

CHAPTER FOUR ALTERNATIVES

4.1 INTRODUCTION

The Council on Environmental Quality (CEQ) regulations, implementing the National Environmental Policy Act (NEPA)¹ and other laws, require that the Federal decision-maker perform the following tasks related to a proposed Federal action.

- Evaluate all prudent, feasible, reasonable, and practical alternatives, including alternatives not within the jurisdiction of the Federal agency; and for alternatives that were eliminated from the detailed study, briefly discuss the reasons for their having been eliminated;
- Evaluate the ability of these alternatives to meet the Purpose and Need for the proposed replacement airport; and
- Devote substantial treatment to each alternative considered in detail, including the No-Action Alternative and the Preferred Alternative, so that reviewers may evaluate their comparative merits.

Federal guidelines concerning the environmental review process require that all prudent, feasible, reasonable, and practical alternatives that might accomplish the objectives of a proposed replacement airport be identified and evaluated. NEPA requires that the No-Action Alternative be evaluated in addition to the Proposed Replacement Airport and other development or action alternatives. Discussion of the No-Action Alternative is found in **Section 4.5.1** of this chapter.

Alternatives for the proposed replacement of St. George Municipal Airport (SGU)² have been exhaustively considered in the *1998 Site Selection and Master Plan (1998 Master Plan)* and the *2001 Final Environmental Assessment (2001 FEA)*.³ Detailed descriptions of the alternatives considered in these two studies are found in **Section 4.2** and **Section 4.3** of this chapter.

4.2 ALTERNATIVES CONSIDERED IN THE SITE SELECTION AND MASTER PLAN STUDY

As stated in **Chapter Three, Purpose and Need for the Proposed Replacement Airport**, the City of St. George commissioned the *1998 Master Plan* to determine the feasibility of continuing the use of the existing airport as compared to locating a site for the purpose of developing a replacement airport facility.

¹ Council on Environmental Quality, Executive Office of the President; *Regulations for Implementing Procedural Provisions of the National Environmental Policy Act*. 40 CFR Parts 1500-1508, August 1, 1986.

² *Site Selection and Master Plan, St. George Municipal Airport*, prepared by Creamer & Noble Engineers and Barnard Dunkelberg & Company. October 1998.

³ *Final Environmental Assessment for the Proposed Replacement Airport at St. George, Utah*. Prepared by Creamer & Noble, Engineers and Barnard Dunkelberg & Company. January 30, 2001.

The *1998 Master Plan* identified deficiencies at the existing airport, concluded that the airport could not accommodate forecasted future demand at its present site, and evaluated six potential replacement airport sites (sites 1, 1A, 2, 3, 4, and 5) in the vicinity of the airport's current location. Based upon evaluation of each identified potential replacement site, the *1998 Master Plan* recommended that sites 3, 4, and 5 be removed from consideration due to limitations of the natural terrain, runway orientation constraints, and/or distance from the City of St. George to the site. Sites 1, 1A, and 2 were recommended for further evaluation and analysis as potential replacement sites for the airport.

4.3 ADDITIONAL ALTERNATIVES CONSIDERED IN THE 2001 ENVIRONMENTAL ASSESSMENT

The *2001 FEA* evaluated 15 sites as potential replacement airport sites for SGU, which are shown on **Exhibit 4.1**. All sites were considered for their suitability in accommodating the purpose and need of the proposed replacement airport, which is to develop an airport that would fully accommodate forecast demand for air service in the community and would also meet all applicable FAA design standards. In order to meet the forecast demand at SGU (See **Section 3.2.2**), an airport must be developed that meets the standards for the Airport Reference Code (ARC) Design Category⁴ D-III, with a runway of sufficient length to accommodate commercial regional jets and business jets. This would require the development of an airport with an initial runway length of 9,300 feet, an ultimate runway length of 11,500 feet, and a low visibility instrument approach.

Six of the 15 sites considered in the *2001 FEA* were sites 1, 1A, 2, 3, 4, and 5 from the *1998 Master Plan*. After initial analysis of the 15 sites, the *2001 FEA* removed all but six for preliminary evaluation, the six sites numbered 1, 1A, 2, 3, 4, and 5. **Table 4.1** lists the six alternatives initially considered by the *2001 FEA*.

After preliminary evaluation of the six sites, three were removed from consideration and three were retained for further evaluation to determine which site had the greatest potential for development as the proposed replacement airport site. The three sites retained for further evaluation (sites 1, 1A, and 2), are shown in **Exhibit 4.2** and are described in **Section 4.3.1 through Section 4.3.3** of this chapter.

⁴ As described in FAA Advisory Circular 150/5300-13, Change 7, *Airport Design*, Ch. 1, Paragraph 4, Airport Reference Code, October 1, 2002, the ARC is a coding system used to relate airport design criteria to the operational and physical characteristics of the aircraft intended to operate at an airport, which are represented by a design aircraft. The design aircraft is the most demanding aircraft type currently using, or projected to use, an airport, with a minimum of 500 operations per year, and can either be one aircraft, or a group of aircraft. The first component of the ARC is a capital letter (A, B, C, or D with A being the lowest, and D being the highest) that refers to the approach speed of the design aircraft in its landing configuration. The second component, which is depicted by a Roman numeral (I, II, III, IV, V, or VI, with I being the lowest and "VI" being the highest) that refers to wingspan of the design aircraft. Together, the two components relate aircraft operational and physical characteristics to the required design criteria of various airport dimensions, such as runway and taxiway widths, runway to taxiway separation standards, and obstacle clearance items. Under this methodology, safety margins are provided in the physical design of airport facilities.

