
Pintura Loamy Fine Sand, Hummocky	Located on hummocky desert slopes. Profile of reddish-yellow loamy fine sand and fine sand to a depth of 65 inches or more. Runoff is very slow and erosion is moderate to severe.
St. George Silt Loam	Well-drained soil on desert alluvial floodplains. Surface profile is light-brown silt loam about 9 inches thick. The underlying material is strong-brown and reddish-yellow loam and light reddish-brown silt loam to a depth of 60 inches or more. Profile is 1 to 30 percent, by volume, granules of gypsum. Runoff is slow and erosion is slight.

Source: *Final Environmental Assessment for the Proposed Replacement Airport at St. George, Utah, 3.0, Affected Environment* and Figure 13. Prepared by Creamer & Noble Engineers and Barnard Dunkelberg & Company. January 2001.

### 5.2.3 TOPOGRAPHY IN ZION NATIONAL PARK STUDY AREA <sup>17</sup>

Zion is located at the junction of the Colorado Plateau, Great Basin, and Mojave Desert provinces, approximately 26 miles northeast of the proposed replacement airport site. Zion consists of 146,597 acres (229 square miles) covering portions of Washington, Kane, and Iron counties in Utah. The topography of Zion is depicted in **Exhibit 5.4**.

As stated in **Section 5.1.3, Zion National Park Study Area**, the land in Zion is 90 percent recommended wilderness and is characterized by high plateaus, deep canyons, striking rock formations, and mesas. By national policy, recommended and proposed wilderness areas within national parks are managed as wilderness to protect those values and resources until Congress acts on those recommendations.

As shown in **Exhibit 5.5, Zion National Park Land Cover**, land cover in the northern region of Zion is predominantly evergreen forest, deciduous forest, and shrubland. The central region of Zion contains a mixture of bare rock/sand/clay, evergreen forest, deciduous forest, and shrubland land covers. Land cover in the southern region of Zion is predominantly shrubland with interspersed areas of evergreen and deciduous forest. Elevations at Zion range from 3,666 feet at Coalpits Wash located at the southwest corner of the park, to 8,726 feet at Horse Ranch Mountain located at the northern end of the park.

Approximately 240 million years ago, the land now occupied by Zion was a relatively flat basin near sea level. As surrounding mountains eroded over time, streams carried the sand, gravel, and mud into the Zion basin and deposited them in layers. The sheer weight of these accumulated layers caused the basin to sink, so that the top surface always remained near sea level. As the land rose and fell, and as the climate changed, the depositional environment fluctuated from shallow seas, to coastal plains, to a desert of massive windblown sand. This process of sedimentation continued until over 10,000 feet of material had accumulated. Having been uplifted, tilted, and eroded over thousands of years, the resulting rock layers at Zion have formed a series of colorful cliffs stretching between Bryce Canyon and the Grand Canyon. The bottom layer of rock at Bryce Canyon is the top layer at Zion, and the bottom layer at Zion is the top layer at the Grand Canyon.<sup>18</sup>

Annual precipitation at Zion is approximately fifteen inches. Throughout the year, temperatures range from extremes of –2 degrees F to 115 degrees F. Daytime summer temperatures range from 70 degrees F to 105 degrees F, while night temperatures are usually between 45 degrees F and 75 degrees F.

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<sup>17</sup> Zion National Park Profile. National Park Service. On-line at [www.nps.gov/zion](http://www.nps.gov/zion). Retrieved May 17, 2004.

<sup>18</sup> Zion National Park Web site. On-line at <http://www.nps.gov/zion/>. Retrieved July 14, 2004.

### 5.3 PUBLIC LANDS

Federally owned public lands in the U.S. fall under several different designations and are managed by various lead agencies. Forty-seven designated public lands are located within the initial area of investigation, as listed in **Table 5.2, *Public Lands***, and **Table 5.3, *Wilderness Study Areas***. Lead agencies for these properties include the Bureau of Indian Affairs (BIA), the BLM, the National Park Service (NPS), the U.S. Forest Service (USFS), the State of Utah, the State of Arizona, and the State of Nevada.

The initial area of investigation was used as a basis for determining which public lands could potentially be affected by the development of the proposed replacement airport at St. George (see **Section 5.1.1** for detailed information about the initial area of investigation). The determination of which sites within the initial area of investigation are public lands was made through coordination with the lead agencies listed above. See **Appendix M, *Coordination with Managing Agencies of 4(f)/303(c) Properties Located within the Initial Area of Investigation***, for documentation of this coordination process.

Public lands are protected for the conservation of natural resources, the protection of historic sites, and the provision of outdoor recreational opportunities. Most public lands are protected to provide for public enjoyment in such a way that will leave resources unimpaired for the enjoyment of future generations. Some public lands are also set aside for economic uses and can be administered under the concept of multiple use management, which balances economic activities such as grazing, logging, and mining with recreational uses of the land. This is also true of both national and state-level public lands.

Some state-owned public lands are managed to produce revenue that supports specific governmental services. In Utah, the Utah SITLA is charged with managing the state's designated trust lands for the direct financial benefit of designated beneficiaries, which include public schools (receiving the largest share), state universities, public buildings, state hospitals, and state reservoirs.<sup>19</sup> Similar trust land programs have also been established in Arizona and Nevada, with public schools receiving the largest share of revenue from the management of trust lands in these states as well.

In Arizona, the State Land Department manages state trust lands. In Nevada, the Division of State Lands manages state trust lands. Trust lands in Utah, Arizona, and Nevada generate revenue for beneficiaries by being sold or leased for long-term uses such as mining, telecommunication towers, commercial and industrial enterprises, cabin sites, farming, the establishment of residential developments,

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<sup>19</sup> State of Utah School and Institutional Trust Lands Administration. On-line at <http://www.utahtrustlands.com/>. 2004.



roads, pipelines, power-lines, and other types of transmission lines, and short-term uses such as filming movies and commercials and other organized events such cross-country races.<sup>20, 21</sup>

Detailed information about the different types of public lands in the initial area of investigation is included in **Table 5.2 and Table 5.3**, and in **Section 5.3.1 through Section 5.3.8** of this chapter. **Exhibit 5.1** depicts the public lands in the initial area of investigation.

**Table 5.2**  
**PUBLIC LANDS IN INITIAL AREA OF INVESTIGATION**

TYPE OF PUBLIC LAND	NAME	LEAD AGENCY	PROMINENT FEATURES
<b>National Forests</b>	Dixie National Forest, UT <sup>1</sup>	USFS	<ul style="list-style-type: none"> <li>Nearly 2 million acres</li> <li>83,000 acres of Wilderness</li> <li>Largest national forest in Utah</li> </ul>
	Kaibab National Forest, AZ <sup>2</sup>	USFS	<ul style="list-style-type: none"> <li>1.6 million acres</li> <li>Largest contiguous ponderosa pine forest in U.S.</li> </ul>
<b>Wilderness Areas</b>	Ashdown Gorge Wilderness, UT <sup>3</sup>	BLM	<ul style="list-style-type: none"> <li>7,043 acres</li> <li>Designated in 1984</li> <li>10 miles of trails</li> <li>Elevations 8,000' to 10,400'</li> </ul>
	Beaver Dam Mountain Wilderness, AZ & UT <sup>3</sup>	BLM	<ul style="list-style-type: none"> <li>17,600 total acres (15,000 acres in AZ, 2,600 acres in UT)</li> <li>No maintained trails</li> </ul>
	Cottonwood Point Wilderness, AZ <sup>3</sup>	BLM	<ul style="list-style-type: none"> <li>6,860 acres</li> <li>Designated in 1984</li> <li>No maintained trails</li> <li>Peak elevation at 6,322'</li> </ul>
	Grand Wash Cliffs Wilderness, AZ <sup>3</sup>	BLM	<ul style="list-style-type: none"> <li>37,030 acres</li> <li>Designated in 1984</li> <li>No maintained trails</li> </ul>
	Kanab Creek Wilderness, AZ <sup>3</sup>	BLM	<ul style="list-style-type: none"> <li>70,460 acres</li> <li>Designated in 1984</li> <li>Elevations 2,000' to 6,000'</li> </ul>
	Mount Trumbull Wilderness, AZ <sup>3</sup>	BLM	<ul style="list-style-type: none"> <li>7,880 acres</li> <li>Designated in 1984</li> <li>Peak elevation at 8,028'</li> <li>5 miles of trails</li> </ul>
	Paiute Wilderness, AZ <sup>3</sup>	BLM	<ul style="list-style-type: none"> <li>87,900 acres</li> <li>Designated in 1984</li> <li>Peak elevation at 8,012'</li> </ul>

<sup>20</sup> Arizona State Land Department. On-line at <http://www.land.state.az.us/>. Retrieved Dec. 20, 2004.

<sup>21</sup> Nevada Division of State Lands. On-line at <http://www.lands.nv.gov/>. October 2004.

**Table 5.2, Continued**  
**PUBLIC LANDS IN INITIAL AREA OF INVESTIGATION**

TYPE OF PUBLIC LAND	NAME	LEAD AGENCY	PROMINENT FEATURES
<b>Wilderness Areas, Continued</b>	Pine Valley Mountain Wilderness, UT <sup>3</sup>	USFS	<ul style="list-style-type: none"> <li>• 50,232 acres</li> <li>• Designated in 1984</li> <li>• 2<sup>nd</sup> largest wilderness in Utah</li> <li>• 150 miles of trails</li> </ul>
<b>National Parks and Recreation Areas</b>	Zion National Park, UT <sup>4</sup>	NPS	<ul style="list-style-type: none"> <li>• 146,597 acres</li> <li>• 90% recommended wilderness</li> <li>• Established in 1909 as Mukuntuweap National Monument, 1919 as Zion National Park</li> <li>• Average of 2.5 million visitors/year since 1994</li> </ul>
	Lake Mead National Recreation Area, NV & AZ <sup>5</sup>	NPS	<ul style="list-style-type: none"> <li>• 1,495,664 acres</li> <li>• 7,829,475 visitors in 2003</li> <li>• Designated Recreation Area in 1936</li> <li>• Designated first National Recreation Area in 1964</li> <li>• Adjacent to Grand Canyon Parashant National Monument and Grand Canyon National Park, AZ</li> <li>• Straddles Nevada/Arizona border</li> </ul>
<b>National Monuments</b>	Cedar Breaks National Monument, UT <sup>6</sup>	NPS	<ul style="list-style-type: none"> <li>• 6,155 acres</li> <li>• 79% recommended wilderness</li> <li>• 601,391 visitors in 2003</li> <li>• Huge natural amphitheater eroded out of variegated Pink Cliffs</li> <li>• Over 2,000' feet deep</li> <li>• Rim of canyon at elevation of 10,000'</li> </ul>

**Table 5.2, Continued**  
**PUBLIC LANDS IN INITIAL AREA OF INVESTIGATION**

TYPE OF PUBLIC LAND	NAME	LEAD AGENCY	PROMINENT FEATURES
<b>National Monuments, Continued</b>	Grand Canyon-Parashant National Monument, AZ <sup>7</sup>  <i>As shown in <b>Exhibit 5.1</b>, the southern boundary of the initial area of investigation divides this national monument into two properties for noise-analysis purposes. See <b>Section 6.6</b> and <b>Appendix B</b> for additional information.</i>	BLM & NPS	<ul style="list-style-type: none"> <li>• 1,054,264 acres</li> <li>• Under joint management by BLM and NPS</li> <li>• Borders Grand Canyon National Park to the south, and the state of Nevada to the west</li> <li>• Encompasses a portion of Lake Mead National Recreation Area</li> </ul>
<b>State Parks</b>	Pipe Spring National Monument, AZ <sup>8</sup>	NPS	<ul style="list-style-type: none"> <li>• 40 acres</li> <li>• 55,574 visitors in 2003</li> <li>• Located on Kaibab-Paiute Indian Reservation</li> <li>• Designated in 1923</li> </ul>
	Coral Pink Sand Dunes State Park, UT <sup>10</sup>	State of Utah	<ul style="list-style-type: none"> <li>• 3,730 acres</li> <li>• Peak elevation at 6,000'</li> <li>• 10,000 – 15,000 year-old sand dunes created by high winds from erosion of Navajo sandstone dating back to the Middle Jurassic geologic period</li> <li>• Dunes support diverse populations of insects and amphibians</li> </ul>
	Gunlock State Park, UT <sup>10</sup>	State of Utah	<ul style="list-style-type: none"> <li>• 549 acres</li> <li>• Peak elevation at 3,600'</li> <li>• Encompasses Gunlock Dam and Reservoir, constructed in 1970</li> </ul>
	Iron Mission State Park and Museum, UT <sup>10</sup>	State of Utah	<ul style="list-style-type: none"> <li>• Tells the story of Mormon missionaries who settled in the area in 1850 to mine and process iron</li> <li>• Features historic ruins of Old Iron Town, several historic cabins, horse-drawn farm equipment, and replicated pioneer household</li> </ul>
	Quail Creek State Park and Reservoir, UT <sup>10</sup>	State of Utah	<ul style="list-style-type: none"> <li>• Peak elevation at 3,000'</li> <li>• Man-made reservoir completed in 1985, diverts water from Virgin River through buried pipeline</li> <li>• Reservoir maximum depth of 120' supports wide varieties of fish</li> </ul>

**Table 5.2, Continued**  
**PUBLIC LANDS IN INITIAL AREA OF INVESTIGATION**

TYPE OF PUBLIC LAND	NAME	LEAD AGENCY	PROMINENT FEATURES
State Parks, continued	Sand Hollow State Park, UT <sup>10</sup>  <i>Not a 4(f)/303(c) resource, per State of Utah</i>	State of Utah	<ul style="list-style-type: none"> <li>• 1,670 acres</li> <li>• Peak elevation at 3,000'</li> <li>• Adjacent to 19,123-acre Sand Hollow recreation area</li> </ul>
	Snow Canyon State Park, UT <sup>10</sup>	State of Utah	<ul style="list-style-type: none"> <li>• 6,272 acres</li> <li>• Peak elevation at 3,200'</li> <li>• Predominantly Red Navajo sandstone, capped by black lava rock</li> <li>• Easy to moderate-level trails throughout</li> </ul>
Native American Lands	Kaibab Indian Reservation, AZ <sup>11</sup>	BIA	<ul style="list-style-type: none"> <li>• 120,413 acres</li> <li>• 216 residents in 2003</li> <li>• Elevations 5,500' to 6,000'</li> <li>• Established in 1907, surrounding the then, privately-owned Pipe Spring Ranch (today Pipe Spring National Monument)</li> </ul>
	Cedar City Reservation Paiute Indian Tribe of Utah <sup>12</sup>	BIA	<ul style="list-style-type: none"> <li>• Paiute Indian Tribe of Utah includes 5 bands located in south-central and southwest Utah. Two bands (Shivwits and Cedar City) are located in the initial area of investigation.</li> <li>• Shivwits Reservation located on 27,000 acres near St. George, UT</li> </ul>
	Shivwits-Paiute Reservation Paiute Indian Tribe of Utah <sup>12</sup>	BIA	<ul style="list-style-type: none"> <li>• Cedar City Reservation located on 10 acres located near Cedar City, UT</li> <li>• Total Tribal enrollment of 733 in 2004</li> <li>• 40,000 total acres of reservation land</li> <li>• Shivwits were first Paiute Band to occupy reservation land in southern Utah in 1891</li> <li>• Cedar City Band occupies land originally purchased and provided by the Mormon Church in late 1920s</li> <li>• A Tribal Council with representatives from all 5 bands is located in Cedar City, UT</li> </ul>

**Table 5.2, Continued**  
**PUBLIC LANDS IN INITIAL AREA OF INVESTIGATION**

TYPE OF PUBLIC LAND	NAME	LEAD AGENCY	PROMINENT FEATURES
<b>Traditional Cultural Property</b>	Little Black Mountain Petroglyph Site, AZ <sup>13</sup>  <i>See Section 5.7.1.3, Traditional Cultural Properties, for additional information.</i>	BLM	<ul style="list-style-type: none"> <li>• 200 acres</li> <li>• Rock art site containing approximately 500 petroglyphs (i.e. rock carvings or drawings)</li> <li>• Includes a short trail system and picnic area</li> </ul>

Notes: USFS – United States Department of Agriculture Forest Service  
 BLM – Bureau of Land Management  
 BIA – Bureau of Indian Affairs  
 NPS – National Park Service

Sources:

- <sup>1</sup> Dixie National Forest. On-line at <http://www.fs.fed.us/dxnf/>. June 1, 2004.
- <sup>2</sup> Kaibab National Forest. On-line at <http://www.fs.fed.us/r3/kai/> June 1, 2004.
- <sup>3</sup> University of Montana College of Forestry and Conservation Wilderness Institute. On-line at [www.wilderness.net/](http://www.wilderness.net/). Retrieved June 1, 2004.
- <sup>4</sup> Zion National Park Profile. On-line at <http://www.nps.gov/>. National Park Service. 2004.
- <sup>5</sup> Lake Mead National Recreation Area Profile. On-line at <http://www.nps.gov/lame/>. Retrieved June 2, 2004.
- <sup>6</sup> Cedar Breaks National Monument Profile. On-line at <http://www.nps.gov/cebr/>. Retrieved June 2, 2004.
- <sup>7</sup> Grand Canyon-Parashant National Monument. Arizona Bureau of Land Management. On-line at <http://www.az.blm.gov/parashant/>. Retrieved June 1, 2004.
- <sup>8</sup> Pipe Spring National Monument Profile. On-line at <http://www.nps.gov/pisp/>. Retrieved June 2, 2004.
- <sup>9</sup> Nevada Department of Conservation and Natural Resources. On-line at <http://www.dcnr.nv.gov/>. September 2004.
- <sup>10</sup> Utah State Parks and Recreation. On-line at <http://www.stateparks.utah.gov/>. 2003.
- <sup>11</sup> Kaibab Paiute Indian Reservation Community Profile. Arizona Department of Commerce. On-line at <http://www.commerce.state.az.us/doclib/commune/kaibab-paiute.pdf/>. 2001.
- <sup>12</sup> Paiute Tribe of Utah. Federal Emergency Management Agency (FEMA), Region VIII. On-line at <http://www.fema.gov/regions/viii/tribal/paiutebg.shtm>. October 22, 2004.  
 Paiute Indians of Utah. *Utah History Encyclopedia*. University of Utah Press. On-line at <http://www.uen.org>. 1994.  
 Utah Division of Indian Affairs, Profile of Paiute Indian Tribe. On-line at <http://dced.utah.gov/>. 1997.
- <sup>13</sup> Little Black Mountain Petroglyph Site. Bureau of Land Management Arizona. On-line at <http://www.az.blm.gov/asfo/prehist.htm/>. December 10, 2004.

### 5.3.1 BUREAU OF LAND MANAGEMENT (BLM)

The BLM, an agency within the U.S. Department of the Interior, operates under its mission of sustaining the health, diversity, and productivity of public lands for the use and enjoyment of present and future generations.<sup>22</sup>

The BLM was created in 1946 by the merger of the U.S. Grazing Service with the General Land Office. When the BLM was initially created, there were over 2,000 unrelated and often conflicting laws for managing public lands in the U.S. The BLM had no unified legislative mandate until Congress enacted the Federal Land Policy and Management Act of 1976 (FLPMA), declaring that public lands would remain in public ownership. In so doing, Congress also established multiple use management

<sup>22</sup> U.S. Department of the Interior Bureau of Land Management. On-line at <http://www.blm.gov/>. October 6, 2004.

of public lands, which allows for public lands to be leased or occasionally sold for government revenue production and development. The BLM identifies parcels of land for potential sale that fall into one of the following categories:<sup>23</sup>

- Scattered and isolated tracts that are difficult or uneconomical to manage;
- Tracts acquired by the BLM for a specific purpose that are no longer needed for that purpose; or
- Land where disposal will serve important public objectives, such as community expansion and economic development.

Today, the BLM administers over 260 million surface acres of America's public lands (11 percent of U.S. acreage, the most of any Federal agency), which are primarily located in 12 western states and are dominated by extensive grasslands, forests, high mountains, deserts, and arctic tundra in Alaska. The BLM also manages a wide variety of resources and uses on those public lands, including:

- Recreational activities, including fishing, hiking, off-road vehicle use, and camping
- Commercial activities, including energy development, timber sales, mining, grazing, forestry, power transmission rights-of ways, scenery for advertising, and motion picture filming (commercial uses of the public lands managed by the BLM generate over \$1 billion in revenue for state and local governments annually)
- Wild free-roaming horses and burros
- Paleontological, archaeological, and historical sites
- Fish and wildlife habitats
- Transportation systems, including roads, trails, and bridges
- Wilderness areas and wild and scenic rivers
- Rare and vulnerable plant communities
- Public land survey system

### 5.3.2 NATIONAL FORESTS

The United States Forest Service (USFS) manages national forests and grasslands, forestry research, and cooperation with forest managers on state and private lands. Like the BLM, the Forest Service is dedicated to multiple-use management for the sustained yield of renewable resources such as water, forage, wildlife, wood, and recreation.<sup>24</sup> The Dixie National Forest, the largest national forest in Utah covering nearly two million acres, and the Kaibab National Forest in Arizona, the largest contiguous ponderosa pine forest in the U.S. covering 1.6 million acres, are located within the initial area of investigation, as shown in **Exhibit 5.1** and on **Table 5.2, Public Lands**.

<sup>23</sup> U.S. Department of the Interior Bureau of Land Management, *Frequently Asked Questions*, How does the BLM select land that might be sold? On-line at <http://www.blm.gov/nhp/faqs/>. June 21, 2001.

<sup>24</sup> USDA Forest Service. On-line at <http://www.fs.fed.us/>. May 21, 2004.

Dixie National Forest - The Dixie National Forest in Utah, located several miles north and east of the proposed replacement airport site, occupies nearly two million acres and stretches for about 170 miles across southern Utah. As the largest national forest in Utah, it straddles the divide between the Great Basin and the Colorado River. The Dixie National Forest provides diverse recreational opportunities including: camping, hunting, fishing, viewing scenery, hiking, horseback riding, scenic drives, nature study, snowmobiling, skiing, resort lodging, and a variety of water sports. All recreational activities are provided on permitted basis. Dixie has 83,000 acres of wilderness in three areas: Pine Valley, Box-Death Hollow, and Ashdown Gorge which provide opportunities for hiking, horseback riding, and solitude. Along with the recreational opportunities provided within Dixie National Forest, it shares many similar physical characteristics with Bryce Canyon National Park, including its sandstone formations, canyons, and gorge formations. Dixie National Forest surrounds the Pine Valley Mountain Wilderness and lies adjacent to several wilderness study areas managed by the BLM, and Beaver Dam State Park, managed by the State of Utah.

As part of a National Visitor Use Study conducted by the USFS in June 2004, the Dixie National Forest experienced 773,789 visits in 2002-2003.<sup>25</sup> Access to the Forest and to campsites, interpretive centers, skiing, and lodging is provided by surface roads. In addition to an internal roadway network, foot trails provide access to additional recreational activity areas and special features.

Kaibab National Forest - The Kaibab National Forest is located in Arizona, approximately 32 nautical miles southeast of the proposed replacement airport. The Forest is one of six national forests located in Arizona and is part of the largest contiguous ponderosa pine forest in the U. S. The 1.6 million acres of the Kaibab National Forest borders along the north and south rims of the Grand Canyon. Kaibab provides views of unusual geologic formations and expansive wooded scenery for the thousands of visitors each year that participate in various organized recreational activities such as hiking, trail rides, mountain biking, cross-country skiing, and sight seeing. Kaibab also provides areas for livestock grazing and logging. All organized and commercial activities (i.e., logging, grazing) are authorized through a special use permit.

As part of a National Visitor Use Study conducted by the USFS in August 2001, the Kaibab National Forest experienced approximately 560,000 visits in 2000.<sup>26</sup> Access to the Forest is provided by surface roads, including roadways that provide access to the various use areas associated with the Grand Canyon. In addition to an internal roadway network, foot trails provide access to additional recreational activity areas and special features.

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<sup>25</sup> *National Visitor Use Monitoring Results, USDA Forest Service Region 4, Dixie National Forest.*  
USDA Forest Service; June 2004.

<sup>26</sup> *National Visitor Use Monitoring Results, USDA Forest Service Region 3, Kaibab National Forest.*  
USDA Forest Service; August 2001.

### 5.3.3 WILDERNESS AREAS

In 1964, President Lyndon B. Johnson signed into law the Wilderness Act, which declared the United States policy "to secure for the American people of present and future generations the benefits of an enduring resource of wilderness." In 1976, the FLPMA authorized the BLM to include wilderness within its framework of "multiple-use management."<sup>27</sup> The Arizona wilderness areas of Grand Wash Cliffs, Mount Trumbull, Paiute, Kanab Creek, and Cottonwood Point; and the Utah wilderness areas of Pine Valley Mountain, Ashdown Gorge, and Beaver Dam (located in both Utah and Arizona) are located within the initial area of investigation, as shown in **Exhibit 5.1** and on **Table 5.2, Public Lands**. These wilderness areas are administered by the BLM, except for the Pine Valley Mountain wilderness area, which is administered by the USFS.

Ashdown Gorge Wilderness - Located within the Dixie National Forest, the Ashdown Gorge Wilderness Area encompasses 6,750 acres of forest and meadows. Ashdown Gorge is located southeast of Cedar City, Utah, adjacent to and west of Cedar Breaks National Monument. Many of the red limestone formations of the Cedar Break National Monument can be seen from areas within the Ashdown Gorge Wilderness. Elevations within the wilderness area range from 8,000 to 10,400 feet. The wilderness is home to a significant stand of bristlecone pine trees known as the Twisted Forest. The scenic aspects of the wilderness area and adjacent National Monument can be viewed by hikers along the two main trails within the wilderness area – Rattlesnake Trail and Potatoe Hollow Trail.<sup>28</sup>

Beaver Dam Mountain Wilderness – Located in the northwest tip of Arizona and the far southwest corner of Utah, the Beaver Dam Mountain Wilderness covers approximately 17,600 acres which have a similar, Grand Canyon-like scenery of eroded, stepped cliffs and terraces of metamorphosed sandstone. The Beaver Dam Mountains are somewhat accessible, with no maintained trails or campsites. This wilderness area is dominated by Joshua trees and cacti, lizards and mountain sheep, and an abundance of colorful weathered rock.<sup>29</sup>

Cottonwood Point Wilderness - Adjacent to the southeast boundary of Zion National Park, Canaan Mountain provides a variation on the topographic and ecologic themes found in Zion National Park, with emphasis on plateaus more than canyons. The Canaan Mountain Wilderness was designated by the BLM in 1974. The Arizona portion of the Canaan Mountain Wilderness was designated as the Cottonwood Point Wilderness in 1984, which encompasses 6,860 acres.<sup>30</sup> The BLM describes this

<sup>27</sup> Utah Wilderness Study Areas. On-line at [http://www.utah.com/playgrounds/wilderness\\_study.htm/](http://www.utah.com/playgrounds/wilderness_study.htm/). Retrieved June 1, 2004.

<sup>28</sup> [http://gorp.away.com/gorp/resource/us\\_wilderness\\_area/ut\\_ashdo.htm](http://gorp.away.com/gorp/resource/us_wilderness_area/ut_ashdo.htm)

<sup>29</sup> [http://www.americansouthwest.net/arizona/beaver\\_dam\\_mountains/wilderness.html](http://www.americansouthwest.net/arizona/beaver_dam_mountains/wilderness.html)

<sup>30</sup> <http://www.suwa.org/WATE/greaterzion.html#u01>



convoluted, rugged country as "reminiscent of the landscapes of Zion National Park." Without trails and difficult to access, Cottonwood Point Wilderness receives few human visitors, and provides opportunities for canyon backpacking and horse-packing.<sup>31</sup>

Grand Wash Cliffs Wilderness - Carved by the Colorado River, the Grand Wash Cliffs Wilderness covers 37,030 acres of land within the Grand Canyon-Parashant National Monument in northwestern Arizona. The Grand Wash Cliffs mark the transition zone between the Colorado Plateau and Basin and Range Provinces, and preserve the Colorado River's creation of rugged canyons, scenic escarpments, and colorful sandstone buttes. The most remarkable features are the 12 miles of towering cliffs which are cut into two giant steps, the first about 2,000 feet high, and the second a 1,000-foot high range that extends to the Shivwits Plateau. There are no maintained trails within the wilderness, but the area does provide opportunities for rock climbing and hiking for a few adventurers.<sup>32</sup>

Kanab Creek Wilderness – The Kanab Creek Wilderness was designated by the BLM in 1984. This Arizona wilderness, covering 70,460 acres, is positioned along one of the major tributaries of the Colorado River, Kanab Creek - the largest tributary canyon system on the north side of the Grand Canyon. From its origin about 50 miles north in southern Utah, Kanab Creek and its feeder streams have cut a network of gorges with vertical walls deep into the Kanab and Kaibab Plateaus. The water action created a variety of canyons and plateaus that range in elevation from 2,000 feet at the river to about 6,000 feet on the rim. Most of the slopes are angled in excess of 40 degrees. Some of the best examples of ancient rock art in the Southwest can be found in this wilderness. Several trails lead into the area but are very rugged and there is limited water.<sup>33</sup>

Mount Trumbull Wilderness – Like most of the other wilderness areas in Arizona, the Mount Trumbull Wilderness was designated by the BLM in 1984. Encompassing 7,880 acres, the wilderness, located just north of the Grand Canyon and Mount Logan Wilderness Area, is a large, basalt-capped mesa rising to 8,028 feet. Steep south and west slopes are dominated by piñon pine and juniper. The top of the plateau is dominated by a pristine forest of ponderosa pine that has never been harvested. The Mount Trumbull Trail climbs about five miles round-trip to the summit. The BLM maintains a campsite at the base of the mountain.<sup>34</sup>

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<sup>31</sup> <http://www.wilderness.net/index.cfm?fuse=NWPS&sec=wildView&wname=Cottonwood%20Point%20Wilderness>

<sup>32</sup> <http://www.wilderness.net/index.cfm?fuse=NWPS&sec=wildView&wname=Grand%20Wash%20Cliffs%20Wilderness>

<sup>33</sup> <http://www.wilderness.net/index.cfm?fuse=NWPS&sec=wildView&wname=Kanab%20Creek%20Wilderness>

<sup>34</sup> <http://www.wilderness.net/index.cfm?fuse=NWPS&sec=wildView&wname=Mount%20Trumbull%20Wilderness>

Paiute Wilderness – Located within the Virgin Mountains, the Paiute Wilderness has remained virtually unblemished by human intrusion. The Virgin Mountains form the backbone of Paiute Wilderness, a geological amalgam of granite, gneiss, and limestone. From atop Mount Bangs, the Paiute's highest point at 8,012 feet (over 5,600 feet above the desert floor), a panoramic view of the whole area and the Mojave Desert to the west is visible. The Interstate 15 corridor separates the Paiute Wilderness from Beaver Dam Mountains Wilderness to the north. The Paiute Wilderness encompasses 87,900 acres and was designated as a wilderness area by the BLM in 1984. The Virgin Loop Trail provides access to the areas' special features including Sullivan Canyon and Mount Bangs. Primitive camping can be accommodated along the trail.<sup>35</sup>

Pine Valley Mountain Wilderness – Surrounded by the Dixie National Forest, the Pine Valley Mountain Wilderness is composed of approximately 50,232 acres covered by a network of more than 151 miles of recreational trails. Elevations within the wilderness range from 6,000 to 10,365 feet at Signal Peak.<sup>36</sup> Within the Pine Valley Mountains a laccolithic intrusion called the "Iron Axis" - an uplift caused by the intrusion of molten igneous rock between layers of sedimentary rock - has been described in the Utah Geological Survey's publication Survey Notes as "world class", and "one of the largest in the world."<sup>37</sup> The wilderness is used primarily for hiking and scenic viewing.

#### **5.3.4 NATIONAL PARKS, MONUMENTS, AND RECREATION AREAS**

National parks, monuments, and recreation areas are administered by the NPS. President Woodrow Wilson approved legislation creating the NPS within the Department of the Interior in 1916, making it responsible for the Department's national parks and monuments, Hot Springs Reservation in Arkansas (made a national park in 1921), and "such other national parks and reservations of like character as may be hereafter created by Congress."

In managing these areas, the NPS was directed "to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."<sup>38</sup>

In its early years, the NPS was only responsible for lands located in the western U.S. That changed in 1933 with an Executive Transfer Order signed by President Franklin D. Roosevelt, which transferred to the NPS the administration duties of several protected lands in the eastern U.S., including the War Department's parks and monuments, the 15 national monuments then held by the Forest Service, and the national capital parks, including the Washington Monument, the Lincoln Memorial, and the White House. The addition of these nearly 50 historical areas in

<sup>35</sup> <http://www.wilderness.net/index.cfm?fuse=NWPS&sec=wildView&wname=Paiute%20Wilderness>

<sup>36</sup> [http://gorp.away.com/gorp/resource/us\\_wilderness\\_area/ut\\_pine.htm](http://gorp.away.com/gorp/resource/us_wilderness_area/ut_pine.htm)

<sup>37</sup> <http://www.utahforests.org/pinevalley.html>

<sup>38</sup> National Park Service. On-line at <http://www.nps.gov/>. March 9, 2004.

the East made the park system and the NPS truly national and deeply involved with historic preservation programs as well as natural resource conservation. To be eligible for favorable consideration as a unit of the National Park System, an area must possess national, natural, cultural, and recreational significance (as explained below), be a suitable and feasible addition to the National Park System, and require direct management by the NPS instead of protection by some other governmental agency or by the private sector.<sup>39</sup>

- **National Significance:** A proposed unit will be considered nationally significant if it meets all four of the following standards:
  - It is an outstanding example of a particular type of resource.
  - It possesses exceptional value of quality illustrating or interpreting the natural or cultural themes of our Nation's heritage.
  - It offers superlative opportunities for recreation for public use and enjoyment, or for scientific study.
  - It retains a high degree of integrity as a true, accurate, and relatively unspoiled example of the resource.
- **Natural Significance:** Examples of areas of natural significance include:
  - An outstanding site that illustrates the characteristics of a landform or biotic area that is still widespread;
  - A rare remnant natural landscape or biotic area of a type that was once widespread but is now vanishing due to human settlement and development;
  - A landform or biotic area that has always been extremely uncommon in the region or Nation;
  - A site that possesses exceptional diversity of ecological components (species, communities, or habitats) or geological features (landforms, observable manifestations of geologic processes);
  - A site that contains biotic species or communities whose natural distribution at that location makes them unusual (for example, a relatively large population at the limit of its range or an isolated population);
  - A site that harbors a concentrated population of a rare plant or animal species, particularly one officially recognized as threatened or endangered;
  - A critical refuge that is necessary for the continued survival of a species;
  - A site that contains rare or unusually abundant fossil deposits;
  - An area that has outstanding scenic qualities such as dramatic topographic features, unusual contrasts in landforms or vegetation, spectacular vistas, or other special landscape features;
  - A site that is an invaluable ecological or geological benchmark due to an extensive and long-term record of research and scientific discovery.

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<sup>39</sup> National Park Service. On-line at <http://www.nps.gov/>. January 2003.

- An area that is nationally significant also must meet criteria for suitability and feasibility to qualify as a potential addition to the National Park System. To be suitable for inclusion in the System, an area must represent a natural or cultural theme or type of recreational resource that is not already adequately represented in the National Park System or is not comparably represented and protected for public enjoyment by another land-managing entity. Adequacy of representation is determined on a case-by-case basis by comparing the proposed area to other units in the National Park System for differences or similarities in the character, quality, quantity, or combination of resources, and opportunities for public enjoyment. To be feasible as a new unit of the National Park System an area's natural systems and/or historic settings must be of sufficient size and appropriate configuration to ensure long-term protection of the resources and to accommodate public use. It must have potential for efficient administration at a reasonable cost. Important feasibility factors include landownership, acquisition costs, access, threats to the resource, and staff or development requirements.
- **Cultural Significance:** Cultural areas may be districts, sites, structures, or objects that possess exceptional value or quality in illustrating or interpreting our heritage and that possess a high degree of integrity of location, design, setting, materials, workmanship, feeling, and association. Examples include:
  - A resource that is associated with events that have made a significant contribution to and are identified with, or that outstandingly represent the broad national patterns of United States history and from which an understanding and appreciation of those patterns may be gained;
  - A resource that is importantly associated with the lives of persons nationally significant in the history of the United States;
  - A resource that embodies distinguishing characteristics of an architectural type specimen, exceptionally valuable for study of a period, style, or method of construction, or represents a significant, distinctive and exceptional entity whose components may lack individual distinction;
  - A resource that is composed of integral parts of the environment not sufficiently significant by reason of historical association or artistic merit to warrant individual recognition but collectively composes an entity of exceptional historical or artistic significance, or outstandingly commemorates or illustrates a way of life or culture;
  - A resource that has yielded or may be likely to yield information of major scientific importance by revealing new cultures, or by shedding light upon periods of occupation over large areas of the United States.
- **Recreational Significance:** Many units of the National Park System have been established to recognize their important role in providing recreational opportunities. The potential for public use and enjoyment is an important consideration in evaluating potential new additions to the National Park System. However, recreational values are not evaluated independently from the natural and cultural resources that provide the settings for recreational activities.

Today, the NPS continues its focus on preserving, unimpaired, the natural and cultural resources and values of the national park system, including national monuments, for the enjoyment, education, and inspiration of present and future generations. The NPS cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation.

As shown in **Exhibit 5.1** and on **Table 5.2**, five public land areas in three states within the initial area of investigation are administered by the NPS. These include Zion National Park and Cedar Breaks National Monument in Utah, Pipe Spring National Monument and Grand Canyon-Parashant National Monument (jointly administered by the NPS and BLM) in Arizona, and the Lake Mead National Recreation Area, which is located in both Nevada and Arizona.

