CHAPTER E

Siting Evaluation for Replacement Airport

1. Introduction

In accordance with the Master Plan's "dual path" approach, the purpose of this chapter is to document and re-evaluate (as needed) sites previously identified as potential replacement sites for the Friedman Memorial Airport (SUN or "the Airport") once the Airport outgrows its current footprint. First, this chapter summarizes the 2006 Feasibility Study, and then the 2008 Environmental Impact Statement (EIS) Phase I Planning Study. The 2008 EIS Phase I Planning Study identified three sites (4, 10a, and 12) to carry forward into the EIS process for further evaluation. All replacement airport sites identified by these two studies are included and summarized in this document to see that nothing is overlooked inadvertently in the future. Please note that the scope of this effort did not include the identification of additional replacement airport sites.

Review of the majority of the evaluation criteria identified by previous planning efforts determined they are still sufficient for evaluating the alternatives. This chapter revisited and updated four of the more "technical" screening criteria in an effort to reflect current industry/local conditions and planning/design standards. These four screening criteria are:

- **Ability to Meet Updated Airport Facility Requirements (as presented in Chapter C)**
- **Ability to Prove Sponsorship/Location within Blaine County**
- **Expansion Opportunity**
- **Ability to Meet Category (CAT) I Approach Capabilities**

The screening criteria updates reflect additional work done by the Sponsor and FAA subsequent to the 2008 EIS Phase I Planning Study. This process resulted in the survival of only two sites (10a and 12). Site 4 was eliminated due to the inability to provide for a Category I Approach and Missed Approach (200-foot ceiling and ½-mile visibility), which was based on an additional analysis conducted by the FAA subsequent to the completion of the 2008 EIS Phase I Planning Study.

Section 6 presents a potential alternative outcome based on a set of "other considerations/possibilities." One consideration is the likely inability to develop a replacement airport on Bureau of Land Management (BLM) property successfully. Another is the possibility of proceeding with a site that is only able to provide for one, not two, CAT I Approaches (with a higher than 200-foot ceiling and ½-mile visibility). Another is the potential to make Site 17 a viable site. Based on this optional evaluation scenario, Site 12 is the most viable site. Site 17 is next most viable, if adjusted to achieve a "full" CAT I Approach. Next, Site 4 is viable, if higher than CAT I Approach ceilings/minimums are acceptable to the FAA, and then Site 5 is viable, if only one CAT I Approach is acceptable and it has high ceiling/minimums.

Key Terms

Definitions for several key terms used throughout this chapter appear below. **Appendix A**, *Glossary of Terms*, provide definitions for technical terminology and acronyms used throughout the Master Plan.

Bureau of Land Management (BLM) – An agency within the U.S. Department of the Interior that administers more than 247.3 million acres of public lands in the United States, which constitutes one-eighth of the landmass of the country.

Category I (CAT I) Approach – Precision instrument approach and landing with a typical decision height not lower than 200 feet and a visibility minimum of not less than ½ mile.[1]

Category C Aircraft Operations – Refers to Aircraft Approach Category (AAC) C operations, which is a grouping of aircraft based on a reference landing speed of 121 to 141 knots, if specified, or 1.3 times the stall speed at maximum certificated landing weight.

Category D Aircraft Operations – Refers to AAC D operations, which is a grouping of aircraft based on a reference landing speed of 141 to 166 knots, if specified, or 1.3 times the stall speed at maximum certificated landing weight.

Environmental Impact Statement (EIS) – A document that discusses the significant environmental impacts that would occur due to a proposed project, and informs decision-makers and the public of the reasonable alternatives to avoid or minimize adverse impacts. Public participation and consultation with other Federal, state, and local agencies is a cornerstone of the EIS process.

Fixed Base Operator (FBO) – A business located on the Airport that provides services such as hangar space, fuel, flight training, repair, and maintenance to airport users.

General Aviation (GA) – Generally, those United States-registered civil aircraft, which operate for private and noncommercial purposes and whose operations are not governed by Parts 119, 121, 125, or 135 of the *Federal Aviation Regulations (FAR)*. GA aircraft range from small single-engine propeller aircraft to large turbojet aircraft.

Instrument Landing System (ILS) – An electronic system installed at some airports, which helps guide pilots to runways for landing during periods of limited visibility or adverse weather.

National Environmental Policy Act of 1969 (NEPA) – The original legislation establishing the environmental review process for proposed Federal actions.

Navigational Aids (NAVAIDs) – Any facility used by an aircraft for navigation.

United States Geological Survey (USGS) – A scientific agency of the United States government. Scientists at the USGS study the landscape of the United States, its natural resources, and the natural hazards that threaten it.

[1] Other ILS CAT approaches, such as CAT II and III, are described in Section 1.1.2, under *Identification of Facility Requirements*. CAT I analysis is primarily used in this Chapter.

2. History of Replacement Airport Site Analyses

Over the years, SUN has undertaken significant steps to maintain a safe and efficient aviation facility. However, the significant limitations at the current airport site are clear, and their impact has been fully studied and documented in numerous analyses conducted over many years, starting in 1976. These analyses found that the long-term viability of the existing airport site is questionable; therefore, the FMAA should identify future possible replacement sites, for when the time comes to relocate the Airport. The 1983 Airport Master Plan first studied replacement airport sites, and then the more recent 2004 Master Plan Update, 2006 Feasibility Study, and the 2008 EIS Phase I Plan of Study re-evaluated the sites .

These two Studies, summarized in the following sections, contain the most recent documentation of potential replacement sites for the Airport:

- **Feasibility Study (2006)**
- **EIS Phase I Plan of Study (2008)**

2.1 Review/Summary of Feasibility Study (2006)

The 2004 Master Plan Update identified and evaluated potential options to address the Airport Reference Code (ARC) C-III compliance issues resulting from the increase in unscheduled CAT C and D operations, as well as scheduled airline service using CAT C aircraft. A series of alternatives were developed to address safety standards for existing operations and necessary facility improvements to accommodate forecast demand. While some of the improvements were possible within the existing property boundary, most of the options required significant expansion at the existing site.

Recognizing the impracticality of addressing safety standards and needed facility improvements at the existing site, the Friedman Memorial Airport Authority (FMAA) initiated the 2006 Feasibility Study to identify a suitable site for a replacement airport. The 2006 Feasibility Study identified a study area boundary, the required size of a replacement airport, a description of possible sites, the screening and evaluation of alternatives, and a financial feasibility analysis. The criteria used for selecting viable sites for the replacement airport included geographic proximity to the current airport, ILS service capability in all weather conditions, the ability to meet FAA safety and design standards, and the ability to accommodate current and future aircraft operations.