Table 4.1

ALTERNATIVES CONSIDERED IN THE 2001 ENVIRONMENTAL ASSESSMENT

ALTERNATIVE	FINDINGS
Site 1	<p><u>Retained for more detailed evaluation in EA due to:</u></p> <ul style="list-style-type: none"> • Close proximity to City of St. George. • Would allow runway/taxiway and airport facility development necessary to comply with ARC D-III design standards, allowing airport to meet forecast demand. • Would allow northeast/southwest runway orientation, which is properly aligned with prevailing southwesterly winds. • Natural terrain would allow general compliance with FAR Part 77 surface requirements with few terrain penetrations. • Combination of terrain and preferred runway orientation at this site would allow for instrument approach procedure. • Site acreage would allow for long-term future expansion, if necessary, beyond the 20-year planning horizon. • No existing development at the site requiring relocation. <p><i>The combination of Sites 1 and 1A was recommended in the 2001 EA as the Preferred Alternative site for the proposed replacement airport at St. George, Utah</i></p>
Site 1A	<p><u>Retained for more detailed evaluation in EA due to:</u></p> <ul style="list-style-type: none"> • Close proximity to City of St. George. • Would allow runway/taxiway and airport facility development necessary to comply with ARC D-III design standards, allowing airport to meet forecast demand. • Would allow northeast/southwest runway orientation, which is properly aligned with prevailing southwesterly winds. • Natural terrain would allow general compliance with FAR Part 77 surface requirements with few terrain penetrations. • Combination of terrain and preferred runway orientation at this site would allow for instrument approach procedure. • Site acreage would allow for long-term future expansion, if necessary, beyond the 20-year planning horizon. • No existing development at the site requiring relocation. <p><i>The combination of Sites 1 and 1A was recommended in the 2001 EA as the Preferred Alternative site for the proposed replacement airport at St. George, Utah</i></p>
Site 2	<p><u>Initially retained for more detailed evaluation in EA due to:</u></p> <ul style="list-style-type: none"> • Close proximity to City of St. George. • Would allow runway/taxiway and airport facility development necessary to comply with ARC-III design standards, allowing airport to meet forecast demand. • Would allow northeast/southwest runway orientation, which is properly aligned with prevailing southwesterly winds. • Natural terrain would allow compliance with FAR Part 77 surface requirements. • Combination of terrain and preferred runway orientation at this site would allow for instrument approach procedure. • No existing development at the site requiring relocation.

Table 4.1
ALTERNATIVES CONSIDERED IN THE 2001 ENVIRONMENTAL ASSESSMENT

ALTERNATIVE	FINDINGS
Site 2, Continued	<p><u>Eventually removed from consideration due to:</u></p> <ul style="list-style-type: none"> • Need to relocate River Road. • Potential impacts to endangered plant species. • Potential impacts to the proposed plant reserve at the White Dome area. • Potential impacts to two animal species of special concern in Utah. • Topography constraints for future expansion of landside facilities for runway options. <p>While not a deciding factor, informal recreational activities, including off-road vehicle use, mountain biking, hiking, and recreational shooting, would also be displaced from this site.</p>
Site 3	<p><u>Removed from consideration due to:</u></p> <ul style="list-style-type: none"> • Natural terrain would create extensive FAR Part 77 surface penetrations • Would only allow east/west runway orientation of 060 degrees/240 degrees, which is not properly aligned with prevailing southwesterly winds
Site 4	<p><u>Removed from consideration due to:</u></p> <ul style="list-style-type: none"> • Natural terrain would create extensive FAR Part 77 surface penetrations • Would only allow east/west runway orientation of 090 degrees/270 degrees, which is not properly aligned with prevailing southwesterly winds
Site 5	<p><u>Removed from consideration due to:</u></p> <ul style="list-style-type: none"> • Would only allow east/west runway orientation of 080 degrees/260 degrees, which is not properly aligned with prevailing southwesterly winds • 30-mile driving distance from City of St. George, through mountainous terrain, is too far to effectively serve the population base

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

4.3.1 ALTERNATIVE 1: REPLACEMENT OF SGU AT SITE 1

Site 1, shown in **Exhibit 4.1** and **Exhibit 4.2**, is located approximately five miles southeast of the City of St. George, within the limits of Washington County and the cities of St. George and Washington City. 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 Site 1. The site encompasses approximately 1,158 acres. The majority of this land is undeveloped and would not require the displacement of any residences.

Site 1 would allow for development of a northeast/southwest oriented runway. According to the results of a three-year wind study, conducted by the Utah Division of Aeronautics,⁵ this alignment would provide adequate crosswind coverage. An airport at this site could be developed in accordance with ARC D-III dimensional standards and could accommodate a 9,300-foot runway. The runway orientation could also allow for the design of an instrument approach procedure.

At Site 1, the passenger terminal and associated parking would be developed on the eastern side of the runway, as would the general aviation (GA), fixed-base operator (FBO), corporate aviation, air cargo, and associated maintenance facilities. The terminal support facilities, which include the Air Traffic Control Tower (ATCT), Aircraft Rescue and Firefighting Facility (ARFF), and airport maintenance facilities, would be developed on the western side of the runway. The existing entrance road, remaining from the Civil Aeronautics Administration (CAA) Airport that formerly occupied this site, would be used to access the site. In addition, a large tract of land, adjacent to Site 1 to the east, is favorable from a topographic standpoint for future commercial and industrial development.

Alternative 1 was combined with Alternative 2 in the 2001 FEA to become the Preferred Alternative.

4.3.2 ALTERNATIVE 2: REPLACEMENT OF SGU AT SITE 1A

Site 1A, shown in **Exhibit 4.1** and **Exhibit 4.2**, is located approximately 2,000 feet southwest of Site 1. Like Site 1, Site 1A is located approximately five miles southeast of the City of St. George, within the limits of Washington County and the cities of St. George and Washington.

Portions of the land at Site 1A are privately owned or owned by the Utah SITLA, the City of St. George, the State of Utah, and the BLM. Site 1A encompasses approximately 1,087 acres and also incorporates portions of the old CAA Airport. This site is primarily undeveloped and would not require the displacement of any residences.

The runway and taxiway alignment and configuration at Site 1A would be identical to that presented in Alternative 1. The runway at Site 1A would be constructed at a length of 9,300 feet, and the airport could be designed and developed in accordance with ARC D-III dimensional criteria. Site 1A also offers the potential to develop an instrument approach procedure. The passenger terminal and associated parking would be developed on the eastern side of the runway, as would the GA, FBO, corporate aviation, air cargo, and associated maintenance facilities. The terminal support facilities at Site 1A would be developed on the western side of the runway. Vehicular access to the site would be provided from the existing entrance road.

Alternative 2 was combined with Alternative 1 in the 2001 FEA to become the Preferred Alternative.