Zion National Park – Zion National Park, located at the junction of the Colorado Plateau, Great Basin, and Mojave Desert provinces in southwestern Utah, is dominated by a dramatic landscape of sculptured canyons and soaring cliffs. Its 146,598 acres provided varied recreational experiences for 2,672,995 visitors in 2004. In addition to the many hiking trails, visitor centers, scenic drives, and bus tours, the Zion provides facilities for camping, bicycling, climbing, horseback riding, and snow skiing. Zion National Park features stunning scenery, sandstone cliffs among the highest in the world, diverse plant and animal communities, and Ancestral Puebloan, Paiute, and Mormon pioneer history.<sup>40</sup>

Zion is located along the edge of a region called the Colorado Plateau, where rock layers have been uplifted, tilted, and eroded, forming a feature called the Grand Staircase, a series of colorful cliffs stretching between Bryce Canyon and the Grand Canyon. The bottom layer of rock at Bryce Canyon is the top layer at Zion, and the bottom layer at Zion is the top layer at the Grand Canyon. Thousands of years of uplift and erosion due to wind and water have created the unique geologic features within the park.<sup>41</sup>

Lake Mead National Recreation Area – The Lake Mead National Recreation Area, encompassing 1,495,664 acres of land and water in eastern Nevada and western Arizona, welcomed 7,829,475 visitors in 2003. Lake Meade was formed with the creation of Hoover Dam in 1935. The Lake Meade Recreation Area includes Lake Meade from the mouth of Colorado River as it exits the Grand Canyon, to the southern end of Lake Mohave at Davis Dam, just north of Bullhead City, Arizona. Three of America's four desert ecosystems-the Mojave, the Great Basin, and the Sonoran Deserts - meet in Lake Mead National Recreation Area. Lake Mead National Recreation Area offers a wealth of recreational opportunities including: boating, fishing, waterskiing, swimming, kayaking, canoeing, hiking, camping, and sightseeing. Several paved roads wind through the area providing access to not

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<sup>40</sup> <http://www.nps.gov/zion/index.htm>

<sup>41</sup> <http://www.nps.gov/zion/Geology.htm>

only campgrounds, boat marinas, picnic areas, and lodging, but providing sightseers access to dramatic desert scenery, towering stark mountains, plateaus, desert basins of cactuses and creosote bush, and vertical-walled canyons.<sup>42</sup>

Cedar Breaks National Monument – The Cedar Breaks National Monument covers 6,155 acres and is located southeast of Cedar City, Utah. The main feature of the monument is a huge natural amphitheater that has been eroded out of the variegated Pink Cliffs (Claron Formation). Millions of years of sedimentation, uplift, and erosion have created a deep canyon of rock walls, fins, spires, and columns that spans more than three miles, and is over 2,000 feet deep. The rim of the canyon is over 10,000 feet above sea level, and is forested with islands of Englemann spruce, subalpine fir and aspen; separated by broad meadows of brilliant summertime wild flowers. Roadways are often closed in the monument area into mid-summer (i.e., June-July) due to heavy snows. The monument was visited by 514,046 visitors in 2004, taking advantage of the hiking trails, interpretive programs, camping, and various winter sports including cross-country skiing, snowmobiling, and snowshoeing.<sup>43</sup>

Grand Canyon-Parashant National Monument – Grand Canyon-Parashant National Monument is located along the northern edge of the Grand Canyon in northern Arizona. Situated on the Colorado Plateau in northwestern Arizona, within the drainage of the Colorado River, the monument borders Grand Canyon National Park to the south, and the state of Nevada to the west, and encompasses a portion of Lake Mead National Recreation Area. The National Monument was established by presidential proclamation on January 11, 2000. This remote area of open, undeveloped spaces is an impressive and diverse landscape that includes an array of scientific and historic resources. Parashant National Monument is a very remote and undeveloped place jointly managed by the NPS and the BLM. There are no paved roads into the monument and no visitor services.<sup>44</sup> It should be noted that, as shown in **Exhibit 5.1**, the southern boundary of the initial area of investigation divides this national monument into two properties for noise-analysis purposes. See **Section 6.6** and **Appendix B** for additional information.

Pipe Spring National Monument – Pipe Spring National Monument in Arizona provides a glimpse into American Indian, early explorer, and Mormon pioneer history in the Southwest. The water of Pipe Spring has made it possible for plants, animals, and people to live in this dry, desert region. Ancestral Puebloans and Kaibab Paiute Indians gathered grass seeds, hunted animals, and raised crops near the springs for at least 1,000 years. In 1907, the Kaibab Paiute Indian Reservation was established, surrounding what was then the privately owned Pipe Spring ranch. In 1923 the 40-acre Pipe Spring ranch was purchased and dedicated as a National Monument. Today the Pipe Spring National Monument - Kaibab Band of Paiute Indians Visitor Center and Museum - explains the human history of the area over time. Daily tours of Winsor Castle, summer "living history" demonstrations, an

<sup>42</sup> <http://www.nps.gov/lame/index.htm>

<sup>43</sup> <http://www.nps.gov/cebr/pphtml/facts.html>

<sup>44</sup> <http://www.nps.gov/para/index.htm>

orchard and garden, and a half-mile trail offer a glimpse of American Indian and pioneer life in the Old West. The Pipe Spring National Monument was listed on the National Register in 1966. It was visited by 57,840 people in 2004.<sup>45</sup>

In addition to the properties identified under the management of the NPS, USFS, and BLM located within the initial area of investigation, several other recommended and proposed wilderness areas are under consideration by these agencies. These areas are designated as proposed wilderness pending resolution of area-specific management, boundary, and specialty issues. In most cases, recommended or proposed wilderness areas are managed as designated wilderness areas in anticipation of the final resolution of wilderness issues and the preparation of a wilderness management plan.<sup>46</sup> These recommended or proposed wilderness areas are included within the boundaries of the larger jurisdictional parcels, and are therefore evaluated collectively with the designated wilderness areas and wilderness study areas identified in **Table 5.2 and Table 5.3**.

### 5.3.5 STATE PARKS

The Utah Division of Parks and Recreation is responsible for preserving and managing Utah's natural and cultural resources that are protected under the designations of "state park" and "state museum."<sup>47</sup> Similarly, in Nevada, the Department of Conservation and Natural Resources is responsible for the establishment and administration of goals, objectives, and priorities for the preservation of the state's natural resources.<sup>48</sup> In Arizona, the Operations Section of the State Parks Division is responsible for the operation and maintenance of the state's natural areas and historic and cultural resources.<sup>49</sup> Within the initial area of investigation, as shown in **Exhibit 5.1** and on **Table 5.2**, there are six state parks located in Utah and one state park located in Nevada. There are no state parks located in Arizona within the initial area of investigation.

Beaver Dam State Park – Beaver Dam State Park is Eastern Nevada's most remote park. Situated in rugged canyon country, this 2,393-acre park is located approximately 34 miles east of Caliente, adjacent to the Utah border. Deep canyons, pinion and juniper forests, a flowing stream, and numerous beaver dams are the primary features, offering fishing, camping, picnicking, hiking, photography, and nature study. Facilities include campgrounds, a group use area, a day-use picnic area, and hiking and interpretive trails. Beaver Dam is open year-round, weather permitting. Visitor services are provided between May and October. The 1935 Nevada State Legislature designated Beaver Dam as a state park due to the insistence and support of local residents and state officials. Exceptional scenery

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<sup>45</sup> <http://www.nps.gov/pisp/>

<sup>46</sup> *Grand Canyon National Park, General Management Plan*. On-line at: <http://www.nps.gov/grca/gmp/Interr.htm#wilderness/1995>.

<sup>47</sup> Utah Division of Parks and Recreation. On-line at <http://www.stateparks.utah.gov/>. 2003.

<sup>48</sup> Nevada Department of Conservation and Natural Resources. On-line at <http://www.dcnr.nv.gov/>. September 2004.

<sup>49</sup> *Arizona State Parks Annual Report July 1, 2002 – June 30, 2003*. On-line at <http://www.azparks.gov>. 2003.

and the recreational possibilities of Beaver Dam Wash were primary considerations in the park's designation. Camping facilities were constructed by the Civilian Conservation Corps (CCC) between 1934 and 1936.<sup>50</sup>

Coral Pink Sand Dunes State Park – Established as a Utah state park in 1963, the Coral Pink Sand Dunes is a 3,730 acre recreation area with over 2,000 acres of sand, which makes it the only major sand dune field on the Colorado Plateau. Sitting at an elevation of 6,000 feet, the dunes enjoy mild winters and warm summers. Several hundred feet of sand lie along the 200-mile long Sevier Fault. A notch between the Moquith and Moccasin Mountains directs the windblown sand (the venturi effect) to the southwest corner of Southern Utah. The reddish colored sand was supplied courtesy of ancient Navajo sandstone that was carried from the Virgin River to the bottom of the Cane Beds. Coral Pink Sand Dunes support a diverse population of insects, including the Coral Pink tiger beetle that is found only here. Melting snow often creates small ponds on the dunes that support amphibians such as salamanders and toads.<sup>51</sup>

Gunlock State Park – The 549-acre Gunlock State Park was established in 1970 with the construction of the Gunlock Dam and Reservoir. The park lies 15 miles northwest of St. George, Utah. Year-round boating, water sports, and quality fishing for bass and catfish attract visitors. Facilities include a boat launching ramp and pit privies. The county road to the park is the Old Spanish Trail used by horsemen and raiders from Sante Fe, New Mexico to Los Angeles from the 1820's until the gold fields became the destination after 1849 and a shorter route was taken. Peak elevation at the park is 3,600 feet.<sup>52</sup>

Iron Mission State Park and Museum – Iron Mission State Park and Museum tells the story of development in Iron County, Utah when, in the 1850s, Brigham Young sent Mormon missionaries to the area to mine and process iron. Museum displays include horse-drawn vehicles used from 1850 to 1920 and a collection of pioneer artifacts. An iron industry exhibit features the town bell, which is the only known remaining artifact from the original foundry. In addition to the permanent collections, changing special exhibits highlight artists from the local region, as well as rarely seen artifacts from the museum's collections. Other items of interest include several historic cabins, a large collection of horse-drawn farm equipment, and a replicated pioneer household. Iron Mission State Park and Museum was created in 1973. The current museum opened in 1980. Iron Mission also manages the historic ruins of Old Iron Town, an iron foundry west of Cedar City that operated in the 1860's and 1870's.<sup>53</sup>

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<sup>50</sup> <http://parks.nv.gov/bd.htm>

<sup>51</sup> <http://www.zionnational-park.com/coral-pink-sand-dunes.htm>;  
[http://www.stateparks.utah.gov/park\\_pages/parkpage.php?id=cpsp](http://www.stateparks.utah.gov/park_pages/parkpage.php?id=cpsp)

<sup>52</sup> [http://www.stateparks.utah.gov/park\\_pages/parkpage.php?id=glsp](http://www.stateparks.utah.gov/park_pages/parkpage.php?id=glsp);  
<http://www.utah.com/stateparks/gunlock.htm>

<sup>53</sup> [http://www.stateparks.utah.gov/park\\_pages/iron/depth.htm](http://www.stateparks.utah.gov/park_pages/iron/depth.htm)



Quail Creek State Park and Reservoir – Quail Creek reservoir was completed in 1985 to provide irrigation and culinary water to the St. George area. Most of the water in the reservoir does not come from Quail Creek, but is diverted from the Virgin River and transported through a buried pipeline. Two dams form the reservoir. The main dam is an earth-fill embankment dam. The south dam is a roller compacted concrete dam, constructed to replace the original earthfill dam that failed in 1989. The maximum depth of Quail Creek can reach 120 feet, so it is cold enough to sustain the stocked rainbow trout, bullhead catfish, and crappie. Largemouth bass, which are also stocked, and bluegill thrive in the warmer, upper layers of the reservoir.<sup>54</sup>

Sand Hollow State Park – Sand Hollow is a 1,670-acre Utah state park that is located approximately 15 miles east of St. George, Utah, adjacent to the 19,123-acre Sand Hollow recreation area. As Utah's newest state park, Sand Hollow is currently undergoing construction, which is expected to be complete in 2005. When finished, Sand Hollow will offer boating and water recreation at Sand Hollow reservoir. In addition, the park will offer two, fifty-site campgrounds, one hundred picnic sites, equestrian camping with trail access, and off-highway vehicle camping. Peak elevation at the park is 3,000 feet.<sup>55</sup> It should be noted that Sand Hollow State Park is not a 4(f)/303(c) resource, per State of Utah.

Snow Canyon State Park – Snow Canyon is a 6,272-acre state park located 11 miles northwest of St. George, Utah. Facilities at the park include a 35-unit campground, modern rest rooms, hot showers, electric hookups, sewage disposal station, a covered group-use pavilion, and an overflow campground. The landscape is dominated by Red Navajo sandstone, capped by an overlay of black lava rock, which makes the park a popular location for photography, hiking, rock-climbing, biking, and camping. Several miles of easy to moderate-level trails are located throughout the park. Two recent volcanic cones (1,000 to 2,000 years old) are located near the head of the canyon. Peak elevation at the park is 3,200 feet.<sup>56</sup>

### 5.3.6 NATIVE AMERICAN LANDS

Created in 1824, the Bureau of Indian Affairs (BIA) administers and manages 55.7 million acres of land held in trust by the U.S. for American Indians, Indian Tribes, and Alaska Natives. Of the land held in trust by the BIA, tribal governments manage 46 million acres, while individual Native Americans own the remaining 9.7 million acres. There are currently 562 Federally-recognized Indian Tribes in 32 states. Within protected reservation lands, the BIA is responsible for developing forestlands, leasing assets on these lands, directing agricultural programs, protecting water and land rights, developing and maintaining infrastructure, as well as providing for health and human services, economic development, and education

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<sup>54</sup> [http://www.stateparks.utah.gov/park\\_pages/depth.php?id=qcsp](http://www.stateparks.utah.gov/park_pages/depth.php?id=qcsp)

<sup>55</sup> [http://www.stateparks.utah.gov/park\\_pages/depth.php?id\\_shsp/](http://www.stateparks.utah.gov/park_pages/depth.php?id_shsp/).

<sup>56</sup> [http://www.stateparks.utah.gov/park\\_pages/scenicfacilities.php?id=scsp](http://www.stateparks.utah.gov/park_pages/scenicfacilities.php?id=scsp)

services for residents.<sup>57</sup> Two Indian tribes with three locations of reservation lands, as well as one traditional cultural property, are located within the initial area of investigation, as shown in **Exhibit 5.1** and on **Table 5.2**.

Kaibab Indian Reservation – Kaibab-Paiute Reservation lands are located on Kanab Creek in northern Arizona, adjacent to the Utah border in an area known as the Arizona Strip. The 120,413-acre reservation spans the Arizona counties of Coconino and Mohave with a landscape that varies from rolling grasslands to mesas of the Colorado Plateau. The reservation was established in 1907, surrounding the then, privately-owned Pipe Spring Ranch, which has since been designated the Pipe Spring National Monument. Despite the remoteness of the reservation, the Kaibab people enjoy the location because it offers a level of solitude not possible in more urban areas. The Kaibab-Paiute are members of the Southern Paiute Nation. The Paiutes speak English, as well as a Uto-Aztecan language. The Kaibab-Reservation communities consist of the five villages of Kaibab, Steam Boat, Juniper Estates, Six-Mile, and Redhills. The 2003 population count of the reservation was 216.<sup>58</sup>

Cedar City Reservation and the Shivwits-Paiute Reservation, Paiute Indian Tribe of Utah - The Paiute Indian Tribe of Utah includes five distinct bands: Shivwits, Cedar City, Koosharem, Kanosh, and Indian Peaks. Their land is scattered from south-central to southwest Utah. Two of the five bands, Shivwits and Cedar City, are located within the initial area of investigation. The Shivwits Band is located near St. George, Utah and has the largest amount of trust land at approximately 27,000 acres. The Cedar City Reservation is located on 10 acres near Cedar City, Utah. The Paiute Indian Tribe of Utah are all Southern Paiute, who once occupied a broad territory across southern Utah, southern Nevada, and into California. The Shivwits Reservation was established in 1903 and was the first Southern Paiute reservation established in Utah. The Cedar City Reservation was established in 1929. A tribal council with representatives from each band is located in Cedar City. Total tribal enrollment for all five bands was 733 in 2004.<sup>59</sup>

Little Black Mountain Petroglyph Site – The Little Black Mountain Petroglyph Site is a traditional cultural property located approximately 1.5 miles southeast of the proposed airport site. The Little Black Mountain Petroglyph Site is approximately 200 acres in size. Little Black Mountain rises approximately 600 feet above the surrounding terrain. The lower slopes at Little Black Mountain are part of the Moenkopi Formation and are highly erodible and the higher up rocky ledges are of the Shinarump Member of the Chinle Formation. Large blocks of this sandstone layer have broken off and tumbled down slope. The rock art area features approximately 50 boulders containing 800 petroglyphs carved by people of several past native cultures of the Great Basin, Western Anasazi, and Lower Colorado River, a suggestion of the many cultures that have been this way. Some of the representations of turtles, lizards, and bear paws may be symbols with social or religious meanings now lost in time. The site is accessed via local dirt roads. There

<sup>57</sup> Bureau of Indian Affairs. On-line at [www.doi.gov/bureau-indian-affairs.html/](http://www.doi.gov/bureau-indian-affairs.html/). Retrieved June 2, 2004.

<sup>58</sup> <http://www.commerce.state.az.us/doclib/COMMUNE/kaibab%20paiute.pdf>

<sup>59</sup> <http://www.fema.gov/regions/viii/tribal/paiutebg.shtml/>.

is a surfaced trail that provides access to the petroglyph viewing area. The primary activity within the fenced petroglyph site area is viewing of the rock art. Off-road recreational vehicles are used on most the remainder of the property. BLM visitor records from 2003 indicate that 1,181 people visited the site.<sup>60, 61</sup> See

**Section 5.7.1.3, *Traditional Cultural Properties***, for additional information.

### 5.3.7 WILDERNESS STUDY AREAS

Beginning in 1978, 22 million acres of public land in Utah administered by the BLM were inventoried to identify areas meeting the basic criteria for wilderness characteristics. A total of 3.2 million acres of public lands in 83 areas of Utah met the criteria to become Wilderness Study Areas (WSA).<sup>62</sup>

A WSA typically contains ecological, geological, or other features of scientific, scenic, or historical value in addition to the following criteria:<sup>63</sup>

- Contain at least 5,000 acres of Federal land (or are large enough to be managed as wilderness).
- Are in a generally natural condition.
- Have outstanding opportunities for solitude, or a primitive or unconfined type of recreation in at least part of the area.

The BLM and the USFS are responsible for maintaining the wilderness characteristics of designated WSAs within their respective lands until Congress makes a final decision as to whether the WSA becomes part of the National Wilderness Preservation Service (NWPS) or is released for other uses. The general management standard is that the suitability of these lands for preservation as wilderness must not be impaired.<sup>64</sup>

An Instant Study Area (ISA) is a type of WSA that has been identified specifically because it is an outstanding natural resource as identified by the BLM in the Interim Management Policy (IMP) for lands under wilderness review. An ISA will not become a WSA and vice versa. ISAs and WSAs are managed the same.<sup>65</sup>

**Table 5.3** lists the twenty WSAs and one ISA that are located within the initial area of investigation.

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<sup>60</sup> <http://hikearizona.com/decoder.php?ZTN=389>

<sup>61</sup> Little Black Mountain Petroglyph Site. Bureau of Land Management Arizona. On-line at <http://www.az.blm.gov/asfo/prehist.htm/>. December 10, 2004.

<sup>62</sup> Utah Wilderness Study Areas. On-line at [http://www.utah.com/playgrounds/wilderness\\_study.htm/](http://www.utah.com/playgrounds/wilderness_study.htm/). Retrieved June 1, 2004.

<sup>63</sup> Bureau of Land Management. On-line at: <http://www.blm.gov/nlcs/wsa/faq.htm>. March 18, 2005.

<sup>64</sup> Utah Wilderness Study Areas. On-line at [http://www.utah.com/playgrounds/wilderness\\_study.htm/](http://www.utah.com/playgrounds/wilderness_study.htm/). Retrieved June 1, 2004.

<sup>65</sup> Telephone conversation between Consultant and Maggie Kelsey, BLM Utah State Office in Salt Lake City. April 7, 2005.

Table 5.3

**WILDERNESS STUDY AREAS AND INSTANT STUDY AREAS IN THE INITIAL AREA OF INVESTIGATION**

NAME	LEAD AGENCY	PROMINENT FEATURES
Bear Trap Canyon WSA, UT <sup>1</sup>	BLM	<ul style="list-style-type: none"> <li>• 40 acres</li> <li>• Contains headwater areas for tributaries that flow through Beartrap Canyon</li> <li>• Rugged terrain</li> </ul>
Canaan Mountain WSA, UT <sup>2</sup>	BLM	<ul style="list-style-type: none"> <li>• 42,858 acres</li> <li>• Adjacent to Zion National Park</li> </ul>
Clover Mountains WSA, NV <sup>4</sup>	BLM	<ul style="list-style-type: none"> <li>• 84,875 acres</li> <li>• Highest elevation at 7,000'</li> </ul>
Cottonwood Canyon WSA, UT <sup>2</sup>	BLM	<ul style="list-style-type: none"> <li>• 11,330 acres</li> <li>• Adjacent to Dixie National Forest</li> </ul>
Cougar Canyon WSA, UT <sup>2</sup>	BLM	<ul style="list-style-type: none"> <li>• 15,968 acres</li> <li>• Part of Tunnel Springs WSA, NV</li> <li>• Primarily woodland and sagebrush vegetation</li> </ul>
Deep Creek WSA, UT <sup>2</sup>	BLM	<ul style="list-style-type: none"> <li>• 3,860 acres</li> <li>• Dense vegetation, contoured canyons, and elevations changes</li> </ul>
Goose Creek WSA, UT <sup>2</sup>	BLM	<ul style="list-style-type: none"> <li>• 89 acres</li> <li>• Lightly forested with ponderosa pines and mountain oak</li> <li>• Overlooks the deep chase of Goose Creek</li> </ul>
The Joshua Tree ISA, UT <sup>3</sup>	BLM	<ul style="list-style-type: none"> <li>• 14,900 acres</li> <li>• Contains the southern extent of the Beaver Dam Mountains</li> </ul>
LaVerkin Creek Canyon WSA, UT <sup>1</sup>	BLM	<ul style="list-style-type: none"> <li>• 986 acres</li> <li>• Deep canyons topped by conifer forests</li> </ul>
Lime Canyon WSA, NV <sup>4</sup>	BLM	<ul style="list-style-type: none"> <li>• 34,680 acres</li> <li>• Unique scenery due to faulting activity</li> </ul>
Moquith Mountain WSA, UT <sup>2</sup>	BLM	<ul style="list-style-type: none"> <li>• 14,830 acres</li> <li>• Riparian communities, ponderosa pine, canyons, large alcoves, and hanging gardens</li> </ul>
Mormon Mountains WSA, NV <sup>4</sup>	BLM	<ul style="list-style-type: none"> <li>• 162,887 acres</li> <li>• Mountain ranges and canyons</li> <li>• Thousands of archeological sites</li> </ul>
North Fork Virgin River WSA, UT <sup>2</sup>	BLM	<ul style="list-style-type: none"> <li>• 1,040 acres</li> <li>• Steep canyons and drainages</li> <li>• Adjacent to Zion National Park</li> </ul>
Orderville Canyon WSA, UT <sup>2</sup>	BLM	<ul style="list-style-type: none"> <li>• 5,330 acres</li> <li>• Steep canyons and drainages</li> <li>• Adjacent to Zion National Park</li> </ul>
Parunuweap WSA, UT <sup>2</sup>	BLM	<ul style="list-style-type: none"> <li>• 30,800 acres</li> <li>• Adjacent to Zion National Park</li> </ul>
Red Butte WSA, UT <sup>1</sup>	BLM	<ul style="list-style-type: none"> <li>• 804 acres</li> <li>• Peak elevation at 1,800 feet</li> <li>• Rugged terrain</li> </ul>
Red Mountain WSA, UT <sup>2</sup>	BLM	<ul style="list-style-type: none"> <li>• 18,290 acres</li> <li>• Rough hills and cliff faces</li> </ul>
Spring Creek Canyon WSA, UT <sup>1</sup>	BLM	<ul style="list-style-type: none"> <li>• 4,433 acres</li> <li>• Extremely rugged terrain</li> </ul>

**Table 5.3 Continued**  
**WILDERNESS STUDY AREAS AND INSTANT STUDY AREAS IN THE INITIAL**  
**AREA OF INVESTIGATION**

NAME	LEAD AGENCY	PROMINENT FEATURES
Taylor Creek Canyon WSA, UT <sup>1</sup>	BLM	<ul style="list-style-type: none"> <li>• 35 acres</li> <li>• Lies immediately east of Zion National Park's west entrance</li> <li>• Is a headwaters for Zion National Park</li> </ul>
Tunnel Spring WSA, NV & UT <sup>4</sup>	BLM	<ul style="list-style-type: none"> <li>• 15,968 total acres</li> <li>• 10,568 UT acres (Cougar Canyon WSA)</li> <li>• 5,400 NV acres</li> <li>• Elevations 5,000' to 6,700'</li> </ul>
The Watchman WSA, UT <sup>2</sup>	BLM	<ul style="list-style-type: none"> <li>• 600 acres</li> <li>• Adjacent to Zion National Park</li> </ul>

Note: An Instant Study Area (ISA) is a type of WSA that has been identified specifically because it is an outstanding natural resource as identified by the BLM in the Interim Management Policy (IMP) for lands under wilderness review. An ISA will not become a WSA and vice versa. ISAs and WSAs are managed the same.

Sources:

- <sup>1</sup> *The Greater Zion Wilderness*. Southern Utah Wilderness Alliance (SUWA). On-line at <http://www.suwa.org/WATE/greaterzion.html>. Retrieved April 6, 2005.
- <sup>2</sup> *Utah Wilderness Inventory*, Bureau of Land Management. On-line at [www.access.gpo.gov/blm/utah/](http://www.access.gpo.gov/blm/utah/). 1999.  
*Utah Wilderness Intensive Inventory*, Bureau of Land Management. 1981.
- <sup>3</sup> Telephone conversation between Consultant and Maggie Kelsey, BLM Utah State Office in Salt Lake City. April 7, 2005. *Utah Wilderness Inventory*, Bureau of Land Management. On-line at [www.access.gpo.gov/blm/utah/](http://www.access.gpo.gov/blm/utah/). 1999.
- <sup>4</sup> Nevada Wilderness. On-line at <http://www.nevadawilderness.org/>. Retrieved June 2, 2004.  
*Nevada Wilderness Intensive Inventory*, Bureau of Land Management. 1981.

## 5.4 BIOLOGICAL AND NATURAL RESOURCES

The following sections identify the existing biological and natural resources within the proposed replacement airport study area. The Utah Division of Wildlife Resources (UDWR), the U.S. Fish and Wildlife Service (USFWS), BLM, and the Arizona Game and Fish Department (AGFD) have been consulted to determine the potential for any Federally or state-listed species to occur in the vicinity of the proposed replacement airport study area.<sup>66</sup> In addition, field inventories of vegetation and wildlife were conducted to provide baseline information about the plant and animal species that currently exist within the proposed replacement airport study area.

### 5.4.1 BIOTIC COMMUNITIES

A general vegetation analysis of the proposed replacement airport study area was conducted during surveys of the proposed replacement airport site for threatened or endangered plant species. These surveys occurred in late April and early

<sup>66</sup> Note: The Arizona Game and Fish Department was included in the consultation because of the proximity of the project site.

May 1997, September 2000, and April 2004. No special status plants or their habitats were located on the proposed replacement airport site during these surveys, though several are known to occur in the general vicinity.<sup>67</sup>

The proposed replacement airport site is located within a broad plain west of Warner Ridge and Sand Mountain, approximately five miles southeast of St. George at an approximate elevation of 2,750 feet. Livestock grazing, agriculture, off-highway vehicle recreation, and other activities have heavily impacted the area. An abandoned aircraft runway of broken asphalt is present, with scattered piles of discarded materials from the old runway facility. Construction and agricultural refuse, and irrigation equipment are also present. The majority of the area is level, with fine-textured soils dominated by grasses and annual forbs that are characteristic of disturbed ground. At the southwest end of the proposed replacement airport site, there is increased topographic relief with sandy hills and ridges of exposed bedrock rising and dropping steeply into Fort Pearce Wash, which is located just outside, but adjacent to, the proposed replacement airport site boundaries.

The edges of the Mohave and Great Basin deserts meet in the St. George area, creating an overlap of species representative of both regional deserts. The desert ecosystem present in the proposed replacement airport study area has biotic and structural similarities of both the Great Basin and Mohave deserts. These similarities are expressed primarily in the plant and animal species diversity that is present within the shrub communities at the southwestern end of the proposed replacement airport study area.

This area, encompassing less than twenty percent of the overall proposed replacement airport site, includes the majority of the present biotic diversity and has been divided into general plant associations defined as rock-shrub, shrub, shrub-cactus, and creosote bush. Some of the common plant species found in the proposed replacement airport study area are listed in **Appendix G, Biological Resources Survey Report**.

To the east of the proposed replacement airport site is Warner Ridge, a north-south trending escarpment where unique soil horizons are exposed, providing habitat for locally endemic plant species. To the southwest is White Dome, a dome-shaped, white, sedimentary outcrop, where these special substrates are also found. Both Warner Ridge and White Dome are within one mile of the proposed replacement airport site, but exposures of these special soils are not found within the study area for the proposed replacement airport.

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<sup>67</sup> *A Threatened and Endangered Plant Species Inventory for the Airport Master Plan Study for the St. George Municipal Airport*. 1997. *A Threatened and Endangered Plant Inventory for the Proposed Access Road To the St. George Replacement Airport*. 2000. *Environmental Memorandum for the Proposed Southeast Connector Road for the Replacement St. George Airport*. Prepared by Logan Simpson Design. 2004.

Approximately fifteen miles north of the proposed replacement airport study area are the Pine Valley Mountains with a peak elevation of 10,365 feet. Various mountain habitats and associated species are present there. The Virgin River and its associated aquatic and riparian habitats pass within three miles of the proposed replacement airport site. No aquatic habitats are found within the proposed replacement airport study area.

#### 5.4.2 WILDLIFE

Wildlife inventories of the proposed replacement airport study area were performed during April and August 1997, September 2000, and April 2004. These wildlife inventories targeted special status vertebrate species identified by the USFWS and the UDWR as potentially occurring in the proposed replacement airport study area.

During these inventories, the direct and indirect observations of all vertebrate species were recorded. A total of 72 vertebrate species were observed during these surveys. This included 15 mammal species, 44 bird species, and 13 species of reptiles and amphibians. Most of these species were observed within desert-scrub communities and at rocky outcrops at the southwestern end of the proposed replacement airport study area.<sup>68</sup> See **Section 6.11** and **Appendix G** for additional information.

#### 5.4.3 THREATENED, ENDANGERED, AND OTHER SPECIAL STATUS SPECIES

Special status species include those that are listed under the Endangered Species Act (ESA) <sup>69</sup> as threatened, endangered, or proposed for listing, and State of Utah sensitive species. **Table 5.4** lists the special status species that have either been documented or could potentially occur in the proposed replacement airport study area. See **Section 6.11** for detailed information regarding potential impacts of the development of the proposed replacement airport on biological resources.

Planning for this proposed replacement airport has occurred over multiple years and there has been repeated coordination with Federal and state agencies regarding the analyses of potential impacts of the project and the changing status designation of various species. The proposed replacement airport site does not occur in, nor is it adjacent to, any proposed or designated critical habitats for ESA-listed species.

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<sup>68</sup> *Environmental Report to Creamer & Noble for Two Proposed Airport Sites in Washington County. 1997. Environmental Report to Creamer & Noble for an area extension to Airport Site One in Washington County. 1997. Environmental Report for the Proposed St. George Replacement Airport Access Road. 2000. Environmental Memorandum for the Proposed Southeast Connector Road for the Replacement St. George Airport. Prepared by Logan Simpson Design. 2004.*

<sup>69</sup> 16 USC 1531–1544, as amended

**Table 5.4**  
**SPECIAL STATUS SPECIES POTENTIALLY OCCURRING WITHIN THE**  
**PROPOSED REPLACEMENT AIRPORT STUDY AREA**

SPECIES	STATUS <sup>1</sup>	HABITAT	POTENTIAL PRESENCE WITHIN PROPOSED REPLACEMENT AIRPORT STUDY AREA	POTENTIALLY IMPACTED BY PROPOSED REPLACEMENT AIRPORT <sup>2</sup>
<b>Plants</b>				
Dwarf bear-claw poppy (Arctomecon humilis)	ESA LE	Moenkopi (clay) Formation on rolling low hills and bluffs from 2,700 to 3,300 feet.	Restricted to certain soil horizons within the Moenkopi Formation. Known from the Warner Ridge and White Dome area. No suitable soils are present.	No
Holmgren (Paradox) milkvetch	ESA LE	Sites where water runoff occurs and the soil is covered by erosional pavement from 2,640 to 3,000 feet.	Restricted to certain soil horizons within the Moenkopi Formation. Known from the Warner Ridge and White Dome area. No suitable soils are present.	No
Shem (Shivwits) milkvetch	ESA LE	Unstable clay soil of Chinle Shale in warm desert shrub or pinyon-juniper communities from 2,860 to 3,660 feet.	Restricted to certain soil horizons within the Moenkopi Formation. Known from the Warner Ridge and White Dome area. No suitable soils are present.	No
Siler pincushion cactus	ESA LT	Gypsiferous and calcareous sandy or clay soils derived from the various members of the Moenkopi Formation.	Restricted to certain soil horizons within the Moenkopi Formation. Known from the Warner Ridge and White Dome area. No suitable soils are present.	No
<b>Mammals</b>				
Kit fox	SPC	Arid and semiarid landscapes.	Known to occur.	Yes – known to occur <sup>2</sup>
Spotted bat	SPC	Roosts in caves and rock crevices in deserts to forested mountains.	Known to occur.	Yes – known to occur <sup>2</sup>
Townsend's big-eared bat	SPC	Roosts in caves and mines in or near forested areas.	Foraging habitat may be present for the bat, but appropriate roosting habitat is not found.	No
<b>Birds</b>				
Bald eagle	ESA LT	Areas with open water or where deer or rabbit carrion is readily available.	A bald eagle winter roost is located at sewer lagoons near SR-9, over 8 miles away. No foraging, roosting, or nesting habitat occurs.	No
Burrowing owl	SPC	Found in association with prairie dog colonies.	Known to occur.	Yes – known to occur <sup>2</sup>



**Table 5.4, Continued**  
**SPECIAL STATUS SPECIES POTENTIALLY OCCURRING IN THE PROPOSED**  
**REPLACEMENT AIRPORT STUDY AREA**

SPECIES	STATUS <sup>1</sup>	HABITAT	POTENTIAL PRESENCE WITHIN PROPOSED REPLACEMENT AIRPORT STUDY AREA	POTENTIALLY IMPACTED BY PROPOSED REPLACEMENT AIRPORT <sup>2</sup>
<b>Birds, continued</b>				
California Condor	ESA LE, EXN	High desert canyonlands and plateaus.	Experimental/Non-essential area designated for most of Southern Utah and Northern Arizona. Prefer mountainous country especially rocky and brushy areas near cliffs. Unlikely to occur.	No
Ferruginous hawk	SPC	Grassland or shrubsteppe communities; nests in the ecotone between these communities and pinyon-juniper woodlands.	Foraging habitat does occur, but no suitable nesting habitat occurs.	No
Long-billed curlew	SPC	Nests in dry grasslands in areas with sufficient cover and abundant prey species.	Observed during 1997 survey. Migratory individuals may occur, but no nesting, breeding, or foraging habitats occur.	No
Mexican spotted owl	ESA LE	Primarily occurs in steep rocky canyons but can also be found in various forest habitats.	The Pine Valley Mountains are the closest location where suitable habitat may be found.	No
Mountain plover	—	Associated with disturbed prairie and semidesert habitats.	No suitable habitat was identified for the mountain plover, which characteristically nests in the high plains of Wyoming and Colorado. The mountain plover is considered a casual migrant in Utah. No individuals were sighted during project surveys.	No

**Table 5.4, Continued**  
**SPECIAL STATUS SPECIES POTENTIALLY OCCURRING IN THE PROPOSED**  
**REPLACEMENT AIRPORT STUDY AREA**

SPECIES	STATUS <sup>1</sup>	HABITAT	POTENTIAL PRESENCE WITHIN PROPOSED REPLACEMENT AIRPORT STUDY AREA	POTENTIALLY IMPACTED BY PROPOSED REPLACEMENT AIRPORT <sup>2</sup>
<b>Birds, continued</b>				
Peregrine falcon	—	Primarily found in wetlands, but sagebrush steppe, desert scrub, and grassland habitats are also used. Breeds on ledges of vertical rock faces.	An immature peregrine falcon was observed perched and later hunting from the top of the rock escarpment near the western boundary of the proposed replacement airport study area, but it was more than likely a transient individual that had hatched from somewhere outside the study area. The rock escarpment is not representative of typical peregrine nesting cliffs that have been documented in Washington County.	No
Southwestern willow flycatcher	ESA LE	Found most frequently in riparian habitats, especially in areas of dense willow.	Riparian habitat in the area is restricted to the Virgin River corridor.	No
Yellow-billed cuckoo	ESA C	Nests in lowland riparian areas with dense sub-canopies or shrub layers with an overstory of developing or large, gallery-forming trees.	Riparian habitat in the area is restricted to the Virgin River corridor.	No
<b>Reptiles and Amphibians</b>				
Arizona toad	SPC	Lowland riparian areas, primarily along the Virgin River.	No aquatic or riparian habitats are within the proposed replacement airport study area.	No
Common chuckwalla	SPC	Rock outcrops in desert communities of creosote-bursage, black-brush, and salt desert scrub.	Known to occur. Found in rocky areas within the southwest portion of the proposed replacement airport study area.	Yes – known to occur <sup>2</sup>

**Table 5.4, Continued**  
**SPECIAL STATUS SPECIES POTENTIALLY OCCURRING IN THE PROPOSED**  
**REPLACEMENT AIRPORT STUDY AREA**

SPECIES	STATUS <sup>1</sup>	HABITAT	POTENTIAL PRESENCE WITHIN PROPOSED REPLACEMENT AIRPORT STUDY AREA	POTENTIALLY IMPACTED BY PROPOSED REPLACEMENT AIRPORT <sup>2</sup>
<b>Reptiles and Amphibians, Continued</b>				
Desert tortoise	ESA LT	Near water in deserts, semi-arid grasslands, canyon bottoms, and rocky hillsides.	Closest known occurrence is north of St. George at City Creek. Potentially suitable habitat is found at southwestern portion of proposed replacement airport study area. No individuals or sign were observed.	No
Gila monster	SPC	Desert habitat with scattered cacti, shrubs, and grasses, often in rocky canyon bottoms or washes.	No individuals observed, but potentially suitable habitat is found at the southwestern portion of proposed replacement airport study area.	Yes – potentially suitable habitat was found <sup>2</sup>
Relict leopard frog (extirpated from Utah)	ESA C	Cold springs and streams with pools deep enough (12–16 inches) to avoid predators.	No aquatic or riparian habitats are within the proposed replacement airport study area.	No
Sidewinder	SPC	Desert communities with open areas, sparse vegetation, and loose sand, but may also be found in rocky or gravelly sites.	Suitable habitat occurs within the southwestern portion of the proposed replacement airport study area.	Yes – suitable habitat was found <sup>2</sup>
Western banded gecko	SPC	Creosote-dominated vegetation communities, usually in rocky areas and along canyon walls of riparian zones.	Known to occur.	Yes – known to occur <sup>2</sup>
Zebra-tailed lizard	SPC	Open areas with little vegetation, washes, desert pavement, and hardpan.	Known to occur.	Yes – known to occur

**Table 5.4, Continued**  
**SPECIAL STATUS SPECIES POTENTIALLY OCCURRING IN THE PROPOSED**  
**REPLACEMENT AIRPORT STUDY AREA**

SPECIES	STATUS <sup>1</sup>	HABITAT	POTENTIAL PRESENCE WITHIN PROPOSED REPLACEMENT AIRPORT STUDY AREA	POTENTIALLY IMPACTED BY PROPOSED REPLACEMENT AIRPORT <sup>2</sup>
<b>Fish</b>				
Virgin River chub	ESA LE	Deep, protected areas of swift water.	Restricted to the aquatic habitats of the Virgin River.	No
Virgin spinedace	CA	Clear, slow-moving water of creeks and small streams; most often occur in areas with ample cover.	Restricted to the aquatic habitats of the Virgin River.	No
Woundfin	ESA LE	Main channel of swift, turbid, warm streams over sand substrate.	Restricted to the aquatic habitats of the Virgin River.	No

<sup>1</sup> Status definitions:

ESA - Endangered Species Act    SPC - Species of Special Concern    EXN - Experimental Population

LE - Listed Endangered

LT - Listed Threatened

C - Candidate

CA - Conservation Agreement

<sup>2</sup> See Section 6.11 for detailed information regarding potential impacts of the development of the proposed replacement airport on biological resources.