2.1.1 Study Area Boundary

The initial definition of the study area for the 2006 Feasibility Study included the area within a 60-minute drive time. The 60-minute drive time limit was a generally accepted industry standard for travel time to an airport.

The center of activity in the Wood River Region has historically been the Sun Valley Resort. Therefore, the initial 60-minute drive time identified for the 2006 Feasibility Study assumed that the majority of the Airport users were located in Sun Valley. However, while the resort and the communities of Sun Valley and Ketchum continue to have a significant impact on the Blaine County economy, development to the south in cities such as Hailey, Bellevue, and Carey represent a shift in growth patterns from historic norms.

As a result, the 2006 Feasibility Study recognized that siting of the replacement airport must consider the impact of the potential demand associated with new development in the southern portion of Blaine County, and the long established demand driven by Sun Valley. Therefore, the sites considered in the screening were all within a 60-minute drive time of Hailey and Sun Valley.

2.1.2 Replacement Airport Size/Desired Footprint

The 2006 Feasibility Study used an airport footprint template based on approximately 600 acres, configured to encompass the following:

- **One 8,500-foot primary runway**
- **One full-length parallel taxiway with connecting taxiways**
- **Associated safety areas, protection zones, and clearance setbacks as required for ARC C-III airport design standards**
- **Aircraft parking aprons with access taxiways**
- **Areas for terminal facilities, ARFF equipment and storage, maintenance equipment storage, and additional support facilities**
- **Areas for GA uses including an FBO and/or private hangars**

The template was placed over top the United States Geological Survey (USGS) maps and oriented to minimize topography impacts, while considering observed and prevailing winds. At the end of the process, 16 candidate sites were identified for inclusion in the site selection analysis.

2.1.3 Overview of Sites Identified in Site Selection Study

The following briefly describes the location of each of the 16 sites selected through the template method described above:

- **Site 1 –** Flying Hat Ranch located between the cities of Hailey and Bellevue along Idaho State Highway 75
- **Site 2 –** Diamond Dragon Ranch located northwest of the intersection of U.S. 20 and State Highway 75, and south of the Baseline Road alignment
- **Site 3 –** Located adjacent to Pero Road in the northern portion of the area created by State Highway 75 on the west, U.S. 20 on the south, and Gannett Picabo Road/State Route 23 on the east, known locally as The Triangle
- **Site 4 –** Also located in The Triangle, situated north of the U.S. 20 alignment between Schoessler Lane and Price Lane
- **Site 5 –** Also located in The Triangle, in the southeast corner, north of the U.S. 20 alignment near the intersection of U.S. 20 and Pumpkin Center Road
- **Site 6 –** Located to the south of U.S. 20 between Picabo Desert Road and Cutoff Road
- **Site 7 –** Queens Crown, located north of the U.S. 26/93 alignment near the intersection with Cutoff Road
- **Site 8 –** Mid Lava, located along the border of Blaine and Lincoln counties, between State Highway 75 and U.S. 26/93
- **Site 9 –** Located along the northern border of Lincoln County east of State Highway 75
- **Site 10 –** Sonners Flat in the southern portion of Blaine County, east of State Highway 75 and north-northeast of Wedge Butte

- **Site 11 –** Magic Reservoir, located south of the U.S. 20 alignment, west of Magic Reservoir in the area where Cottonwoods Road and Macon Flat Road intersect
- **Site 12 –** Located along the border of Blaine and Camas counties, north of the U.S. 20 alignment and east of County Line Road
- **Site 13 –** Located in Camas County, north of the U.S. 20 alignment, in the area of Princess Mine Road
- **Site 14 –** Also located in Camas County, south of the U.S. 20 alignment and East of SR 46, in the area of Bahr Ranch Road
- **Site 15 –** Located on the north side of U.S. 20, in the area of Rands Road
- **Site 16 –** Located north of U.S. 20 off Camp Creek Road near the historic mining town of Doniphan

The study identified 16 potential sites illustrated on **Figure E1**.[2]

2.1.4 Review of Site Selection Criteria used in the Study

Analysis of the 16 sites identified by the 2006 Feasibility Study used two levels of screening criteria and ranked sites according to compliance with the suggested evaluation criteria. Six criteria formed the basis of the initial screening: land area, clear airspace, Department of Transportation 4(f) lands, wetlands, special status species, and land use compatibility. The Study's Advisory Committee scored each of the 16 specific sites based on these six specific criteria. Three sites were carried forward from the initial screening and were referred to as preferred sites 9, 10, and 13.

The three preferred sites were then ranked based on a secondary set of criteria grouped into three separate categories. The criteria included:

PHYSICAL SUITABILITY OF THE SITE

- **Availability of adequate, suitable land area**
- **Terrain and topographic compatibility**
- **Weather-related constraints**
- **Proximity to ground transportation systems**
- **Physical site conditions**

ENVIROMENTAL SUITABILITY OF THE SITE

- **Wetlands**
- **Water Resources**
- **Land Use**
- **Biotic Communities**
- **Cultural Resources**

[2] Sites 10a and 17 were not identified until the EIS Phase 1 Plan of Study (2008). These sites will be discussed and evaluated in more detail later in the chapter.