⁵ *Site Selection and Master Plan, St. George Municipal Airport*, prepared by Creamer & Noble Engineers and Barnard Dunkelberg & Company. October 1998.

4.3.3 ALTERNATIVE 3: REPLACEMENT OF ST. GEORGE MUNICIPAL AIRPORT AT SITE 2

Site 2 was ultimately dropped from consideration in the 2001 FEA. Thus, this alternative is discussed in more detail than the previous two alternatives to explain the reasons for its dismissal.

Site 2, shown in **Exhibit 4.1** and **Exhibit 4.2**, is located approximately six miles south of the City of St. George on approximately 1,300 acres of land that is located entirely within the St. George city limits. The Utah SITLA owns the land at Site 2, which is bordered by the Utah/Arizona state line to the south and is bisected by the existing alignment of River Road.

Site 2 would provide an identical runway/taxiway alignment and configuration as presented in Alternatives 1 and 2. In addition, Site 2 would also accommodate a 9,300-foot runway that would offer instrument approach capabilities designed and developed in accordance with ARC D-III dimensional criteria. The site would be accessed via the existing River Road.

Unlike Sites 1 and 1A, the passenger terminal and associated parking at Site 2 would be developed on the western side of the runway, as would the GA, FBO, corporate aviation, air cargo, and associated maintenance facilities. The terminal support facilities at Site 2 would be developed on the eastern side of the runway. The site is more topographically constrained than Sites 1 and 1A, making the prospects for long-term expansion of landside facilities more problematic at Site 2.

One endangered plant species, the Dwarf Bear Poppy, was found in abundance in the southeast portion of Site 2 in the badland soils of the White Dome area. Another species proposed as endangered by the U.S. Fish and Wildlife Service, the Holmgren Milkvetch, was found scattered along the western edge of Site 2.⁶ While no threatened or endangered animal species were found at Site 2, two species of special concern in Utah, the zebra tailed lizard and the ring tailed cat, were found. While there are no existing noise-sensitive land uses that would be impacted by the future noise contours associated with Site 2, the area is a popular informal recreation area. It is used for off-highway vehicles, mountain biking, hiking, and recreational shooting activities. While these activities also occur at Sites 1 and 1A, Site 2 is used more frequently because of its proximity to residential areas. As a result, recreational activities would be impacted more at Site 2 than at Sites 1 and 1A.⁷

Because of the topography at Site 2, the best location for the runway would be closely aligned with River Road, which would require the relocation of the road.

⁶ *Final Environmental Assessment for a Replacement Airport at St. George, Utah.* Prepared by Creamer and Noble Engineers and Barnard Dunkelberg & Company. January 2001, p. 38.

⁷ *Final Environmental Assessment for a Replacement Airport at St. George, Utah.* Prepared by Creamer and Noble Engineers and Barnard Dunkelberg & Company. January 2001, p. 39.

The proposed replacement airport at Site 2 was not selected as the preferred alternative because of its many potential adverse impacts, including the relocation of River Road, impacts to endangered plant species, and potential impacts to the proposed plant reserve at the White Dome area. Topography constraints for future expansion of landside facilities for runway options also exist at this site.

The land at Site 2 is primarily undeveloped at present. However, the *1998 Master Plan* and the *2001 FEA* noted that existing industrial development located to the north of Site 2 is proposed to expand southward toward Site 2 in the future.

These plans have indeed progressed since the *1998 Master Plan* and the *2001 FEA* were completed. The current General Plan for the City of St. George, completed in 2002, states that the City anticipates an expansion of the industrial area south of the present industrial property along River Road. The land at and surrounding Site 2 is part of an approximately 10,000-acre tract that is undergoing a master plan study by the Utah SITLA for a major urban development project. This 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.⁸

In summary, Site 2 was dropped from consideration in the *2001 FEA* for the following reasons:

- Potential adverse impact on endangered or threatened plant species
- Potential adverse impact on two animal species of special concern in Utah
- Need for relocation of River Road
- Less potential for long-term expansion of landside facilities than Sites 1 and 1A due to topography

Site 2 has only become a less desirable option with the passage of time since all the constraints identified in the *2001 FEA* continue to be present and because Utah SITLA's plans for development of the property have continued to move forward.

4.3.4 2001 FINAL ENVIRONMENTAL ASSESSMENT: PREFERRED ALTERNATIVE

The *2001 FEA* recommended the combination of Sites 1 and 1A as the Preferred Alternative for the proposed replacement of SGU. As discussed in **Section 4.3.1 and Section 4.3.2** of this chapter, Site 1 measures approximately 1,158 acres and Site 1A measures approximately 1,087 acres. The preferred alternative site keeps the total acreage of Site 1 at 1,158 acres (which includes approximately 787 acres of overlap with Site 1A) and adds approximately 148 acres to the south from the original Site 1A to create a site measuring approximately 1,306 acres.⁹

⁸ *General Plan, City of St. George, Utah, Section 8.3, Projected Major New Development Areas.* Department of Community Development. 2002.

⁹ Landrum & Brown analysis, 2004.

The 2001 FEA recommended that airport development at the Preferred Alternative site occur as described for Site 1 in **Section 4.3.1** of this chapter, with the runway and associated taxiway constructed to a length of 9,300 feet and oriented northeast/southwest. The passenger terminal and associated parking would be developed on the eastern side of the runway, as would the GA, FBO, corporate aviation, air cargo, and associated maintenance facilities. The terminal support facilities would be developed on the western side of the runway. Vehicular access to the site will be provided from the west via the existing road to the old CAA runway and from the southeast via a new road linked to the proposed Southern Corridor Highway. The additional 300 acres to the south from the original Site 1A would be protected and reserved for future runway lengthening if that should ever become necessary.

4.4 ADDITIONAL ALTERNATIVES NOT CONSIDERED IN 2001 ENVIRONMENTAL ASSESSMENT

The use of other means of transportation, such as the use of other airports, highway travel, and rail travel, must be considered in the environmental evaluation of a proposed Federal action at an airport. The potential effectiveness of the alternate modes must be considered in terms of their capability to meet the needs of air travelers and other airport's users to and from the St. George area.