Source: Logan Simpson Design. 2005.

#### 5.4.4 WATER RESOURCES

The wash channels within the proposed replacement airport study area are ephemeral, which means that they do not have a continuous flow of water. There are no perennial intermittent surface water flows within the proposed replacement airport study area. Surface water is present only for a short duration following storm events. The substrate of the drainage channels is composed of sand to fine-textured soils or exposed bedrock. The channel banks are typically greater than one foot deep and are composed of either rocky slopes or eroded soil. The surface water within the proposed replacement airport study area flows northeast to southwest towards Fort Pearce Wash, which flows to the Virgin River; and are part of Utah's Lower Colorado River Basin. There is a high point in the center portion of the proposed replacement airport study area that breaks the drainage pattern into a northerly flow and a southerly flow. Washes 1 and 2 flow northeasterly; the rest flow to Fort Pearce Wash.

#### 5.4.4.1 Waters of the United States

Potential jurisdictional waters of the United States are located within the proposed replacement airport study area.<sup>70</sup> The jurisdictional limits along drainage locations were determined by the presence of the indicators listed below.<sup>71</sup>

- Change in soil characteristics
- Impression of water line
- Shelving or cut banks
- Destruction of vegetation from water flows
- Litter or debris
- Soil deposits
- Water stains

A formal jurisdictional delineation of the proposed replacement airport site, which has been approved by the U.S. Army Corps of Engineers (USACE), determined that the proposed replacement airport study area contains eight jurisdictional sites of waters of the United States.<sup>72</sup> These eight sites are depicted in **Exhibit 5.6**. See also **Appendix P** for detailed information.

#### 5.4.4.2 Wild and Scenic Rivers

There are no rivers designated as Wild and Scenic within the vicinity of the proposed replacement airport site, or within the entire states of Utah and Nevada.<sup>73</sup> The Verde River, located in central Arizona between Flagstaff and Phoenix, is the only national wild and scenic river designated within the State of Arizona. The Verde River is located outside of the initial area of investigation.

In addition to providing for the designation of national wild and scenic rivers, the Wild and Scenic Rivers Act (P.L. 90-542) provides for the study of river segments as potential components of the national wild and scenic river system. Study river segments have been designated along the Green and Colorado Rivers in Colorado and Utah and along the Salt, Verde, and San Francisco Rivers in Arizona.<sup>74</sup> These study river segments are also located outside of the initial area of investigation.

#### 5.4.4.3 Floodplains and Floodways

Within the municipal boundaries of the City of St. George and Washington City, and portions of unincorporated Washington County, the Federal Emergency Management Agency (FEMA) has delineated the 100-year floodplain along the Virgin River, the Atkinville Wash, and the Fort Pearce Wash. These floodplain areas

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<sup>70</sup> Field surveys conducted on April 26, 2004 and September 7, 2004 by Logan Simpson Design Inc.

<sup>71</sup> *Guidelines for Jurisdictional Determinations for Waters of the United States in the Arid Southwest*. US Army Corps of Engineers. 2001.

<sup>72</sup> Correspondence from Grady L. McNure, US Army Corps of Engineers, to David Ulane, Manager, St. George Municipal Airport. February 1, 2005. See **Appendix P**.

<sup>73</sup> National Park Service. On-line at <http://www.nps.gov/rivers/November 23, 2004>.

<sup>74</sup> *Wild & Scenic Rivers Study Status (as of January 2003)*, National Park Service. On-line at: <http://www.nps.gov/rivers/study.html/>.

are designated as Zone A, defined as the flood insurance rate zone that corresponds to the 100-year floodplain. The segment of the Fort Pearce Wash that flows along the southern boundary of the proposed replacement airport site has been designated as 100-year floodplain (Zone A). A portion of the unnamed wash located in the northeast corner of the replacement airport site has also been designated as 100-year floodplain, as shown on **Exhibit 5.7**. There are also several dry washes in the vicinity of the existing airport site and the proposed replacement airport site that serve as conduits for storm flows. These dry washes may have areas adjacent to them that serve as floodplains.

Impacts on floodplains typically occur when the topography within a floodplain is substantially modified either by placement or removal of materials within the floodplain. The area adjacent to the wash would be used as part of the runway safety zone for the proposed replacement airport and would remain undeveloped. Development of the proposed replacement airport would not substantially modify the topography in this area, and therefore, no impacts on floodplains are anticipated.

#### 5.4.4.4 Ground Water

The groundwater system in the Virgin River Basin consists of two distinct aquifer systems: valley fill and consolidated rock. Groundwater withdrawals from the valley-fill aquifers are used primarily for irrigation, while withdrawals from the deeper consolidated-rock aquifers are used for public drinking water. The main consolidated-rock aquifers are found in Navajo Sandstone and the Kayenta Formation and are referred to as the Navajo and Kayenta aquifers. Navajo Sandstone, which is 2,200 feet thick in some areas, overlies the Kayenta Formation.<sup>75</sup> The consolidated rock aquifers (Navajo and Kayenta) provide most of the potable water to the municipalities in Washington County. Infiltration of precipitation as either rain or snow is thought to be the largest source for recharging the main aquifer. Recharge from the small amounts of precipitation delivered by from summer storms is minimal, since most of the water is intercepted in shallow subsurface aquifers or lost through evapotranspiration. Long-lasting storms or storms of high intensity, especially during the winter months when evapotranspiration effects are minimal, account for the largest percentage of recharge to the deep aquifers.

Additional sources of groundwater that recharge the aquifers include seepage from streams traversing the Navajo Sandstone and Kayenta Formation outcrops, numerous ephemeral washes traversing the outcrops, seepage from overlying and underlying aquifers, and infiltration from unconsumed irrigation water.

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<sup>75</sup> U.S. Department of Agriculture 1990 *Virgin River Basin-Utah Cooperative Study*. As presented in the *Southern Corridor Draft Environmental Impact Statement and Section 4(f) Evaluation*, Federal Highway Administration and Utah Department of Transportation. March 2003.

## 5.5 EXISTING LAND USE

This section discusses existing land use in the initial area of investigation and in the vicinity of the existing airport and the proposed replacement airport site.

### 5.5.1 INITIAL AREA OF INVESTIGATION

As shown in **Exhibit 5.1, *Initial Area of Investigation*** and as discussed in **Section 5.3.1 through Section 5.3.7** of this chapter, existing land use is primarily open space, except for the main population centers of St. George, Washington City, Hurricane, and Cedar City. Public lands in the initial area of investigation include national forests, wilderness areas, wilderness study areas, national parks and recreation areas, national monuments, state parks, wilderness areas, and Native American lands. See **Table 5.2 and Table 5.3** for detailed listings of public lands within the initial area of investigation.

### 5.5.2 EXISTING AIRPORT STUDY AREA

Single and multi-family residential developments are located immediately north of the existing airport property and share the same plateau, as shown on **Exhibit 5.8, *Aerial View of St. George/Washington City Area***. A restaurant and motel are located on the eastern edge of the existing airport property, also on the plateau. Additional development is limited by the boundary of the plateau, on which the existing airport and the surrounding land uses are situated. Below the rim of the plateau, the City of St. George is located to the east and consists of predominantly commercial and multi-family residential developments. Single-family and multi-family residential developments are located to the south. Commercial, farmland, and developing residential neighborhoods are located to the west. Commercial and single-family/multi-family residential areas are located to the north of the existing airport property.

### 5.5.3 PROPOSED REPLACEMENT AIRPORT STUDY AREA

The site of the proposed replacement airport is undeveloped and does not contain any residences, as shown on **Exhibit 5.8**. The site incorporates the old Civil Aeronautics Administration (CAA) runway, which was constructed in the late 1920s or early 1930s. It was designed for use as an emergency landing field for air carriers traveling between Los Angeles and Denver. The CAA emergency landing field was abandoned in 1961.<sup>76</sup>

Scattered homes are located north and northeast of the proposed replacement airport site. More densely populated areas, such as the neighborhoods of Bloomington Hills, Price Bench, and the City of St. George are located to the west and north. Farmland is located in the valley to the north – the Washington Fields area. Scattered areas of low-density residential are west of the replacement airport site near River Road. Undeveloped desert land is southwest, south, and southeast of the proposed replacement airport site.

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<sup>76</sup> *St. George Municipal Airport Site Selection and Master Plan Study*. Prepared by Creamer & Noble Engineers and Barnard Dunkelberg & Company. October 1998.

## 5.6 FUTURE LAND USE PLANS AND ZONING

The discussion of future land use plans and zoning in this EIS is confined to the vicinities of the existing airport and the proposed replacement airport site, representing the areas where future development and land use patterns are most likely to be influenced by the development of the proposed replacement airport; and where future development and land uses are most likely to have implications for the operation of the proposed replacement airport.

### 5.6.1 EXISTING AIRPORT STUDY AREA

If the proposed replacement airport is approved, the City of St. George plans to redevelop the existing airport site for a mix of residential, commercial, administrative and professional, light industry, and/or campus land uses after the proposed replacement airport becomes fully operational. See **Appendix D, Existing Airport Redevelopment Plan**. The redevelopment plan is intended to provide a balance of community development through the provision of services and employment opportunities that are centrally located for the convenience of potential adjacent residents, while taking advantage of the picturesque panoramic views of downtown St. George, the Redrocks, Pine Valley Mountain Range, Zion National Park, and the Beaver Dam Mountains.

Single-family homes and multi-family residences, such as town-homes, condominiums, and apartments, would be developed through the residential plan for the area. The commercial development would include retail commercial, office, and professional businesses.<sup>77</sup>

### 5.6.2 PROPOSED REPLACEMENT AIRPORT STUDY AREA

**Exhibit 5.9** shows the proposed future land uses throughout the St. George and Washington City area, based on the current general plans of the local jurisdictions. Most of the property in the area is in private ownership and is potentially available for development, subject to development permits by local governments and the provision of utilities and roads.

Within their respective land use designations, both St. George and Washington City have considered the potential effects of the proposed replacement airport. St. George has designated its lands on the plateau area in the immediate vicinity (to the west and south) of the proposed replacement airport site as a Business-Research Park for development of light manufacturing and professional office uses. Land use designations for property beyond the ridgeline to the west and northwest of the plateau are low-density residential. However, most of those areas are more than 100 feet lower than the proposed replacement airport site and therefore, do not have direct visual or physical connection to the site.<sup>78</sup>

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<sup>77</sup> St. George City Airport Redevelopment Plan. Prepared by Creamer & Noble Engineers. June 2000.

<sup>78</sup> General Plan, City of St. George, Utah. Prepared by St. George Department of Community Development. 2002.



The City of St. George is conducting an airport vicinity land use planning process concurrently with this EIS. The intent of the planning effort is to develop a land use plan and regulations that promote compatible land uses in the proposed replacement airport environs while also establishing a planning framework that would enable local governments to capitalize on potential economic development opportunities. The study is considering the effects of aircraft noise, potential safety issues, and airspace protection in determining the best locations for various land uses.

On March 9, 2005, Washington City approved a General Plan update that identifies a Special Study Area in the vicinity of the proposed replacement airport. The Preferred Land Use Alternative described in the Washington City General Plan shows the designation of industrial land uses adjacent to the proposed replacement airport site with open space uses designated adjacent to the northwest corner of the site.<sup>79</sup> However, no designations for these areas will be official until after August 1, 2005.<sup>80</sup>

Both St. George and Washington City have shown the unincorporated Washington County lands in their General Plans as business/industrial land uses in anticipation of potential future annexation, which has not yet been determined. The Washington County General Plan does not designate future land uses for this area because county policy requires annexation of these areas to a municipality in order to be developed.

South of the proposed replacement airport site, within the State of Arizona, the Mohave County General Plan ascribes a default of classification as a Rural Development Area within the proposed replacement airport study area.<sup>81</sup> This area is not currently anticipated to have near term development, in part due to the current lack of water and other utility services in this area of Mohave County.

Potential economic development in the area that may be spurred by the opening of the proposed replacement airport and the planned Southern Corridor is also being considered. It is possible that St. George and Washington City may revise designations for planned future land uses in the proposed replacement airport study area after the Airport Vicinity Land Use Plan is developed and approved by the local governments.

The City of St. George and Washington County have each adopted resolutions to pursue multi-jurisdictional land use compatibility planning in association with the development of the Proposed Replacement Airport at St. George. The city adopted the resolution on April 6, 2000 and the county on April 10, 2000.<sup>82, 83</sup>

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<sup>79</sup> Washington City General Plan. Prepared by Winston Associates. 2005.

<sup>80</sup> Jim McGuire, City Planner, Washington City, phone conversation 3 March 2005.

<sup>81</sup> Mohave County General Plan. Released May 7, 2004. On-line at: <http://www.co.mohave.az.us/>.

<sup>82</sup> City of St. George Resolution 1-4-00R, *Resolution to Pursue Land Use Compatibility with the Development of a Replacement Airport*. April 6, 2000.

### 5.6.3 EXISTING ZONING

**Table 5.5** lists the zoning districts of each jurisdiction in the proposed replacement airport study area (i.e. the City of St. George, Washington City, and Washington County, Utah; and Mohave County, Arizona). They are classified into generalized categories that are mapped in **Exhibit 5.10**. For the most part, the existing zoning corresponds with the land use designations shown on the future land use map (**Exhibit 5.9**).

**Table 5.5**  
**CLASSIFICATION OF ZONING DISTRICTS INTO GENERALIZED CATEGORIES**

GENERALIZED ZONING CATEGORY	ZONING DISTRICTS BY JURISDICTION			
	CITY OF ST GEORGE, UTAH	WASHINGTON CITY, UTAH	WASHINGTON COUNTY, UTAH	MOHAVE COUNTY, ARIZONA
<b>Agriculture</b>	A-1, A-5, A-10, A-20 Agricultural M-G, Mining and Grazing (.05) OS, Open Space	A, Agricultural	A-Agriculture OST, Open Space Transition	A, General
<b>Rural Residential, 1 dwelling unit per acre</b>	RE-5, RE-12.5, RE-20, RE-37.5 Residential Estate (0.2 max)	RA, Residential Agricultural (0.2 to 2)	RA, Residential Agricultural FR-Forest Residential RE, Residential Estate	A-R, Agricultural Residential (1) R-OA, Single-family Residential, Houses Only/ Limited Animal Use (1) A-D, Airport Development (1) RE, Residential Recreation (2)
<b>Low-Density Residential</b>	R-1-6, R-1-7, R-1-8, R-1-10, R-1-12, R-1-20, R-1-40 Single Family Residential R-1, Conservation	R-1, Single Family Residences (1.1 to 7.26)	SF, Single Family Residential	R-1, Single-family (7.26) Residential R-O, Single-family Residential, Houses Only (7.26)
<b>Medium/High Density Residential</b>	R-2, R-3, R-4 Multiple Family Residential (13.6) RCC, Residential Central City	R-2, One and Two Family Residences (7.26) R-3, Multiple Family Residential (14.52)	R-2, R-3, MF, Multiple Family Residential	R-M, Multi-family Residential (7.26)
<b>Mobile Home</b>	MH-6, MH-8, MH-10, MH-12, MH-20, MH-40 Mobile Home (16)	MH, Mobile Home-Recreational Vehicle (36.3 to 7.26)	MH, Manufactured Housing & Recreational Vehicle	R-MH, Residential Mobile Home (7.26) R-TT, Residential Mobile Home and Travel Trailers

<sup>83</sup> Washington County Commission Resolution No. 751, *Resolution to Pursue Land Use Compatibility through the Formation of a Joint Planning Board Regarding the Development of a Replacement Airport*. April 10, 2000.

Table 5.5 Continued

## CLASSIFICATION OF ZONING DISTRICTS INTO GENERALIZED CATEGORIES

GENERALIZED ZONING CATEGORY	ZONING DISTRICTS BY JURISDICTION			
	CITY OF ST GEORGE, UTAH	WASHINGTON CITY, UTAH	WASHINGTON COUNTY, UTAH	MOHAVE COUNTY, ARIZONA
<b>Planned Development</b>	PD, Planned Development	PUD, Planned Unit Development PCD, Planned Community Development	PD, Planned Development	
<b>Commercial, Office</b>	C-1, Commercial C-2, Commercial C-3, Commercial C-4, Commercial A-P, Administrative and Professional Office	C-1, Community Commercial C-2, Service Commercial C-3, General Commercial Sexually Oriented Businesses AP, Administrative and Professional	C-1, Commercial C-2, Commercial C-3, Commercial Wireless Communication Facilities	C-1, Neighborhood Commercial C-2, General Commercial C-2H, Highway Commercial C-RE, Commercial Recreation
<b>Industrial</b>	M-1, Manufacturing M-2, Manufacturing	I, Industrial	M-1, M-2, Manufacturing I-1, Industrial	C-M, Commercial Manufacturing C-MO, Commercial Manufacturing – Open Lot Storage M, General Manufacturing M-X Heavy Manufacturing
<b>Park and Open Space</b>		OS, Open Space	OSC, Open Space Conservation SFR-Seasonal Forest Residential	R-P, Regional Parks C-P, Community Parks N-P, Neighborhood Parks
<b>Overlay Zones</b>	Overlay Zones Resort Overlay Zone Historic District Overlay Zone Airport Overlay Zone	HP, Hillside Protection Overlay IC, Interstate Corridor Overlay		

Sources: Washington City, Utah Zoning Ordinance, Adopted March 1, 1995.  
 Mohave County Planning and Zoning Department, Zoning Ordinance, Adopted September 7, 1965;  
 Revised November 6, 2003.  
 Washington County Zoning Ordinance, December 12, 2001.  
 Zoning Ordinance of the City of St. George Utah, 1998.

## 5.7 HISTORIC, ARCHITECTURAL, ARCHEOLOGICAL, AND CULTURAL RESOURCES

Federal, state, and local laws have been enacted to preserve cultural resources throughout the U.S. The National Historic Preservation Act (NHPA) of 1966 requires that projects that occur on Federal lands, are funded by Federal monies, or that require a Federally-issued permit be evaluated for their impacts to historic properties.<sup>84</sup> Other applicable Federal laws include the National Environmental Policy Act of 1969 (NEPA),<sup>85</sup> the American Indian Religious Freedom Act of 1978,<sup>86</sup> the Archaeological Resources Protection Act of 1979,<sup>87</sup> the Native American Graves Protection and Repatriation Act of 1990,<sup>88</sup> and Section 4(f)/303(c) of the Department of Transportation Act of 1966.<sup>89</sup> Section 106 of the National Historic Preservation Act (NHPA) defines the consultation process that agencies must follow to evaluate direct, indirect, and cumulative impacts that undertakings could potentially have on historic properties and identifies options to mitigate or avoid adverse effects. The Utah Antiquities Protection Act of 1992 is the applicable state law, which requires that, before expending any state funds or approving any undertaking, each state agency shall take into account the effect of the undertaking on any district, site, building, structure, or specimen that is included in, or is eligible for, inclusion in the National Register of Historic Places or the State Paleontological Register and allow the state historic preservation officer a reasonable opportunity to comment with regard to the undertaking or expenditure.<sup>90</sup>

Historic properties include prehistoric and historic districts, sites, buildings, structures, or objects included in, or considered eligible for inclusion in, the National Register of Historic Places (NRHP). Historic properties may be eligible for nomination to the NRHP if they possess integrity of location, design, setting, materials, workmanship, feeling, and association; and if these resources are associated with any of the following criteria:

- Significant themes in our nation's history
- Significant persons in our nation's history
- Embody distinctive construction characteristics or works of a master
- Have the potential to contribute information significant to history or prehistory

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<sup>84</sup> 16 United States Code [U.S.C.] 470 et seq., as amended

<sup>85</sup> 42 U.S.C. 4321

<sup>86</sup> 42 U.S.C. 1996, P.L. 95-341

<sup>87</sup> 16 U.S.C. 470aa-mm

<sup>88</sup> 25 U.S.C. 3001–3013

<sup>89</sup> 23 U.S.C. 138

<sup>90</sup> U.A.C. 9-8-404; U.A.C. 63-73-19

### 5.7.1 RESOURCES WITHIN THE PROPOSED REPLACEMENT AIRPORT STUDY AREA

Examination of the NRHP database indicates that there are no listed properties within the property boundary of the proposed replacement airport. The entire boundary falls within the state of Utah. A literature review and a check of site files were undertaken to identify previous surveys and previously recorded cultural resource sites in the proposed replacement airport study area. Reviews of archaeological site and inventory reports at the Utah State Historic Preservation Office (SHPO) in Salt Lake City and at the Cedar City District BLM Office indicate several surveys of the proposed replacement airport study area were completed in the past, which identified multiple sites. BLM archaeologists surveyed 156.12 acres in the southern portion of the proposed replacement airport study area as part of the Desert Tortoise Exchange Tract 10 (DTX-Tract 10) land exchange project.<sup>91</sup> Intersearch, Inc. surveyed 2,775.61 acres of alternative locations for Creamer & Noble Engineers for the proposed replacement airport project.<sup>92</sup> Logan Simpson Design Inc. completed a survey of 116.61 acres for the proposed access road and previously unsurveyed lands within the proposed replacement airport study area.<sup>93</sup>

Cultural resource surveys at the proposed replacement airport site resulted in the identification and documentation of six cultural resources sites, none of which is considered significant and eligible for listing in the NRHP, as presented in **Appendix F, Cultural Resources**. Three of the six sites are prehistoric and three are historic in age. The prehistoric sites include two artifact scatters and a stone tool resource procurement/reduction area. The historic sites consist of rock mounds and rock alignments. These prehistoric and historic sites are shown on **Exhibit 5.11, Cultural Resources near the Proposed Replacement Airport Site**. The Utah SHPO reviewed the cultural resources report of the proposed replacement airport study area prepared for this EIS and concurred that a finding of “no historic properties affected” is appropriate for the development of the proposed replacement airport.<sup>94</sup>

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<sup>91</sup> *Desert Tortoise Exchange (DTX-10). Survey/Environmental Report*. On file, Bureau of Land Management, Cedar City District Office, Cedar City. 1995.

<sup>92</sup> The Creamer & Noble – St. George Airport Archeological Survey, Location I, in Washington County, Utah. U-97-IG-0071b,p,s. Intersearch, Inc., Cedar City, Utah. 1997. The Creamer & Noble – St. George Airport Archeological Survey, Location II, in Washington County, Utah. Intersearch, Inc., Cedar City, Utah. 1997. An Archeological Survey of the Creamer & Noble – St. George Replacement Airport Road Alignment in Washington County, Utah. Intersearch, Inc., Cedar City, Utah. 2000.

<sup>93</sup> A Cultural Resource Survey of a 16.44-Acre Corridor for a Proposed Airport Access Road, South of St. George, Washington County, Utah. Technical Report 035064. Logan Simpson Design Inc. 2004.

<sup>94</sup> Correspondence from James L. Dykman, Utah State Historic Preservation Office, to Dennis Ossenkop, FAA Northwest Mountain Region. Subject: Potential environmental impacts of the proposed replacement St. George Municipal Airport upon the Little Black Mountain Petroglyph Site and Section 106 consultation on the proposed airport footprint. State Project #U-04-LI-0353p.s. Signed April 1, 2005. See **Appendix F**.

### 5.7.1.1 Prehistoric Sites

As shown on **Exhibit 5.11**, the first of the two prehistoric artifact scatters is located in the south-central portion of the proposed replacement airport study area. This site represents an area of unknown affiliation where cobbles were broken and tested for use as stone tools. The site is not considered eligible for inclusion in the NRHP.<sup>95</sup>

The second prehistoric artifact scatter site is located in the southwest portion of the proposed replacement airport study area and contains a small number of lithic artifacts, including several tools. However, no diagnostic artifacts were found to indicate the site's time period of use or cultural affiliation. The site is not considered eligible for inclusion in the NRHP.<sup>96, 97</sup>

The third and final prehistoric site is a stone tool source area and workshop dispersed over a large portion of the southern half of the project area. The southern portion of the site was previously recorded by BLM, while Intersearch, Inc. previously surveyed the northern portion.<sup>98</sup> More recently, Logan Simpson Design, Inc. recorded four lithic concentrations at this site in the southwest portion of the proposed replacement airport study area. The site, which contains two spatially distinct areas separated by Fort Pearce Wash, was probably utilized repeatedly over time. Although it was previously recommended as potentially eligible for inclusion in the NRHP, subsequent testing revealed that the site lacked cultural depth, diagnostic artifacts, or cultural features; as a result, the recommendation was changed to ineligible.<sup>99, 100</sup>

### 5.7.1.2 Historic Sites

The three historic or possibly historic sites located within the proposed replacement airport study area were originally identified as potential burial sites and were originally considered to be significant resources recommended for inclusion in the NRHP.<sup>101</sup> These three sites are shown on **Exhibit 5.11**.

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<sup>95</sup> The Creamer & Noble – St. George Airport Archeological Survey, Location I, in Washington County, Utah. U-97-IG-0071b,p,s. Intersearch, Inc., Cedar City, Utah. 1997.

<sup>96</sup> *Desert Tortoise Exchange (DTX-10). Survey/Environmental Report.* On file, Bureau of Land Management, Cedar City District Office, Cedar City, Utah. 1995.

<sup>97</sup> *A Cultural Resources Survey of 367.7 Acres for a Proposed Airport, South of St. George, Washington County, Utah.* Technical Report 035064. Logan Simpson Design Inc., Tempe, Arizona. 2004.

<sup>98</sup> *The Creamer & Noble – St. George Airport Archeological Survey, Location I, in Washington County, Utah.* U-97-IG-0071b,p,s. Intersearch, Inc., Cedar City, Utah. 1997.

<sup>99</sup> *Archeological Investigation in the DTX Tract 10 Project Area, Washington County, Utah.* Ms. on file, Bureau of Land Management, Cedar City District Office, Cedar City, Utah. 1998.

<sup>100</sup> *A Cultural Resources Survey of 367.7 Acres for a Proposed Airport, South of St. George, Washington County, Utah.* Technical Report 035064. Logan Simpson Design Inc., Tempe, Arizona. 2004.

<sup>101</sup> *The Creamer & Noble – St. George Airport Archeological Survey, Location I, in Washington County, Utah.* U-97-IG-0071b,p,s. Intersearch, Inc., Cedar City, Utah. 1997.

The first site, located in the northeast corner of the proposed replacement airport study area consists of a rock mound and associated linear stone alignment, both of tabular white/gray limey sandstone, in an area covering 27 square meters. The mound measures 1.8 meters long by 1.0 meters wide, rising to heights of 10 to 40 centimeters above the ground surface. The rock alignment, which is located approximately 2.0 meters northwest of the mound, is 4.3 meters long, 40 to 50 centimeters wide, and 20 to 30 centimeters high.

The second site is located in the central to northeast portion of the proposed replacement airport study area and consists of three alignments of nine possible rubble mounds encircled with blocky stones in a 47 square-meter area. The mounds range from 1.4 to 2.4 meters in length, are a maximum of 1.2 meters wide, and rise from 0.2 to 0.4 meters above ground surface. The third site is in the eastern portion of the proposed replacement airport study area and consists of a low rock alignment of whitish/gray limey sandstone east of an ephemeral drainage. Rocks set into the ground form a long rectangle that defines the alignment, which measures five meters long by one meter wide and rises 10 to 25 centimeters above the ground surface.

No artifacts were associated with any of these three historic sites. Although all three historic sites were originally considered to be significant resources, subsequent testing at one of the sites determined that it was most likely an historic manifestation of rock clearing activity and not a burial site. As a result, the NRHP recommendation for all three sites was changed to ineligible.<sup>102</sup>

#### 5.7.1.3 Paleontological Resources

The Utah Geological Survey maintains a record of the sites and localities of vertebrate fossils and other exceptional fossils in the state. A record search conducted at the Utah Geological Survey indicates that the sediment within most of the proposed replacement airport study area, Quarternary alluvials, have not previously produced paleontological localities. The project is therefore unlikely to have an effect on significant paleontological resources.<sup>103</sup>

The St. George Dinosaur Discovery Site at Johnson Farm, located approximately 3.6 miles northwest of the proposed replacement airport site, was discovered in 2000 and consists of over 1,000 dinosaur tracks covering 10 acres.<sup>104</sup> The Utah Geological Survey (UGS), along with the University of Colorado, has been working on the recovery at the site. The City of St. George started construction of a visitor's center for the site in February 2004. If the proposed replacement airport is approved and, in the event that sites and/or artifacts are uncovered prior to or

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<sup>102</sup> *The Creamer & Noble – St. George Airport, Location I: Evaluation of 42Ws3413*. Intersearch Inc., Cedar City, Utah. 1997.

<sup>103</sup> *Final Environmental Assessment for the Proposed Replacement Airport at St. George, Utah*. Prepared by Creamer & Noble, Inc. and Barnard Dunkelberg and Company. January 30, 2001.

<sup>104</sup> *St. George Dinosaur Discovery Site at Johnson Farm*. On-line at: <http://www.sgcity.org/dinotrax/>. 2005.

during construction, all construction activities in the vicinity of the find will be stopped and the UGS and Utah SHPO will be contacted to determine the appropriate course of data recovery and site documentation.

## 5.7.2 RESOURCES OUTSIDE OF THE PROPOSED REPLACEMENT AIRPORT STUDY AREA

Due to the vast expanse of land studied in the initial area of investigation, pursuant to the FAA's NEPA analysis, the FAA expanded its Area of Potential Effect (APE) under Section 106 to the same area of land. However, due to the distance from ground-disturbing activities at the proposed replacement airport, the primary potential effect is aircraft noise. In order to determine potential effects of aircraft noise within the APE, the FAA initiated consultation with the NPS regarding historical properties within Zion National Park, the BLM regarding Little Black Mountain Petroglyph site, and the three SHPOs in Utah, Arizona, and Nevada.

### 5.7.2.1 Traditional Cultural Properties

The cultural surveys completed prior to 1998 were submitted to representatives of the Paiute Indian Tribe of Utah on January 6, 1998 in order to obtain comments pertaining to tribal clearance for archaeological and cultural resources. The Paiute Indian Tribe representatives concurred that no Native American sites or sacred places would be impacted by the proposed replacement airport.<sup>105</sup>

Coordination during the development process of this EIS was also completed with tribal leaders of the three Native American reservation lands located within the initial area of investigation. Letters were sent and meetings were held with leaders of the Shivwits Band of the Paiute Tribe of Utah, the Cedar City Band of the Paiute Tribe of Utah, and the Kaibab-Paiute Tribe of Arizona, as described in **Appendix O, Tribal Coordination**.

#### Little Black Mountain Petroglyph Site

Little Black Mountain is located entirely within the State of Arizona at a distance of approximately 1.5 miles south of the proposed replacement airport study area. Little Black Mountain contains a 200-acre site featuring approximately 500 petroglyphs, a short trail system, and several interpretive wayside exhibits that focus on various sets of petroglyph panels. The site also contains a parking lot, restroom, and small picnic area.

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<sup>105</sup> *Final Environmental Assessment for the Proposed Replacement Airport at St. George, Utah.* Appendix B. Prepared by Creamer & Noble, Inc. and Barnard Dunkelberg and Company. January 30, 2001.



Petroglyphs are rock carvings or drawings. The word petroglyph is from the Greek: petro meaning rock, and glyph meaning drawing or engraving. Petroglyph designs at Little Black Mountain include turtles, lizards, and bear paws that are believed to be social or religious symbols associated with the cultures of the Great Basin, Western Anasazi, and Lower Colorado River.<sup>106</sup>

The primary recreation activity type at the Little Black Mountain Petroglyph Site is the viewing of cultural resources. It is a day-use area, closed to motorized use inside the fence. Secondary recreation activities are picnicking (there is a single picnic table with shade shelter on-site) and photography of both the petroglyphs and the scenic qualities inherent in the black, basalt-capped, Moenkopi formation that is Little Black Mountain itself. Visitors typically view and enjoy the rock art, lizards, scenery, solitude, and natural quiet of the site.<sup>107</sup> Additional visitors value the opportunity for all-terrain vehicles use and access in the area.<sup>108</sup> Visitor records from the site for 2003 indicate that 1,181 visitors signed the register. In the register, visitors stated that they primarily value the site for the preservation of the petroglyphs and the beauty of the area.<sup>109</sup>

Although it has not yet been formally evaluated, the Little Black Mountain Petroglyph Site is considered to be eligible for listing in the NRHP under Criteria A (Event), C (Design/Construction), and D (Information Potential). The BLM declared the petroglyph site to be an Area of Critical Environmental Concern in its 1992 Arizona Strip District Resource Management Plan. The BLM considers the site to be a significant historic site for purposes of Section 4(f)/303(c). The Arizona Strip Field Office also recognizes that the cultural resources and setting of this site are significant to Native American tribes in the surrounding region and therefore, the site is eligible for listing in the NRHP.<sup>110</sup> See **Section 6.6.2, Potential Direct and Indirect Impacts of the Proposed Replacement Airport**, for additional information.

The FAA coordinated with the Arizona SHPO, the BLM Arizona Strip Office, and local tribal leaders of the Shivwits and Cedar City Bands of the Paiute Tribe of Utah and the Kaibab-Paiute Tribe of Arizona regarding the proposed replacement airport and the Little Black Mountain Petroglyph Site. The FAA is continuing coordination with the Arizona SHPO regarding potential effects on the Little Black Mountain Petroglyph Site pending responses from local tribes. See **Appendix O, Tribal Coordination**, for additional information. On July 20, 2005, the BLM submitted its concurrence with the FAA's Finding of No Adverse Effects to the Arizona SHPO.

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<sup>106</sup> Little Black Mountain Petroglyph Site. Bureau of Land Management Arizona. On-line at <http://www.az.blm.gov/asfo/prehist.htm/>. 2004.

<sup>107</sup> Little Black Mountain Petroglyph Site. Bureau of Land Management Arizona. On-line at <http://www.az.blm.gov/asfo/prehist.htm/>. 2004.

<sup>108</sup> Correspondence via e-mail between Diana Hawks, Bureau of Land Management and Dennis Ossenkop, FAA. October 14, 2004.

<sup>109</sup> Little Black Mountain Petroglyph Site. Bureau of Land Management Arizona. On-line at <http://www.az.blm.gov/asfo/prehist.htm/>. 2004.

<sup>110</sup> Correspondence between Roger S. Taylor, Arizona Strip Field Office, Bureau of Land Management and Dennis Ossenkop, FAA. December 10, 2004.

