

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.⁹ 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).¹⁰ 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.¹¹

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.¹²

⁹ St. George Climate. Available on-line at www.sgcity.org/aboutsg/weather.php. Retrieved May 17, 2004.

¹⁰ St. George Municipal Airport FAA Information. On-line at www.airnav.com/ksgu. April 15, 2004.

¹¹ 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.

¹² *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.¹³ 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).¹⁴ 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.¹⁵

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.¹⁶

- *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.

The soil deposits on the proposed replacement airport site are underlain by Older Eolian and Alluvial Deposits clay, silt, sand, and gravel that may be up to 15 feet thick. This mixed-environment deposit formed thousands of years ago when

¹³ *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.

¹⁴ 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.

¹⁵ *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.

¹⁶ *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.

flowing soils solidified over underlying rock layers during the Jurassic period. Geologic information for the proposed replacement airport study area was obtained from the Interim Geologic Map of the St. George Quadrangle, St. George, Utah; dated 1995, produced by the Utah Geological Survey (UGS). The proposed replacement airport site lies approximately two miles southeast of and parallel to the Bloomington Dome/Virgin Anticline and approximately three miles southeast of the southern end of the St. George Fault. The St. George quadrangle is located within the Intermountain Seismic Belt and has experienced several historic earthquakes of magnitude 4.0 or greater. The most recent earthquake occurred on September 2, 1992. This 5.8 magnitude earthquake was centered about five miles east of St. George and caused damage as far as 95 miles from the epicenter.¹⁷

¹⁷ Higgins, Janice M. and Willis, Grant C., *Interim Geologic Map of the St. George Quadrangle, Washington County, Utah*. Utah Geological Survey, Open-File Report 323 and Open-File Map 323; August 1995.