Section 4.4.1 through Section 4.4.2 show that alternate modes of transportation are not feasible alternatives to the proposed replacement airport and do not meet the Purpose and Need of the proposed replacement airport. **Section 4.4.3** shows that telecommunications and video-conferencing are not feasible alternatives to the proposed replacement airport and do not meet the Purpose and Need of the proposed replacement airport. Therefore, these alternatives were removed from consideration.

4.4.1 USE OF OTHER AIRPORTS

This alternative considers the possibility of other airports providing air carrier service to the St. George area. As air traffic has increased throughout the U.S., there have been many examples of the development of multi-airport systems serving a given metropolitan area. This phenomenon has been studied extensively by Dr. Richard De Neufville at the Massachusetts Institute of Technology and reported in a paper entitled *Planning Multi-Airport Systems in Metropolitan Regions in the 1990's*. In his paper, Dr. DeNeufville establishes that market forces are the major factor in determining the success of multi-airport systems and that local government have only limited power to influence the distribution of traffic between airports, even under the most favorable circumstances.

There are several smaller airports serving the St. George/southwest Utah area.

Table 4.2 shows that there are three public-use airports within a 30 nautical-mile radius of St. George – corresponding to a driving time of approximately 45 minutes

or less.¹⁰ However, none of these airports provide sufficient runway length and navigational facilities to handle air carrier operations. All would require substantial improvement in order to accommodate air carrier operations. Thus, they are not viable options to meet the identified purposes and needs for the proposed replacement airport. Although the City of Mesquite, Nevada plans to build a replacement Mesquite Airport in the near future, it is proposed to serve GA users only; not air carrier operations.¹¹

Table 4.2
PUBLIC USE AIRPORTS WITHIN A 30 NAUTICAL-MILE RADIUS OF ST. GEORGE

AIRPORT	DISTANCE FROM ST. GEORGE (IN NAUTICAL MILES)	RUNWAY LENGTH(S) (IN FEET)	RUNWAY APPROACH FACILITIES	CAPABLE OF AIR CARRIER SERVICE?
Colorado City Municipal Airport, AZ (AZC)	29 NM	02/20: 5,099' 11/29: 6,300'	NDB & Visual approach	No
Hurricane Airport, UT (1L8)	14 NM	18/36: 3,410'	Visual only	No
Mesquite Airport, NV (67L)	27 NM	01/19: 5,100'	Visual only	No

Source: On-line search at www.airnav.com for airports' information. Retrieved March 16, 2004.

Table 4.3 identifies six other existing air carrier airports located closest to St. George along with their corresponding travel times from St. George.

Table 4.3
DRIVING TIME BETWEEN ST. GEORGE AND NEAREST AIR CARRIER AIRPORTS

AIRPORT	DRIVING TIME FROM ST. GEORGE
Cedar City Regional Airport, Cedar City, UT (CDC)	1 hour
Las Vegas McCarran International Airport, Las Vegas, NV (LAS)	2 hours
Kingman Airport, Kingman, AZ	4 hours
Salt Lake City International Airport, Salt Lake City, UT (SLC)	5 hours
Flagstaff Pulliam Airport, Flagstaff, AZ	5 hours
Ernest A. Love Field Airport, Prescott, AZ	6 hours

Source: On-line search at www.mapblast.com for driving times from St. George, Utah. Retrieved March 16, 2004.

¹⁰ This distance was chosen as the limit for this part of the analysis because the nearest air carrier airport is one hour from St. George. Any general aviation airports at distances of one hour or more from St. George would clearly be inferior alternatives to airports already served by air carriers.

¹¹ *Supplement to Section III of Master Plan for Replacement General Aviation Airport in Mesquite, Nevada.* Prepared by the City of Mesquite, NV. February 2004.

Of the airports listed in **Table 4.2**, only two, Cedar City Regional and Las Vegas McCarran International, are in reasonable proximity to St. George and are of sufficient size to accommodate air carrier operations. These two airports are discussed in detail below.

Cedar City Regional Airport (CDC)

Cedar City Regional Airport (CDC) is the closest air carrier airport to St. George. Runway 2/20 is 8,653 feet long and has an instrument landing system on Runway 20. CDC completed a Master Plan¹² in 2000 that includes a number of anticipated capital improvements over the next 20 years including the rehabilitation/upgrading of airfield lighting, the construction of a new passenger terminal and commercial apron (currently underway), the acquisition of land for an extension to Runway 2/20, construction of hangar taxi-lanes, the extension of Runway 2/20 to 10,000 feet, the acquisition of ARFF equipment, the strengthening of Runway 2/20 and parallel taxiway, the construction of a new Runway 8/26 north of existing runway and conversion of the existing runway into a full length taxiway, and periodic airfield pavement maintenance. These projects are subject to their own local and environmental approval processes and are not the subject of this Environmental Impact Statement (EIS).

Although CDC is currently served by SkyWest Airlines (operating as Delta Connection), it is not an attractive option for travelers in the St. George area because driving distance to get to CDC (approximately one hour) and the fact that the number of daily flights and destinations served is less than what is currently offered at St. George. CDC provides one daily flight to Salt Lake City. In comparison, St. George offers six daily flights to Salt Lake City (through Delta Connection) and two daily flights to Los Angeles (through United Express).¹³ SkyWest Airlines is responding to this market preference by providing more flights from St. George rather than Cedar City.

Additionally, even if CDC were upgraded as proposed in their 2000 Master Plan, SGU would still remain in operation and it is anticipated that carriers using SGU today would continue to operate from SGU in the future because of the demand for commercial aviation activity at St. George.

Las Vegas McCarran International Airport (LAS)

Las Vegas McCarran International Airport (LAS) is the second closest air carrier airport to St. George, as shown in **Table 4.3**. LAS offers the advantages of relatively low fares and non-stop flights to many destinations; however it's major disadvantage is that it is an approximate two hour drive from St. George. For travelers willing to spend the extra time and cost of driving, parking, ticketing, bag check, and security lines at a major international airport, LAS is an attractive

¹² Cedar City Regional Airport Master Plan, Final Draft. Prepared by Armstrong Consultants, Inc. June 30, 2003.