Due to the close proximity of the Little Black Mountain Petroglyph Site to the Utah state border, the FAA also coordinated with the Utah SHPO regarding the potential effects of the proposed replacement airport on the Little Black Mountain Petroglyph Site. This coordination was completed as part of the cultural survey of the proposed replacement airport study area (previously described in **Section 5.7.1, Resources within the Proposed Replacement Airport Study Area**). The Utah SHPO concurred with a determination of No Adverse Effect for the development of the proposed replacement airport (see **Appendix F, Cultural Resources**, for additional information).<sup>111</sup>

The results of the noise monitoring study completed for the Little Black Mountain Petroglyph Site and a summary of potential noise and overflight effects of the proposed replacement airport on the site are included in **Section 6.2, Airport Noise**, and **Appendix I, Little Black Mountain Baseline Noise Monitoring Study**.

#### 5.7.2.2 Consultation

##### Utah

A total of eighty historic properties and districts in Washington County are listed in the NRHP, as shown on **Exhibit 5.12, Cultural Resources Sites**, and listed in **Appendix F, Table F.4**. All but two of the property listings date to the historic period – the period documented with written records. The two properties listed in Washington County that do not date to the historic period, the Southern Paiute Archaeological District in Washington City and the Parunuweap Canyon Archaeological District in Zion National Park, date to the prehistoric period. Twelve of the listed properties are located within the City of St. George, and are all historic buildings. Other municipalities with listed properties include Washington City with six properties, Santa Clara with eight properties, and Hurricane with eight properties.

In a 2000 survey of River Road, which is located northwest of the proposed replacement airport site and has been identified as an alternative access route to the proposed replacement airport, a prehistoric rock shelter site was recorded that is considered eligible for listing in the NRHP. The rock shelter site is located outside of the proposed replacement airport study area along River Road, approximately 0.2 miles northwest of the proposed replacement airport study area. The site is considered eligible for NRHP-listing, but it was recommended that if the site were avoided by the proposed access road, there would be no adverse effect to the site.

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<sup>111</sup> Correspondence from James L. Dykman, Utah State Historic Preservation Office, to Dennis Ossenkop, FAA Northwest Mountain Region. *Subject: Potential environmental impacts of the proposed replacement St. George Municipal Airport upon the Little Black Mountain Petroglyph Site and Section 106 Consultation on the proposed airport footprint. State Project #U-04-LI-0353p.s.* Signed April 1, 2005. See **Appendix F**.

The Utah SHPO concurred with this recommendation.<sup>112</sup> Currently, the site is located outside the proposed airport boundary and will not be affected by development and implementation of the proposed replacement airport.<sup>113</sup>

The Zion National Park Multiple Resource Area consists of 30 properties historically associated with the operation of the park, as shown on **Exhibit 5.13** and in **Appendix F, Table F.4**. Consultation is ongoing with the NPS regarding these thirty historic sites within Zion National Park. See **Appendix N** for additional information regarding consultation with the NPS.

### Arizona

As stated in **Section 5.7.2.1** above, the FAA has coordinated with the Arizona SHPO regarding Little Black Mountain Petroglyph site. The FAA has also coordinated with the BLM as the land manager of this site. On July 28, 2005, the FAA submitted a letter to the Arizona SHPO regarding other potential sites within the APE.

### Nevada

On July 28, 2005, the FAA submitted a letter to the Nevada SHPO regarding sites potentially effected by the replacement airport at St. George.

### Tribal Governments

In addition to coordination with Tribal Governments regarding Little Black Mountain Petroglyph Site, the FAA is continuing its consultation with Tribal Governments regarding the entire APE under Section 106. See **Appendix O** for a complete history of Tribal consultation.

## **5.8 SOCIOECONOMIC PROFILE**

This section provides an overview of the socioeconomic conditions within the initial area of investigation.

### **5.8.1 HISTORIC AND CURRENT POPULATION**

Southwestern Utah is a largely rural area characterized by large amounts of public land, undeveloped desert, mountain and forest areas, grazing land, and scattered areas of agriculture and relatively small urban areas. The largest centers of urbanization are in the Virgin River and tributary valleys and include the cities of St. George, Washington City, Hurricane, and Santa Clara.

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<sup>112</sup> Correspondence from Cynthia Romero, FAA, to James Dkyman, State of Utah, dated September 27, 2000. Correspondence from James Dykman, State of Utah, to Cynthia Romero, FAA, dated October 26, 2000. See **Appendix L**.

<sup>113</sup> *Final Environmental Assessment for the Proposed Replacement Airport at St. George, Utah. Appendix B.* Prepared by Creamer & Noble Engineers and Barnard Dunkelberg and Company. January 2001.

### 5.8.1.1 Utah and Arizona

**Table 5.6, *Population Comparison for Initial Area of Investigation***, compares the population of major jurisdictions in the initial area of investigation. As shown in **Table 5.6**, the State of Utah's population grew by 53 percent between 1980 and 2000. As reported by the 2000 Census, the median age for the State of Utah is 27.1 years, which is several years younger than the national median age of 35.3 years. The State of Arizona's population grew by 89 percent between 1980 and 2000. As reported by the 2000 Census, the total population of the State of Arizona averaged approximately 40 percent growth between the years 1990 and 2000, with a median age of 34.2 years, which is approximately one-year younger than the national median age of 35.3 years.

**Table 5.6**  
**POPULATION COMPARISONS FOR INITIAL AREA OF INVESTIGATION**  
**1980 – 2000**

POPULATION AREA	CENSUS 1980	CENSUS 1990	CENSUS 2000	PERCENT CHANGE 1980-2000
United States	226,545,805	248,709,873	281,421,906	24%
Utah	1,461,037	1,722,850	2,233,169	53%
Arizona	2,718,215	3,665,228	5,130,632	89%
Washington County, Utah	26,065	48,560	90,354	247%
Mohave County, Arizona	55,865	93,497	155,032	178%
City of St. George, Utah	13,146	28,502	49,663	278%
Washington City, Utah	3,092	4,198	8,186	165%

Sources: U.S. Census Bureau, *Summary File 1 (SF 1), Matrix P1*. 2000.

U.S. Census Bureau, *Summary Tape File 1 (STF 1), Matrix P001*. 1990.

U.S. Census Bureau, *Population of Counties by Decennial Census: 1900 to 1990*. 1995.

### 5.8.1.2 Washington County, Utah

The Anasazi Indians were the first known inhabitants of southwestern Utah and what is today Washington County, entering the area around 200 BC and leaving by 1200 AD. The Paiute Indians, a relatively small tribe made up of smaller bands of a few hundred people each, were also are also known to have inhabited the region between 1100 and 1200 AD. While passing through southwestern Utah in 1776, the Spanish Dominguez-Escalante group recorded the first known contact between Europeans and Paiutes.

The population of Washington County, Utah increased at a greater rate between 1980 and 2000 than that of the State of Utah as a whole. Washington County experienced a 247 percent increase and Utah experienced a 53 percent during that same twenty-year time period. The county seat, St. George, saw a growth rate of 278 percent for the period between 1980 and 2000. St. George, Hurricane, Washington City, and Santa Clara accounted for 80 percent of the total population in Washington County in 2000.

According to the 2000 Census, Washington County's population was estimated at 90,354, as shown in **Table 5.6**. This represents a 247 percent increase over the 1980 population.

### **5.8.1.3 Mohave County, Arizona**

Mohave County is named after the Mojave Indians, one of several tribes of Native Americans who have resided in the present-day county. Today, lands within the Kaibab, Hualapai, and Fort Mojave Indian Reservations within Mohave County continue under tribal jurisdiction.

Most of the population of Mohave County is located south of the Grand Canyon. Only one incorporated city, Colorado City, is north of the Grand Canyon, in the area known as the Arizona Strip. Most of the Arizona Strip lacks the infrastructure, water supply, and services to support substantial urban development. The other three incorporated cities in the county are Bullhead City, Kingman, and Lake Havasu City. Kingman, the county seat, was incorporated in 1952 and remained the only incorporated city in the County until Lake Havasu City was incorporated in 1978.

The City of Kingman is located 225 miles (or four hours driving time) southwest of St. George. Named for the railroad surveyor who founded the original town site, Kingman's early growth was supported by railroad and highway routes passing through the town. This growth was given a boost during the 1930's with the construction of the Hoover Dam, and through the 1940's, with the establishment of Nellis Air Force Base. Today, Kingman remains a regional trade, service, and distribution center for northwestern Arizona and the southwestern U.S. Tourism and manufacturing are also important to the local economy.

Mohave County's population increased 178 percent between 1980 and 2000, as shown in **Table 5.6**. Much of the recent growth in Mohave County can be attributed to an increase in the seasonal migration of senior citizens during the winter months.

### **5.8.1.4 City of St. George, Utah**

Members of the Mormon Church (the Church of Jesus Christ of Latter Day Saints) settled the Salt Lake Valley in 1847. One of the key players in the settlement of the City of St. George and the southern Utah territory was Jacob Hamblin, who was sent by Brigham Young in 1854 to be a missionary to the Indians in southern Utah. The area became known as "Dixie" because of the warm climate, southern location, and the products produced in the area, such as cotton. The St. George area is still known today as Utah's Dixie.<sup>114</sup>

Over the past 20 years, St. George has been increasing its share of the population of Washington County. In 1980, St. George represented approximately 33 percent of the population of the County. By 1990, St. George accounted for approximately

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<sup>114</sup> *History of St George/Washington County*. St George Area Chamber of Commerce. 2004.

58 percent of Washington County's population. That proportion dropped slightly to 55 percent by 2000. According to the 2000 Census, the City of St. George's population was 49,663.

### 5.8.1.5 Washington City, Utah

Twenty-eight families working together under the direction of Samuel Jefferson Adair and Brigham Young, known as the "Adair Group," founded Washington City in 1857. The families were drawn to the area after John D. Lee, a missionary who arrived in 1852, reported that the area had plenty of water and good agricultural land south of the Virgin River that would sustain the growth of tropical plants, fruits, cotton, and sugar cane.<sup>115</sup> Today, Washington City has a population of 8,186, which represents a 165 percent increase over its 1980 population, as shown in **Table 5.6**.

### 5.8.2 RACIAL CHARACTERISTICS

The racial characteristics of residents within the initial area of investigation are broken down into categories defined by the U.S. Census Bureau. The concept of race reflects the self-identification of Census respondents according to the race or races with which they most closely identify, including both racial and national-origin or ethnic groups.

The Census Bureau recognized the seven race categories listed below with the 2000 Census.<sup>116</sup>

1. White
2. Black or African American
3. American Indian or Alaska Native
4. Asian
5. Native Hawaiian or Other Pacific Islander
6. Some Other Race
  - a. This category includes all other responses not included in the race categories listed above. Census respondents providing write-in entries such as multi-racial, mixed, inter-racial, Spanish, Hispanic, or Latino are included in this race category. The Census Bureau categorizes Spanish, Hispanic, and Latino as ethnic origins rather than as race categories. Census respondents who identify their origin and/or ethnicity as Spanish, Hispanic, or Latino may be of any race.
7. Two or more races
  - a. This category includes all respondents who identify themselves as a combination of two or more of the race categories listed above, including the Some Other Race category.

<sup>115</sup> Washington City, Utah. On-line at <http://www.washingtoncity-ut.net/>. Retrieved November 12, 2004.

<sup>116</sup> *2000 Census of Population and Housing, Appendix B, Definitions of Subject Characteristics*. Prepared by U.S. Census Bureau. June 2003.

The 1990 Census recognized the five race categories listed below.<sup>117</sup>

1. White
2. Black
3. American Indian, Eskimo, or Aleut
4. Asian or Pacific Islander
5. Other race
  - a. As with the 2000 Census, this category includes all other responses not included in the race categories listed above.

There are several differences between the 2000 Census and the 1990 Census in the racial identification category. First, respondents to the 2000 Census were allowed to identify themselves as two or more races, which was not an option with the 1990 Census. Additionally, the three separate identifiers for the American Indian and Alaska Native populations (i.e. American Indian, Eskimo, or Aleut) used with the 1990 Census were combined into one category for the 2000 Census (i.e. American Indian or Alaska Native). Also, the Asian and Pacific Islander category used with the 1990 Census was split into the two categories of Asian and Native Hawaiian and Other Pacific Islander for the 2000 Census. Finally, the category of Some Other Race was added for the 2000 Census.<sup>118</sup>

**Table 5.7, *Racial Characteristics***, lists the racial categories of the residents of Washington County, Utah; Mohave County, Arizona; St. George, Utah; and Washington City, Utah as documented in the 1990 and 2000 Census reports, in comparison to that of the states of Utah and Arizona and the U.S. as a whole.

**Table 5.7**  
**RACIAL CHARACTERISTICS**

RACE <sup>1</sup>	CENSUS 2000 POPULATION <sup>2</sup>	PERCENT OF TOTAL CENSUS 2000 POPULATION <sup>2</sup>	CENSUS 1990 POPULATION <sup>3</sup>	PERCENT OF TOTAL CENSUS 1990 POPULATION <sup>3</sup>	PERCENT CHANGE 1990–2000
<b>United States</b>	<b>281,421,906</b>	<b>100%</b>	<b>248,709,873</b>	<b>100%</b>	<b>N/A</b>
White	211,460,626	75.1%	199,686,070	80.3%	-5.1%
Black or African American	34,658,190	12.3%	29,986,060	12.1%	0.3%
American Indian and Alaska Native	2,475,956	0.9%	1,959,234	0.8%	0.1%
Asian <sup>4</sup>	10,242,998	3.6%	7,273,662	2.9%	0.7%
Native Hawaiian & Other Pacific Islander <sup>5</sup>	398,835	0.1%	N/A	N/A	N/A
Some other race	15,359,073	5.5%	9,804,847	3.9%	1.5%
Two or more races <sup>5</sup>	6,826,228	2.4%	N/A	N/A	N/A

<sup>117</sup> 1990 Census of Population and Housing, Appendix B, Subject Characteristics. Prepared by U.S. Census Bureau. 1991.

<sup>118</sup> Racial and Ethnic Classifications Used in Census 2000 and Beyond. U.S. Census Bureau. On-line at <http://www.census.gov/population/www/socdemo/race/racefactcb.html/>. April 12, 2000.

**Table 5.7, Continued**  
**RACIAL CHARACTERISTICS**

RACE <sup>1</sup>	CENSUS 2000 POPULATION <sup>2</sup>	PERCENT OF TOTAL CENSUS 2000 POPULATION <sup>2</sup>	CENSUS 1990 POPULATION <sup>3</sup>	PERCENT OF TOTAL CENSUS 1990 POPULATION <sup>3</sup>	PERCENT CHANGE 1990–2000
<b>States</b>					
<b>Utah</b>	<b>2,233,169</b>	<b>100%</b>	<b>1,722,850</b>	<b>100%</b>	<b>N/A</b>
White	1,992,975	89.2%	1,615,845	93.8%	-4.5%
Black or African American	17,657	0.8%	11,576	0.7%	0.1%
American Indian and Alaska Native	29,684	1.3%	24,283	1.4%	-0.1%
Asian <sup>4</sup>	37,108	1.7%	33,371	1.9%	-0.3%
Native Hawaiian & Other Pacific Islander <sup>5</sup>	15,145	0.7%	N/A	N/A	N/A
Some other race	93,405	4.2%	37,775	2.2%	2.0%
Two or more races <sup>5</sup>	47,195	2.1%	N/A	N/A	N/A
<b>Arizona</b>					
<b>Arizona</b>	<b>5,130,632</b>	<b>100%</b>	<b>3,665,228</b>	<b>100%</b>	<b>N/A</b>
White	3,873,611	75.5%	2,963,186	80.8%	-5.3%
Black or African American	158,873	3.1%	110,524	3.0%	0.1%
American Indian and Alaska Native	255,879	5.0%	203,527	5.6%	-0.6%
Asian <sup>4</sup>	92,236	1.8%	55,206	1.5%	0.3%
Native Hawaiian & Other Pacific Islander <sup>5</sup>	6,733	0.1%	N/A	N/A	N/A
Some other race	596,774	11.6%	332,785	9.1%	2.6%
Two or more races <sup>5</sup>	146,526	2.9%	N/A	N/A	N/A
<b>Counties</b>					
<b>Washington County, Utah</b>	<b>90,354</b>	<b>100%</b>	<b>48,560</b>	<b>100%</b>	<b>N/A</b>
White	84,543	93.6%	47,202	97.2%	-3.6%
Black or African American	186	0.2%	66	0.1%	0.1%
American Indian and Alaska Native	1,328	1.5%	706	1.5%	0.0%
Asian <sup>4</sup>	405	0.4%	290	0.6%	-0.1%
Native Hawaiian & Other Pacific Islander <sup>5</sup>	384	0.4%	N/A	N/A	N/A
Some other race	2,020	2.2%	296	0.6%	1.6%
Two or more races <sup>5</sup>	1,488	1.6%	N/A	N/A	N/A
<b>Mohave County, Arizona</b>	<b>155,032</b>	<b>100%</b>	<b>93,497</b>	<b>100%</b>	<b>N/A</b>
White	139,616	90.1%	88,834	95.0%	-5.0%
Black or African American	833	0.5%	303	0.3%	0.2%
American Indian and Alaska Native	3,733	2.4%	2,145	2.3%	0.1%
Asian <sup>4</sup>	1,186	0.8%	569	0.6%	0.2%
Native Hawaiian & Other Pacific Islander <sup>5</sup>	168	0.1%	N/A	N/A	N/A
Some other race	6,200	4.0%	1,646	1.8%	2.2%
Two or more races <sup>5</sup>	3,296	2.1%	N/A	N/A	N/A



**Table 5.7, Continued**  
**RACIAL CHARACTERISTICS**

RACE <sup>1</sup>	CENSUS 2000 POPULATION <sup>2</sup>	PERCENT OF TOTAL CENSUS 2000 POPULATION <sup>2</sup>	CENSUS 1990 POPULATION <sup>3</sup>	PERCENT OF TOTAL CENSUS 1990 POPULATION <sup>3</sup>	PERCENT CHANGE 1990–2000
<b>Cities</b>					
<b>St. George, Utah</b>	49,663	100%	28,502	100%	<b>N/A</b>
White	45,823	92.3%	27,586	96.8%	<b>-4.5%</b>
Black or African American	120	0.2%	52	0.2%	<b>0.1%</b>
American Indian and Alaska Native	812	1.6%	464	1.6%	<b>0.0%</b>
Asian <sup>4</sup>	282	0.6%	200	0.7%	<b>-0.1%</b>
Native Hawaiian & Other Pacific Islander <sup>5</sup>	293	0.6%	N/A	N/A	<b>N/A</b>
Some other race	1,426	2.9%	200	0.7%	<b>2.2%</b>
Two or more races <sup>5</sup>	907	1.8%	N/A	N/A	<b>N/A</b>
<b>Cities</b>					
<b>Washington City, Utah</b>	<b>8,186</b>	<b>100%</b>	<b>4,198</b>	<b>100%</b>	<b>N/A</b>
White	7,720	94.3%	4,075	97.1%	<b>-2.8%</b>
Black or African American	30	0.4%	11	0.3%	<b>0.1%</b>
American Indian and Alaska Native	140	1.7%	52	1.2%	<b>0.5%</b>
Asian <sup>4</sup>	24	0.3%	14	0.3%	<b>0.0%</b>
Native Hawaiian & Other Pacific Islander <sup>5</sup>	8	0.1%	N/A	N/A	<b>N/A</b>
Some other race	176	2.2%	46	1.1%	<b>1.1%</b>
Two or more races <sup>5</sup>	88	1.1%	N/A	N/A	<b>N/A</b>

Notes:

<sup>1</sup> Census respondents identifying their origin or ethnicity as Spanish, Hispanic, or Latino may be of any race.

<sup>2</sup> Seven categories of Race were identified for the 2000 Census: 1) White, 2) Black or African American, 3) American Indian or Alaska Native, 4) Asian, 5) Native Hawaiian or Other Pacific Islander, 6) Some other race, and 7) Two or more races.

<sup>3</sup> Five categories of Race were identified for the 1990 Census: 1) White, 2) Black, 3) American Indian, Eskimo, or Aleut, 4) Asian or Pacific Islander, 5) Other race

<sup>4</sup> Categorized as "Asian or Pacific Islander" with the 1990 Census

<sup>5</sup> Not a possible category for Race with the 1990 Census

Sources: U.S. Census Bureau, *Summary File 1 (SF 1), Matrix P3*. 2000.

U.S. Census Bureau, *Summary Tape File 1 (STF 1), Matrix P006*. 1990.

As shown in **Table 5.7**, over 90 percent of the populations of St. George, Washington City, Washington County, and Mohave County are categorized as White. Although the percentages of residents in the White racial category have decreased by ranges of 2.8 percent to 5.3 percent from 1990 to 2000, it is still the predominant racial category in these areas. This is also true of the State of Utah, the State of Arizona, and the U.S. as a whole for the same time period.

The predominant racial categories that include the next greatest percentages of the population in the counties and cities highlighted in **Table 5.7** are American Indian and Alaska Native, Some Other Race, and Two or More Races. This is also true of the states of Utah and Arizona, but not of the U.S. as a whole, which lists Black or African American as the second greatest racial category.

The American Indian and Alaska Native population remained steady from 1990 to 2000, with variations of less than one percent in the counties and cities highlighted in **Table 5.7**. This was also seen in the states of Utah and Arizona and the U.S. as a whole from 1990 to 2000.

The number of Census respondents identifying themselves as Some Other Race grew by one to two percent in the counties and cities highlighted in **Table 5.7** between 1990 and 2000. This growth rate is slightly lower than that seen in the states of Utah and Arizona, and the U.S. as a whole during the same time period. As previously stated in this section, this category includes all other responses not included in the other race categories. Census respondents providing write-in entries such as Multi-Racial, Mixed, Inter-Racial, Spanish, Hispanic, or Latino are included in this race category. Because the Census Bureau categorizes Spanish, Hispanic, and Latino as ethnic origins rather than as race categories, Census respondents who identify their origin and/or ethnicity as Spanish, Hispanic, or Latino may be of any race.

The 2000 Census included the racial category of Two or More Races, which was not an option for respondents to the 1990 Census. As previously stated in this section, this category includes all respondents who identify themselves as a combination of two or more of the race categories, including the Some Other Race category. One to three percent of respondents to the 2000 Census in the counties and cities highlighted in **Table 5.6** identified themselves as Two or More Races, which mirrors that of the states of Utah and Arizona and the U.S. as a whole.

### 5.8.2.1 Minority Populations

**Table 5.8** presents the minority populations (i.e. percent Non-White and percent Hispanic or Latino) in Washington County, Mohave County, St. George, and Washington City, as compared to the U.S. and the states of Utah and Arizona as a whole. As listed in **Table 5.8**, the 2000 Census data shows that the percentage of persons categorized as Non-White in Washington County, Mohave County, St. George, and Washington City ranges from 5.7 percent in Washington City to 9.9 percent in Mohave County. The states of Utah and Arizona have a combined average Non-White population of 17.6 percent, while the total U.S. population is 24.9 percent Non-White.<sup>119</sup>

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<sup>119</sup> U.S. Census Bureau. Summary File 1 (SF 1), Matrices P4 and P7. 2000.

Washington County contains Census tracts 2701 through 2718, of which Census tracts 2708 and 2717 fall within the proposed replacement airport study area.<sup>120</sup>

**Exhibit 5.14** presents the proportion of the population that is Non-White by Census tract for the St. George and Washington City areas. **Exhibit 5.15** shows the proportion of the population that is Hispanic.

**Table 5.8**  
**MINORITY POPULATIONS**

AREA	TOTAL POPULATION	PERCENT NON-WHITE POPULATION	PERCENT HISPANIC OR LATINO POPULATION
United States	281,421,906	24.9%	12.5%
<b>States</b>			
Utah	2,233,169	10.8%	9.0%
Arizona	5,130,632	24.5%	25.3%
<b>TOTAL<sup>1</sup></b>	<b>7,363,801</b>	<b>17.6%</b>	<b>17.1%</b>
<b>Counties</b>			
Washington County, Utah	90,354	6.4%	5.2%
Mohave County, Arizona	155,032	9.9%	11.1%
<b>TOTAL<sup>1</sup></b>	<b>245,386</b>	<b>8.2%</b>	<b>8.2%</b>
<b>Cities</b>			
City of St. George, Utah	49,663	7.7%	6.7%
Washington City, Utah	8,186	5.7%	4.7%
<b>TOTAL<sup>1</sup></b>	<b>57,849</b>	<b>6.7%</b>	<b>5.7%</b>

<sup>1</sup> Percentages are averages.

Source: U.S. Census Bureau, *Summary File 1 (SF 1), Matrices P4 and P7*. 2000.

### 5.8.3 HOUSEHOLDS

#### 5.8.3.1 Utah

In 1990, the State of Utah had approximately 537,000 households. By 2000, the total had grown to approximately 701,000, an increase of 30 percent. The growth in Washington County was greater than that of the state as a whole during the same period. The number of households in Washington County exceeded 29,900 in 2000, which is a 96 percent increase as compared to 1990. The cities of St. George and Washington City also saw large increases in the number of households between 1990 and 2000, with St. George increasing 84 percent to over 17,300 households in 2000 and Washington City increasing 107 percent to over 2,600 households in 2000.<sup>121</sup>

<sup>120</sup> U.S. Census Bureau. 2000.

<sup>121</sup> U.S. Census Bureau, *Summary File 3 (SF 3), Matrix P92*. 2000. U.S. Census Bureau, *Summary Tape File 3 (SF 3), Matrix P016*. 1990.

The 1990 Census reported that the average household size was approximately 2.63 in the State of Utah, 3.07 in Washington County, 2.92 in St. George, and 3.28 in Washington City. In comparison, the 2000 Census data shows that the average household size increased to 3.13 in the State of Utah, decreased to 2.97 in Washington County, decreased to 2.81 in St. George, and decreased to 3.0 in Washington City.<sup>122</sup>

### 5.8.3.2 Arizona

In 1990, the number of households in the State of Arizona was over 1,371,800. According to the 2000 Census, the number of households in the State of Arizona increased 38 percent to over 1,901,300. Mohave County saw a 70 percent increase between 1990 and 2000 to over 62,700 households. The average household size in 1990 was approximately 2.61 for the state as a whole and 2.46 in Mohave County. The 2000 Census data shows that the average household size increased to 2.64 in the State of Arizona as a whole and decreased slightly to 2.45 in Mohave County.<sup>123</sup>

## 5.8.4 HOUSEHOLD INCOME

In 1990, the average of the median household incomes for Washington County, Utah and Mohave County, Arizona was \$24,302. By 2000, this amount increased 41.3 percent to \$34,367. The average of the median household incomes for St. George and Washington City, Utah increased 42.5 percent from \$25,218 to \$35,923 during the same time period. The State of Utah saw a 55.2 percent increase in median household income between 1990 and 2000, while the State of Arizona saw a 47.3 percent increase during the same time period. These increases in median household income are greater than the 39.7 percent increase that U.S. as a whole saw between 1990 and 2000.<sup>124</sup>

### 5.8.4.1 Low Income Populations<sup>125</sup>

The U.S. Census Bureau measures poverty based on the pre-tax income of an entire household as compared to the appropriate poverty threshold for that family. Poverty thresholds are based on the size of the family and the number of related children under the age of 18. The same thresholds are used throughout the U.S. and do not vary geographically.

A household could consist of one individual person or a family of two or more related persons living together and generating income. The income of non-relatives living in the same home, such as housemates, does not count toward a family's income calculation. The Census Bureau recognizes income that is generated through earnings, unemployment compensation, workers' compensation, Social

<sup>122</sup> U.S. Census Bureau, Summary File 1 (SF 1), Matrix P17. 2000. U.S. Census Bureau, Summary Tape File 3 (SF 3), Matrix P016. 1990.

<sup>123</sup> U.S. Census Bureau, Summary File 1 (SF 1), Matrix P17, Summary File 3 (SF 3), Matrix P92. 2000. U.S. Census Bureau, Summary Tape File 3 (SF 3), Matrix P016. 1990.

<sup>124</sup> U.S. Census Bureau, Summary File 3 (SF 3), Matrix P53, 1999 Dollars. 2000. U.S. Census Bureau, Summary Tape File 3 (SF 3), Matrix P080A, 1989 Dollars. 1990.

<sup>125</sup> How the Census Bureau Measures Poverty. U.S. Census Bureau. On-line at <http://www.census.gov/hhes/povety/povdef.html>. August 26, 2004.

Security, Supplemental Security Income, public assistance, veterans' payments, survivor benefits, pension or retirement income, interest, dividends, rents, royalties, estates, trusts, educational assistance, alimony, child support, assistance from outside the household, and other miscellaneous sources. Non-cash benefits such as food stamps and housing subsidies do not count toward income calculations.

If the total family income is less than the applicable threshold, the Census Bureau identifies the family as in poverty. Conversely, if the total family income equals or is greater than the threshold, the family is identified as not in poverty. The poverty status of the family applies to all related members of the family living together, regardless of whether they are individually generating family income. For example, the income of a family of four persons consisting of two parents, aged 34 and 32, who both work, and two children aged five and two, who do not work, falls below the poverty threshold for a family of that size and of those ages, which means that the Census Bureau would identify all four members of the family as being in poverty status, including the two minor children who do not work and therefore, do not generate family income.

Poverty thresholds used by the Census Bureau are updated annually for inflation using the Consumer Price Index for All Urban Consumers (CPI-U). The thresholds were originally derived in 1963 and 1964, using U.S. Department of Agriculture food budgets, which were designed for families under economic stress, and data about what portion of a family's income was spent on food. Today, the Census Bureau states that the thresholds are intended for use as a statistical yardstick rather than a complete description of what people and families need to live.

**Table 5.9** presents the households in poverty status within Washington County, Utah; Mohave County, Arizona; the cities of St. George and Washington City, Utah; and the Census tracts within the proposed replacement airport study area, as compared to the U.S. and the states of Utah and Arizona as a whole. **Exhibit 5.16** presents households in poverty status in the St. George and Washington City, Utah areas.

As shown in **Table 5.9**, 7.7 percent of the households in Census tract 2708 and 3.3 percent of the households in Census tract 2717 are identified as in poverty status, for an average of 5.5 percent. An average of 9.0 percent of the households in St. George and Washington City, Utah are identified as in poverty status. Washington County, Utah identifies 9.7 percent of its households as in poverty status, while Mohave County, Arizona identifies 12.3 percent. In comparison, 8.9 percent of the households in the state of Utah are identified as in poverty status. The percent of households in poverty status in the state of Arizona is the same as that of the U.S. as a whole at 11.8 percent.

**Table 5.9**  
**HOUSEHOLDS FOR WHICH POVERTY STATUS IS DETERMINED**

AREA	TOTAL NUMBER OF HOUSEHOLDS	HOUSEHOLDS WITH INCOME BELOW POVERTY LEVEL IN 1999	
		NUMBER	PERCENTAGE
<b>United States</b>	<b>105,539,122</b>	<b>12,404,237</b>	<b>11.8%</b>
<b>States</b>			
Utah	701,933	62,280	8.9%
Arizona	1,901,625	224,108	11.8%
<b>TOTAL<sup>1</sup></b>	<b>2,603,558</b>	<b>286,388</b>	<b>10.3%</b>
<b>Counties</b>			
Washington County, Utah	29,970	2,909	9.7%
Mohave County, Arizona	62,796	7,703	12.3%
<b>TOTAL<sup>1</sup></b>	<b>92,766</b>	<b>10,612</b>	<b>11.0%</b>
<b>Cities</b>			
City of St. George, Utah	17,359	1,733	10.0%
Washington City, Utah	2,639	214	8.1%
<b>TOTAL<sup>1</sup></b>	<b>19,998</b>	<b>1,947</b>	<b>9.0%</b>
<b>Census Tracts in Proposed Replacement Airport Study Area</b>			
Census Tract 2708 <sup>2</sup>	2,562	196	7.7%
Census Tract 2717 <sup>2</sup>	1,935	64	3.3%
<b>TOTAL<sup>1</sup></b>	<b>4,497</b>	<b>260</b>	<b>5.5%</b>

<sup>1</sup> Percentages are averages.

<sup>2</sup> Census tract falls within the proposed replacement airport study area.

Source: U.S. Census Bureau, *Summary File 3 (SF 3), Matrix P92*. 2000.

### 5.8.5 EMPLOYMENT TRENDS

Washington County, Utah was established as an agricultural center. During its history, the economic base of the county has changed from its agricultural foundation to a more diversified mix. Zion National Park (established in 1909) is one of the state's premier tourist attractions, which has led to growth in the trade and service industries in Washington County. These industries have also grown steadily to accommodate the development of the area as a major retirement center for year-round residents, as well as seasonal residents, also known as snow-birds. The St. George community of Bloomington, for example, contains numerous condominiums and trailer parks that house thousands of winter residents each year.<sup>126</sup>

**Table 5.10** shows that in 2003, the education, health care, local government, and retail sectors of the economy represented the largest employers in Washington County.

<sup>126</sup> *A Brief History of Washington County*, Public Pioneer, Utah's On-line Library. On-line at <http://pioneer.utah.gov/washhis.html/>. (Used by permission. Beehive History 14: Utah Counties. 1988. Utah State Historical Society, 300 Rio Grande, Salt Lake City, UT 84101-1182). 2004.

As the largest city in Washington County, St. George also has the largest retail trade and business sector of the municipalities in the County. Nearby Washington City has also been experiencing commercial growth in recent years. Although St. George and Washington City were originally farm-oriented communities, agriculture is no longer the foundation of their respective economies.

Instead, St. George and Washington City have become residential and consumer service centers for the region. The close proximity of the two communities has resulted in many financial and physical ties. For example, major retailers such as Wal-Mart, Costco, Harmon's, and Smith's Food King provide services to the area as a whole.

**Table 5.10**  
**LARGEST EMPLOYERS IN WASHINGTON COUNTY, UTAH, BY SECTOR, 2003**

SECTOR	EMPLOYER	EMPLOYMENT RANGE
Education	Washington County School District	2,000-2,999
	Dixie College	500-999
Health Care/ Residential & Nursing Care	Intermountain Health Care – IHC	1,000-1,999
	Cross Creek Manor	250-499
Government: Local	City of St. George	500-999
	Washington County	250-499
Retail	Wal-Mart	1,000-1,999
	Anderson Lumber	100-249
	Boulevard Furniture	100-249
	Costco	100-249
	K-Mart	100-249
	Sears Roebuck	100-249
Transportation	SkyWest Airlines	250-499
Government: Federal	Federal Government	250-499
Banking	Zion's Bank	100-249
	Wells Fargo Bank	100-249
Grocery	Smith's Food King	100-249
	Harmon's	100-249
	Albertson's	100-249
Restaurant	McDonald's	100-249

Sources: *Largest Employers, Washington County, Utah*. St. George Chamber of Commerce. On-line at [http://www.stgeorgechamber.com/EcDev/demographic\\_employers.htm/](http://www.stgeorgechamber.com/EcDev/demographic_employers.htm/). 2004 (Data developed from *Washington County's Largest Employers, Annual Averages 2003*. Utah Department of Workforce Services, Workforce Information. September 2004.

## 5.9 ST. GEORGE MUNICIPAL AIRPORT

The existing St. George Municipal Airport (SGU) serves the City of St. George and the entire southwestern Utah region. Delta Connection, operated by SkyWest Airlines, provides service to Salt Lake City, Utah. United Express, also operated by SkyWest Airlines, provides service to Los Angeles, California. A full array of general aviation services is also available at the airport, including aircraft maintenance, flight instruction, charter operations, and air taxi services.

The airfield consists of one runway, Runway 16/24, oriented 016 degrees / 340 degrees and measuring 6,606 feet in length. Very High Frequency Omnidirectional Range, Very High Frequency Omnidirectional Range/Distance Measuring Equipment, Area Navigation, and Global Positioning System instrument approach procedures, as well as visual approaches are available to pilots landing at SGU. There are 151 aircraft based at the field and approximately 120 average daily operations (take-offs and landings).<sup>127</sup>

The existing airport has a number of design standard deficiencies in addition to limited space for the expansion of facilities. A complete discussion of deficiencies at the airport is included in **Chapter Three, Purpose and Need**. The City of St. George is proposing relocation of the municipal airport to a site southeast of the city. **Chapter One, Proposed Project**, includes a complete description of the proposed replacement airport project.

### 5.9.1 ST. GEORGE MUNICIPAL AIRPORT ENPLANEMENTS FORECAST

**Table 5.11** presents the historical levels of passenger enplanements for 1992 through 2003 at the existing SGU, and the enplanement forecasts for both the continued operation of the existing airport and the proposed replacement airport. The Terminal Area Forecasts (TAF) prepared by the Federal Aviation Administration (FAA), which are based on the continued operation of the current airport, are also presented in **Table 5.11** for comparison purposes. See also **Appendix E** for a complete report of the aviation activity forecasts for the existing SGU airport and the proposed replacement airport.

As shown in **Table 5.11**, the forecasts in which the continued operation of the existing airport is assumed anticipate a higher rate of enplanement growth than the FAA's TAF. The 3.6 percent annual growth rate reflects a continuation of the robust growth experienced in the local market in recent years. With the proposed replacement airport, the growth in passenger enplanements is projected to be even greater.

It is anticipated that the addition of regional jet service would enable the local airlines to more successfully compete with Las Vegas McCarran International Airport (LAS) for business travelers and some discretionary travelers. This is, in part,

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<sup>127</sup> St. George Municipal Airport Information. On-line at <http://www.airnav.com/airport/KSGU/> November 25, 2004.



because a viable market for flights to Denver exists, and it could be served by regional jets from the proposed replacement airport. This market cannot be effectively served by the 30-seat turboprops operating from the existing airport. Currently, approximately 30 percent of the air travel demand in the local area is met by airlines serving St. George. Most of the rest is met by carriers operating from LAS. It is assumed that this capture rate will increase to approximately 40 percent with the construction of the proposed replacement airport.