SOCIAL AND ECONOMIC SUITABILITY OF THE SITE

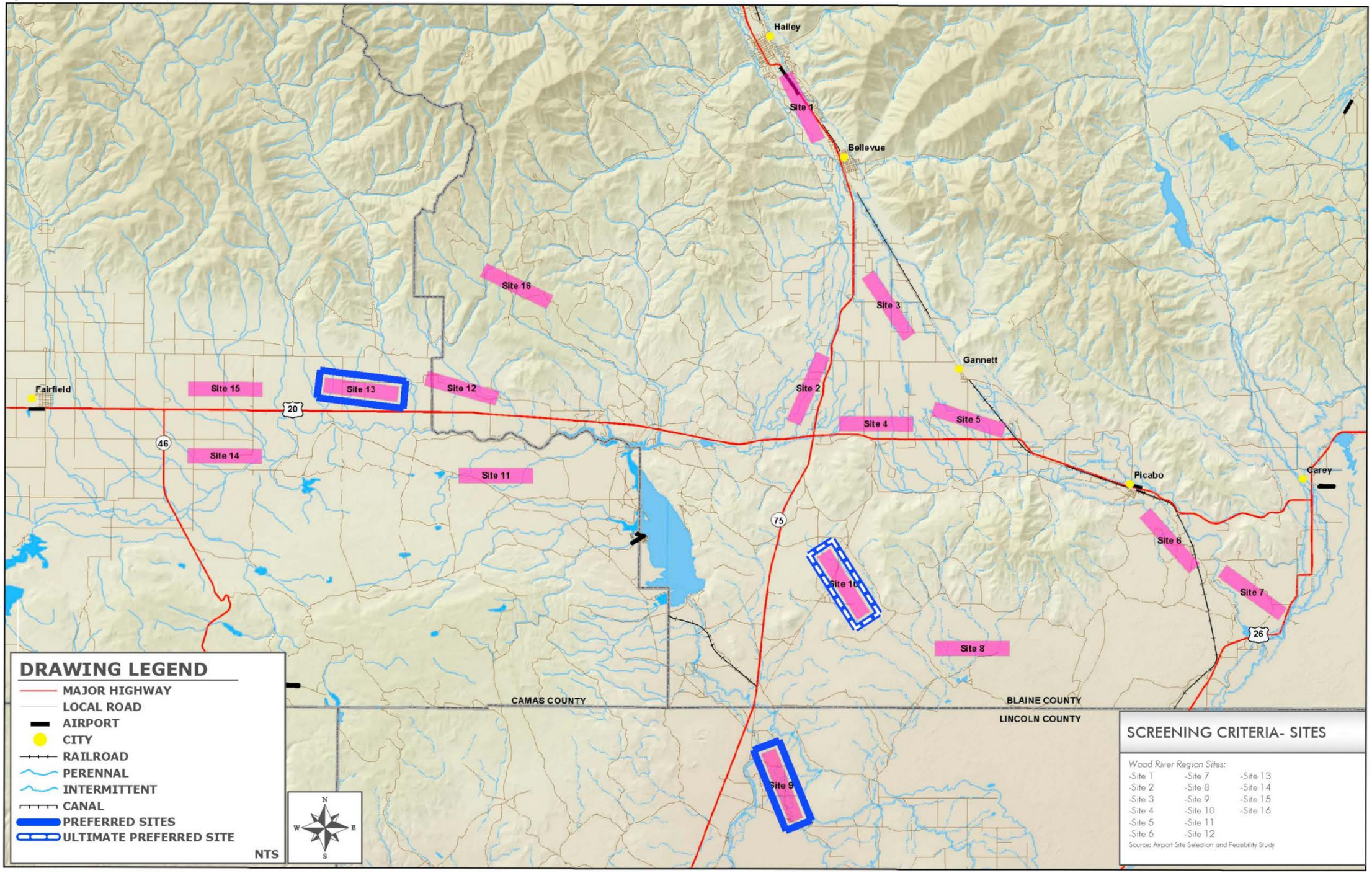
- **Population Trends**
- **Geographic Proximity**
- **Land Use Compatibility**
- **Direct Impacts to Human Environments**
- **Viability of Site Acquisition**
- **Facility Costs**
- **Air Service**
- **Regional Growth and Development Patterns**
- **Compatibility with Regional and Local Planning Initiatives**
- **Jurisdictional Responsibilities**

The above secondary criteria formed the evaluation basis for the final three sites, and each then received a score from 1-5, with 5 being the best. The highest scoring site was Site 9, followed closely by Site 13. Site 10, based on the scoring of alternative sites, ranked the least desirable. Using input from the Advisory Committee and the public, the FMAA decided not to pursue expansion at the present Airport site and put additional expansion on hold. The Advisory Committee also determined unanimously that Site 9 was the best to present to the FMAA. After the FMAA reviewed the three finalists, they voted on two resolutions. The first was to remove Site 13 from the list of finalists. The second vote was to select the area on, or around, Site 10 as the preferred area for the development of the replacement airport. The following key factors were the basis for preference of Site 10 over Site 9:

- **Geographic proximity**
- **Proximity to State Highway 75**
- **Political Jurisdiction**
- **Implementation**

The Board of County Commissioners viewed Site 10 as representative of a larger geographic area ranging from the Timmerman Hills, south along State Highway 75, to the Blaine County line. The 2006 Feasibility Study points out that, while it appeared that the FMAA selected a site having less feasibility than others, the selection of Site 10 recognized additional community and political factors, which would theoretically allow for the successful relocation of the existing Airport. Site 10 is located on Sonners Flat in southern Blaine County, just north of Wedge Butte, east of State Highway 75, and west of the Picabo Hills. After site 10's selection, a financial feasibility analysis moved forward, which estimated costs for building a new airport, and projected revenues and expenses expected from its operations.

Figure E1 FEASIBILITY STUDY (2006) – ALTERNATIVE SITES



Source: Landrum & Brown Analysis, 2014

The 2006 Feasibility Study served as a catalyst for the FAA to embark on an EIS for a Replacement Airport. The 2008 EIS Phase I Plan of Study accounted for and further developed the 16 potential sites identified by the 2006 Feasibility Study. Of the 16 sites, seven had minimal or no changes to their configuration or previously identified location. The locations of the remaining nine sites either were adjusted or reconfigured to accommodate a crosswind runway[3], or both (to improve site viability).

Of the seven sites carried forward with minimal or no change to their configuration or previously identified location, one was the existing Airport site. The remaining six of the seven sites included:

- **Site 3: North Central Triangle**
- **Site 4: U.S. 20/Southwest Triangle**
- **Site 5: U.S. 20/Southeast Triangle**
- **Site 13: U.S. 20/East Camas County**
- **Site 14: State Route 46 South of U.S. 20**
- **Site 15: State Route 46 & U.S. 20**

The remaining nine sites carried forward (subject to location adjustment or reconfiguration to accommodate a crosswind runway, or both), included:

- **Site 2: Diamond Dragon Ranch Vicinity**
- **Site 6: Southeast of Picabo/U.S. 20**
- **Site 7: U.S. 26/93, South of Carey**
- **Site 8: Mid-Lava**
- **Site 9: State Highway 75/North Lincoln County**
- **Site 10: Sonners Flat**
- **Site 11: Camas Prairie**
- **Site 12: U.S. 20/West Blaine County**
- **Site 16: Camp Creek Road**

[3] It is not always possible to achieve the design objective to orient primary runways to provide the 95 percent crosswind component coverage recommended in AC 150/5300-13, *Airport Design*. In cases where this cannot be done, the FAA recommends a crosswind runway be provided. Therefore, in cases (i.e. alternative sites) where adequate wind coverage could not be met with one runway, a crosswind runway was provided.