¹³ Delta Airlines, on-line search of Flight Schedules from St. George and from Cedar City, at <http://www.delta.com/>. Retrieved January 24, 2005. United Airlines, on-line search of Timetables from St. George, at <http://www.united.com/>. Retrieved January 24, 2005.

option. In addition, SGU would still remain in operation and it is anticipated that carriers using SGU today would continue to operate from SGU in the future because of the demand for commercial aviation activity at St. George.

A survey of local travel agents shows that many travelers departing from the St. George area bound for destinations other than Salt Lake City and Los Angeles (and likewise, those travelers to St. George from locations other than Salt Lake City and Los Angeles) are driving to and from LAS. LAS, however, does not meet all air travel demand in the St. George market. More than half of the passengers that do fly from St. George are flying only to Salt Lake City or Los Angeles and not connecting to other cities. For these passengers, St. George is far more convenient than LAS. There is also substantial demand in the market for additional direct air travel between St. George and these existing destinations.¹⁴ Additionally, discussions with SkyWest Airlines indicate that unmet demand for direct travel to markets that cannot currently be served from St. George (Denver, for example) is likely to exist.¹⁵

4.4.2 USE OF OTHER MODES OF TRANSPORTATION ALTERNATIVES

Alternative modes of transportation, such as rail, bus, or automobile, can offer feasible alternatives to freight shippers and air travelers, particularly those traveling 500 miles or less.¹⁶ The evaluation of alternative modes of transportation addresses the capability to meet the needs of freight shippers and travelers currently using SGU. Of critical importance to the evaluation are such factors as trip characteristics and travel needs of the freight shippers and air passengers and the feasibility of using automobile, rail, bus service, and telecommunications/video-conferencing to accommodate these transportation requirements, based upon travel cost and efficiency.

4.4.2.1 Surface Roadway Transportation Modes

A review of the trip characteristics of air travelers using the airport indicates that a majority begin or end their trip at a point more than 250 miles from SGU.

Table 4-4 lists the origin and destination (O&D) data of the top ten markets for SGU travelers and compares the distances to these cities in air miles and highway miles. These top ten markets serve more than 81 percent of the total scheduled O&D passengers.

As shown in **Table 4-4**, none of the top ten market cities falls within both the 250 air mile radius and 500 road miles or less. Beyond 250 air miles or 500 roadway miles, alternative modes of transportation become less desirable. Of the top 10 market cities, only Salt Lake City, Utah and Los Angeles, California are located more than 250 air miles from St. George, but less than 500 road miles.

¹⁴ **Appendix E, Aviation Activity Forecasts.**

¹⁵ Telephone conversation between Consultant and SkyWest Airlines. May 2004.

¹⁶ Source: U.S. Department of Transportation, Research and Special Programs Administration, Origin-Destination. Survey of Airline Passenger Traffic - Domestic, via Data Base Products, Inc. & www.mapquest.com. Data compiled by: Landrum & Brown, Incorporated.

Other modes of transportation such as truck, rail, or automobile do not provide the same level of service as air travel. Reliance on other surface roadway transportation modes could not replace air service in terms of speed and timeliness of product delivery or passenger service. The airport provides an interface between air and ground transportation and is an integral link in the region's economic and transportation network. Therefore, the use of other surface roadway transportation modes is not considered to be a prudent, feasible, reasonable, or practical alternative.

Table 4-4
TOP 10 U.S. DESTINATION AIRPORTS
FROM ST. GEORGE MUNICIPAL AIRPORT – CALENDAR YEAR 2004

Rank	City Name	Air Miles	Road Miles	Enplanements	Percent of Top 10	Percent of Total O&D
1	Salt Lake City, UT	269	303	21,510	57%	46%
2	Los Angeles, CA	348	388	8,430	22%	18%
3	Seattle-Tacoma, WA	842	1,142	1,580	4%	3%
4	Denver, CO	520	631	1,190	3%	3%
5	Sacramento, CA	451	691	1,090	3%	2%
6	Portland, OR	749	1,068	1,020	3%	2%
7	San Francisco, CA	485	688	950	3%	2%
8	Minneapolis-St. Paul, MN	1,189	1,543	620	2%	1%
9	Dallas-Ft. Worth, TX	981	1,249	600	2%	1%
10	Boise, ID	468	640	590	2%	1%
	TOTAL of Top 10 Markets			37,580	100.0%	81%
	All other cities			9,010		19%
	TOTAL Domestic O&D			46,590		100.0%

Note: Bold text signifies cities located less than 500 air miles and 500 road miles from St. George.

Sources: U.S. Department of Transportation, Research and Special Programs Administration, *Origin-Destination Survey of Airline Passenger Traffic - Domestic*, via Data Base Products, Inc.
 www.mapquest.com

Data compiled by: Landrum & Brown, Incorporated.

4.4.2.2 Rail Travel as an Alternative to the Proposed Replacement Airport

Rail travel is not an acceptable alternative to air transportation in the St. George area. Amtrak rail passenger service in southern Utah is severely limited. There is no Amtrak train station in the City of St. George. However, connecting bus service, which travels 274 miles southwest to the Barstow, California Amtrak station is available. From Barstow, Amtrak's Southwest Chief line provides daily service to Los Angeles, Kansas City, and Chicago.¹⁷ Passenger rail travel is not an acceptable option for business travelers, as they typically need greater flexibility and speed of transportation. Likewise, leisure travelers often desire the greater flexibility and speed afforded by air travel compared with rail service.

¹⁷ Amtrak Rail Service route information. Online at <http://www.amtrak.com/>. October 27, 2003.

4.4.3 TELECOMMUNICATIONS AND VIDEO-CONFERENCING

Two-way video technology has been around for over 30 years and offers (with service improvements) the potential to serve a portion of the air travel market throughout the country. With technology that has been developed, but available in limited quantities, video-conferencing and collaborative computing could serve as an alternative mode of satisfying the need for air travel. The following paragraphs summarize the current understanding of the probable impact of such technology on future air travel demand.

Considerable progress has been made in the last decade in improving the reliability and speed of voice and data communication. While high-speed communication services can be provided over existing telephone lines and cable, the widespread installation of fiber optics and state-of-the-art electronic signal technology are expected to result in notable technological improvements in the coming years.