**Table 5.11**  
**HISTORICAL AND FORECAST ENPLANEMENTS**  
**Existing and Proposed Replacement Airports**

	YEAR	EXISTING AIRPORT	PROPOSED REPLACEMENT AIRPORT	2004 TERMINAL AREA FORECAST
<b>Historic</b>	1992	17,958	N/A	N/A
	1993	23,707	N/A	N/A
	1994	29,089	N/A	N/A
	1995	30,022	N/A	N/A
	1996	30,571	N/A	N/A
	1997	29,591	N/A	N/A
	1998	30,060	N/A	N/A
	1999	32,652	N/A	N/A
	2000	42,172	N/A	N/A
	2001	42,347	N/A	N/A
	2002	40,054	N/A	N/A
	2003	45,583	N/A	N/A
<b>Forecast</b>	2003	N/A	N/A	44,421
	2010	58,900	78,500	54,538
	2020	82,500	117,700	68,914
<b>Average Annual Compound Growth Rates (AACGR)</b>				
<b>Historical</b>	1992-2003	8.8%	--	--
	1998-2003	8.7%	--	--
<b>Forecast</b>	2003-2010	3.7%	8.1%	3.0%
	2010-2020	3.4%	4.1%	2.4%
	2003-2020	3.6%	5.7%	2.6%
	<b>2003 actual to 2020 forecast</b>	<b>3.6%</b>	<b>5.7%</b>	<b>2.5%</b>

Note: The FAA's Terminal Area Forecast (TAF) report is prepared on a federal fiscal year basis (October to September). The 2004 TAF used 2003 as a base year.

Sources: St. George Municipal Airport records.

*Site Selection and Master Plan, St. George Municipal Airport*, prepared by Creamer & Noble Engineers and Barnard Dunkelberg & Company. October 1998.

*Final Environmental Assessment for the Proposed Replacement Airport at St. George, Utah*. Prepared by Creamer & Noble, Engineers and Barnard Dunkelberg & Company. January 30, 2001.

*2004 Terminal Area Forecasts (TAF)*, prepared by Federal Aviation Administration. Available at FAA website: <http://api.hq.faa.gov/taf03/intro.htm>.

Landrum & Brown analysis, 2005.

See **Appendix E, Aviation Activity Forecasts**

## 5.9.2 ST. GEORGE MUNICIPAL AIRPORT OPERATIONS FORECAST

The operations forecast for commercial passenger aircraft at SGU was calculated based on the following factors:

- Enplaned passenger forecast (see **Section 5.9.1, *Enplanements Forecast***, of this chapter and **Appendix E**)
- Average size of aircraft (gauge; average seats per departure) forecast to use both the existing and proposed replacement airports
- Average percentage of seats filled (load factor) for the existing and proposed replacement airports

**Table 5.12** provides summaries of forecast aircraft operations for two scenarios: one in which the existing airport would remain in operation through 2020 and another in which the proposed replacement airport would become operational beginning in 2010.

See also **Appendix E** for a complete report of the aviation activity forecasts for the existing SGU airport and the proposed replacement airport.

**Table 5.12**  
**AIRCRAFT OPERATIONS FORECAST**  
**Existing and Proposed Replacement Airports**

YEAR	COMMERCIAL		NON-COMMERCIAL			TOTAL	FAA 2004 TAF
	PASSENGER	ALL CARGO	AIR TAXI	MILITARY	GENERAL AVIATION		
Historical Operations							
1993	8,019	N/A	1,274	210	32,000	41,503	N/A
1994	8,008	N/A	1,274	210	36,618	46,110	N/A
1995	6,800	N/A	1,274	210	35,426	43,710	N/A
1996	6,800	N/A	1,274	210	35,426	43,710	N/A
1997	5,566	2,616	3,866	210	35,000	45,400	N/A
1998	4,242	2,616	3,866	210	35,259	45,400	45,400
1999	4,516	2,616	3,058	210	35,000	45,400	45,400
2000	5,376	2,614	2,200	210	35,000	45,400	45,400
2001	6,322	2,626	1,952	210	35,000	46,110	46,110
2002	6,388	2,602	1,910	210	35,000	46,110	46,110
2003	6,056	2,104	1,095	210	34,249	43,714	44,040
Average Annual Compound Growth Rates (AACGR)							
1993-2003	-2.8%	N/A	-1.5%	0.0%	0.7%	0.5%	N/A
1998-2003	7.4%	-4.3%	-22.3%	0.0%	-0.6%	-0.8%	-0.6%
Forecast With Continued Operation of Existing Airport							
2010	7,320	2,184	1,260	210	36,640	47,614	47,778
2020	9,910	2,184	1,360	210	40,070	53,734	54,191

**Table 5.12, Continued**  
**AIRCRAFT OPERATIONS FORECAST**  
**Existing and Proposed Replacement Airports**

YEAR	COMMERCIAL		NON-COMMERCIAL			TOTAL	FAA 2004 TAF
	PASSENGER	ALL CARGO	AIR TAXI	MILITARY	GENERAL AVIATION		
Average Annual Compound Growth Rates (AACGR)							
2003-2010	2.7%	0.5%	2.0%	0.0%	1.0%	1.2%	1.2%
2010-2020	3.1%	0.0%	0.8%	0.0%	0.9%	1.2%	1.3%
2003-2020	2.9%	0.2%	1.3%	0.0%	0.9%	1.2%	1.2%
Forecast With Proposed Replacement Airport							
2010	6,940	2,184	1,260	210	36,640	47,234	N/A
2020	7,360	2,184	1,360	210	40,070	51,184	N/A
Average Annual Compound Growth Rates (AACGR)							
2003-2010	2.0%	0.5%	2.0%	0.0%	1.0%	1.1%	N/A
2010-2020	0.6%	0.0%	0.8%	0.0%	0.9%	0.8%	N/A
2003-2020	1.2%	0.2%	1.3%	0.0%	0.9%	0.9%	N/A

Notes: According to the 2004 FAA Terminal Area Forecast (TAF), general aviation operations are approximately 57% local and 43% itinerant. These proportions are projected to remain constant through 2020.

Sources: St. George Municipal Airport records.

2004 Terminal Area Forecasts (TAF), prepared by Federal Aviation Administration. Available at FAA

website: <http://api.hq.faa.gov/taf03/intro.htm>.

Landrum & Brown analysis, 2005.

See **Appendix E, Aviation Activity Forecasts**

As shown in **Table 5.12**, the number of commercial passenger operations with the existing airport is expected to increase from 7,320 in 2010 to 9,910 in 2020, or 35 percent. This is compared with a forecast six percent increase in the number of commercial passenger operations with the proposed replacement airport (i.e. an increase from 6,940 operations in 2010 to 7,360 operations in 2020). The lower number of commercial passenger operations with the proposed replacement airport is due to the planned use of the larger commercial aircraft, which can seat from 50 to 70 passengers, depending on the model. Currently, due to existing site constraints, the largest aircraft able to operate at SGU are 30-seat turboprops. Therefore, fewer operations are forecast to be needed at the proposed replacement airport to carry a greater number of passengers.

**Table 5.12** also shows that the forecast numbers of cargo, non-commercial air taxi, military, and general aviation aircraft operations for 2010 and 2020 are expected to remain the same, regardless of whether the proposed replacement airport is constructed. No growth is forecast between 2010 and 2020 in the numbers of cargo and military aircraft operations. Although non-commercial air taxi operations are expected to increase eight percent from 1,260 in 2010 to 1,360 in 2020 and general aviation operations are projected to increase nine percent from 36,640 in 2010 to 40,070 in 2020, these forecasted growth rates are expected regardless of whether the proposed replacement airport is constructed.

For the existing airport scenario, as shown in **Table 5.12**, total annual operations are expected to increase nearly 13 percent from 43,714 in 2003 to approximately 53,734 in 2020, which represents an annual average growth rate of 1.2 percent. This compares to the average annual growth rate of 1.2 percent in the 2004 TAF prepared by the FAA.

For the Proposed Replacement Airport scenario, as shown in **Table 5.12**, total annual operations are expected to increase eight percent from 47,234 in 2010 to 51,184 in 2020, which represents an annual growth average rate of 0.9 percent. This difference in forecast total annual operations between the two scenarios is entirely accounted for by the forecast difference in commercial operations.

### 5.9.3 ST. GEORGE MUNICIPAL AIRPORT AIRCRAFT FLEET MIX FORECASTS

**Table 5.13** presents the aircraft fleet mix for the existing airport in comparison to the projected aircraft fleet mix for the constrained and unconstrained forecast scenarios in 2010 and 2020. As shown in **Table 5.13**, the turboprop Embraer 120 (EMB-120) accounted for the majority of commercial service operations at the existing airport in 2003.

**Table 5.13**  
**AIRCRAFT FLEET MIX FOR EXISTING AIRPORT - 2003**

WITH EXISTING AIRPORT			2003		
AIRCRAFT TYPE	AIRCRAFT MAKE/MODEL	AIRCRAFT CLASS	PASSENGER SEATS	AIRCRAFT OPERATIONS	
				NUMBER	PERCENT OF TOTAL
Commercial Passenger	Embraer 120 Brasilia	Turboprop	90,840	6,056	13.9%
All-Cargo	Metro II/Metro III	Turboprop	N/A	526	1.2%
	Cessna 208 Caravan	Turboprop	N/A	526	1.2%
	Chieftain/Navajo/Piper	Prop	N/A	1,052	2.4%
Non-Commercial Air Taxi	Citation/Lear 35/GIV/GV	Business Jet	N/A	1,095	2.5%
General Aviation	Single Engine	Prop	N/A	25,124	57.5%
	Multi Engine	Prop	N/A	5,475	12.5%
	Robinson R22	Helicopter	N/A	3,650	8.3%
Military	King Air/Lear/helicopters	Mixed	N/A	210	0.5%
<b>EXISTING AIRPORT TOTALS</b>			<b>90,840</b>	<b>43,714</b>	<b>100%</b>

Sources: St. George Municipal Airport records.  
Official Airline Guide (OAG).  
Landrum & Brown analysis, 2004.  
See **Appendix E**.

**Table 5.14** shows the forecasts for 2010 and 2020 for two scenarios – continuation of the existing airport and the proposed replacement airport. With the existing airport, passenger service would continue to be provided by 30-seat turboprops, assumed to be the EMB-120. However, with the proposed replacement airport, two types of regional jets, the 50-seat Canadair 200 (CRJ-200) and the 70-seat Canadair 700 (CRJ-700), would account for the majority of commercial service operations at the airport in 2020.

**Table 5.14**  
**AIRCRAFT FLEET MIX FORECASTS FOR EXISTING AND PROPOSED REPLACEMENT AIRPORTS**

With Existing Airport			2010			2020		
Type of Service	Aircraft Make/ Model	Aircraft Class	Passenger Seats	Aircraft Ops.	% of Total	Passenger Seats	Aircraft Ops.	% of Total
Commercial Passenger	Embraer 120 Brasilia	Turboprop	109,800	7,320	15.4%	148,650	9,910	18.4%
All-Cargo	Metro II/Metro III	Turboprop	N/A	624	1.3%	N/A	624	1.2%
	Cessna 208 Caravan	Turboprop	N/A	520	1.1%	N/A	520	1.0%
	Chieftain/ Navajo/Piper	Prop	N/A	1,040	2.2%	N/A	1,040	1.9%
Non-Commercial Air Taxi	Citation/Lear 35/GIV/GV	Business Jet	N/A	1,260	2.6%	N/A	1,360	2.5%
General Aviation	Single Engine	Prop	N/A	27,515	57.8%	N/A	30,945	57.6%
	Multi Engine	Prop	N/A	5,475	11.5%	N/A	5,475	10.2%
	Robinson R22	Helicopter	N/A	3,650	7.7%	N/A	3,650	6.8%
Military	King Air/ Lear/ helicopters	Mixed	N/A	210	0.4%	N/A	210	0.4%
<b>EXISTING AIRPORT TOTALS</b>			<b>109,800</b>	<b>47,614</b>	<b>100%</b>	<b>148,650</b>	<b>53,734</b>	<b>100%</b>
With Replacement Airport			2010			2020		
Type of Service	Aircraft Make/ Model	Aircraft Class	Passenger Seats	Aircraft Ops.	% of Total	Passenger Seats	Aircraft Ops.	% of Total
Commercial Passenger	Embraer 120 Brasilia	Turboprop	46,260	3,084	6.5%	18,390	1,228	2.4%
	Canadair CRJ-200	Regional Jet	96,400	3,856	8.2%	92,000	3,680	7.2%
Commercial Passenger	Canadair CRJ-700	Regional Jet	0	0	0%	42,910	1,226	2.4%
	DeHavilland Dash 8-400	Turboprop	0	0	0%	42,910	1,226	2.4%
All-Cargo	Metro II/Metro III	Turboprop	N/A	624	1.3%	N/A	624	1.2%
	Cessna 208 Caravan	Turboprop	N/A	520	1.1%	N/A	520	1.0%
	Chieftain/ Navajo/Piper	Prop	N/A	1,040	2.2%	N/A	1,040	2.0%
Non-Commercial Air Taxi	Citation/Lear 35/GIV/GV	Business Jet	N/A	1,260	2.7%	N/A	1,360	2.7%

**Table 5.14 Continued**  
**AIRCRAFT FLEET MIX FORECASTS FOR EXISTING AND PROPOSED**  
**REPLACEMENT AIRPORTS**

With Replacement Airport			2010			2020		
Type of Service	Aircraft Make/Model	Aircraft Class	Passenger Seats	Aircraft Ops.	% of Total	Passenger Seats	Aircraft Ops.	% of Total
General Aviation	Single Engine	Prop	N/A	27,515	58.3%	N/A	30,945	60.5%
	Multi Engine	Prop	N/A	5,475	11.6%	N/A	5,475	10.7%
	Robinson R22	Helicopter	N/A	3,650	7.7%	N/A	3,650	7.1%
Military	King Air/Lear/helicopters	Mixed	N/A	210	0.4%	N/A	210	0.4%
<b>REPLACEMENT AIRPORT TOTALS</b>			<b>142,660</b>	<b>47,234</b>	<b>100%</b>	<b>196,210</b>	<b>51,184</b>	<b>100%</b>

Sources: St. George Municipal Airport records. Official Airline Guide (OAG). Landrum & Brown analysis, 2004.  
 See Appendix E.

Turboprops are forecast to continue to operate at the airport with the proposed replacement airport, but at a much lower percentage of operations than with the existing airport. The EMB-120 and the DeHavilland Dash 8 are the two types of turboprop aircraft that are projected to operate at the proposed replacement airport.

## 5.10 AREA AIRPORTS

Sixteen additional airports, one of which is planned to be replaced, and one proposed future airport are either located within the initial area of investigation or, if outside the area, influence aviation activity within the initial area of investigation. An inventory of activity at these airports was developed through a review of published documents and surveys distributed to area airport operators. Summaries of the data are presented in this section. The sixteen study airports are listed below, with their identifier codes indicated in parentheses.

- Boulder City Municipal Airport, NV (61B)
- Bryce Canyon Airport, UT (BCE)
- Cedar City Regional Airport, UT (CDC)
- Clear Creek Ranch, UT (00UT – formerly U21)
- Colorado City Municipal Airport, AZ (AZC)
- Grassy Meadows Sky Ranch, UT (UT47)
- Henderson Executive Airport, NV (HND)
- Hurricane Airport, General Dick Stout Field, UT (1L8)
- Kanab Municipal Airport, UT (KNB)
- Las Vegas McCarran International Airport, NV (LAS)
- Mesquite Municipal Airport, including proposed future Mesquite Airport (67L)
- Nellis Air Force Base, NV (LSV)
- North Las Vegas Airport, NV (VGT)
- Panguitch Municipal Airport, UT (U55)

- Parowan Airport, UT (1L9)
- Proposed future airport in southern Nevada (potentially to be called Ivanpah Valley Airport)

Each of these airports generates aircraft operations within the initial area of investigation. The nature of the airports is quite varied. LAS is by far the largest facility, with nearly 500,000 annual operations in year 2003. Cedar City Airport is a much smaller facility, but is the only airport besides St. George in the initial area of investigation that offers scheduled airline service. Nellis, in the Las Vegas area, is a large air combat training facility of the United States Air Force (USAF). The remaining airports primarily serve the needs of general aviation users in the region. **Exhibit 5.17** shows the location of the airports that are within the initial area of investigation.

The existing physical facilities and air service characteristics of each surveyed airport are described in **Section 5.10.1 through Section 5.10.16** of this chapter. Any changes to these facilities to meet anticipated future activity demand levels would be subject to separate local approval, environmental analysis, funding commitment, and FAA action, and is not a part of this EIS.

#### **5.10.1 BOULDER CITY MUNICIPAL AIRPORT, NV (61B)**

Boulder City Airport serves the City of Boulder and the surrounding community. The facility is at an elevation of 2,201 feet and approximately one mile south of Boulder City, Nevada.

The airport has three runways. Runway 9R/27L is 4,800 feet in length, Runway 9L/27R is 2,200 feet in length, and Runway 15/33 is 3,850 feet in length. There are no published approaches. There are 141 aircraft based at the field and approximately 90 operations per day.

#### **5.10.2 BRYCE CANYON AIRPORT, UT (BCE)**

BCE is located in Garfield County, Utah near Bryce Canyon National Park and the Grand Staircase-Escalante National Monument. BCE is located four miles north of the Town of Bryce Canyon at an elevation of 7,586 feet. The airport has one runway, Runway 3/21, measuring 7,400 feet in length. There are no published approaches. There are six aircraft based at the field and an average of 67 operations per week.

#### **5.10.3 CEDAR CITY REGIONAL AIRPORT, UT (CDC)**

CDC is located near Cedar City at the northern edge of the Initial Area of Investigation. Delta Connection (operated by SkyWest Airlines) provides daily, commercial air service to Salt Lake City. Three flights are available Monday through Friday and two flights are available on Saturday and Sunday.

Commercial air service at CDC is subsidized through the Federal Essential Air Service and Rural Airport Improvement Program.<sup>128</sup> Under this program, funds are provided directly to commuter/regional airlines to provide air service to small communities that otherwise would not receive air service, as well as for rural airport improvements. CDC is one of three airports in Utah that are included in this program. The other two airports, Canyonlands Field Airport in Moab and Vernal Airport, are located outside of the initial area of investigation.

In addition to SkyWest Airlines/Delta Connection, other tenants providing daily service to the airport include United Parcel Service, FedEx, and Pony Express. Sphere One is the fixed-base operator (FBO) providing services at the airport to general aviation aircraft and charter flights.<sup>129</sup>

CDC has two runways. Runway 2/20 is 8,653 feet in length and Runway 8/26 is 4,822 feet in length. Instrument Landing System (ILS), Very High Frequency Omnidirectional Range (VOR), Global Positioning System (GPS), Area Navigation (RNAV), and Non-directional Beacon (NDB) approaches are available to Runway 20. There are 35 aircraft based at the field and approximately 80 operations per day.

#### **5.10.4 CLEAR CREEK RANCH, UT (00UT - FORMERLY U21)**

Clear Creek Ranch is a privately owned airport approximately 19 miles northwest of Kanab, Utah. It is not currently in operation. This facility is at an elevation of 6,138 feet. It has one runway, oriented 11/29, and is 3,400 feet in length. There are no published approaches.

#### **5.10.5 COLORADO CITY MUNICIPAL AIRPORT, AZ (AZC)**

Owned by Colorado City, Arizona, AZC serves Colorado City and Hildale, Utah. The facility is located approximately three miles southwest of Colorado City at an elevation of 4,871 feet. Runway 11/29 measures 6,300 feet and Runway 2/20 measures 5,099 feet in length. The Colorado City NDB is located at the field. There are four aircraft based at the field and an average of 71 operations per week.<sup>130</sup>

#### **5.10.6 GRASSY MEADOWS SKY RANCH, UT (UT47)**

Grassy Meadows Sky Ranch is a privately owned, planned airport community that is designed to meet the needs of private pilots who own their own aircraft and desire the convenience of living at an airport. A central taxiway system connects the common aircraft tie-down ramp/hangar area and the private hangars to the runway and FBO facility.

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<sup>128</sup> *What is Essential Air Service?* Prepared by the Office of Aviation Analysis, U.S. Department of Transportation. 1997. *Essential Air Service and Rural Airport Improvement Fund*. U.S. Senate Rpt. 107-224. 2003.

<sup>129</sup> Phone survey with Steve Farmer, Cedar City Airport Operator, on January 28, 2004.

<sup>130</sup> Phone surveys with Ladell Bistline, Colorado City Airport Operator, January 8 and May 4, 2004.



Grassy Meadows is located approximately four miles south of the City of Hurricane (in close proximity to Hurricane Airport) and fourteen miles east of the City of St. George at an approximate elevation of 3,350 feet. Runway 18/36 measures 4,400 feet in length. There are no published approaches. There are 20 aircraft based at the field.<sup>131</sup>

#### **5.10.7 HENDERSON EXECUTIVE AIRPORT, NV (HND)**

HND is located 11 miles south of the City of Las Vegas at an approximate elevation of 2,492 feet. The airport is designed to offer general aviation pilots a convenient and attractive alternative to nearby LAS. Tenants at HND include: King Airlines, providing charter, scenic flights, and Grand Canyon tours; Desert Southwest Airlines, providing flight instruction, aircraft rentals, aircraft charter, and pilot supplies; and Sheble's Tri-State Aviation, also providing flight instruction and aircraft rentals.

HND (originally named Sky Harbor Airport) was purchased by Clark County, Nevada in March 1996 for use as a reliever facility for Las Vegas' main airport, LAS. Modernization of the infrastructure at HND was completed in 1998, including construction of city water and sewer lines, a new aircraft parking ramp, wash rack, and a new above ground fuel storage facility.

Runway 17R/35L, constructed in March 2003, measures 6,500 feet long by 100 feet wide and is primarily designed to accommodate corporate and general aviation aircraft weighing up to 75,000 pounds. Parallel Runway 17L/35R was constructed in October 2003 and measures 5,000 feet long by 75 feet wide. There are no published approaches.

There are 149 aircraft based at the field and approximately 212 operations per day. The Airport Traffic Control Tower is manned from 6:00 a.m. through 8:00 p.m. daily.

#### **5.10.8 HURRICANE, GENERAL DICK STOUT FIELD, UT (1L8)**

General Dick Stout Field in Hurricane, Utah serves the City of Hurricane and Washington County and is owned by the City of Hurricane. The facility is located three miles south of Hurricane at an elevation of 3,347 feet.

Runway 18/36 measures 3,410 feet in length. There are no published approaches. There are 58 aircraft based at the field and approximately 39 operations per week. Hurricane Airport is located in close proximity to Grassy Meadows Sky Ranch (see **Section 5.10.6**). Procedures are in place to provide traffic pattern separation from Grassy Meadows users.

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<sup>131</sup> Phone survey with Nick Berg, Grassy Meadows Airport Representative, on March 4, 2004.

### 5.10.9 KANAB MUNICIPAL AIRPORT, UT (KNB)

KNB serves the City of Kanab and Kane County, Utah and is owned by the City of Kanab. The facility is located two miles south of Kanab at an elevation of 4,867 feet.

Runway 1/19 measures 5,728 feet in length. A GPS RNAV approach is available to Runway 1. There are 15 aircraft based on the field and an average of 134 operations per week.<sup>132</sup>

### 5.10.10 LAS VEGAS MCCARRAN INTERNATIONAL AIRPORT, NV (LAS)

LAS is a large commercial-service facility that receives daily service from over forty domestic and international passenger and cargo airlines. As part of the Clark County Airport System, LAS is owned by Clark County, Nevada and operated under the policy direction of the Board of County Commissioners, the authority of the County Manager, and the management of the Director and Deputy Director of Aviation. The Airport is located five miles south of the City of Las Vegas at an elevation of 2,181 feet.

There are four runways at LAS:

- Runway 1L/19R measures 9,765 feet in length
- Runway 1R/19L measures 9,775 feet in length
- Runway 7L/25R measures 14,510 feet in length
- Runway 7R/25L measures 10,526 feet in length

ILS approaches are available to Runways 25R, 1L, and 25L. VOR/Distance Measuring Equipment (DME) approaches are available to Runways 25R and 25L, as well as to the general runway environment. RNAV (GPS) approaches are available to Runways 1R, 1L, 19R, 19L, 25R, and 25L. There are 220 aircraft based at the field and approximately 1,468 operations per day.

### 5.10.11 MESQUITE MUNICIPAL AIRPORT, NV (67L)

Mesquite Municipal Airport serves the City of Mesquite and Clark County, Nevada and is owned by the City of Mesquite. The facility is located two miles north of Mesquite at an elevation of 1,975 feet. Runway 1/19 measures 5,100 feet in length. There are no published approaches. There are 19 aircraft based at the field and an average of 41 operations per day.<sup>133</sup>

Residential and recreational uses now adjoin the airport on three sides, limiting the potential for expansion. Thus, the City of Mesquite plans to relocate the airport to a 2,650-acre site on Mormon Mesa, 10 miles west of the present site. Plans envision

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<sup>132</sup> Phone survey with Dick Brewer, Kanab Airport Operator, on January 22, 2004.

<sup>133</sup> Phone survey with Allen Bell, Mesquite Airport Representative, on January 28, 2004 and Larry LeMieux, Mesquite Airport Employee, on January 29, 2004.

a 7,500-foot long runway and space for the development of facilities to accommodate facilities for corporate and general aviation aircraft.<sup>134</sup> No commercial service is planned for the airport.

The layout plan for the new airport has received tentative approval from the FAA. At the FAA's request, Mesquite City staff completed a forecast document of aviation demands for the proposed new airport in early 2004.<sup>135</sup> The FAA is currently preparing an EIS for the proposed replacement general aviation airport at Mesquite.<sup>136</sup> Upon approval, the city plans to commence the design soon after and have the new airport constructed and operational three to five years after that.<sup>137</sup>

#### 5.10.12 NELLIS AIR FORCE BASE, NV (LSV)

LSV is the centerpiece of air combat training for the USAF and is home to the Air Warfare Center, the largest and most advanced air combat training center in the world. It is an integral part of the USAF's Air Combat Command Center and is known as the "Home of the Fighter Pilot." Aircraft in operation at the base include the A-10, F-15, F-16, RQ-1A Predator UAV, and HH-60 helicopters. Approximately 10,000 military and civilian personnel are included in the work force at LSV, making it one of the largest employers in southern Nevada.

LSV is located in Clark County, Nevada, eight miles northeast of Las Vegas at an estimated elevation of 1,867 feet. The base itself covers 11,000 acres. The restricted ranges used and managed by the base total over 5,000 square miles. An airspace area spanning 7,700 square miles north and east of the restricted ranges is available for military flight operations.

Two parallel runways are located at LSV. Runway 3L/21R measures 10,123 feet in length and Runway 3R/21L measures 10,055 feet. An ILS approach to Runway 21L and Tactical Air Navigation approaches to Runways 21L and 3R are available. There are approximately 108,040 annual operations at LSV for all aircraft types, which breaks down to approximately 296 operations per day, as shown in **Table 5.15**.

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<sup>134</sup> *Southern Nevada Regional Airport System Plan*. Prepared for Clark County Department of Aviation. Prepared by Ricondo & Associates, Inc. August 2001.

<sup>135</sup> Supplement to Section III of Master Plan for Replacement General Aviation Airport in Mesquite, Nevada. Prepared by the City of Mesquite, NV. February 2004.

<sup>136</sup> Department of Transportation, Federal Aviation Administration, *Intent To Prepare an Environmental Impact Statement and Hold Scoping Meetings for a Replacement General Aviation Airport at Mesquite, NV*. Federal Register, Vol. 69, No. 235, Pg. 71097, Wednesday, December 8, 2004.

<sup>137</sup> *New Mesquite Airport Progressing*. City of Mesquite News Archive. On-line at [www.mesquitenv.com/](http://www.mesquitenv.com/). February 23, 2004.

**Table 5.15**  
**ANNUAL AND DAILY OPERATIONS AT NELLIS AIR FORCE BASE**

AIRCRAFT TYPE	NUMBER OF DAILY OPERATIONS
F-15	53
F-16	88
A-10	40
F/A-22	35
Helicopters	34
Transient (Includes KC-135, KC-10, C-17, and Other)	46
<b>Daily Total</b>	<b>296</b>
<b>Annual Total</b>	<b>108,040</b>

Source: Telephone conversation between Consultant and Joseph Hart, Nellis Air Force Base. September 2, 2004.

### **5.10.13 NORTH LAS VEGAS AIRPORT, NV (VGT)**

VGT, located approximately six miles northwest of downtown Las Vegas at an elevation of 2,205 feet, caters primarily to the general aviation community. VGT is the second busiest airport in Nevada with more than 230,000 operations annually.

The airport has three runways: Runway 7/25 is 5,004 feet in length, Runway 12R/30L is 5,000 feet in length, and Runway 12L/30R is 4,000 feet in length. GPS approaches are available to Runways 12R and 30L. There are 575 aircraft based at the field and an average of 544 operations per day.

### **5.10.14 PANGUITCH MUNICIPAL AIRPORT, UT (U55)**

Panguitch Municipal Airport serves the town of Panguitch, Utah and Garfield County and is owned by the City of Panguitch. The facility is located approximately three miles northeast of Panguitch at an elevation of 6,757 feet. Panguitch is located near Bryce Canyon National Park and is the largest and most historic town in the Bryce Canyon area. The name "Panguitch" came from the Paiute Indians who named the area after the "Big Fish" they caught in nearby Panguitch Lake.

Runway 1/19 measures 5,700 feet in length. There are no published approaches. There are nine based aircraft on the field and an average of 27 operations per week.

### **5.10.15 PAROWAN AIRPORT, UT (1L9)**

Parowan Airport serves Parowan and Iron County and is owned by the City of Parowan. The facility is located one mile northeast of the City of Parowan at an elevation of 5,930 feet.

The airport has one runway. Runway 4/22 extends for 5,000 feet and has no published approaches. There are 27 aircraft based at the field. There is an average of 98 weekly operations.

### 5.10.16 PROPOSED FUTURE AIRPORT IN SOUTHERN NEVADA

The Clark County Department of Aviation is in the planning stages of developing a proposed future airport in southern Nevada as a second air carrier airport to serve the greater Las Vegas metropolitan area.<sup>138</sup> When developed, it is anticipated that this airport would augment available capacity at LAS and also provide the potential for significant economic development and diversification benefits to Clark County and southern Nevada. It is expected that international and long-haul domestic passenger flights, as well as international and domestic air cargo demand, would be served by this proposed future airport.

It is anticipated that the proposed future airport would be located on a 5,934-acre site approximately 25 to 30 miles south of Las Vegas. Two parallel runways are planned that would be aligned in a north-south orientation, one measuring 15,000 feet long and 200 feet wide and the other measuring 10,000 feet long and 150 feet wide. It is further planned that initial operations at the proposed future airport would begin in 2014, when LAS's passenger traffic reaches 50 million per year, or 90 percent of its annual capacity. This airport would be designed to ultimately handle 30 million passengers per year.<sup>139</sup>

### 5.11 ACTIVITY AT OTHER STUDY AIRPORTS

The summary of current aviation activity at the other airports that support flights in the initial area of investigation was compiled using a combination of airport data, FAA TAF, and FAA 5010 Airport Records. Supplemental information from airport managers at non-towered airports was also collected through surveys.

**Table 5.16** lists the current activity (enplanements and operations) at each of the study area airports, as well as the number of based aircraft. Detailed information about each airport listed in **Table 5.16** is included in **Section 5.10** of this chapter.

Aircraft operations can be grouped into various categories. For the purposes of this study, they are categorized as itinerant and local. Local operations are those that are operating in and out of the listed airport and remaining in the local area. Itinerant operations are those that are coming or going to an airport other than the airport listed. Itinerant operations are further broken down into the categories of air carrier, commuter and air taxi, general aviation, and military. **Table 5.17** summarizes the existing annual operations by type for each study area airport.

<sup>138</sup> Clark County Department of Aviation. On-line at <http://www.mccarran.com/>. 2003.

<sup>139</sup> Clark County Department of Aviation. On-line at <http://www.mccarran.com/>. 2003.

**Table 5.16**  
**ENPLANEMENTS AND OPERATIONS AT OTHER STUDY AREA AIRPORTS**

AIRPORT NAME, STATE	CODE	YEAR	ANNUAL ENPLANEMENTS	ANNUAL OPERATIONS	NUMBER OF BASED AIRCRAFT
Boulder City Municipal, NV <sup>1</sup>	61B	2000	0	36,000	141
Bryce Canyon, UT <sup>2</sup>	BCE	2003	1,963	4,966	6
Cedar City Regional, UT <sup>1</sup>	CDC	2000	10,300	33,300	35
Clear Creek Ranch, UT (Private) <sup>5</sup>	00UT	N/A	0	0	0
Colorado City Municipal, AZ <sup>2</sup>	AZC	2003	0	3,000	4
Grassy Meadows Sky Ranch, UT (Private) <sup>2</sup>	UT47	2003	0	500	20
Henderson Executive, NV <sup>4</sup>	HND	2000	104,887	77,585	149
Hurricane, General Dick Stout Field, UT <sup>2</sup>	1L8	2003	0	6,000	58
Kanab Municipal, UT <sup>1</sup>	KNB	2003	0	10,250	15
Las Vegas McCarran International, NV <sup>4</sup>	LAS	2000	18,443,481	521,300	220
Mesquite Municipal, NV <sup>3</sup>	67L	2003	0	15,500	19
North Las Vegas, NV <sup>4</sup>	VGT	2000	212,352	225,498	575
Panguitch Municipal, UT <sup>2</sup>	U55	2003	0	730	9
Parowan, UT <sup>2</sup>	1L9	2003	0	20,150	27

Sources:

<sup>1</sup> Airport Master Plan

<sup>2</sup> Airport Interview

<sup>3</sup> *Supplement to Section III of Master Plan for Replacement General Aviation Airport in Mesquite, Nevada.*  
 Prepared by the City of Mesquite, NV. February 2004.

<sup>4</sup> Southern Nevada Regional Aviation System Plan

<sup>5</sup> Not Applicable, Airport Not in Use

Landrum & Brown, 2004

**Table 5.17**  
**ITINERANT AND LOCAL ANNUAL OPERATIONS AT OTHER STUDY AREA**  
**AIRPORTS**

AIRPORT NAME, STATE	YEAR	TYPE OF ITINERANT OPERATION				TOTAL NUMBER OF ITINERANT OPS.	NUMBER OF LOCAL OPS.	TOTAL OPS.
		AIR CARRIER	COMMERCIAL & AIR TAXI	GENERAL AVIATION	MILITARY			
Boulder City Municipal, NV <sup>1</sup>	2000	0	3,000	16,500	0	19,500	16,500	36,000
Bryce Canyon, UT <sup>2</sup>	2003	0	1,732	2,674	60	4,466	500	4,966
Cedar City Regional, UT <sup>1</sup>	2000	0	2,190	11,130	0	13,320	19,980	33,300
Clear Creek Ranch, UT (Private) <sup>5</sup>	N/A	0	0	0	0	0	0	0
Colorado City Municipal, AZ <sup>2</sup>	2003	0	0	2,500	0	2,500	500	3,000
Grassy Meadows Sky Ranch, UT (Private) <sup>2</sup>	2003	0	0	500	0	500	0	500
Henderson Executive, NV <sup>4</sup>	2000	-	23,484	20,075	16	43,575	34,010	77,585
Hurricane, General Dick Stout Field, UT <sup>2</sup>	2003	0	0	4,500	0	4,500	1,500	6,000
Kanab Municipal, UT <sup>1</sup>	2003	0	0	8,713	0	8,713	1,537	10,250
Las Vegas McCarran International, NV <sup>4</sup>	2000	336,682	57,633	104,555	21,930	520,800	500	521,300
Mesquite Municipal, NV <sup>3</sup>	2003	0	0	13,200	0	13,200	2,300	15,500
North Las Vegas, NV <sup>4</sup>	2000	-	51,042	65,424	32	116,498	109,000	225,498
Panguitch Municipal, UT <sup>2</sup>	2003	0	0	650	0	650	80	730
Parowan, UT <sup>2</sup>	2003	0	0	11,864	0	11,864	8,286	20,150

Sources:

<sup>1</sup> Airport Master Plan

<sup>2</sup> Airport Interview

<sup>3</sup> *Supplement to Section III of Master Plan for Replacement General Aviation Airport in Mesquite, Nevada.*  
 Prepared by the City of Mesquite, NV. February 2004.

<sup>4</sup> Southern Nevada Regional Aviation System Plan

<sup>5</sup> Not Applicable, Airport Not in Use

Landrum & Brown, 2004

Each study airport has a certain mix of aircraft categories that operate at the airport. This grouping of aircraft is called the fleet mix. **Table 5.18** summarizes the aircraft fleet mix percentages operating at each of the study airports.