2.2 Review/Summary of EIS Phase I Plan of Study (2008)

The 2008 EIS Phase I Plan of Study included documentation of reviews and associated findings related to the following:

- **Determination of the guiding parameters for pre-planning analyses, including study area identification, facility requirements for new airport sites, identification of 2006 Feasibility Study sites carried forward, and possible additional sites and any refinements required for the sites being carried forward.**
- **Evaluation of all identified sites. The evaluation of alternative replacement airport sites focused on the assessment of each identified site from an aviation-related perspective, leaving the analysis of environmental issues to the FAA's Draft EIS (2011), which the FAA ultimately terminated prior to completion.**

2.2.1 Guiding Parameters of Analysis for EIS Phase I Plan of Study

Prior to identifying and analyzing possible replacement airport sites, a set of guiding parameters, or assumptions, were established to help direct the pre-planning efforts and identification of alternatives to carry forward into the EIS. These guiding parameters are presented below:

- **Comply with FAA design and safety standards commensurate with current use (currently C-III) and future aviation demands for the region,**
- **Provide reliable and safe access to all users in adverse weather via a minimum of a 200-foot ceiling and one-half mile visibility CAT I ILS,**
- **Provide for appropriate approach and departure protection and capability,**
- **Provide for the continuation of air carrier service and other aviation operations for the region,**
- **Provide adequate land area to accommodate future demands and provide the flexibility to meet the needs of the volatile aviation industry,**
- **Provide access to communities in the Wood River Region,**
- **Minimize impact to the environment, and**
- **Assume the existing Airport will close (i.e. the existing and replacement airport will not be operational at the same time).**

2.2.2 Identification of the Initial Project Study Area

The study area for the 2008 EIS Phase I Plan of Study covers a broad area so that potential impacts resulting from the potential development of any alternative could be assessed adequately in subsequent analyses. The Initial Project Study Area, shown in **Figure E2,** covered approximately 1,960 square miles in South Central Idaho. Squaring off an area bounded by the following towns and roads roughly defines the study area boundary:

- **Highway 46 to the west;**
- **The town of Ketchum, Idaho, to the north;**
- **The town of Carey, Idaho, to the east; and**
- **The town of Shoshone, Idaho, to the south.**

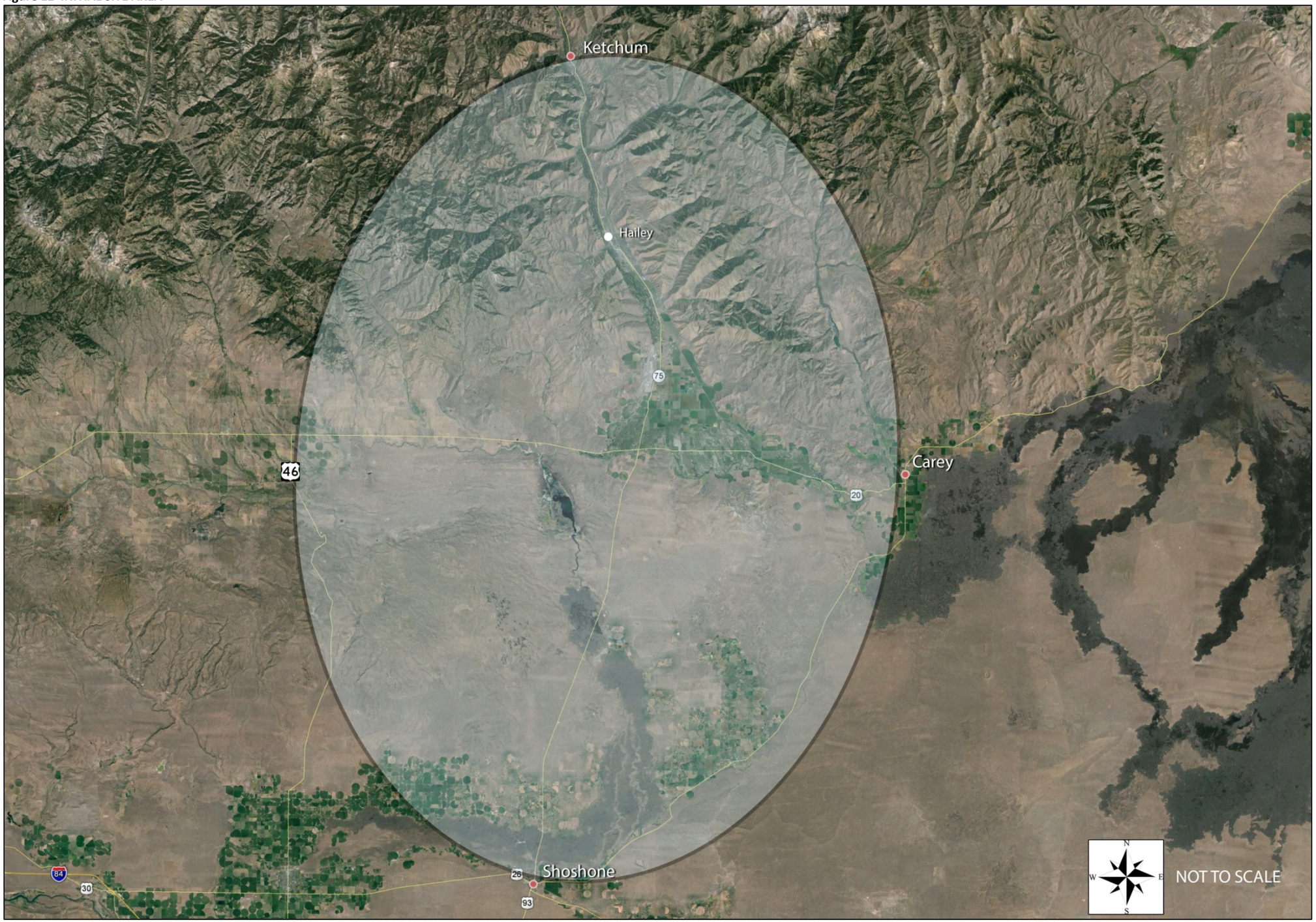
Four areas were included when determining the size of the initial area of investigation. First, the existing Airport site was critical, and then areas affected by approach and departure routes to and from the existing Airport. Third, those portions of Blaine, Camas, and Lincoln counties containing previously reviewed potential airport sites as part of the 2006 Feasibility Study were essential. Finally, areas where additional potential alternative sites might be identified was included.

2.2.3 Identification of Facility Requirements

A combination of factors formed the basis for selection of the facility/airside layouts and boundaries for each alternate airport site. Consideration was given to the Airport's current allocation of space and existing facility dimensions. Land use at existing airports of comparable size and market potential, and calculations and analyses derived from future air traffic forecasts for the region also influenced the selection.

Common airport footprint templates, or size of functional areas, were identified for the site area, runway length, terminal area, FBO area, GA area, approach and navigational aids, and ground access routes. The following narrative explores the individual aspects of the Airport's facilities, as well as how each area's requirements were reached.