Two primary studies have been conducted to assess the impact of communication technology on air travel demand: the *Strategic Assessment Report for the Massachusetts Aeronautics Commission*¹⁸ and *Making Connections: How Telecommunications Technologies Will Affect Business and Leisure Air Travel*, by Apogee Research.¹⁹

The *Strategic Assessment Report* indicated that by 2010, a reduction in air travel demand of seven percent at Boston Logan International Airport could result as video-conferencing is used as a substitute for air travel. By 2030, video conferencing could reduce demand for air travel at Logan by only 15 percent.

Two key findings of this study that may be applicable to SGU include:

- For non-discretionary travel (typically a business traveler), video-conferencing has the potential to satisfy some portion of trip demand. (The study estimated between five percent to 30 percent of travel, depending on trip purpose.)
- For discretionary travel (pleasure/personal) technology is believed to be very limited (less than five percent).

Industry-wide, it is anticipated that telecommunication has the potential to reduce business-related air travel demand by 11 percent.²⁰ However, this reduction in business-related travel only reduces overall air travel demand by four percent.

Applying the findings of the studies noted above to SGU, less than five percent of air travel demand could be satisfied by communication technologies by 2016. (It is expected that by 2016 data and video-conferencing would be available on a limited

¹⁸ *Strategic Assessment Report*, Massachusetts Aeronautics Commission by Arthur D. Little, July 1993.

¹⁹ *Making Connections, How Telecommunications Technologies Will Affect Business and Leisure Air Travel*, by Apogee Research, 1994.

²⁰ *Making Connections, How Telecommunications Technologies Will Affect Business and Leisure Air Travel*, by Apogee Research, 1994.

basis within most companies.) By 2020, when such technology is expected to be widespread (on most desks - similar to the availability of desktop computers today), it would reduce air travel by less than nine percent.

A report by Apogee Research also notes that "it is reasonable to suggest that demand for air travel will increase as workers become more efficient and productive: cost savings and productivity gains will enable a significantly higher number of companies to sell their products and services in areas not targeted before due to higher operating costs. These activities will lead to additional demand for business air travel services."²¹

Therefore, communication technologies do not provide prudent, feasible, reasonable, and practical alternatives to air service for the time period of the proposed replacement airport at SGU.

4.4.4 SUMMARY – USE OF OTHER TRANSPORTATION MODES

Based upon the information and analysis discussed above and the studies incorporated herein, it is unlikely that alternative modes of transportation, such as rail, automobile/bus, and communication technologies, could provide a suitable solution to the identified air transportation needs of the St. George area. Although there may be a reduction in travel due to video conferencing, it would not be enough to offset the demand for aviation activity. None of these alternatives resolve the basic needs (as outlined in **Chapter Three**) of remedying numerous design standard deficiencies and to enable the forecast growth in aircraft activity and commercial passenger demand to be safely and efficiently accommodated.

4.5 ALTERNATIVES RETAINED FOR DETAILED STUDY IN THE ENVIRONMENTAL IMPACT STATEMENT

Two alternatives are retained for detailed study in this EIS: the Proposed Replacement Airport Alternative and the No-Action Alternative. They are addressed in **Section 4.5.1** and **Section 4.5.2**.

4.5.1 THE NO-ACTION ALTERNATIVE

Regulations set forth by the CEQ require the consideration of a No-Action Alternative in all assessments of environmental impacts. The No-Action Alternative at SGU is to maintain the existing airport as the area's commercial service facility, without developing a replacement airport at a larger, less constrained site. The existing airport would be restricted to the FAA's ARC B-II design standards and subject to its current *Modification of Standards* waiver with no option to upgrade or expand the facility in the future.

²¹ *Making Connections, How Telecommunications Technologies Will Affect Business and Leisure Air Travel*, by Apogee Research, 1994.

Without the ability to expand SGU at its present location, SkyWest Airlines, the airport's existing commercial service carrier, would continue to be restricted to the use of small turboprop commuter aircraft with thirty seats or less, which would inevitably lead to periodic passenger and cargo payload penalties for departures when daily air temperatures exceed 100 degrees Fahrenheit.

The implementation of the No-Action Alternative would not address the City of St. George's goal of accommodating the area's unconstrained aviation activity forecasts for passengers or aircraft operations, as explained in the *1998 Master Plan* and in **Chapter Three, Purpose and Need for the Proposed Replacement Airport**.