**Table 5.18**  
**FLEET MIX PERCENTAGES AT OTHER STUDY AREA AIRPORTS**

Airport Name, State	Year	Jet	Turbo Prop	Business Jet	Single Engine	Multi Engine	Helicopter /Other	Total
Boulder City Municipal, NV <sup>1</sup>	2000	0%	1%	0%	87%	8%	4%	100%
Bryce Canyon, UT <sup>2</sup>	2003	0%	4%	3%	90%	0%	3%	100%
Cedar City Regional, UT <sup>1</sup>	2000	0%	0%	0%	76%	8%	16%	100%
Clear Creek Ranch, UT(Private) <sup>5</sup>	N/A	0%	0%	0%	0%	0%	0%	0%
Colorado City Municipal, AZ <sup>2</sup>	2003	0%	0%	0%	67%	33%	0%	100%
Grassy Meadows Sky Ranch, UT (Private) <sup>2</sup>	2003	0%	0%	0%	100%	0%	0%	100%
Henderson Executive, NV <sup>4</sup>	2000	0%	30%	1%	61%	7%	0%	100%
Hurricane, General Dick Stout Field, UT <sup>2</sup>	2003	0%	0%	0%	76%	22%	2%	100%
Kanab Municipal, UT <sup>1</sup>	2003	0%	3%	1%	85%	10%	1%	100%
Las Vegas McCarran International, NV <sup>4</sup>	2000	63%	9%	4%	18%	2%	4%	100%
Mesquite Municipal, NV <sup>3</sup>	2003	0%	0%	0%	88%	12%	0%	100%
North Las Vegas, NV <sup>4</sup>	2000	0%	21%	1%	70%	8%	0%	100%
Panguitch Municipal, UT <sup>2</sup>	2003	0%	0%	3%	89%	7%	0%	100%
Parowan, UT <sup>2</sup>	2003	0%	0%	1%	80%	3%	16%	100%

## Sources:

- <sup>1</sup> Airport Master Plan
  - <sup>2</sup> Airport Interview
  - <sup>3</sup> FAA Terminal Area Forecast (TAF)
  - <sup>4</sup> Southern Nevada Regional Aviation System Plan
  - <sup>5</sup> Not Applicable, Airport Not in Use
- Landrum & Brown, 2004

**Table 5.19** provides a summary of current and forecast air traffic (i.e. itinerant and local operations) at each of the study area airports, in comparison to the existing and proposed replacement airports at St. George.



**Table 5.19**  
**AIR TRAFFIC SUMMARY**

Airport Name	Code	Source	Year	Air Carrier	Commuter & Air Taxi	General Aviation	Military	Total Itinerant Operations	General Aviation Local	Military Local	Total Local Operations	TOTAL OPERATIONS (Itinerant & Local)
St. George Municipal Airport-Existing	SGU	L&B	2003	-	9,255	14,727	210	24,192	19,522	-	19,522	43,714
		L&B	2010	-	10,764	15,755	210	26,729	20,885	-	20,885	47,614
		L&B	2020	-	13,454	17,230	210	30,894	22,840	-	22,840	53,734
St. George Municipal Airport-Proposed Replacement	SGU	L&B	2003	-	-	-	-	-	-	-	-	-
		L&B	2010	-	10,384	15,755	210	26,349	20,885	-	20,885	47,234
		L&B	2020	-	10,904	17,230	210	28,344	22,840	-	22,840	51,184
Boulder City Municipal Airport, NV	61B	Airport MP	2000	-	3,000	16,500	-	19,500	16,500	-	16,500	36,000
		Airport MP	2010	-	3,700	25,945	-	29,645	25,945	-	25,945	55,590
		Airport MP	2020	-	4,500	37,795	-	42,295	37,795	-	37,795	80,090
Bryce Canyon Airport, UT	BCE	Airport	2003	-	1,732	2,674	60	4,466	500	-	500	4,966
		ALP	2010	-	1,460	10,428	50	11,938	355	-	355	12,293
		ALP	2020	-	1,460	16,820	50	18,330	405	-	405	18,735
Cedar City Regional Airport, UT	CDC	Airport MP	2000	-	2,190	11,130	-	13,320	19,980	-	19,980	33,300
		Airport MP	2010	-	2,190	16,430	-	18,620	27,930	-	27,930	46,550
		Airport MP	2020	-	2,190	22,890	-	25,080	37,620	-	37,620	62,700
Clear Creek Ranch, UT	00UT	Airport	2003	-	-	-	-	-	-	-	-	-
		TAF	2010	-	-	-	-	-	-	-	-	-
		TAF	2020	-	-	-	-	-	-	-	-	-

**Table 5.19, Continued**  
**AIR TRAFFIC SUMMARY**

Airport Name	Code	Source	Year	Air Carrier	Commuter & Air Taxi	General Aviation	Military	Total Itinerant Operations	General Aviation Local	Military Local	Total Local Operations	TOTAL OPERATIONS (Itinerant & Local)
Colorado City Municipal Airport, AZ	AZC	Airport	2003	-	-	2,500	-	2,500	500	-	500	3,000
		Airport MP	2010	-	-	3,000	-	3,000	4,500	-	4,500	7,500
		Airport MP	2020	-	-	6,800	-	6,800	6,700	-	6,700	13,500
Hurricane, General Dick Stout Field, UT	1L8	Airport	2003	-	-	4,500	-	4,500	1,500	-	1,500	6,000
		L&B	2010	-	-	5,500	-	5,500	1,500	-	1,500	7,000
		L&B	2020	-	-	6,500	-	6,500	1,500	-	1,500	8,000
Grassy Meadows Sky Ranch, UT	UT47	Airport	2003	-	-	500	-	500	-	-	-	500
		Airport	2010	-	-	1,800	-	1,800	200	-	200	2,000
		Airport	2020	-	-	2,800	-	2,800	200	-	200	3,000
Henderson Executive Airport, NV	HND	System Plan, SNRA 6/	2000	-	23,484	20,075	26	43,585	34,000	-	34,000	77,585
		System Plan, SNRA 6/	2010	-	26,410	49,840	-	76,250	37,000	-	37,000	113,250
		System Plan, SNRA 6/	2020	-	29,710	99,440	-	129,150	40,000	-	40,000	169,150
Kanab Municipal Airport, UT	KNB	Airport MP	2003	-	-	8,713	-	8,713	1,537	-	1,537	10,250
		Airport MP	2010	-	-	10,212	-	10,212	1,816	-	1,816	12,028
		Airport MP	2020	-	-	12,149	-	12,149	2,175	-	2,175	14,324
Las Vegas McCarran International Airport, NV	LAS	URS Corp 1/, 4/, 5/	2002	317,298	86,788	72,913	20,926	497,925	112	-	112	498,037
		URS Corp 1/, 4/, 5/	2010	397,500	77,450	82,400	17,000	574,350	600	-	600	574,950
		URS Corp 1/, 4/, 5/	2020	462,172	72,150	72,400	17,000	623,722	700	-	700	624,422

**Table 5.19, Continued**  
**AIR TRAFFIC SUMMARY**

Airport Name	Code	Source	Year	Air Carrier	Commuter & Air Taxi	General Aviation	Military	Total Itinerant Operations	General Aviation Local	Military Local	Total Local Operations	TOTAL OPERATIONS (Itinerant & Local)
Mesquite Municipal Airport, NV	67L	City of Mesquite 2/, 7/	2003	-	-	13,200	0	13,200	2,300	-	2,300	15,500
Existing and Proposed		City of Mesquite 2/, 7/	2010	-	-	16,059	0	16,059	3,800	-	3,800	19,859
Future Airports <sup>a/</sup>		City of Mesquite 2/, 7/	2020	-	-	20,060	0	20,060	3,497	-	3,497	23,557
Nellis Air Force Base, NV	LSV	Interview 2003	2003	-	-	-	108,040	108,040	-	-	-	108,040
		L&B, assumed constant level										
		L&B, assumed constant level	2010	-	-	-	108,040	108,040	-	-	-	108,040
North Las Vegas Airport, NV	VGT	System Plan, SNRA 6/	2000	-	51,042	65,424	32	116,498	109,000	-	109,000	225,498
		System Plan, SNRA 6/	2010	-	57,720	95,420	250	153,390	118,000	-	118,000	271,390
		System Plan, SNRA 6/	2020	-	65,230	86,720	250	152,200	131,000	-	131,000	283,200
Panguitch Municipal Airport, UT	U55	Airport TAF	2003	-	-	650	-	650	80	-	80	730
		TAF	2010	-	-	1,200	-	1,200	200	-	200	1,400
		TAF	2020	-	-	1,200	-	1,200	200	-	200	1,400

**Table 5.19, Continued**  
**AIR TRAFFIC SUMMARY**

Airport Name	Code	Source	Year	Air Carrier	Commuter & Air Taxi	General Aviation	Military	Total Itinerant Operations	General Aviation Local	Military Local	Total Local Operations	TOTAL OPERATIONS (Itinerant & Local)
Parowan Airport, UT	1L9	Airport	2003	-	-	11,864	-	11,864	8,286	-	8,286	20,150
		L&B 3/	2010	-	-	11,864	-	11,864	8,286	-	8,286	20,150
		L&B 3/	2020	-	-	11,864	-	11,864	8,286	-	8,286	20,150
Proposed Las Vegas Ivanpah Valley Airport, NV	IVP		2003	N/A	N/A	N/A	N/A	0	N/A	N/A	0	0
			2010	N/A	N/A	N/A	N/A	0	N/A	N/A	0	0
		URS Corp 1/	2020	86,328	7,000	10,000	0	103,328	0	0	0	103,328
Total – All Airports		2003		317,298	177,491	245,370	129,294	869,453	213,817	-	213,817	1,083,270
Total w/o Las Vegas Airports		2003		-	16,177	86,958	270	103,405	70,705	-	70,705	174,110

Note:

A Scoping meeting was held January 20, 2005. Anticipated first year of operation for proposed future airport has not yet been determined. City of Mesquite estimates approximately 18 months for planning and 18 months for construction. First year of operation estimated by Landrum & Brown, Inc. (2005) to be 2010 - 2012.

Sources:

- <sup>1</sup> URS Corporation, Final Aviation Activity Forecast Report for Ivanpah Valley Airport, prepared for Clark County Department of Aviation, November 2003.
- <sup>2</sup> Supplement to Section III of Master Plan for Replacement General Aviation Airport in Mesquite, Nevada. Prepared by the City of Mesquite, NV. February 2004.
- <sup>3</sup> Assumed no growth based on 2003 TAF projection
- <sup>4</sup> From 2003 TAF
- <sup>5</sup> Military projections for LAS from Southern Nevada Regional Airport System Plan, 2001.
- <sup>6</sup> Allocation of general aviation operations between itinerant and local was made based on information provided by local airport managers.
- <sup>7</sup> Telephone conversation between Consultant and City of Mesquite Engineering Department. January 18, 2005.

## 5.12 OTHER AIR TRAFFIC IN INITIAL AREA OF INVESTIGATION

### 5.12.1 IFR OVERFLIGHT ACTIVITY

As discussed in **Section 5.13, *Air Route Traffic Procedures***, of this chapter, overflight activity is defined as that which does not involve a landing or a take off operation at an airport and typically occurs along Federal airways of the National Airspace System that traverse the initial area of investigation (i.e. Jet routes, Victor Airways, Military Training Routes). As an example, a flight from Los Angeles to Minneapolis or between Phoenix and Salt Lake City would overfly the initial area of investigation along designated Federal airways, but would not take off or land at an airport in the initial area of investigation. Activity counts for aircraft overflights operating under IFR in the initial area of investigation were derived from data provided by the Los Angeles Air Route Traffic Control Center (ARTCC). Activity associated with the Las Vegas area (including activity at all Las Vegas area airports) was separated and forecast separately from the other overflight data based on the latest activity forecasts developed by the Clark County (Nevada) Department of Aviation. The non-Las Vegas overflights were projected to increase by an average annual rate of 3.5 percent – the national commercial air traffic growth rate projected by the FAA.<sup>140</sup> **Table 5.20** summarizes the overflight operations forecasts.

**Table 5.20**  
**EXISTING AND PROJECTED IFR OVERFLIGHT TRAFFIC THROUGH INITIAL AREA OF INVESTIGATION**

AIRCRAFT TYPE	2003		2010		2020 <sup>1</sup>	
	LAS VEGAS AREA	OTHER OVER-FLIGHTS	LAS VEGAS AREA	OTHER OVER-FLIGHTS	LAS VEGAS AREA	OTHER OVER-FLIGHTS
Wide-body comm'l. jet	2,179	41,935	2,425	51,550	3,069	72,716
Narrow-body comm'l. jet	79,258	190,368	86,550	234,010	109,537	330,093
Regional comm'l. jet	2,129	46,820	2,049	57,553	2,593	81,185
Business jet	9,649	58,963	10,939	72,481	13,845	102,242
Heavy/medium prop	596	2,771	406	3,406	514	4,804
Light twin-engine prop	9,759	9,127	6,114	11,219	7,738	15,826
Single-engine piston	2,398	6,096	1,687	7,551	2,135	10,570
Military jet transport	34	1,350	38	1,659	48	2,340
Military turboprop transport	39	945	28	1,162	35	1,639
Military fighter	6	2,056	7	2,527	9	3,564
<b>Total</b>	<b>106,047</b>	<b>360,431</b>	<b>110,243</b>	<b>443,119</b>	<b>139,523</b>	<b>624,980</b>

<sup>1</sup> Forecasts for 2020 include activity projected for the proposed Ivanpah Valley Airport.

Source: Landrum & Brown analysis, 2004. Developed from data provided by Los Angeles Air Route Traffic Control Center, 2004.

<sup>140</sup> FAA Aerospace Forecast, Fiscal Years 2005-2016. March 2005.

### 5.12.2 AIR TOURS OF NATIONAL PARKS AND MONUMENTS

The National Parks Air Tour Management Act of 2000, enacted on April 5, 2000 as Public Law 106-181, institutes formal regulation of air tours over National Parks and applies to all commercial air tour operations occurring over a unit of the national park system or tribal lands within or abutting a national park.<sup>141</sup> The National Parks Air Tour Management Act of 2000 defines a commercial air tour operation as:

- *"Any flight conducted for compensation or hire in a powered aircraft where a purpose of the flight is sightseeing over a national park, within one-half mile outside the boundary of any national park, or over tribal lands, during which the aircraft flies:*
- *Below 5,000 feet above ground level (AGL), except solely for the purposes of takeoff or landing, or necessary for safe operation of aircraft as determined under the rules and regulations of the Federal Aviation Administration requiring the pilot-in-command to take action to ensure the safe operation of the aircraft, or*
- *Less than one mile laterally from any geographic feature within the park, unless more than one-half mile outside the boundary."*

Subsequent to the Act, commercial air tours over national parks, national monuments, and national recreation areas have been conducted in coordination with FAA Flight Standard District Offices (FSDO) throughout the country. The allocation of the number of flights to each Air Tour Operator (ATO) was developed based on an historic assessment of a number of previous years' operations conducted to and from specific National Park sites. Certificates were issued by the controlling regional FAA FSDO facility to each ATO, which authorize a maximum number of annual operations to/from the various NPS sites at which the operator had previously operated air tours (i.e., identified as existing air tour operators). These operating certificates are the basis for an interim operating authority until Air Tour Management Plans (ATMP) are developed for each NPS site. Each carrier is limited to the authorized number of operations in their operating certificate.

Twenty ATOs are certificated to conduct operations within, or proximate to, Zion National Park, Bryce Canyon National Park, and Cedar Breaks National Monument or are based in locations and have operating authority at other national park units that could result in flights through the study area for the proposed replacement airport at St. George. Most are currently using only a portion of their total authorized operations. Interim authority operational data was provided by the FAA with an explanation that the information reflected a compilation of previous years' operations used to set interim operating authority.<sup>142</sup>

**Table 5.21** presents projected activity levels for existing, 2010, and 2020 for all ATOs at Zion National Park and Cedar Breaks National Monument. These projections, of necessity, are highly speculative because the ATMP for each NPS site has not yet been developed.

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<sup>141</sup> Public Law 106-181

<sup>142</sup> Data provided by FAA, AWP Office. 2004.

**Table 5-21****ESTIMATED AND FORECAST NUMBER OF AIR TOURS OVER ZION NATIONAL PARK AND CEDAR BREAKS NATIONAL MONUMENT**

2003 (ESTIMATE)		2010 FORECAST		2020 FORECAST	
ZION N.P.	CEDAR BREAKS N.M.	ZION N.P.	CEDAR BREAKS N.M.	ZION N.P.	CEDAR BREAKS N.M.
518	12	774	12	940	12

Source: **Appendix C, Air Tour Operator Survey Report.**

When developed, the ATMPs for each NPS site will specify the operating limits, conditions, and restrictions for air tours. At this time, however, there is no basis for estimating the outcome of those plans. Therefore, for purposes of this analysis for this EIS, the following assumptions were made in projecting future air tour operations:

- Operators using more than 50 percent of their allocated operations in 2004 were assumed to use 100 percent in 2010 and 2020.
- Operators using less than 50 percent of their allocated operations in 2004 were assumed to use 50 percent in 2010 and 100 percent in 2020, with the exceptions listed below. All estimated future operations levels remain within the interim operating authority granted by the FAA.
  - Air Grand Canyon and Windrock Aviation are operated by the same company with a combined total of 28 yearly operations at Zion and 16 operations at Bryce. Zion and Bryce air tours are only conducted together as one flight, hence the real limit of these tours equals 16, 50 percent of which are operated in 2010 (eight Zion/Bryce operations) and 100 percent of which are operated in 2020 (16 Zion/Bryce operations).
  - Bryce Canyon Airlines and Helicopters are estimated to double operations at Bryce Canyon National Park in helicopters (i.e., 300 to 600 yearly flights), and then operate an additional 300 flights at Bryce in 2020 (i.e., 600 to 900 yearly flights), as well as double operations in small fixed wing (i.e., 65 to 130 yearly flights), and then operate an additional 65 flights at Bryce in 2020 (i.e., 130 to 195 yearly flights). In addition Zion/Bryce air tours conducted together would max out at an additional 10 operations for 2010 and 2020.
  - King Airelines would conduct Zion and Bryce air tours together as one flight, hence the real limit of these tours is nine operations (Bryce limit), all of which are forecast to operate in 2010 and 2020.
  - M & S Aero would operate 100 percent of their allocated Bryce Canyon flights in 2010 and 2020, but would have a five-fold then 10-fold increase in Zion operations from present day to 2010 and 2020 respectively (i.e., 10 Zion operations in 2004, to 50 in 2010 and 100 in 2020).
  - Scenic Airlines would conduct Zion and Bryce air tours together as one flight (with Grand Canyon National Park also), hence the real limit of these tours is 547 operations (Zion limit), all of which are operated in 2010 and 2020.

An important component of the analysis of potential impacts associated with development of the proposed replacement airport at St. George is an assessment of existing and potential future air tour operations in the vicinity of St. George, namely those that overfly the NPS sites of Zion National Park and Cedar Breaks National Monument, which are included in the study area for this EIS. Air tour operations over Bryce Canyon National Park, located just outside of the study area, were also analyzed.

Estimates and projections of air tour operations over Zion National Park and Cedar Breaks National Monument were developed by reviewing the records of the FAA's Flight Service District Offices, which issue operating certificates to National Park ATOs, and by interviewing the certified operators. See **Appendix C** of this EIS for detailed operational data collected for each ATO of interest.

The ATOs that participated in the interview process indicated generalized routings flown with respect to their air tour operations at the various NPS sites. Altitudes referenced by the ATOs were also general in nature with helicopter operators indicating altitudes from between 300 and 500 feet above ground level, and fixed-wing operators indicating altitudes from between 1,000 and 1,500 feet above ground level. **Exhibits C.1 through C.7** in **Appendix C** of this EIS depict typical flight routes and altitudes for each of the ATOs of interest to this study.

Only two ATOs were using their full allocation of certified tour operations over Zion. None were using their full allocation over Cedar Breaks. By 2020, it was projected that 12 of the 19 operators would be using their full allocations at Zion, as shown in **Table 5-22**. The current system used by the FAA and the NPS for approval of air tour operations is temporary, pending the development of ATMPs for the National Parks in the area. It is entirely possible that ATMPs for Zion and Cedar Breaks will be developed before 2010. The ATMPs will supersede the operating certificates now held by the ATOs. Thus, the forecasts presented in **Table 5-22** should be considered provisional. Detailed information regarding interviews with ATOs who conduct routes over the initial area of investigation is included in **Appendix C**.



**TABLE 5.22**  
**AIR TOUR OPERATORS**  
**Zion National Park and Cedar Breaks National Monument**

		Flight Standard District Office (FSDO) Certificated Operations Totals Interim Operating Authority & Forecast Operations							
		Zion National Park - FSDO Limits & Forecast				Cedar Breaks National Monument - FSDO Limits & Forecast			
		Zion; FSDO Ops Totals/Yr	2004	2010	2020	Cedar Breaks; FSDO Ops Totals/ Yr	2004	2010	2020
Company	Base Airport	Limit				Limit			
Air Grand Canyon <sup>1</sup>	Prescott, AZ	25	0	7	15	9	0	0	0
Air Vegas Airlines <sup>2</sup>	Las Vegas (N Las Vegas), NV	123	24	60	123	123	0	0	0
AirStar Helicopters <sup>1</sup>	Grand Canyon, AZ	6	0	3	6	6	0	0	0
American Aviation <sup>1</sup>	SLC-Salt Lake City, UT	29	0	18	29	27	0	0	0
Bryce Canyon Airlines & Helicopters (formerly Aero-Copter of Arizona) <sup>1</sup>	Bryce, UT	10	5	10	10	0	0	0	0
Grand Canyon Airlines <sup>1</sup>	Grand Canyon, AZ	3	0	3	3	0	0	0	0
Heli USA Airways <sup>1</sup>	Las Vegas, NV	6	6	6	6	0	0	0	0
King Airlines <sup>1</sup>	Henderson, NV	12	9	9	9	0	0	0	0
Las Vegas Helicopters <sup>1</sup>	Las Vegas, NV	12	6	12	12	0	0	0	0
M & S Aero <sup>2</sup>	Tropic, UT	326	10	50	100	0	0	0	0
Maverick Helicopters <sup>1</sup>	Las Vegas, NV	15	5	10	15	15	0	0	0
Makarion Air (formerly The Global Group) <sup>1</sup>	Glendale, AZ	40	0	20	40	0	0	0	0

**Table 5.22, Continued**  
**AIR TOUR OPERATORS**  
**Zion National Park and Cedar Breaks National Monument**

		Flight Standard District Office (FSDO) Certificated Operations Totals Interim Operating Authority & Forecast Operations							
		Zion National Park - FSDO Limits & Forecast				Cedar Breaks National Monument - FSDO Limits & Forecast			
		Zion; FSDO Ops Totals/Yr	2004	2010	2020	Cedar Breaks; FSDO Ops Totals/ Yr	2004	2010	2020
Company	Base Airport	Limit				Limit			
Papillon Airways <sup>1</sup>	Las Vegas, NV	12	0	6	12	0	0	0	0
Scenic Airlines <sup>2</sup>	Las Vegas, NV	547	441	547	547	0	0	0	0
Solid Edge Aviation <sup>3</sup>	Sedona, AZ	1	0	0	0	0	0	0	0
Southwest Safaris <sup>3</sup>	Sante Fe, NM	15	0	0	0	15	0	0	0
Sundance Helicopters <sup>2</sup>	Las Vegas, NV	12	12	12	12	24	12	12	12
Windrock Aviation <sup>1</sup>	Prescott, AZ	3	0	1	1	1	0	0	0
<b>Grand Totals</b>		<b>1,197</b>	<b>518</b>	<b>774</b>	<b>940</b>	<b>220</b>	<b>12</b>	<b>12</b>	<b>12</b>
<b>Percent Utilization Based on Certificated Allocation</b>		<b>100%</b>	<b>43%</b>	<b>65%</b>	<b>80%</b>	<b>100%</b>	<b>5%</b>	<b>5%</b>	<b>5%</b>

<sup>1</sup> Route & profile data was extrapolated from another air tour operator conducting similar origin/destination operations.

<sup>2</sup> Air Tour Operator for which data was collected through either face to face or telephone interview.

<sup>3</sup> No data available

Note: Contango Air and Lake Mead Air have gone out of business since data was gathered.

Source: Appendix C, Air Tour Operators Survey Report.

### 5.12.3 MILITARY ACTIVITY ON SPECIAL TRAINING ROUTES

Three military training routes, VR209, IR126, and IR266, are in the initial area of investigation. Route VR209, managed by Naval Air Station Lemoore, California, runs from the west side of the area, northeast of Pine Valley Mountain Wilderness, then due east, then jogs north just east of Cedar Breaks National Monument. Routes IR126 and IR266, managed by Dyess Air Force Base in Texas, run south from the Desert Military Operations area to Grand Canyon Parashant National Monument, then east-northeast over the southeast corner of the Kaibab Indian Reservation.

Routes IR126 and IR266 share the same track but have different designations depending on the direction of flight. Usage information for the routes is summarized in **Table 5.23**. See also **Section 5.15.3, Military Training Routes**, of this chapter for additional information.

**TABLE 5.23**  
**ANNUAL ACTIVITY ON MILITARY TRAINING ROUTES**

MILITARY TRAINING ROUTE (MTR)	PERIOD OF DATA	ANNUAL OPERATIONS		AVERAGE DAILY OPERATIONS	
		DAYTIME	NIGHTTIME	DAYTIME	NIGHTTIME
VR-209	Jan-Dec 2003	32	0	0.09	0
IR126 & IR 266	Oct 2003–Sep 2004	320	15	.88	.04

Note: Daytime is defined as after 7:00 a.m. and before 10:00 p.m. The other hours are classified as "nighttime."

Sources: Correspondence from Dwight Williams, Dyess AFB to Dennis Ossenkop, FAA-ANM, September 28, 2004.  
 Correspondence from Commander, Strike Fighter Wing, U.S. Pacific Fleet to FAA-ANM, September 28, 2003.

## 5.13 AIR TRAFFIC CONTROL ENVIRONMENT

The Air Traffic Organization of the FAA was created in February 2004 through the combination of the once separate FAA Divisions of Research and Acquisitions, Air Traffic Services, and Free Flight.<sup>143</sup> The primary service of the Air Traffic Organization is to move commercial, general aviation and military air traffic safely and efficiently through the U.S. The employees of the Air Traffic Organization are the service providers (i.e. controllers, technicians, engineers, and support personnel) who comprise the following 10 service units.

- Safety
- Communications
- Operations Planning
- Finance
- Acquisition and Business Services
- En Route and Oceanic Services
- Terminal Services
- Flight Services
- System Operations Services
- Technical Operations Services

The Air Traffic Organization manages civil and military air traffic in the navigable airspace through the development and recommendation of national policies and the establishment of national programs, regulations, standards, and procedures for management of the airspace, operation of air navigation and communications systems and facilities, and separation and control of, and flight assistance to, air traffic. The following air traffic facilities are managed by the Air Traffic Organization.

- Air Traffic Control System Command Center (ATCSCC)
- Air Route Traffic Control Centers (ARTCC)
- Terminal Radar Approach Control (TRACON) facilities

<sup>143</sup> *The Air Traffic Organization*, Federal Aviation Administration. On-line at <http://ato.faa.gov/>. Retrieved November 18, 2004.

- Flight Service Stations (FSS) and Automated Flight Service Stations (AFSS), including Alaskan Rotational Flight Service Stations
- Airport Traffic Control Towers (ATCT)
- Radar Approach Control (RAPCON) facilities
- Combined Center/Radar Approach Control (CERAP) facilities.

Due to the multi-airport character of the Initial Area of Investigation, it is important to understand the characteristics of the air traffic control (ATC) environment in which aircraft operate, which, in large part, determine the location of existing air routes and location of flights near the St. George area.

Depending on arrival and departure points, as well as the enroute flight path, aircraft operating in the initial area of investigation are managed by the Los Angeles and Salt Lake City ARTCC, the Las Vegas TRACON, and/or ATCT at specific airports. These facilities are described in further detail in **Section 5.13.1 through Section 5.13.4** of this chapter.

### **5.13.1 AIR ROUTE TRAFFIC CONTROL CENTERS (ARTCC)**

ARTCC facilities are established primarily to provide air traffic service to aircraft operating on IFR flight plans within controlled airspace, and principally during the enroute phase of flight. Each ARTCC manages traffic within all sectors of its center except for TRACON airspace and local-airport airspace.

The U.S. airspace is divided into 20 ARTCCs that control air traffic from the surface to the highest altitudes of aircraft operation. The airspace area delegated to an ARTCC may encompass an entire state or portions of several states. Within the ARTCC boundary are smaller geographical and vertical blocks of airspace identified as sectors. The size and shape of a sector is dependant on the type of operations conducted within the sector airspace. It may include arrivals and departures from one or more airports, or it may include predominantly enroute operations.

**Exhibit 5.18** depicts the general division of ARTCC airspace in the U.S.

#### **5.13.1.1 Los Angeles ARTCC**

The Los Angeles ARTCC (ZLA) controls the airspace over a large majority of the initial area of investigation. Sectors 7, 32, and 33 of the ZLA manage the majority of flights that fly through the study area. Sector 7 is the low altitude sector over St. George. It is primarily an arrival/departure sector for LAS and LSV, both in Las Vegas, Nevada. ZLA high sectors 32 and 33 are above sector 7. LAS departures are normally between 22,000 and 28,000 feet over SGU while LSV departures are above 23,000 feet.

#### **5.13.1.2 Salt Lake City ARTCC**

The Salt Lake City ARTCC (ZLC) manages a small northern section of the initial area of investigation. ZLC Sectors 33, 34, 44 and 46 are the high and low altitude sectors adjacent to the pertaining ZLA sectors described in the preceding section.

Aircraft flows through these sectors are complex, as east/west traffic to and from the San Francisco Bay area crosses with traffic to and from the Los Angeles Basin, and with the north/south Salt Lake City flows. Sector 44 provides approach control services to several small airports including Cedar City Airport.

### **5.13.2 TERMINAL AREA CONTROL CENTER (TRACON)**

A TRACON handles departing and approaching aircraft within its airspace, which typically covers a 25-mile radius from an airport. A TRACON's airspace may contain a number of airports, each of which has its own airspace with a five-mile radius of that airport.

The movement of aircraft through the various TRACON divisions of the U.S. airspace is much like players moving through a "zone" defense that a basketball or football team might use. As an aircraft travels through a given airspace division, it is monitored by the one or more air traffic controllers responsible for that division. The controllers monitor this flight and give instructions to the pilot. As the flight exits that airspace division and enters another, the air traffic controller hands the pilot off to the controllers responsible for the new airspace division.

Likewise, as a pilot approaches the intended airport destination, the TRACON will hand off the pilot to the airport's Approach Control, as appropriate. Similarly, at airports with Departure Control, such controllers will hand off the pilot to the TRACON as the departing aircraft leaves that airport's airspace.

#### **5.13.2.1 Las Vegas Terminal Area Control Center**

The easternmost boundary of the Las Vegas TRACON's airspace is located outside of the Initial Area of Investigation. The TRACON controllers provide air traffic control services to aircraft operating at LAS, Henderson Executive, and North Las Vegas Airports.

The Las Vegas TRACON controllers also coordinate operations within their airspace with the Nellis Air Force Base control facility directly to the north.

### **5.13.3 FLIGHT SERVICE STATION (FSS)**

Flight Service Stations (FSS) are air traffic facilities that provide pilot briefings, enroute communications, and Visual Flight Rules (VFR) search and rescue services. Personnel at an FSS are also trained to assist lost aircraft and aircraft in emergency situations; relay ATC clearances; originate Notices to Airmen (NOTAMS); broadcast aviation weather and National Airspace System information; receive, process, and close IFR flight plans; and monitor navigational aids (NAVAIDs). In addition select FSS locations provide En Route Flight Advisory Service (Flight Watch), weather observations, issue airport advisories, and advise Customs and Immigration of trans-border flights.<sup>144</sup>

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<sup>144</sup> *Aeronautical Information Manual*, Section 4-1-3, *Flight Service Stations*. U.S. Department of Transportation. 2004.

Within the initial area of investigation, there is one FSS located on the field at Cedar City Regional Airport, Utah. This FSS is in operation 24 hours a day.

#### **5.13.4 AIRPORT TRAFFIC CONTROL TOWER (ATCT)**

Air traffic controllers, stationed at ATCT, coordinate all takeoff, landing, and ground operations that occur at an airport, providing a safe, orderly, and expeditious traffic flow at an airport and in the vicinity of an airport.

When the responsibility has been so delegated, personnel at ATCT facilities also provide separation of IFR aircraft in the terminal areas. No towered airports are in the initial area of investigation. The only study airports with ATCTs are in the Las Vegas TRACON area.

#### **5.13.5 IFR AND VFR TRAFFIC**

Pilots of commercial air service flights operate under IFR at all times. Although it was specifically designed to allow pilots to operate in low visibility conditions, the positive ATC control features of an IFR flight plan make it a safe and efficient method of navigation during all weather conditions. General aviation pilots also have the option of flying under IFR if the pilot is instrument-rated and the aircraft is equipped with the proper navigation equipment.

Pilots operating under VFR are not required to file flight plans, although the service is available. Flight Following, a radar service for VFR pilots is available, but is not mandatory for VFR operations. No legal requirements exist for the FAA to track or record the locations of VFR traffic. Therefore, VFR flights are typically not tracked by radar and there is no documentation of their flight patterns.

### **5.14 AIRSPACE STRUCTURE**

There are two categories of airspace or airspace areas in the U.S. The first is Regulatory, which includes Class A, B, C, D, and E airspace areas; Restricted Areas; and Prohibited Areas. The second category is Non-Regulatory, which includes Military Operations Areas (MOA), Warning areas, Alert areas, and Controlled Firing areas. Within these two categories of airspace, there are four types of airspace: Controlled, Uncontrolled, Special use, and Other. The categories and types of airspace are dictated by the complexity or density of aircraft movements, the nature of the operations conducted within the airspace, the level of safety required, and national and public interest.<sup>145</sup>

#### **5.14.1 CONTROLLED AIRSPACE**

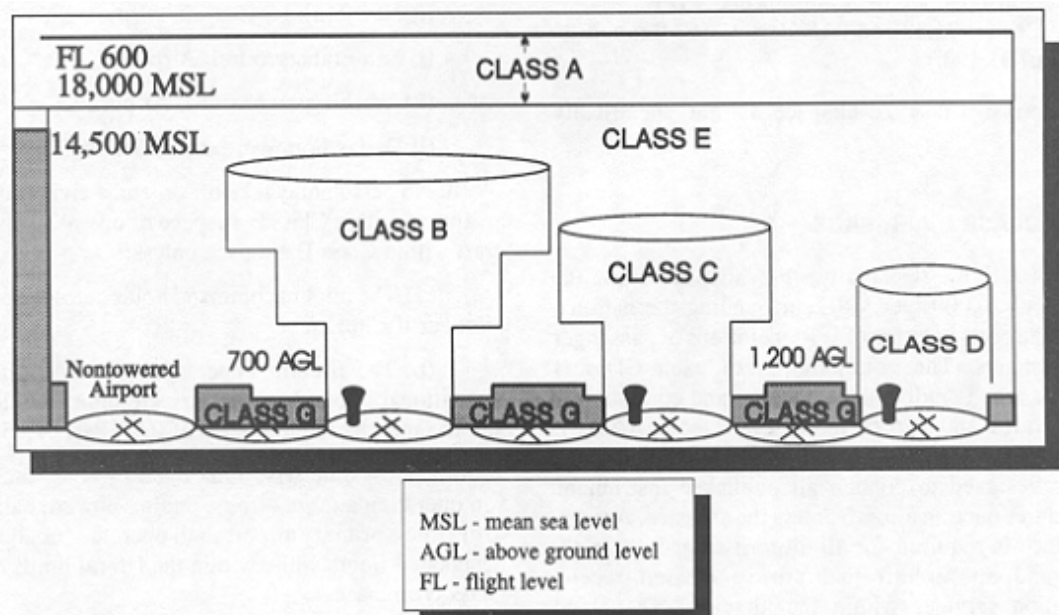
Controlled Airspace is a generic term that covers the different classifications of airspace (Class A, Class B, Class C, Class D, and Class E airspace) in the U.S. The hierarchy of U.S. controlled airspace begins at Class A and continues through Class E. Airspace classifications define dimensions within which varying degrees of

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<sup>145</sup> *Aeronautical Information Manual (AIM)*. Chapter 3, *Airspace*. Federal Aviation Administration. August 5, 2004.

air traffic control service is provided to aircraft, as well as the varying aircraft equipment, pilot experience, and pilot responsibilities required. **Figure 5.1** provides a graphic comparison of the shape and size of each airspace classification.

**Figure 5.1**  
**AIRSPACE CLASSIFICATIONS**



Class A airspace begins at 18,000 feet above mean sea level (MSL) and extends to 60,000 feet MSL throughout the U.S. and 12 nautical miles off the coast. All aircraft must operate under IFR within Class A airspace.

Class B airspace is designated around nation's busiest airports. It generally begins at the surface and extends to 10,000 feet MSL and covers a 30-nautical mile radius, although the specific configuration is individually tailored to each airport. In the vicinity of St. George, the Las Vegas area has the only Class B airspace, as shown on **Exhibit 5.19, Las Vegas Class B Airspace**.

Class C airspace is generally defined around airports with an airport traffic control tower.

Class D airspace is generally defined around smaller airports with airport traffic control towers.

Class E airspace is controlled airspace that is not designated as Class A, B, C, or D.

#### **5.14.2 UNCONTROLLED AIRSPACE**

Uncontrolled airspace is designated as Class G and includes all airspace not otherwise designated as controlled airspace (i.e. Class A, Class B, Class C, Class D, or Class E). Although there are no official communication requirements or

minimum aircraft equipment requirements for operation in Class G airspace, VFR pilots must maintain minimum cloud clearances as described in Federal Aviation Regulations.

### 5.14.3 MILITARY OPERATIONS AREA (MOA)

A MOA consists of airspace of defined vertical and lateral limits established for the purpose of separating certain military training activities from civilian IFR traffic. Military aircraft activities conducted in an MOA are typically high speed or low altitude operations. Examples of such activities include, but are not limited to, air combat tactics, air intercepts, aerobatics, formation training, and low-altitude tactics. When a MOA is in use, nonparticipating civilian IFR traffic may be cleared through a MOA if IFR separation can be provided by ATC. If military aircraft activities do not allow for adequate separation of civilian and military aircraft, ATC will reroute or restrict nonparticipating IFR traffic from entering the MOA.<sup>146</sup>

The Desert MOA, supporting Nellis Air Force Base, is located on the northwest corner of the initial area of investigation. It extends to 17,999 feet above ground level with Air Traffic Control Assigned Airspace (ATCAA) located above. Its hours of operation are sunrise to sunset, Monday through Saturday.