Figure E2 INITIAL SITE AREA



Source: Landrum & Brown Analysis, 2015

RUNWAY LENGTH

Based on the Runway Length Analysis presented in the 2008 EIS Phase I Plan of Study, an 8,500-foot primary runway length was required to meet the needs of the majority of the forecast aircraft fleet mix (at that time). This included the Airport's existing and future critical/design aircraft, the De Havilland Dash 8-Q400 (existing) and Airbus 319/320 (future).

The purpose of the 2008 EIS Phase I Plan of Study runway length analysis was to determine an adequate length for the replacement airport's primary and crosswind runways. Runway length requirements were identified for several aircraft groups, such as narrow body air carriers, turbo props, and regional jets, forecast to operate at the airport through 2021. Examples of aircraft expected to provide air service in the future included the B737, A319, A320, CRJ, ERJ, and Dash 8-Q400.

The runway length requirements were calculated using charts published in the manufacturers' aircraft performance manuals and considering the airport elevation above mean sea level (MSL), hot day temperature, and the performance characteristics and operating weight of aircraft forecast to serve the airport. The operating weight of an aircraft is dependent on the amount of fuel needed to reach the destination, the amount of payload, which means passengers, baggage, and cargo, and operating empty weight (OEW). Both the amount of fuel required to complete the flight, and the payload are variable quantities that can fluctuate depending on destination and season, among other factors.

Airport elevation was consistently listed as 5,500 feet above MSL for all runway length calculations based on the current airport elevation. However, this elevation is generally conservative, since most of the alternate sites were in a location approximately 500 feet below this height. The average temperature on a hot day, 81° F, is a measure of the typical warmest temperature average during the year. A hot day reference temperature is the safest option to choose when determining runway length since it accounts for days when longer than usual take off distances are necessary.

Four destinations of varying stage lengths were identified as potential markets for the replacement airport based on the airlines that served the Airport, and airlines expressing interest in providing future air service, according to airline surveys conducted by Landrum & Brown, at the time. These destination airports serve as hubs for major airlines and include Los Angeles International Airport, Denver International Airport, Minneapolis-St. Paul International Airport, and Chicago O'Hare International Airport. The range flown between the new airport and these locations varies, with Denver being the closest airport, at 484 nautical miles, and O'Hare being the farthest, at 1,165 nautical miles. The maximum ranges of each aircraft expected to provide air service greatly exceed the stage lengths from SUN to each of the four destinations mentioned above. Consequently, the fuel necessary to travel these distances would be less than the maximum fuel capacity each aircraft can hold, allowing the fuel takeoff weight to be reduced. This in turn reduces the length of runway required for takeoff. Commercial air service providers typically attempt to use the least amount of fuel necessary to operate a flight to maintain efficiency, but enough to allow a safe and complete flight. These weight reductions allow for an overall decrease in the runway takeoff length requirements.

Payload weight accounts for a significant portion of the total takeoff weight since it considers passengers, baggage, and cargo the aircraft carries. This runway length analysis assumed 225-pounds per passenger weight when calculating passenger load. Aircraft hauling cargo, in addition to their usual load, was assumed unlikely based on existing forecasts and practices at the time.

If full payload and fuel weight were used for the Airport runway length calculations for all the proposed aircraft, then runway takeoff lengths required for a number of the aircraft types would be above typical runway lengths at comparable airports. Therefore, several payload and fuel weight scenarios were considered in the runway length analysis revealing a consistent 8,500-foot runway length average for the primary runway for the new airport. The runway length analysis for a crosswind runway resulted in a length of 6,800 feet. According to FAA recommendations, "100% of the recommended runway length determined for the lower crosswind capable airplane using the primary runway" should be the standard for determining the crosswind runway length. In reference to the FAA Advisory Circular 150/5325-4B *Runway Length Requirements for Airport Design,* the Dash 8 Q400 represents the "lower crosswind capable airplane" in this analysis, and requires 6,800 feet for runway takeoff length at maximum takeoff weight. The crosswind runway may also potentially serve as the premier runway for general aircraft operations. If this function occurs frequently, then the constructed runway length may be less length than indicated in the analysis, since the crosswind runway would be maintained ultimately for GA aircraft operations rather than commercial.

The recommended takeoff runway length for a primary runway at the Airport, based on projected aircraft use, average hot day temperatures, and average airfield elevations, is 8,500 feet long, and the suggested crosswind runway length is 6,800 feet long.

SITE ACREAGE

As previously mentioned, the 2006 Feasibility Study focused on the identification and selection of sites having a minimum of 600 acres of land. The conceptual layout of the replacement airport used to identify potential sites and required acreage only encompassed land area for a single 8,500-foot-long runway. Along with the runway, it also included the land associated with the RPZ off each runway end and additional acreage off the sides of the runway to provide space for aviation-related development.

The 2008 EIS Phase I Plan of Study site evaluation process resulted in the need to consider providing a crosswind runway at several of the sites reviewed in the 2006 Feasibility Study (including the sponsor's proposed site). The general parameters of the property envelope identified in the 2006 Feasibility Study could not accommodate this need. Therefore, it was necessary to review and redefine what the property envelope for the replacement airport site would be.

Because the application of a single acreage value to all sites was considered unrealistic, each site was reviewed individually, in terms of area required for major airport facilities, and incorporating area to ensure long-range accommodation of demand. Also, to the extent possible, the property boundary was identified using existing property limits, physical features, and roadways, attempting to avoid the creation of irregular property remnants. Breaking the Airport into its major components and defining the area each component required yielded the property area definition. These major components consisted of the airfield and associated safety areas, protection zones, and object free areas, the terminal area, and supporting uses typically accommodated within the terminal, GA, and FBO area. The following sections present the basis for defining these required areas.

TERMINAL AREA ENVELOPE

Aside from the airfield, a central element of the proposed future airport was the passenger terminal complex, and the various uses and facilities that support the day-to-day operation and function of the terminal.

The needs of the facility on the day of commissioning are critical, but also understanding that the facility will serve the Wood River Region for decades to come is essential for defining the acreage requirements for terminal area

facilities and operations. This foresight ensures additional acreage procurement for accommodating the incremental expansion of facilities over their lifetime.

To estimate the terminal area envelope, the benchmarking process involved an array of comparable airport terminal areas. A series of commercial service airports were identified having enplaned passenger levels ranging from approximately 80,000 annually to at least one airport with approximately 570,000 annually enplaned passengers. The majority had passenger levels between 100,000 to 250,000 annually. In the benchmarking process, consideration was given to obtaining a sampling of airports located in the western U.S., along with facilities serving resort destinations, as is the case with SUN.