4.5.2 THE PROPOSED REPLACEMENT AIRPORT

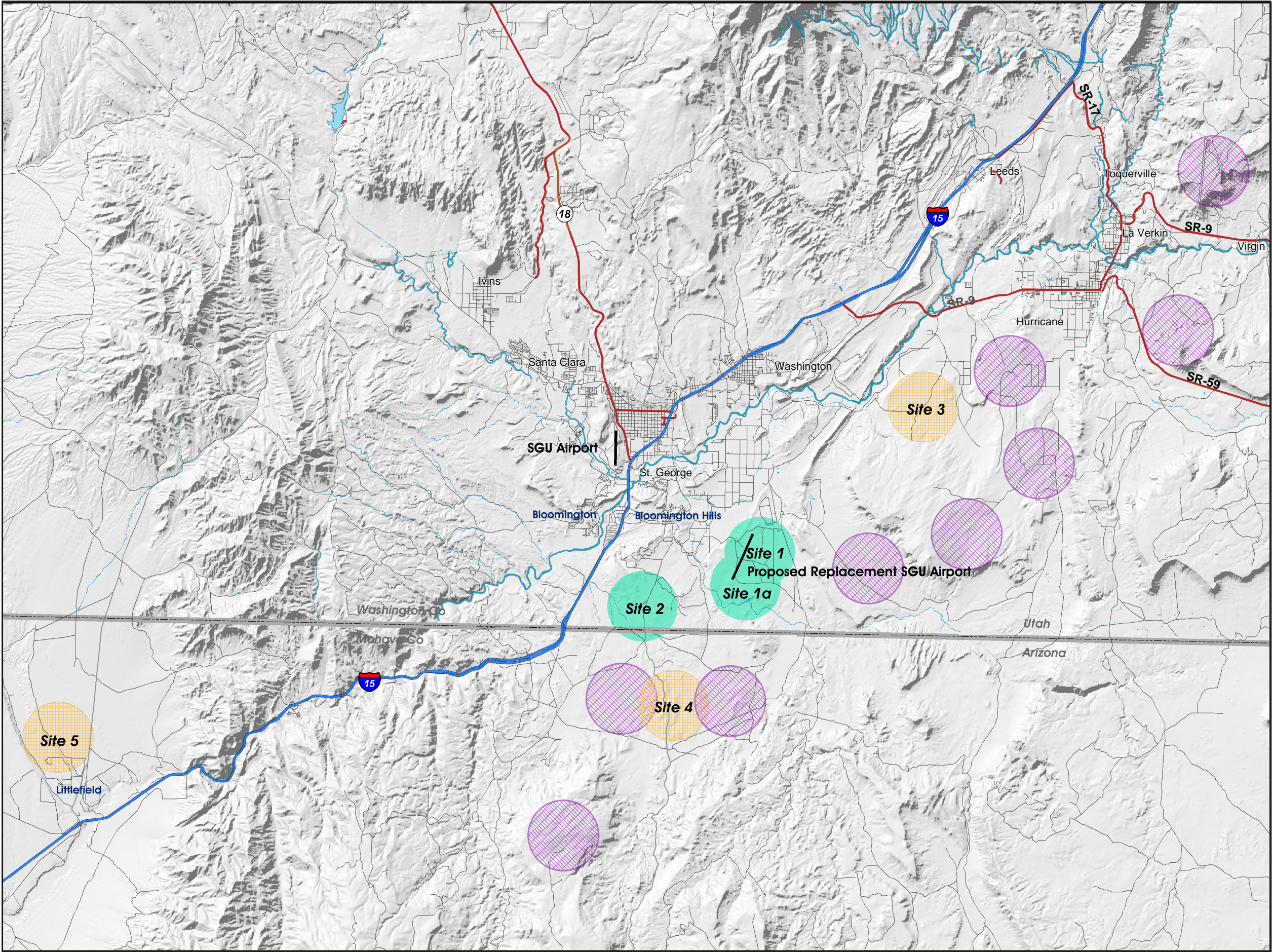
The Preferred Alternative airport site is a combination of Alternatives 1 and 2. The Preferred Alternative site covers the area at Site 1 combined with the additional southern boundary of Site 1A, encompassing approximately 1,306 acres.²² The replacement airport would be developed as described for Site 1 in **Section 4.3.1** of this chapter, with the runway and associated taxiway constructed to a length of 9,300 feet and oriented northeast/southwest, as shown in **Exhibit 4.3**. The passenger terminal and associated parking would be developed on the eastern side of the runway, as would the GA, FBO, corporate aviation, air cargo, ARFF building, and airport maintenance facilities. The west side would be reserved for a future ATCT and aviation development.

Although the twenty-year planning horizon of the proposed replacement airport does not identify a need for expansion beyond the facilities described above, the St. George City Council considered it imperative to acquire sufficient property to meet any reasonable long-term airside and landside demand. The existing airport is constrained by both topography and development, which has necessitated development of a replacement airport. In order to avoid the same situation in the future, the City Council feels it is necessary to acquire sufficient property to allow for accommodation of any reasonable demand in the long-term future (i.e., 100 percent of the business jet fleet at 90 percent useful load).²³ The Preferred Site thus allows for an ultimate runway length of approximately 11,500 feet. Current land ownership surrounding the preferred replacement airport site is presented in **Exhibit 4.4**.

²² Landrum & Brown analysis, 2004.

²³ City Council of the City of St. George, Washington County, Utah. January 30, 2001.

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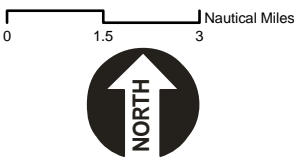
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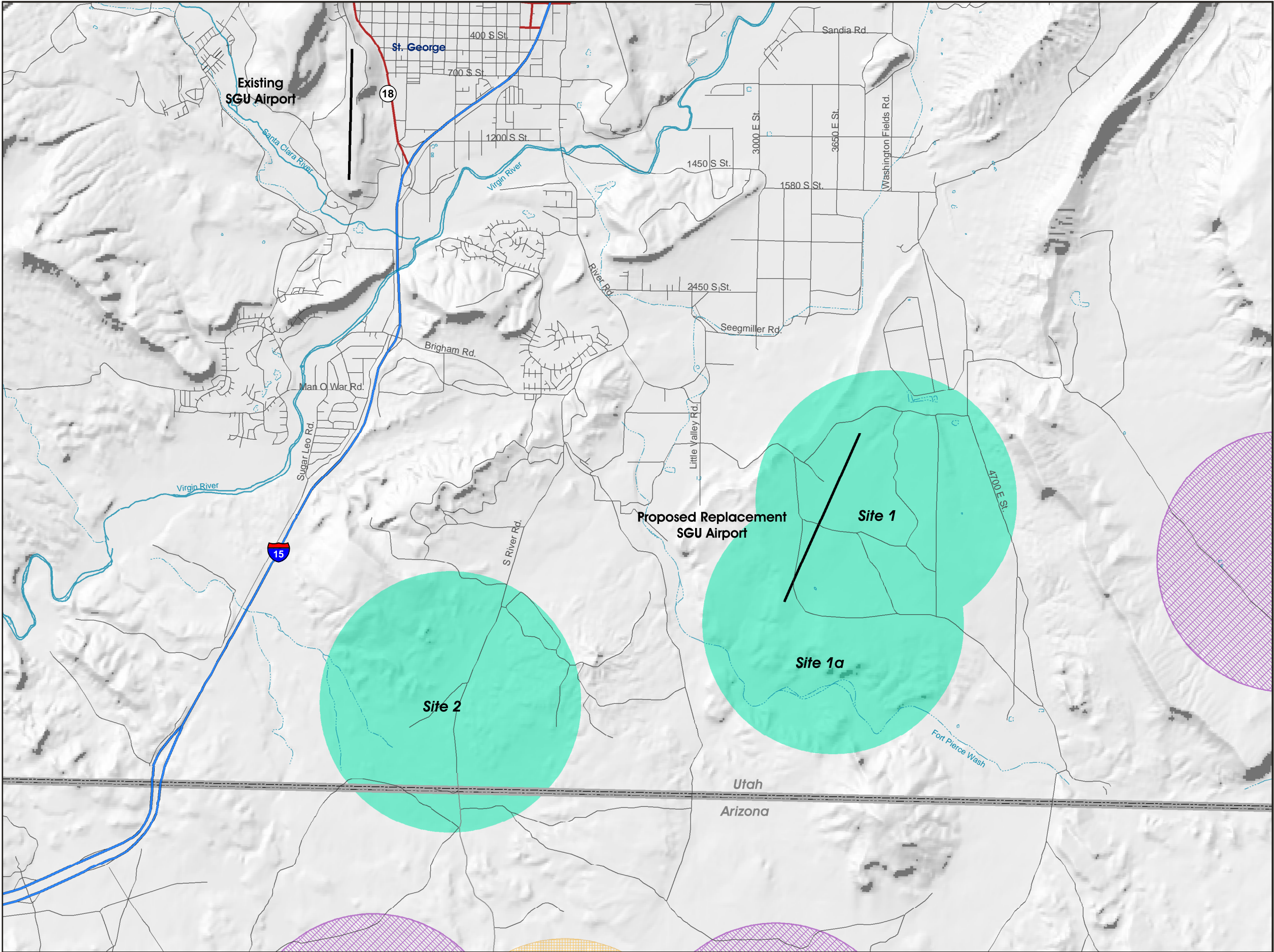
- Highway
- Interstate
- Street
- Cities
- Sites Dropped After Initial Evaluation
- Sites Dropped After More Detailed Evaluation
- Sites Given Final Evaluation