## 5.15 PUBLISHED AIR ROUTES AND PROCEDURES

This section discusses the high and low altitude air routes, approach, departure, and local traffic patterns, and Military Training Routes that traverse the initial area of investigation.

### 5.15.1 HIGH AND LOW ALTITUDE AIR ROUTES

High and low altitude airways, known as Jet airways (J) and Victor airways (V), traverse the U.S., including the St. George vicinity. Pilots operating under IFR flight plans often use these airways. The jet airways in the initial area of investigation are designated: J9, J107, J100, J60, J110, J146, and J11. The victor or low altitude airways in the study area are designated V8, V235, V21, V394, V293, V257, and V562. These airways are depicted on **Exhibit 5.20**.

Not all air traffic uses these airways. Many factors determine the path of a flight, including ATC instructions, weather conditions, origin and destination, and navigational equipment available to the pilot. Local pilots flying from point-to-point generally do not follow these airways. Instead, visual references, landmarks, and on-board navigation tools, such as VOR radials or GPS are used as navigation tools.

### 5.15.2 APPROACH, DEPARTURE, AND LOCAL TRAFFIC PATTERNS

The study airports generally follow standard left-turning traffic pattern procedures for arriving and departing aircraft. The standard left-hand traffic pattern is shown on **Figure 5.2**. There are exceptions to this left-hand rule for runways where terrain or obstructions prohibit left-hand turns or, in some cases, where

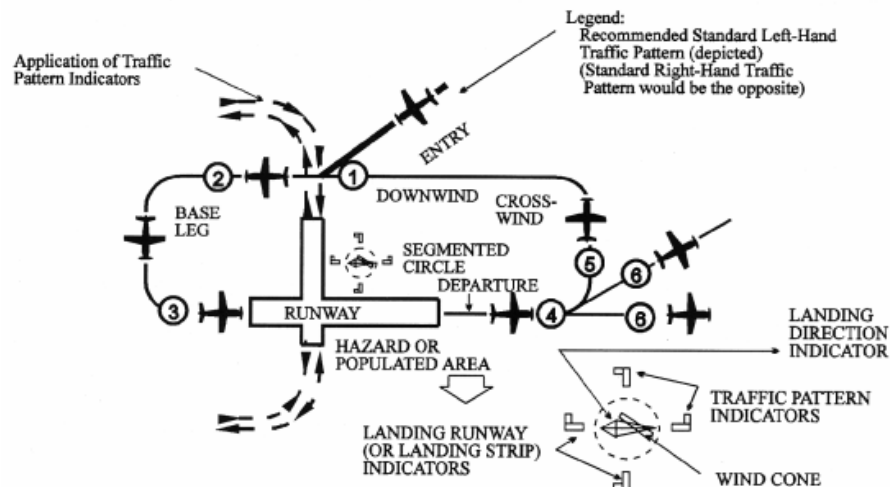
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<sup>146</sup> *Aeronautical Information Manual (AIM)*. 3-4-5, *Military Operations Areas*, Federal Aviation Administration. August 5, 2004.



concentrations of noise-sensitive land uses lie beneath a left-hand pattern. In these cases, the traffic will use right-hand turns. **Table 5.24** lists the airports with right hand traffic pattern procedures and the reason for the non-standard procedure.

**Figure 5.2**  
**EXAMPLE OF A STANDARD AIRPORT TRAFFIC PATTERN**



**Key:**

1. Enter pattern in level flight, abeam the midpoint of the runway, at pattern altitude. (1,000' AGL is recommended pattern altitude unless established otherwise)
2. Maintain pattern altitude until abeam approach end of the landing runway on downwind leg.
3. Complete turn to final at least  $\frac{1}{4}$  mile from the runway.
4. Continue straight ahead until beyond departure end of runway.
5. If remaining in the traffic pattern, commence turn to crosswind leg beyond the departure end of the runway within 300 feet of pattern altitude.
6. If departing the traffic pattern, continue straight out, or exit with a 45 degree turn (to the left when in a left-hand traffic pattern; to the right when in a right-hand traffic pattern) beyond the departure end of the runway, after reaching pattern altitude.

Source: *Aeronautical Information Manual (AIM)*. Federal Aviation Administration. August 19, 2004.

**Table 5.24**  
**AIRPORTS WITH RIGHT TRAFFIC PATTERNS**

AIRPORT	RUNWAY(S)	REASON FOR RIGHT TURN TRAFFIC PATTERN
Boulder City Municipal Airport, NV (61B)	9R, 15, 27R	Terrain/population
Cedar City Regional Airport, UT (CDC)	20, 26	Terrain/obstruction
Colorado City Municipal Airport, AZ (AZC)	11	Terrain/population
General Dick Stout Field, Hurricane, UT, (1L8)	18	Terrain
Parowan Airport, UT (1L9)	22	Terrain/obstruction

Source: *Airport/Facility Directory*. Federal Aviation Administration National Aeronautical Charting Office. November 25, 2004; airport operator surveys, 2004.

At most airports and military air bases, traffic pattern altitudes for propeller-driven aircraft generally extend from 600 feet to 1,500 feet above the ground (AGL). Generally, 1,000 feet AGL is the recommended pattern altitude unless established otherwise.

Most of the study airports do not have air traffic control towers or published approaches to the runways. Only three of the study airports (Las Vegas McCarran International Airport, Nellis Air Force Base, and Cedar City Regional Airport) are equipped with ILS approaches (i.e. instrument landing systems or precision approaches). Non-precision approaches, including VOR, RNAV, NDB, GPS are available at St. George Municipal Airport, Colorado City Municipal Airport, and Kanab Municipal Airport.

Like many other airports with flight-training activities, St. George Municipal Airport has an area of airspace located nearby that is known as the practice area. The practice area is located approximately five to seven miles southeast of the airport, on a 45-degree heading from Runway 16. The area measures approximately five miles long (north to south) by two miles wide (east to west). Flight training altitudes in the practice area are generally 4,000 to 7,500 feet MSL for fixed wing aircraft training and 500 to 1,500 feet AGL for helicopter training. Procedures performed within practice area include, but are not limited to simulated engine failure and other simulated emergency procedures such as stalls and spins, as well as performance maneuvers such as steep turns, minimum controllable airspeed (MCA or slow flight), lazy eights, chandelles, s-turns, and turns around a point.

### **5.15.3 MILITARY TRAINING ROUTES (MTR)**

To be proficient, the military services must train in a wide range of airborne tactics. One phase of this training involves "low level" combat tactics. The required maneuvers and high speeds are such that they may occasionally make the see-and-avoid aspect of VFR more difficult for civilian pilots without increased vigilance in areas containing such operations. In an effort to ensure the greatest practical level of safety for all flight operations, the MTR<sup>147</sup> program was developed.

The MTR program is a joint venture by the FAA and the Department of Defense (DOD). MTRs are mutually developed for use by the military for the purpose of conducting low-altitude, high-speed training. The routes above 1,500 feet AGL are designed for military aircraft operating under IFR, to the maximum extent possible. The routes at 1,500 feet AGL and below are generally designed for military aircraft operating under VFR.

Generally, MTRs are established below 10,000 feet MSL for operations at airspeeds greater than 250 knots. However, route segments may be defined at higher altitudes for purposes of route continuity. For example, route segments may be defined for descent, climb-out, and mountainous terrain. There are IFR and VFR MTRs as follows:

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<sup>147</sup> *Aeronautical Information Manual (AIM). 3-5-2, Military Training Routes.* Federal Aviation Administration. August 5, 2004.

- IFR Military Training Routes (IR) - Operations on these routes are conducted in accordance with IFR regardless of weather conditions.
- VFR Military Training Routes (VR) - Operations on these routes are conducted in accordance with VFR (except that flight visibility must be at least five miles and the flight can not be conducted below an altitude of 3,000 feet AGL).

MTRs are identified on civilian VFR sectional charts and IFR low-altitude enroute charts, as well as on military area planning charts. Basic designations of MTRs on civilian and military charts as listed below. Military charts also contain more detailed information about the MTRs for use by military pilots.

- MTRs with no segment above 1,500 feet AGL are identified by four number characters (i.e. IR1234 or VR1234).
- MTRs that include one or more segments above 1,500 feet AGL are identified by three number characters (i.e. IR123 or VR123).
- Alternate IR or VR routes or route segments are identified by the principal route designation followed by a letter suffix (examples include IR123a, VR1234b, etc.).

Civilian aircraft and nonparticipating military aircraft are not prohibited from flying within an MTR. However, extreme vigilance should be exercised when conducting flight through or near these routes. It is recommended that pilots contact the appropriate FSS within 100 nautical miles of a particular MTR to obtain current information or route usage in the vicinity. The FSS is able to provide pilots with information including the times of scheduled activity, altitudes in use on each route segment, and actual route width. Route width varies for each MTR and can extend several miles on either side of the charted MTR centerline.

Three MTRs (VR209, IR126, and IR266) traverse the initial area of investigation, as shown on **Exhibit 5-20**. Detailed information regarding these MTRs is presented in **Table 5-25**. VR209 is managed by Naval Air Station Lemoore, California. Routes IR126 and IR266 are managed by Dyess Air Force Base in Texas.

## **5.16 OTHER ACTIONS IN AREAS POTENTIALLY AFFECTED BY THE PROPOSED REPLACEMENT AIRPORT**

### **5.16.1 SOUTHERN CORRIDOR HIGHWAY PROJECT**

The Federal Highway Administration (FHWA) and the State of Utah Department of Transportation (UDOT) propose the construction of the Southern Corridor Highway Project, a 20- to 26-mile long, limited access highway that would extend from Interstate 15 near the Utah-Arizona border northeast to State Route 9 in Hurricane, Utah. The proposed Southern Corridor is one phase of a future regional loop roadway system, called the Dixie Beltway, which would provide an alternative access link between the Utah cities of Hurricane, Washington, St. George, Santa Clara, and Ivins, and other areas of Washington County.<sup>148</sup>

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<sup>148</sup> *General Plan for the City of St. George, Utah*. Prepared by St. George Department of Community Development. 2002.

**Table 5-25**  
**MILITARY TRAINING ROUTES IN INITIAL AREA OF INVESTIGATION**

MILITARY TRAINING ROUTE	HOURS OF OPERATION	ROUTE WIDTH (FROM EITHER SIDE OF CENTERLINE, UNLESS OTHERWISE NOTED)
IR126	Continuous	Segments: A to H: 5 NM H to M: 4 NM M to N: 3 NM N to O: 4 NM left & 2 NM right O to Q: 3 NM left & 2.5 NM right Q to S: 3 NM left & 2.5 NM right S to X: 4 NM X to Z: Boundaries of Desert MOA Left & 4 NM right
IR266	Continuous	Segments: A to H: 4 NM H to J: 2.5 NM left & 3 NM right J to L: 4 NM L to M: 2 NM left & 4 NM right M to N: 3 NM N to S: 4 NM right S to Y: 5 NM
VR209	Daylight hours Other times by Notice to Airmen (NOTAM)	2 NM

Source: *Area Planning, Military Training Routes, North and South America*. AP/1B, Department of Defense Flight Information Publication. September 4, 2003. Published by National Imagery and Mapping Agency, St. Louis, MO.

The Final EIS for the proposed Southern Corridor was released by the FHWA and the UDOT on April 6, 2005.<sup>149</sup>

As part of the development of the proposed replacement airport, an access roadway would be constructed from the airport to the Southern Corridor, serving as the main access point for airport passengers, employees, and suppliers. The impacts of this Airport Access Roadway are included in **Section 6.19, Surface Transportation**, of this EIS. In the distant future, it is anticipated that additional access roads from the southwest and northwest sides of the airport to the Southern Corridor would be constructed to provide access to services in these areas. Since it is undetermined at this time if and when these additional access roads would be constructed, they are not proposed as part of this current project action, and therefore, their impacts are not evaluated in this EIS.

<sup>149</sup> *Southern Corridor Final Environmental Impact Statement and Section 4(f) Evaluation, Southern Corridor – I-15 at Reference Post 3 near St. George to State Route 9 near Hurricane in Washington County, Utah*. Federal Highway Administration and Utah Department of Transportation; April 6, 2005.

### 5.16.2 CONTINUING URBAN DEVELOPMENT IN THE VICINITY OF THE PROPOSED REPLACEMENT AIRPORT SITE <sup>150</sup>

The planned construction of the Southern Corridor and the potential development of the proposed replacement airport would make the surrounding area on the Utah side of the state line attractive for urban development. Given the rapid rate of growth in the St. George area over the past 20 years, it is expected that the replacement airport study area would begin to see substantial development in the relatively near future. The proposed highway and the proposed replacement airport would provide an impetus for the development of travel-related enterprises to serve business and leisure travelers, including restaurants, hotels, and service stations at high visibility locations near the Southern Corridor.

The current General Plan for the City of St. George, completed in 2002, states that the city anticipates that the existing industrial property along River Road would expand to the south in the near future. The city's current General Plan also states that the undeveloped land in that area has been designated for future light industrial areas, mixed residential uses (i.e. single-family lots, town-homes, and apartment buildings), neighborhood and regional commercial centers, a major business park near Interstate 15, and various community uses such as schools, churches, and parks.

Little development is expected in the Arizona section of the proposed replacement airport study area due to the lack of municipal water and sewer services in that area, as well as the lack of a viable plan for providing such services in the foreseeable future.

### 5.16.3 PLANNED FUTURE DEVELOPMENT AND FORECAST TRAFFIC GROWTH AT OTHER AREA AIRPORTS

As previously discussed in **Section 5.10**, two new airports are proposed in the region in the relatively near future. Those airports are a proposed new commercial service airport in southern Nevada and the proposed replacement Mesquite Municipal Airport, to be located at Mesquite, Nevada. **Table 5.26** summarizes the basic components of these two proposed airports in comparison to the proposed replacement airport at St. George.

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<sup>150</sup> *General Plan for the City of St. George, Utah*. Department of Community Development. 2002.

**Table 5.26**  
**PROPOSED FUTURE AIRPORT DEVELOPMENT IN REGION**

Proposed Facility Elements	Proposed new airport in southern Nevada <sup>1</sup>	Proposed replacement Mesquite Municipal Airport, Mesquite, NV <sup>2</sup>	Proposed replacement airport at St. George, Utah
City, State	Las Vegas, NV	Mesquite, NV	St. George, UT
Type of Airport	Commercial Service	General Aviation	Commercial Service
Acreage	16,900 acres	2,650 acres	1,306 acres
Runway(s) Orientation & length	2 parallel runways oriented 18/36. One measuring 15,000 feet long by 200 feet wide & the other measuring 10,000 feet long by 150 feet wide	01/19 measuring 7,500 feet long	01/19 measuring 9,300 feet long
First year of operation	2015 to 2017	2010 to 2012 <sup>a</sup>	2010
Forecast Growth	Would be designed to ultimately handle 30 million passengers per year	68% growth in local and itinerant general aviation operations by 2024	158% growth in enplanements and 22% growth in commercial operations by 2020
Project Status	Official environmental evaluation expected to begin in 2005	Currently undergoing airspace analysis	Currently undergoing environmental evaluation

Note:

<sup>a</sup> Scoping was held January 20, 2005. (The scoping process for an EIS provides the public and government agencies the opportunity to offer comments on issues of concern related to the proposed replacement airport.) Anticipated first year of operation for proposed future airport has not yet been determined. City of Mesquite estimates approximately 18 months for planning and 18 months for construction. First year of operation estimated by Landrum & Brown, Inc. 2005.

Sources:

<sup>1</sup> Telephone conversation between Consultant and Clark County, Nevada Department of Aviation. January 31, 2005.

*Aviation Activity Forecast Report for Ivanpah Valley Airport.* Prepared for Clark County Department of Aviation by URS. November 2003.

*Ivanpah International Airport, Updated Airspace Feasibility Study*, Prepared for Clark County Department of Aviation by Preston Aviation Solutions, June 2002.

<sup>2</sup> *Southern Nevada Regional Airport System Plan*. Prepared for Clark County Department of Aviation. Prepared by Ricondo & Associates, Inc. August 2001.

*New Mesquite Airport Progressing.* City of Mesquite News Archive. On-line at [www.mesquitenv.com/](http://www.mesquitenv.com/). February 23, 2004.

Supplement to Section III of Master Plan for Replacement General Aviation Airport in Mesquite, Nevada. Prepared by the City of Mesquite, NV. February 2004.

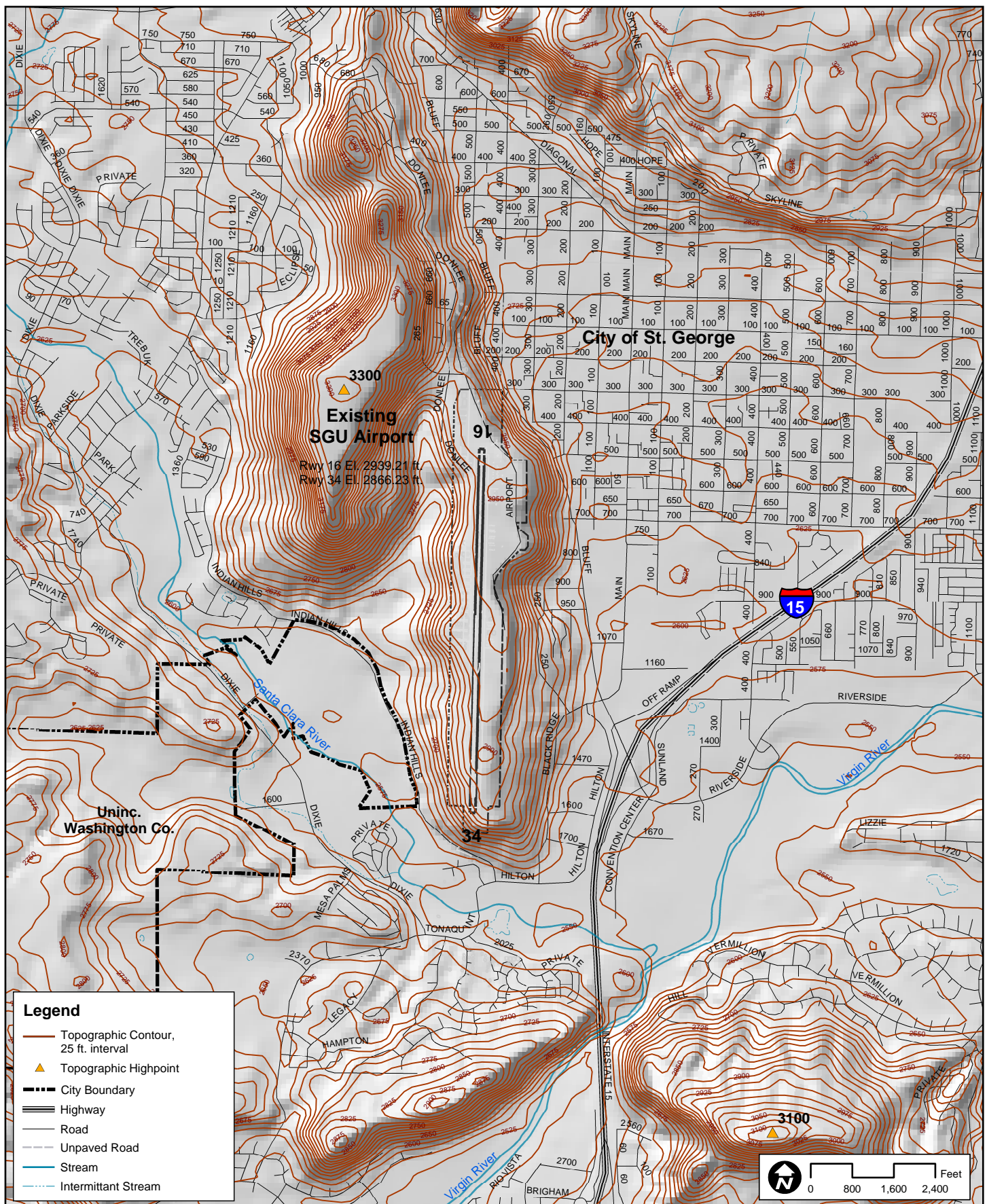
Telephone conversation between Consultant and City of Mesquite Engineering Department. January 18, 2005.

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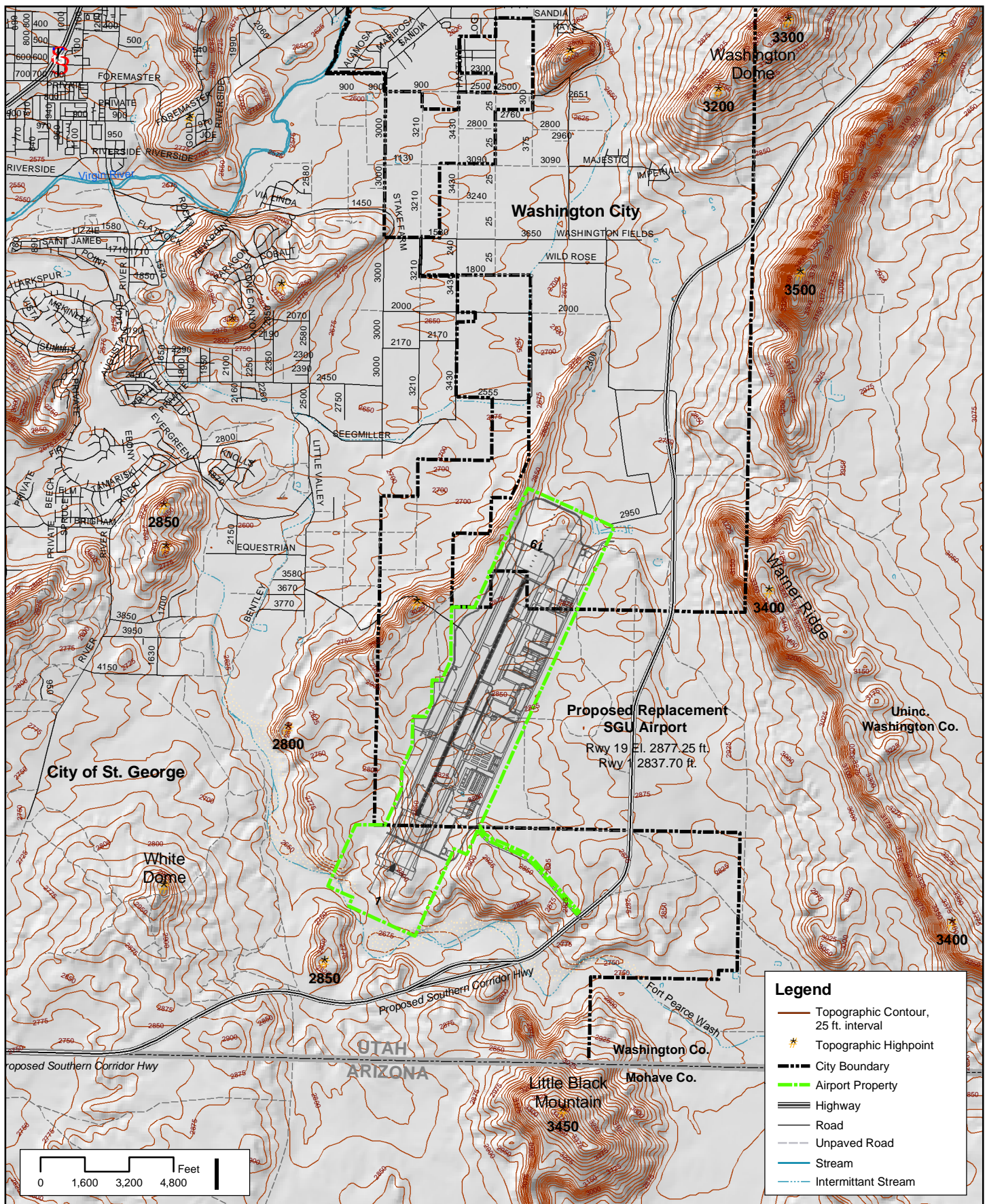












*St. George Municipal Airport  
Environmental  
Impact  
Statement*



## Topography Proposed Replacement Airport Study Area

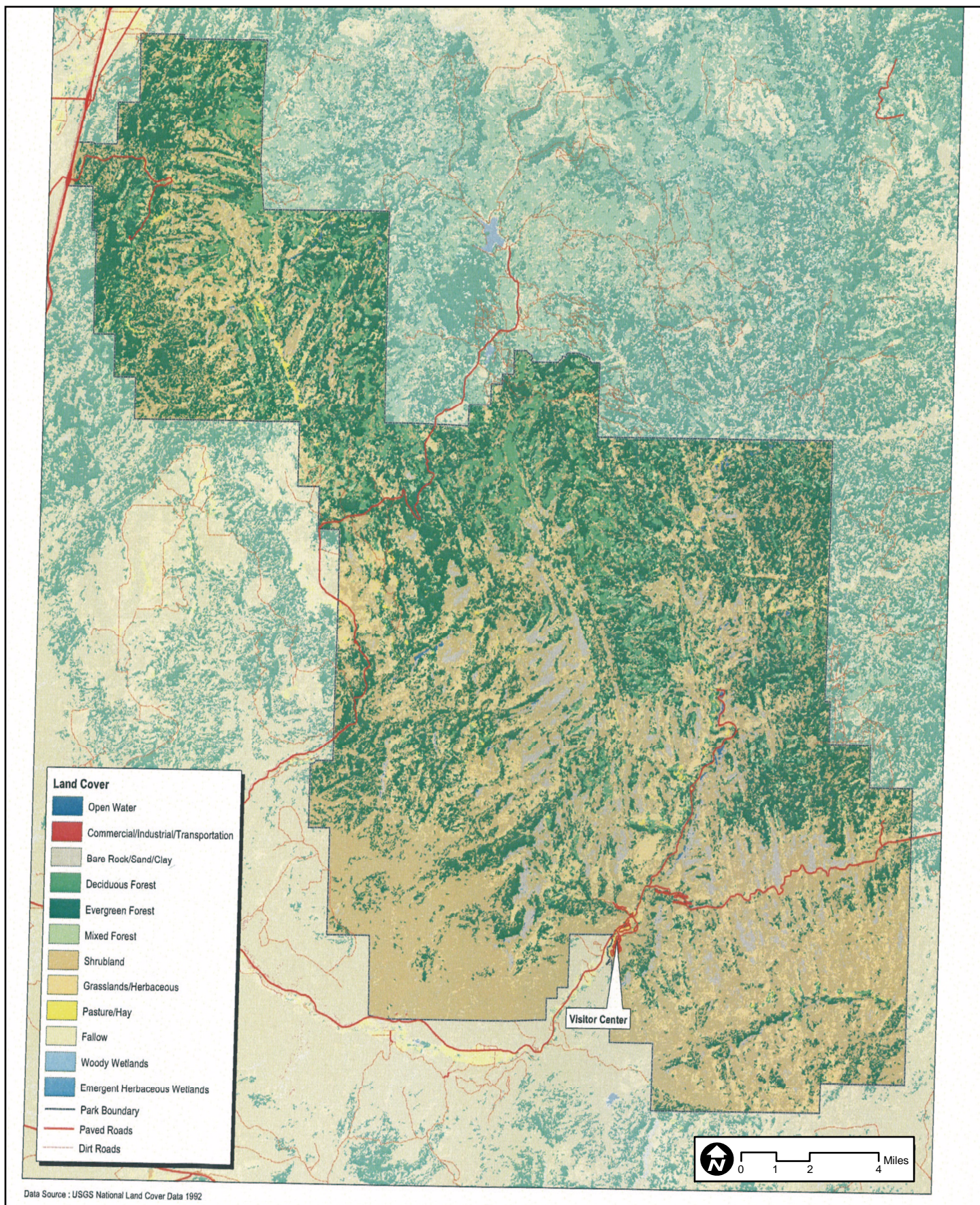
EXHIBIT  
5.3

1/05/2005  
Prepared by: Landrum & Brown  
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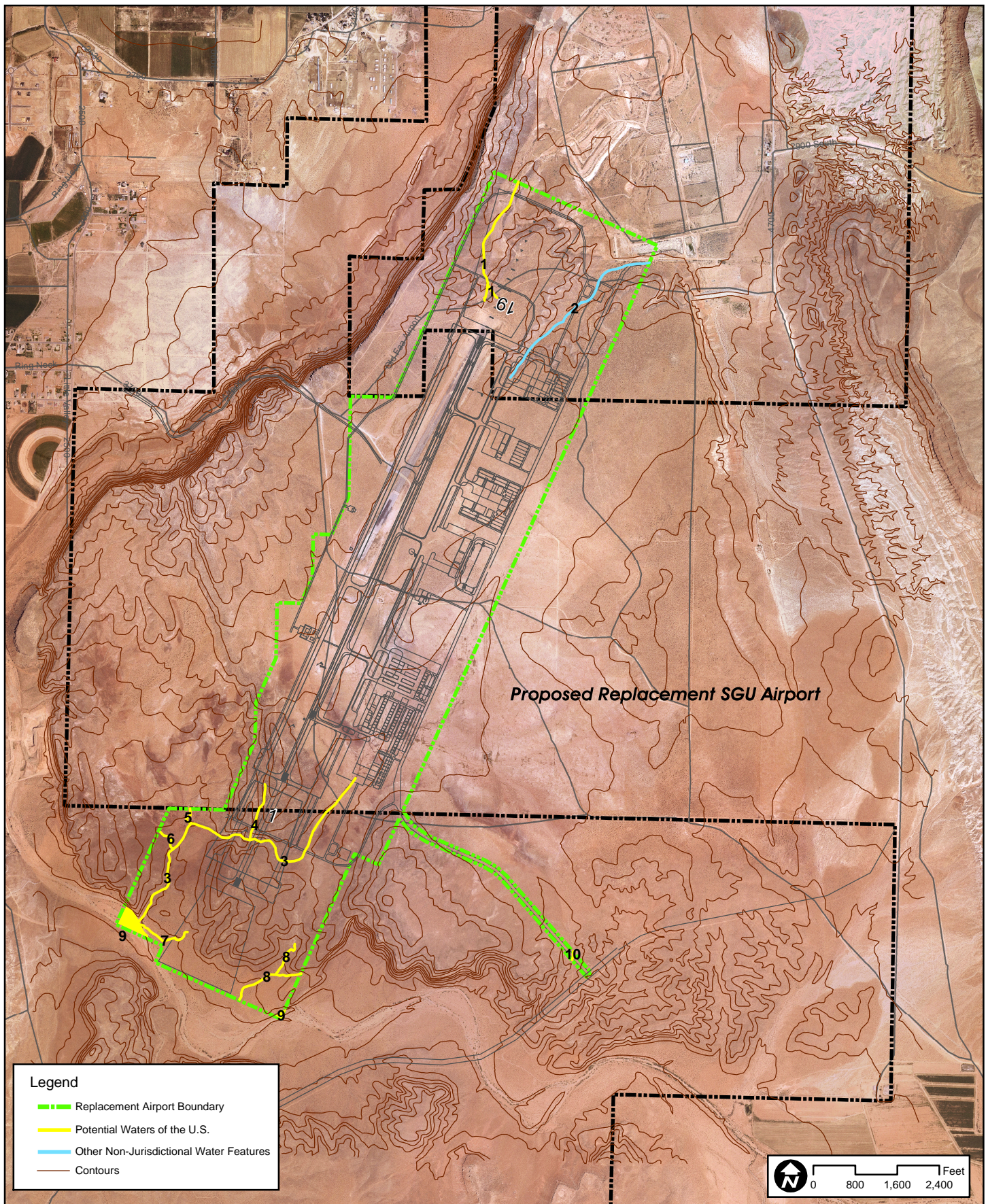




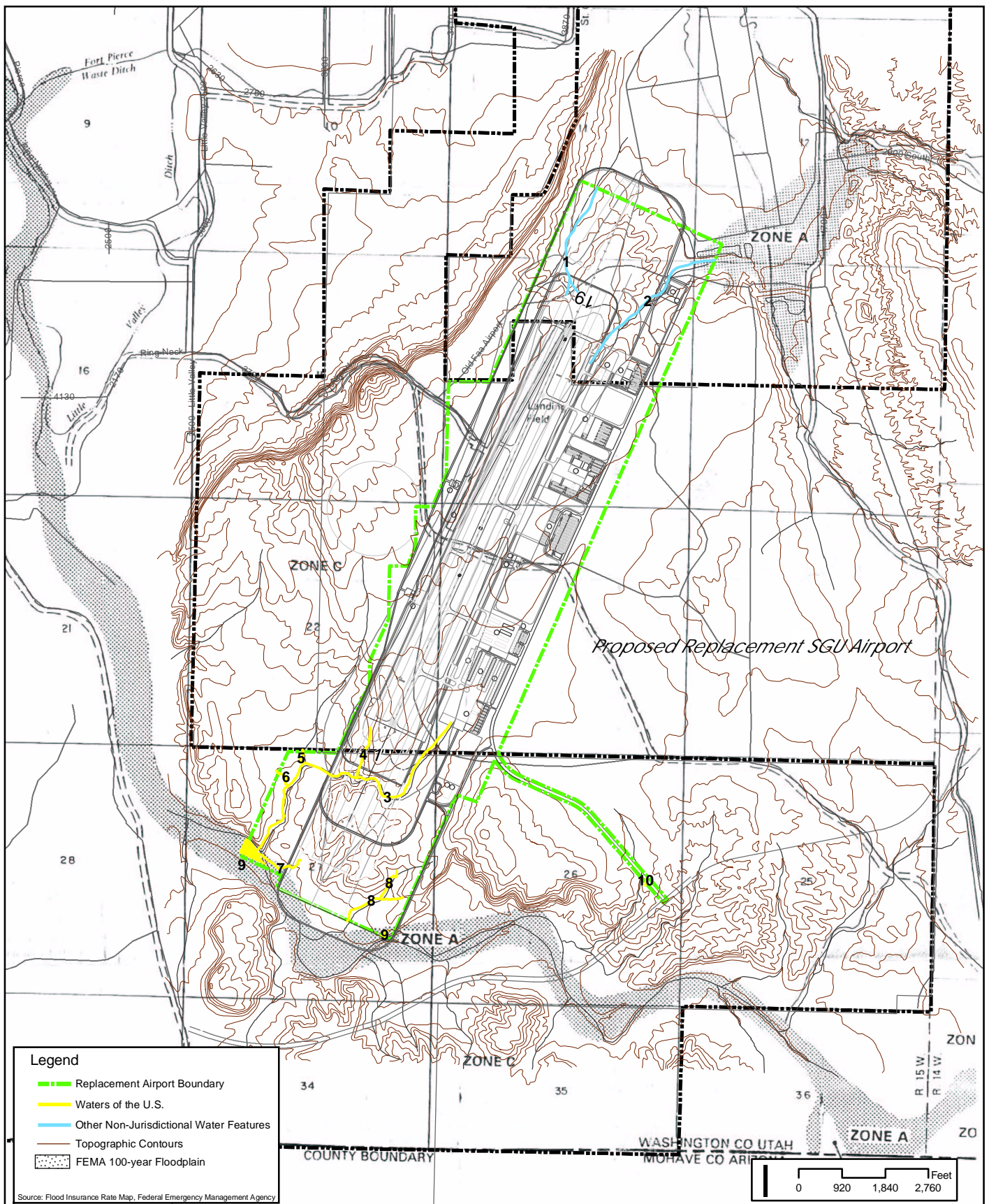












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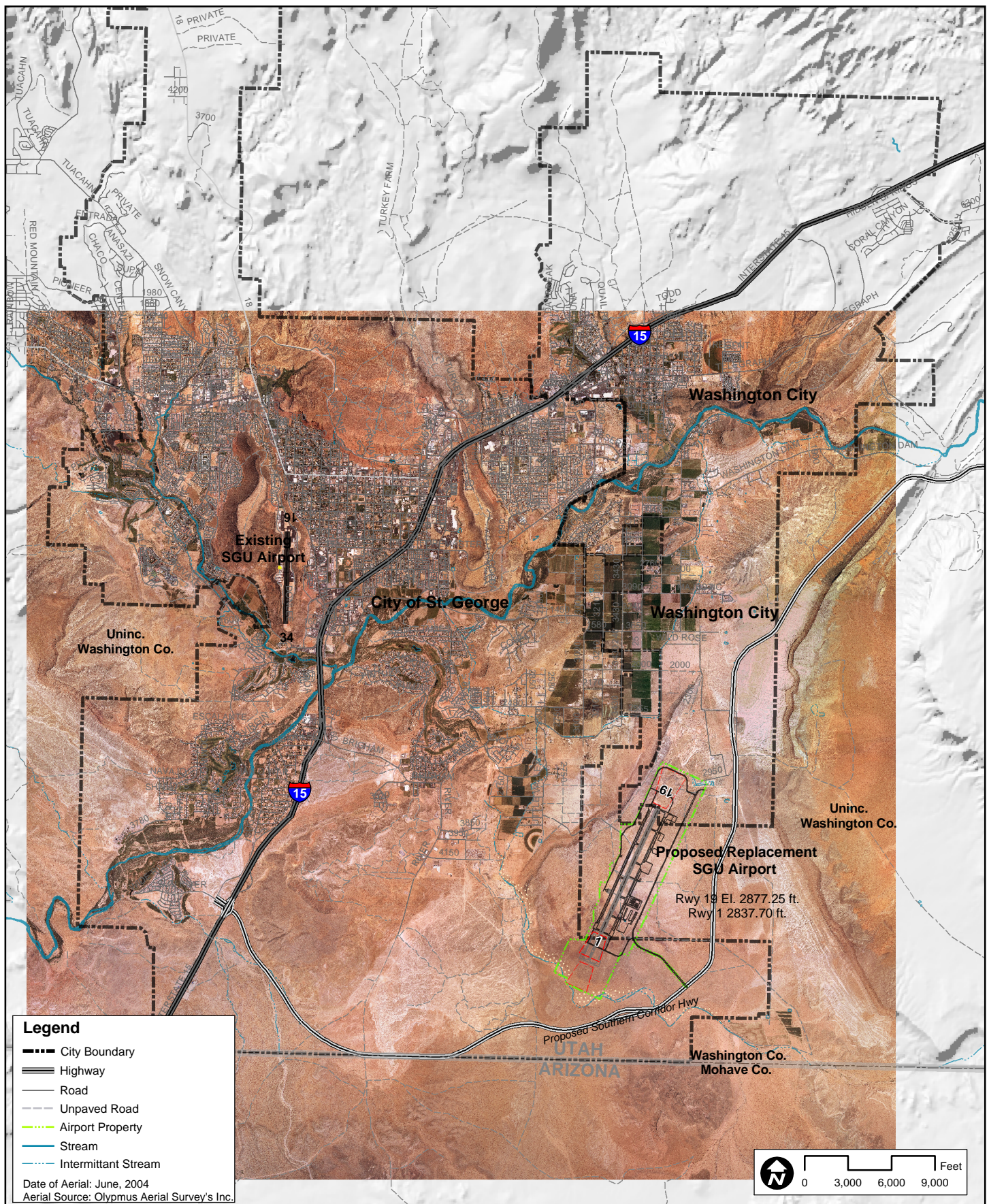