For purposes of defining the terminal area, the following features were incorporated: the area occupied by the commercial passenger building, the terminal aircraft parking ramp, terminal circulation roadways, public parking areas, rental car ready return parking areas, and rental car service areas, to the extent that they were in proximity to the terminal. The following airports had these features and their respective terminal area acreages were calculated for the benchmarking process (see **Table E1**). As the table depicts, benchmarking comparable airports revealed an average terminal area acreage of approximately 30 acres. Therefore, a relatively conservative land mass of 50 acres was applied as the terminal area template size for all proposed airport site locations.

Table E1
TERMINAL AREA ENVELOPE - BENCHMARK ANALYSIS

Airport/Community	Enplaned Passengers	Terminal Area Acreage
Northwest Arkansas Regional Airport – Bentonville, AR (XNA)	567,341	59.43
Billings Logan International Airport – Billings, MT (BIL)	403,645	39.71
Gallatin Field – Bozeman, MT (BZN)	318,115	27.75
Asheville Regional Airport – Asheville, NC (AVL)	289,550	42.12
Missoula International Airport – Missoula, MT (MSO)	276,170	35.29
Jackson Hole Airport – Jackson, WY (JAC)	274,031	21.76
Rapid City Regional Airport – Rapid City, SD (RAP)	226,323	36.20
Eagle County Regional Airport – Vail/Eagle Co. (EGE)	217,039	30.10
Roberts Field – Redmond, OR (RDM)	205,930	47.54
Aspen-Pitkin County – Aspen, CO (ASE)	201,642	8.0
Monterey Peninsula Airport – Monterey, CA (MRY)	200,091	15.49
Glacier Park International Airport – Kalispell, MT (GPI)	175,157	27.56
Grand Junction Regional – Grand Junction, CO (GJT)	159,509	24.74
Bellingham International Airport – Bellingham, WA (BLI)	135,129	17.09
Yampa Valley Airport – Steamboat Springs, CO (HDN)	131,448	24.90
Durango-La Plata County Airport – Durango, CO (DRO)	113,516	22.80
AVERAGE	**243,415**	**30.03**

Source: Landrum & Brown, June 2008

FIXED-BASE OPERATOR AND GENERAL AVIATION ENVELOPE

FBO and GA airport facilities also factor into planning the replacement airport site. The FBO and GA aviation sector includes corporate hangars and buildings, flight schools and training, recreational and sport aircraft storage, apron areas outside the terminal apron, private hangar and building space, and automobile parking areas for these facilities. The same considerations applied when determining the terminal acreage (in terms of meeting future needs, as opposed to accommodating only current demand) also pertain to the FBO and GA area envelope.

The benchmarking process used to determine the approximate size for the terminal acreage template was also applied to establishing the FBO and GA area template size. FBO and GA acreages were measured from the same airports identified for the terminal area benchmarking. **Table E2** displays the FBO and GA acreage amounts calculated for the selected airports and displays the airports' average acreage amount.

Table E2
FBO AND GA ENVELOPE - BENCHMARK ANALYSIS

AIRPORT/COMMUNITY	ENPLANED PASSENGERS	FBO/GA ACREAGE
Northwest Arkansas Regional Airport – Bentonville, AR (XNA)	567,341	51.23
Billings Logan International Airport – Billings, MT (BIL)	403,645	131.55
Gallatin Field – Bozeman, MT (BZN)	318,115	87.16
Asheville Regional Airport – Asheville, NC (AVL)	289,550	47.65
Missoula International Airport – Missoula, MT (MSO)	276,170	84.09
Jackson Hole Airport – Jackson, WY (JAC)	274,031	26.22
Rapid City Regional Airport – Rapid City, SD (RAP)	226,323	64.26
Eagle County Regional Airport – Vail/Eagle Co. (EGE)	217,039	33.82
Roberts Field – Redmond, OR (RDM)	205,930	72.76
Aspen-Pitkin County – Aspen, CO (ASE)	201,642	40.17
Monterey Peninsula Airport – Monterey, CA (MRY)	200,091	127.96
Glacier Park International Airport – Kalispell, MT (GPI)	175,157	48.15
Grand Junction Regional – Grand Junction, CO (GJT)	159,509	80.55
Bellingham International Airport – Bellingham, WA (BLI)	135,129	43.41
Yampa Valley Airport – Steamboat Springs, CO (HDN)	131,448	11.24
Durango-La Plata County Airport – Durango, CO (DRO)	113,516	39.25
Friedman Memorial Airport (SUN)	70,057	36.76
AVERAGE	**243,415**	**60.36**

Source: Landrum & Brown, June 2008

Based on the benchmarked airport measurements shown on **Table E2**, the average size for FBO and GA areas at airports comparable to SUN is approximately 60 acres. As a means of providing extra flexibility to this average, a template size of 75 acres was placed on the alternate airport sites to represent the FBO and GA area for initial planning purposes. Also, in defining the acreage for each of the sites, additional acreage adjacent to the runway system was incorporated into the property envelope to ensure the availability of land for development of expanded facilities in the future.

APPROACHES AND NAVAIDS

In addition to providing area for the airfield and aviation-related-development, the 2008 EIS Phase I Plan of Study analysis also considered the extent to which approach capability should be enhanced and the range of NAVAIDS that should be incorporated into the development of a replacement airport. At the time the 2008 EIS Phase I Plan of Study, the definition of approach capability and the NAVAIDS needed to support these approaches were in a state of fluctuation because the FAA was moving towards a satellite-based system in lieu of ground-based navigation aids; this continues to be the case. While all indications continue to support that the agency is intending to move entirely to a satellite-based air navigation system, the timing of full implementation of this process will depend heavily upon federal funding and congressional appropriations. Potential still exists for the FAA to complete their conversion from land-based NAVAIDs to satellite-based aids by the time a potential replacement airport commences operations. However, to address any possible delays, the analysis considered the fact that development of future approaches could require either the purchase of new navigational equipment or the relocation of existing systems that presently serve the current airport.

The Airport is currently conducting an independent study to identify potential incremental improvements to decision height to decrease the minimums as much as possible. While this is in progress, the fact remains that one of the key limitations that have significantly impacted SUN is the high minimum descent altitude associated with the approaches to the current runway. The Minimum Descent Altitude is defined as "the lowest altitude specified in an instrument approach procedure, expressed in feet above MSL, to which descent is authorized on final approach or during circle to land maneuvering until the pilot sees the required visual referenced for the runway of intended landing."