Source:
St. George Municipal Airport
Environmental Assessment,
Creamer & Noble Engineers, 2001

Alternative
Replacement
Sites Considered in
2001 Environmental
Assessment

6/25/2004
Prepared by: Landrum & Brown
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\Exhibits\EX4.1_Alt Sites.mxd



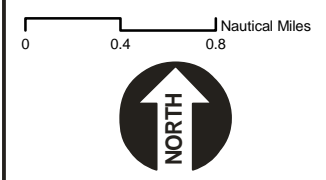


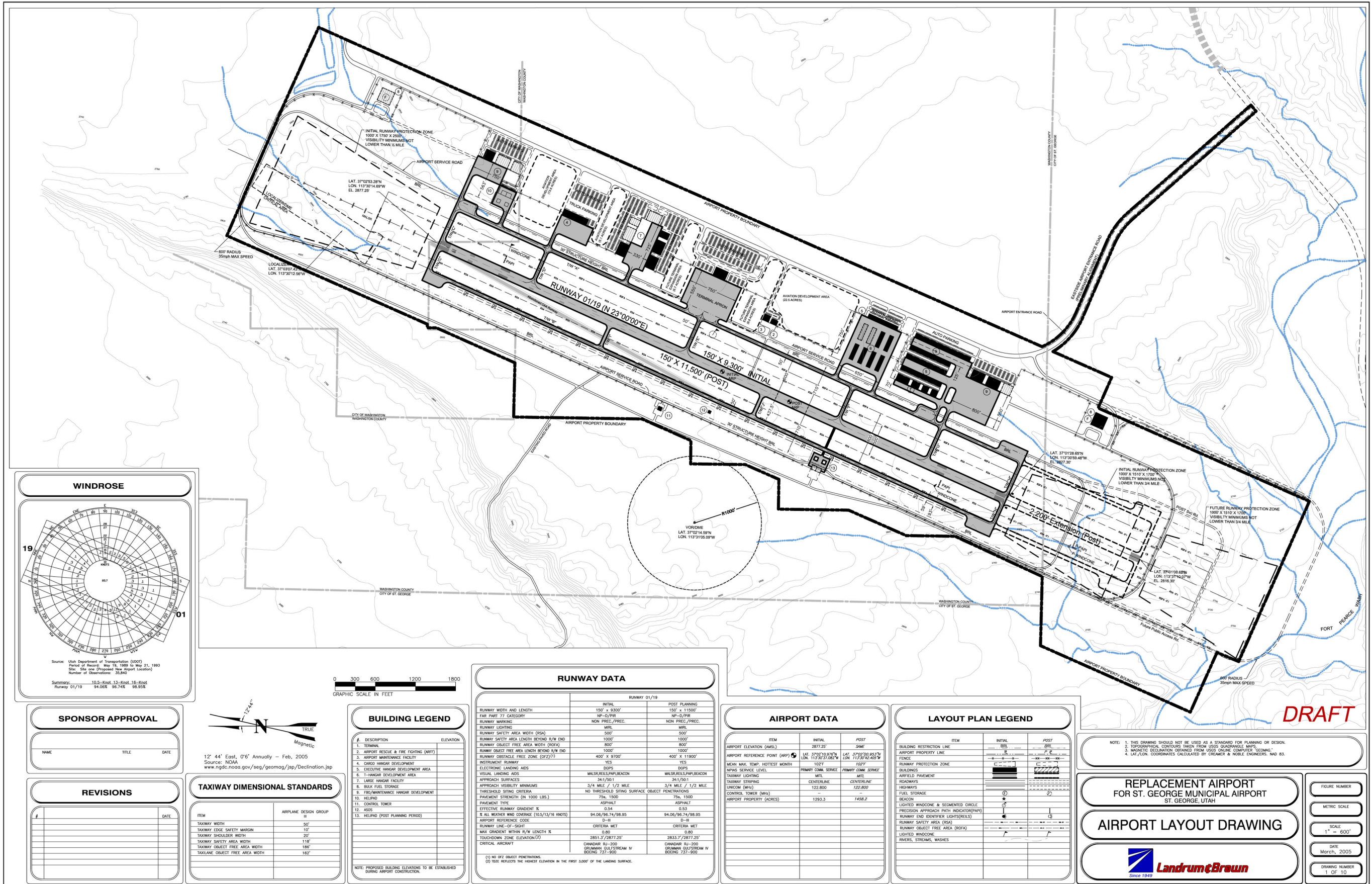
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- Highway
 - Interstate
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Source:
St. George Municipal Airport
Environmental Assessment,
Creamer & Noble Engineers, 2001

Proposed Alternative Sites 1, 1a, and 2

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Preferred Site Schematic Airport Layout Plan

EXHIBIT

4.3