## Floodplains at Proposed Replacement Airport Site

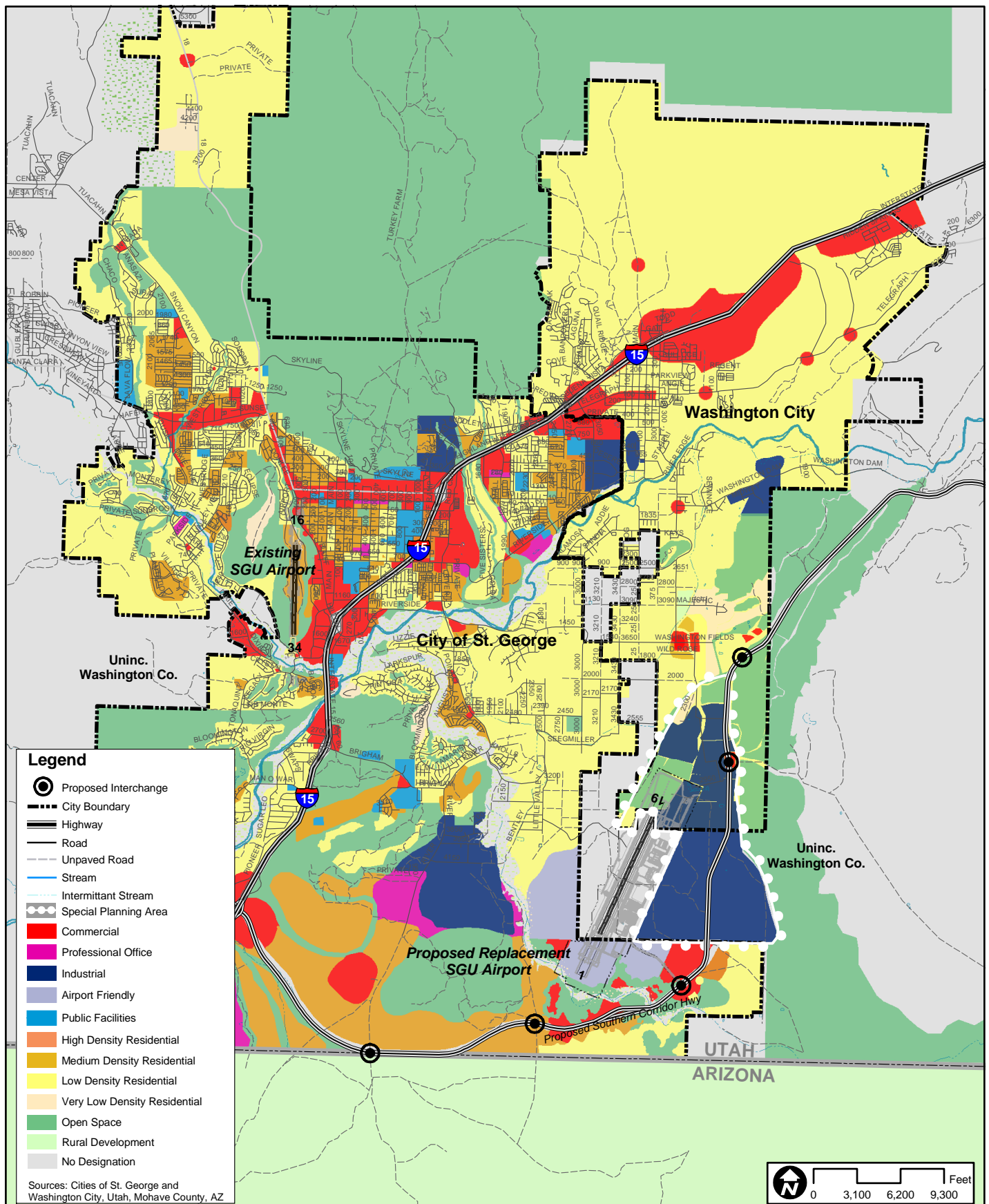
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3/17/2005  
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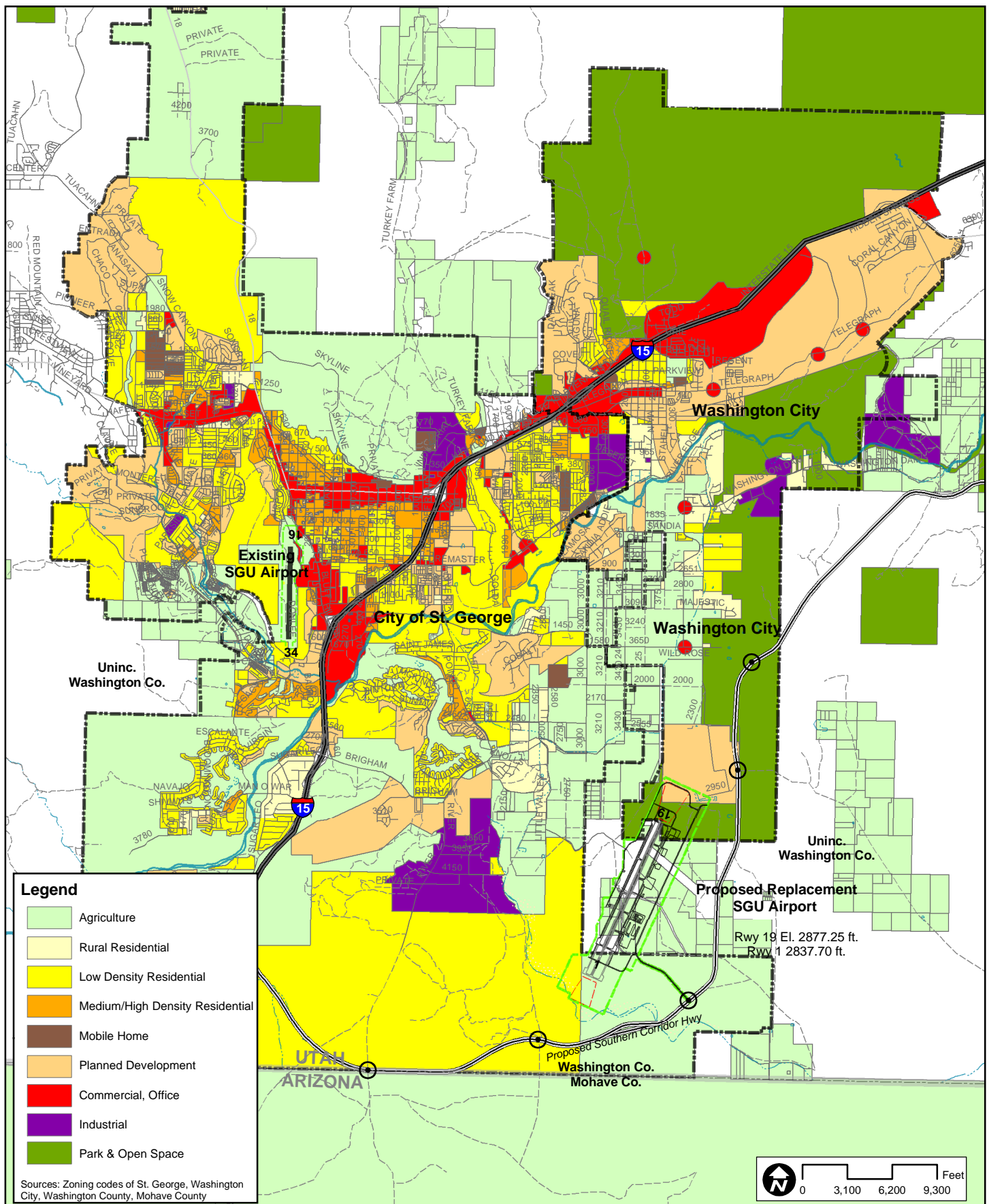


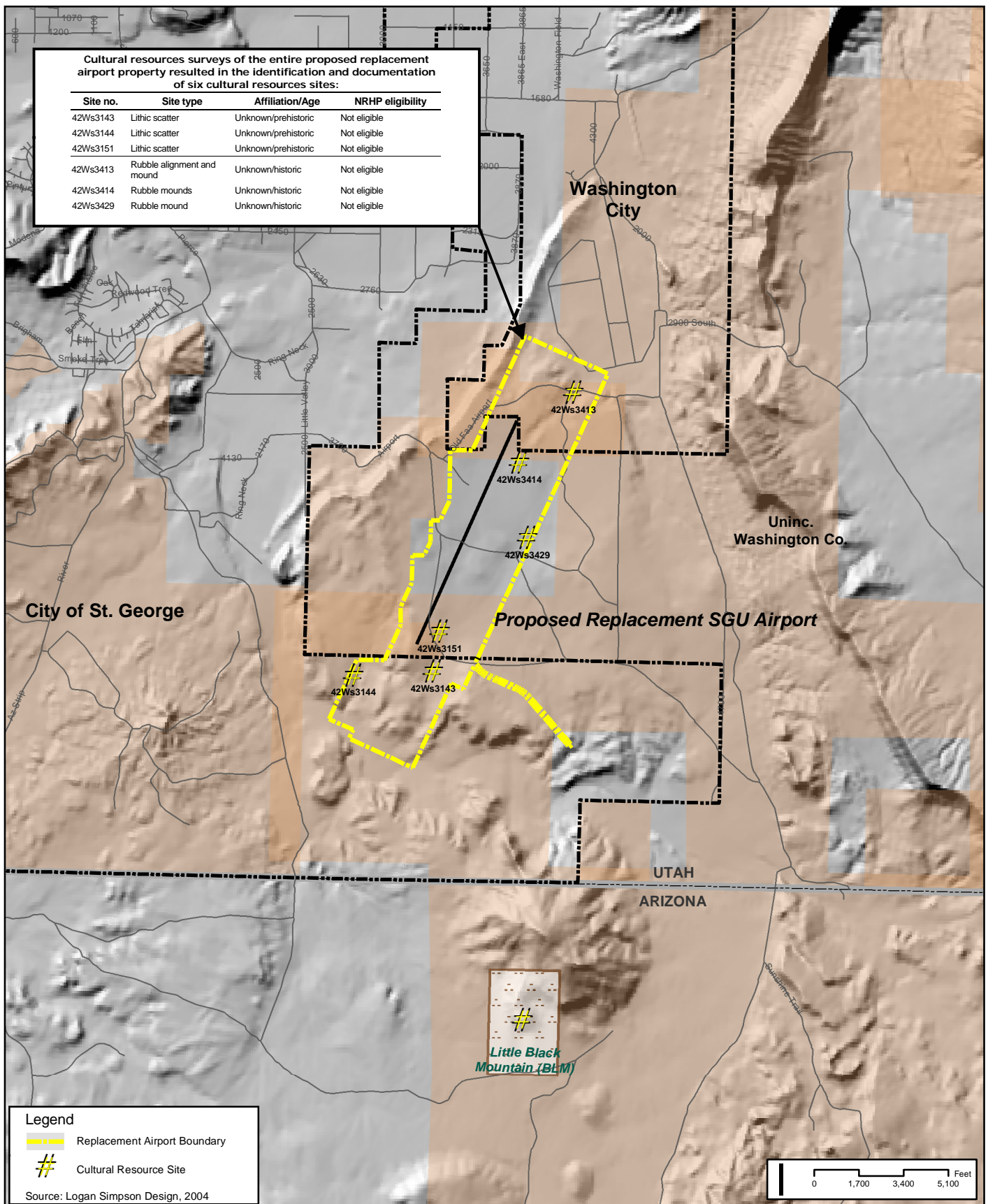




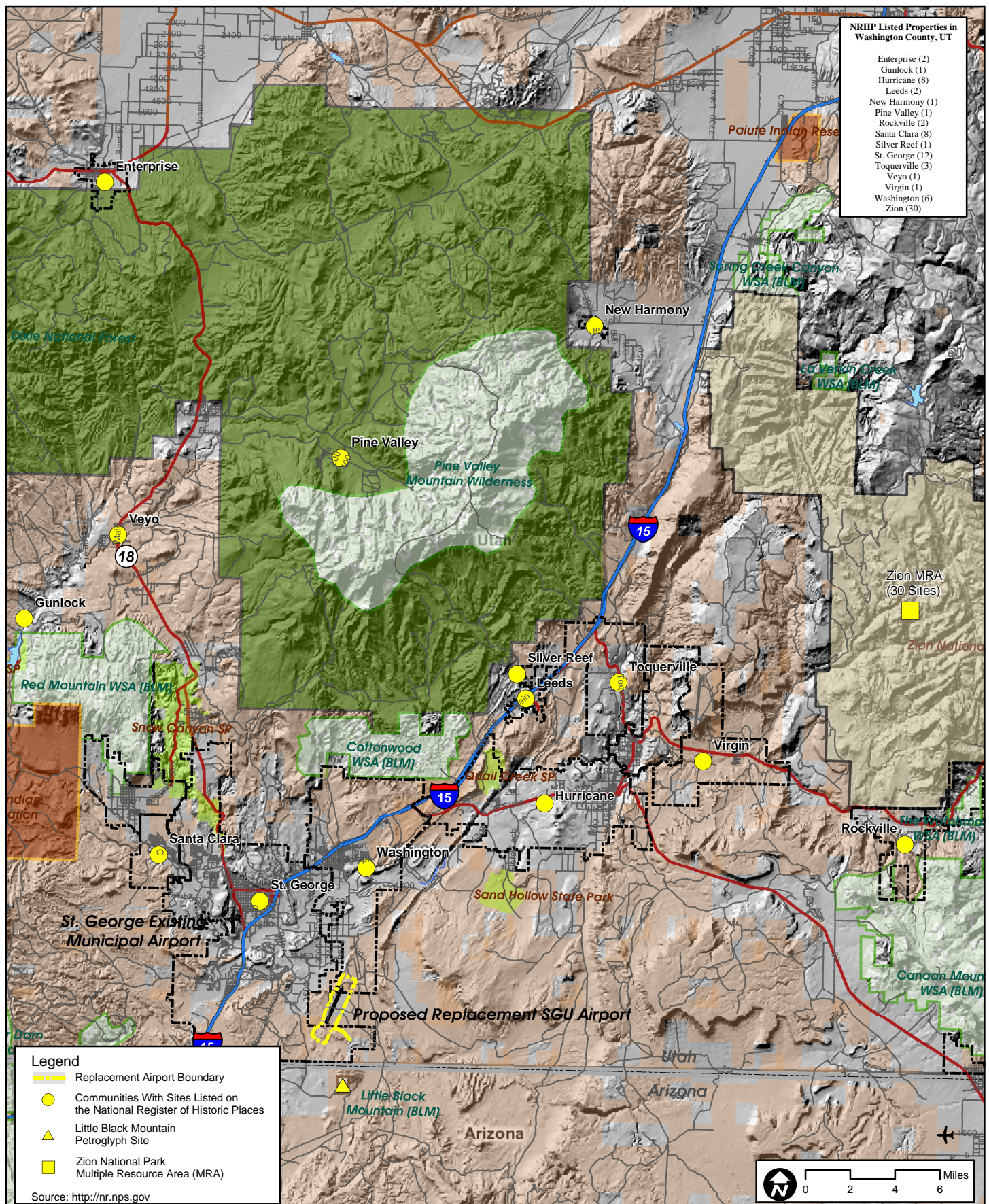




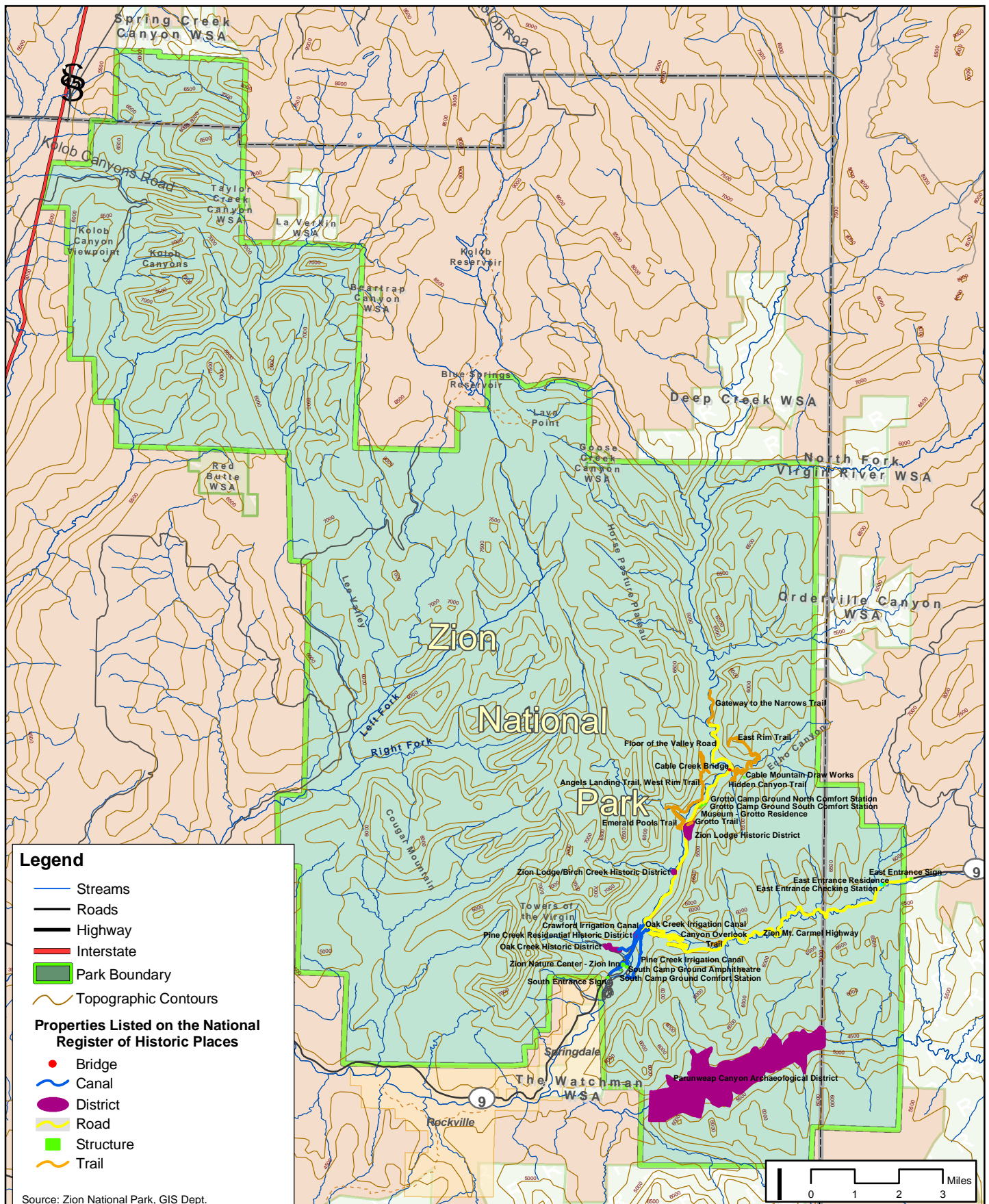


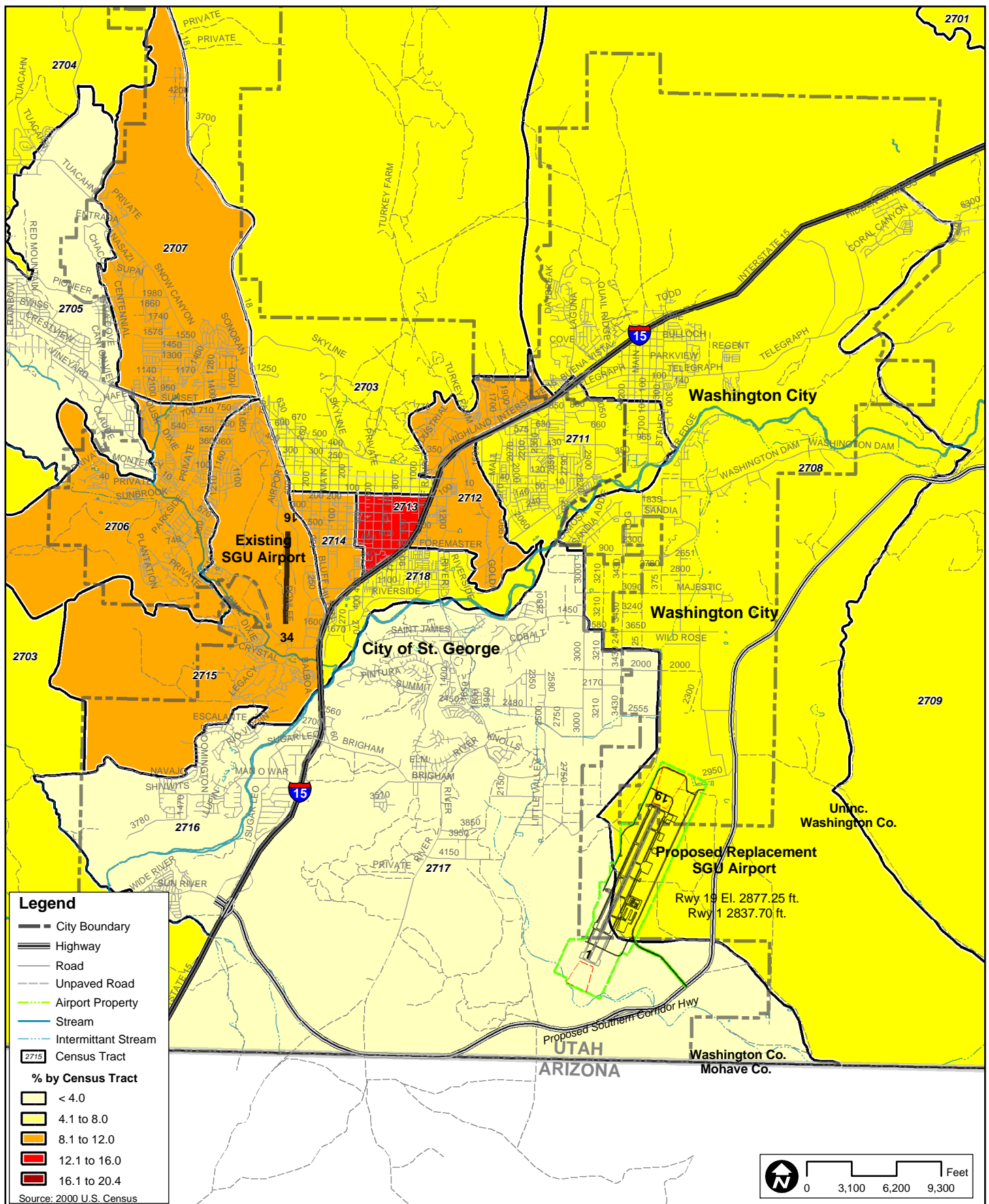






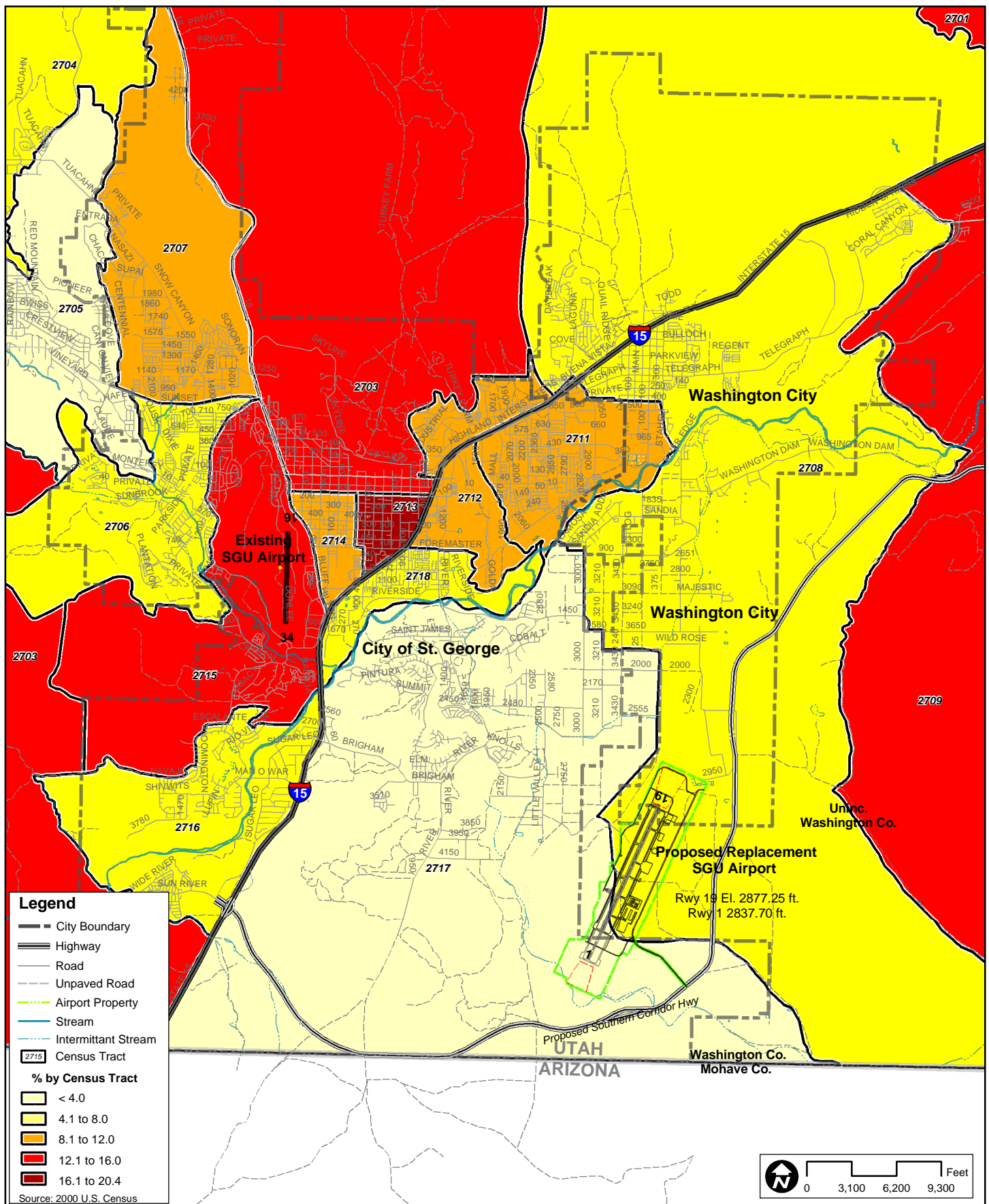




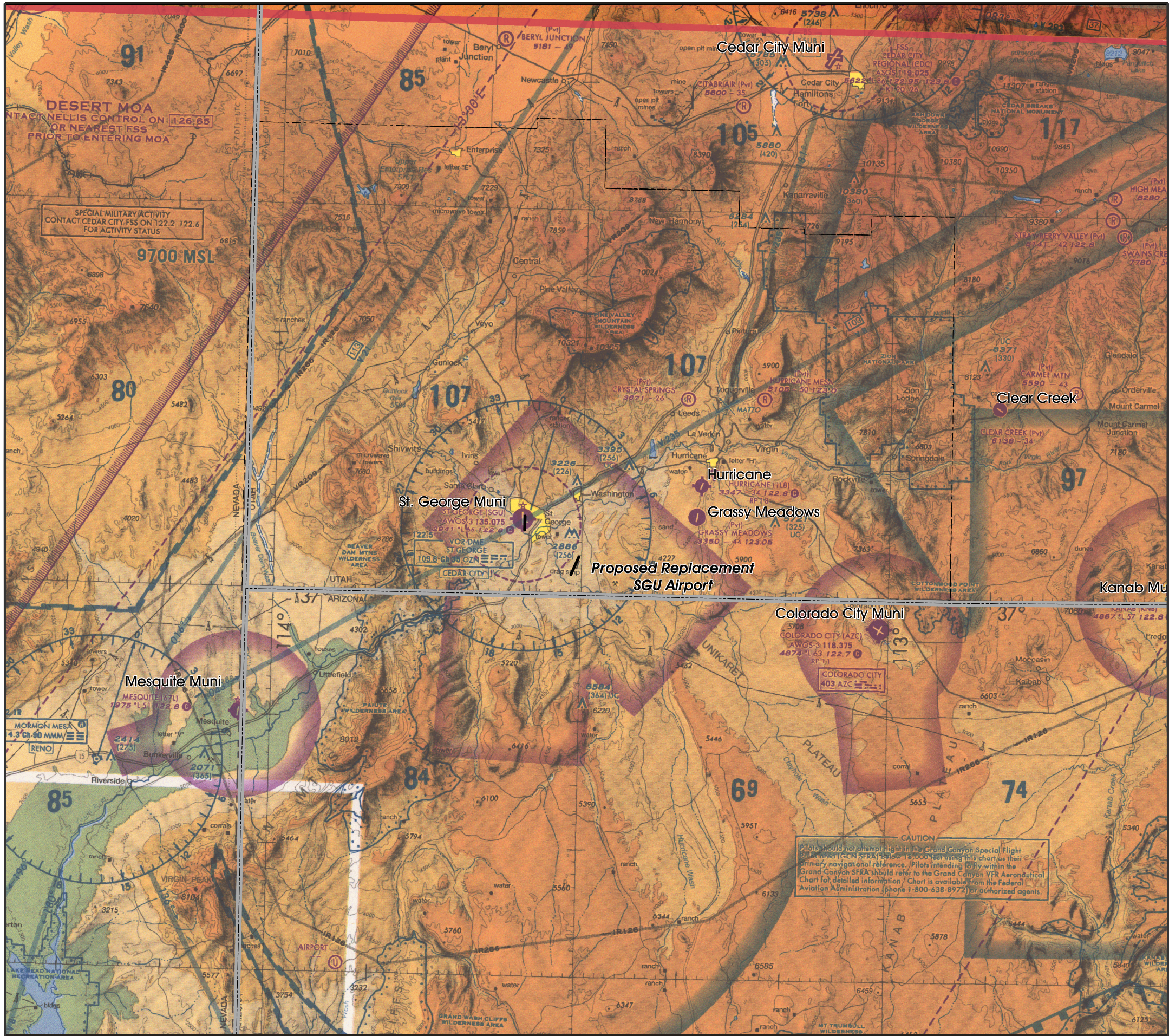












LEGEND

**AIRPORTS**

- Other than hard-surfaced runways
- Hard-surfaced runways 1500 ft. to 8069 ft. in length.
- Hard-surfaced runways greater than 8069 ft. or some multiple runways less than 8069 ft.
- Open dot within hard-surfaced runway configuration indicates approximate VOR, VOR-DME, or VORTAC location.

All recognizable hard-surfaced runways, including those closed, are shown for visual identification. Airports may be public or private.

**ADDITIONAL AIRPORT INFORMATION**

- Private "F-V" - Non-public use having emergency or landmark value.
- Military - Other than hard-surfaced. All military airports are identified by abbreviations AFB, NAS, AAF, etc. For complete airport information consult DOD FLIP.
- Helipad Selected
- Unverified
- Abandoned - paved having landmark value, 3000 ft. or greater
- Ultralight Flight Park Selected

Services-Avial available and field tended during normal working hours depicted by use of ticks around basic airport symbol. (Normal working hours are Mon thru Fri 10:00 A.M. to 4:00 P.M. local time) Consult AFD for service availability at airports with hard-surfaced runways greater than 8069 ft.

☆ Rotating airport beacon in operation Sunset to Sunrise.

Source: U.S. Department of Transportation, Federal Aviation Administration, National Aeronautical Charting Office

Other Airports In  
Initial Area of  
Investigation

0 2 4 8 Nautical Miles

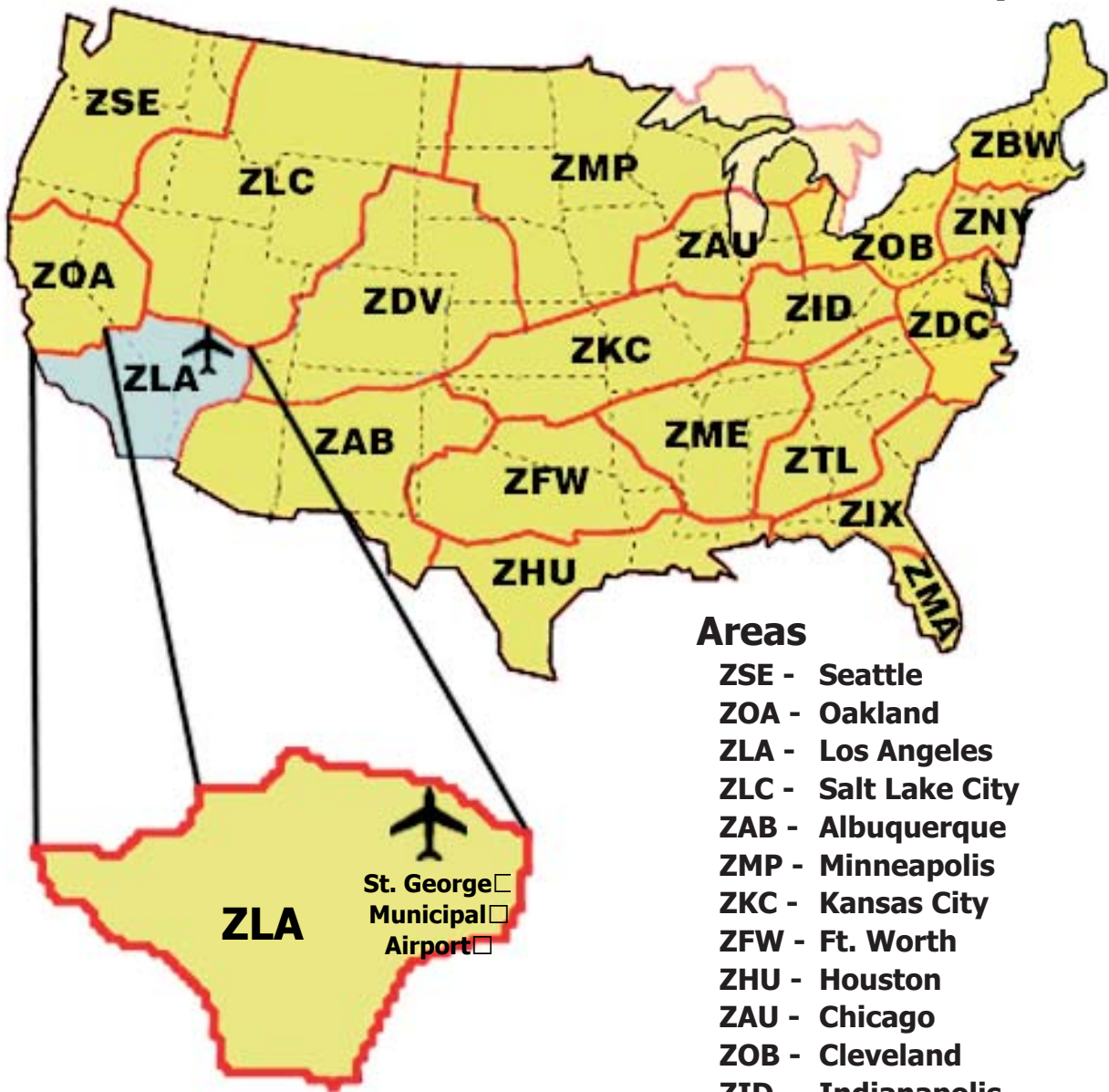


EXHIBIT

5.17



# United States Air Traffic Control Center Airspace



## Areas

- ZSE** - Seattle
- ZOA** - Oakland
- ZLA** - Los Angeles
- ZLC** - Salt Lake City
- ZAB** - Albuquerque
- ZMP** - Minneapolis
- ZKC** - Kansas City
- ZFW** - Ft. Worth
- ZHU** - Houston
- ZAU** - Chicago
- ZOB** - Cleveland
- ZID** - Indianapolis
- ZTL** - Atlanta
- ZJX** - Jacksonville
- ZMA** - Miami
- ZDC** - Washington
- ZNY** - New York
- ZBW** - Boston
- ZDV** - Denver
- ZME** - Memphis

## LEGEND

Source:  
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Not To Scale

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**U.S. General Division of Airspace**

EXHIBIT

**5.18**