At the time of the 2008 EIS Phase I Planning Study, the lowest minimum descent altitude was 1,000 feet above the airfield elevation with three miles horizontal visibility. This capability is only available if the aircrew has special authorization and training, and the aircraft is specially equipped, which most are not. For those that cannot obtain special authorization, the minimum descent altitude increases to 1,800 feet above the airfield elevation. As a result, approximately 22 percent of commercial flights and an unknown number of GA flights were diverted to airports in the surrounding region, rather than being able to land at SUN during winter months. To ensure the reliability of the Airport and its capability to accommodate operational activity not only during fair weather conditions, but also in periods when visibility has been reduced below visual flight rule (VFR) conditions, the Airport must be equipped with a suite of basic NAVAIDs and provided with approaches that allow for instrument operational capability.

During the 2006 Feasibility Study, the issue of flight completion reliability contributed to the determination that the future replacement airport needed to be capable of accommodating at least one CAT I ILS. The CAT I system would be required to accommodate operations when cloud ceilings are no lower than 200 feet above the airfield elevation and visibility is not less than one-half mile. This capability is a major improvement over current conditions and is relatively consistent with other commercial service airports of similar size. It was further decided that sites would also be evaluated for their ability to provide added instrument approach capability should the demand ever dictate. Providing at least one CAT I approach was identified as a minimum threshold criteria in the site evaluation process. Based on detailed discussions with the FAA, the ability to accommodate more than one CAT I or to accommodate a CAT II capability was factored into the assessment of site flexibility and expansion capability. The three categories of instrument landing minimums are defined below as are the three variations on CAT III minimums:

- **Category I –** Decision Height (DH) 200 feet and Runway Visual Range (RVR) 2,400 feet;
- **Category II –** DH 100 feet and RVR 1,200 feet;

- **Category IIIa –** No DH or DH below 100 feet and RVR not less than 700 feet;
- **Category IIIb –** No DH or DH below 50 feet and RVR less than 700 feet, but not less than 150 feet;
- **Category IIIc –** No DH and no RVR limitation.

Note that for both CAT II and III, special authorization and aircraft equipment is required before the procedure can be used.

Assuming the development of a CAT I approach capability, certain NAVAIDs must be incorporated into the design of the replacement airport and provisions made for their deployment. A CAT I approach will require the installation of a full ILS (assumes current ground-based system reliance) consisting of a localizer antenna, glide slope antennae, an approach light system, and two electronic marker beacons located along the final approach. The two beacons are typically located off airport due to the distance the marker beacons need to be from the runway landing threshold. Land area to accommodate the localizer, glide slope, and approach light system has been incorporated into the overall land area requirements already discussed. Land acquisition for the marker beacons would be minimal and the location of this property entirely dependent upon the site selected.

In addition to the equipment comprising the ILS for the approach, there could also be the need to acquire and site an additional land-based NAVAID to meet the need for missed approaches. Discussions with representatives of the FAA Air Route Traffic Control Center (ARTCC) indicated that they anticipate the use of GPS technology to identify a navigation fix to use as a basis for specifying a missed approach procedure for the selected site. Should this not occur, it would be necessary to consider the installation of some other ground-based system. This might consist of relocating the existing Non-Directional Beacon (NDB) that currently serves SUN (located immediately south of Site 4), the acquisition of a new NDB (if the systems remain available), or the acquisition and installation of a Very High Frequency Omni-Directional Range Station with Distance Measuring Equipment (VOR/DME).

Development of a CAT II approach capability would trigger the need for several enhancements to the systems required to support the lower approach minimums. As noted, the evaluation of sites does consider the possibility to accommodate either multiple CAT I capabilities and/or a CAT II capability as a part of the analysis of flexibility and expansion capability. A CAT II approach would require installation of an additional marker beacon along with a significant upgrade to the approach lighting system from a Medium-Intensity Approach Lighting System with runway alignment indicator lights (MALSR) to a standard 2,400-foot high-intensity Approach Lighting System with Sequenced Flashers (ALSF-2), installation of Touchdown Zone (TDZ) lighting, and runway centerline lights.

A further improvement noted by the FAA Northwest Region representatives and representatives of the FAA Salt Lake ARTCC is the installation of an Airport Surveillance Radar (ASR) to assist in handling short-range air traffic in close proximity (60 miles or less) to the future airport and terminal area. The potential for the location of an ASR in conjunction with the replacement airport was incorporated into the assessment of the individual alternative airport sites.

Finally, while technically not an approach aid, it is anticipated that the future airport will be served by an ATCT, as is the case with the existing Airport. Whether this ATCT will be an FAA or a contract tower will be determined at that time. The land area requirements of the terminal area previously noted assume space requirement for this facility.

GROUND ACCESS ROUTES

An airport access roadway is an essential requirement, because it connects the proposed airport facilities to the nearest primary highway at each airport site. In determining the optimum placement for ground access roads at the future airport locations, a key objective was to develop a roadway with the shortest distance possible between the Airport facilities and the nearest highway. The purpose of aiming toward this goal was multi-faceted and ultimately structured towards the following:

- **Minimizing environmental impacts**
- **Reducing the need for additional land acquisition**
- **Reducing the cost of development**

Roadway placement varied between either retaining and using existing roadway(s) near the site, or using newly constructed routes. Placement of access roads on current roadways was an appealing because it allowed for reduced development costs (new roadway versus modifying current roadway) and minimization of environmental impacts. However, direct, newly developed routes persisted as the prevailing option because these roadways generally were the shortest distance attainable between the proposed facilities and the closest highway. The lengths of new roadways often ranged between one to two miles long for most proposed sites.

2.2.4 Evaluation of all Identified Sites - Summary

A total of 18 sites were identified in the EIS Phase I Plan of Study (2008), including Site 1, known as the existing Airport site (see **Figure E3**). Fifteen of the eighteen sites (all sites but Sites 1, 10A and 17) were from the 2006 Feasibility Study. Nine of the fifteen were modified as part of the 2006 EIS Phase I Plan of Study, and the remaining two sites (10A and 17) were developed as part of EIS Phase I Plan of Study (2008) and considered new.

Three alternatives were defined for Site 1 that allowed for redevelopment of the site to accommodate proper FAA design standards, as well as future Airport expansion. However, an alternative layout/configuration could not be found that also addressed the concern of service reliability during the winter months. After many conversations with the FAA (at the time), it was determined that Site 1 would not be able to achieve significantly lower minimums either through new/upcoming technologies or by reconfiguration as the surrounding topography would not allow for it. This limitation eliminated the three alternatives for the existing Airport site; therefore, Site 1 was not analyzed further. It should be noted that the Airport is currently conducting an independent study to identify potential incremental improvements to decision height to decrease the minimums as much as possible since replacing the airport is not currently a possibility. However, the decision height cannot be lowered enough to achieve a 200-foot ceiling with ½-mile visibility minimums.

In addition, Site 16 was also eliminated early in the screening process due to multiple fatal flaws. For example, one was the inability to provide for CAT I missed approach capability for northwesterly arrivals. Another was the inability to accommodate a CAT I approach to the southeast, and finally, significant drive times ranging from 77 minutes to 155 minutes to Sun Valley/Ketchum, Hailey, Bellevue, Shoshone, Carey, and Twin Falls contributed to Site 16's elimination from analysis.

Thus, the remaining 16 sites were evaluated in further detail as part of the 2008 EIS Phase I Plan of Study and analyzed using specific screening criteria. These 16 sites are depicted, along with brief site descriptions, on **Figures E4 through E19**.

Three levels of screening that comprised 14 total criteria were used to narrow the list of potential replacement sites to the most viable options, and these are described in the following paragraphs.

TIER ONE EVALUATION: FATALLY FLAWED SITES

1. Category I Approach\Missed Approach Capability for the Primary Runway
2. 60-minute maximum drive time from Ketchum, Hailey, Bellevue, and Carey

With the use of the Tier One fatal flaw criteria, eight alternate airport sites lacked one or both of these vital factors. A site was eliminated if it failed either of the two criteria—the site did not have to fail both criteria for it to be "fatally flawed." Eight sites (2, 3, 7, 8, 11, 14, 15, and 16) were identified as unsuitable for the replacement airport. As a result, nine remaining sites were evaluated further.

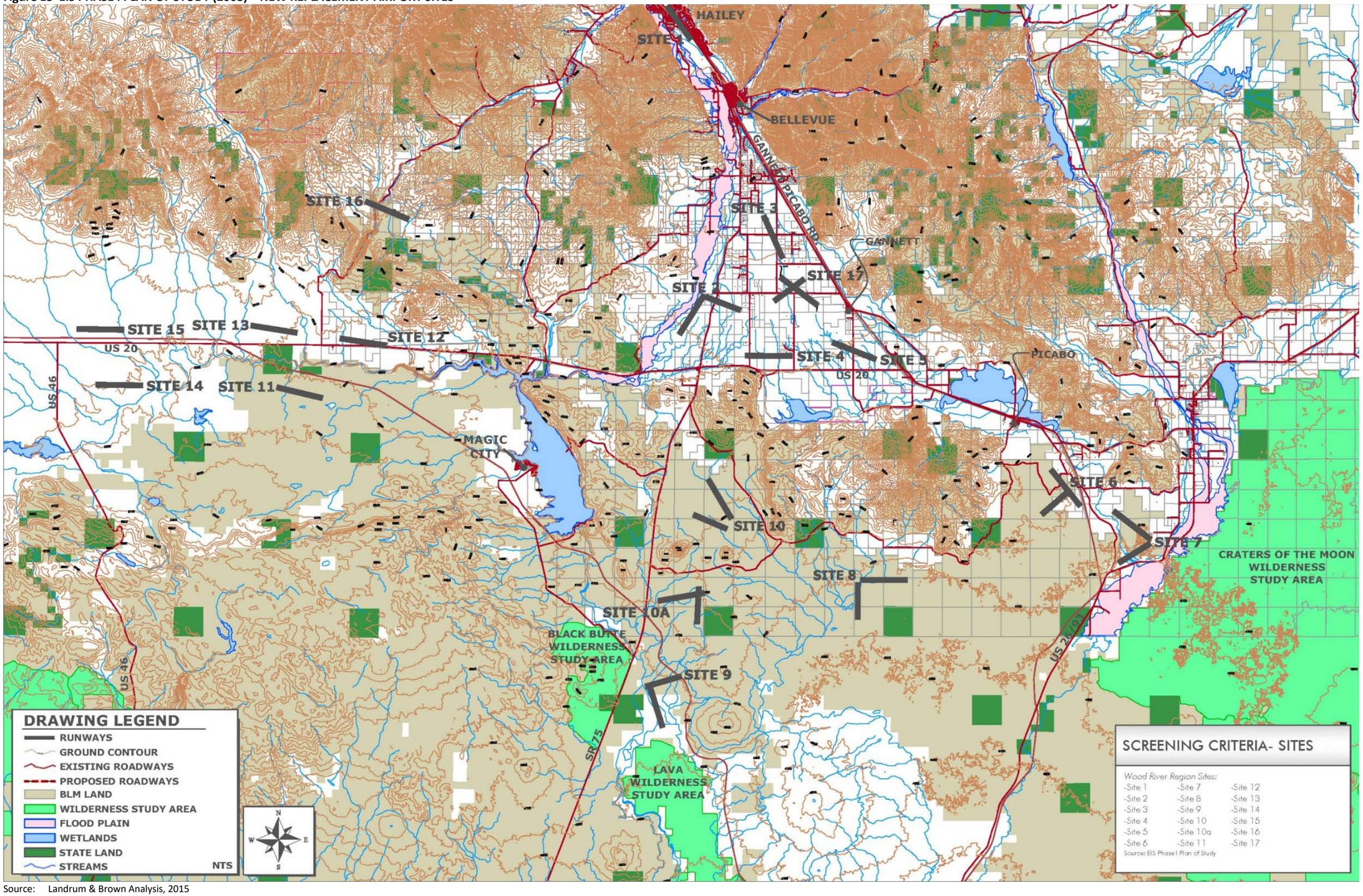
TIER TWO EVALUATION: EVALUATION OF NON-FATALLY FLAWED ALTERNATIVE AIRPORT SITES

3. Safety Considerations
4. Topography of the Site
5. Landside Expansion Capability
6. Airside Expansion Capability
7. Site Development Factors
8. Conformity with Local, State, and Federal Land Use Regulatory Requirements
9. Sponsorship
10. Property Ownership Considerations
11. Proximity to Demand
12. Accessibility to Regional Roadways

The Tier Two analysis of the remaining nine sites (4, 5, 6, 9, 10, 10A, 12, 13, and 17) evaluated the sites on additional criteria. Unlike Tier One criteria, the Tier Two criteria were not considered fatal flaw criteria. Tier Two criteria evaluated the constructability, expandability, and accessibility of the sites, as well as the sponsorship, and conformity with local, state, and federal land use regulatory requirements. Safety was addressed relative to the location of the various sites to known wetlands, which are attractants for animals of concern to aircraft operators (such as waterfowl and large mammals). Wetlands were also of concern in terms of constructability; however, the Tier Two analysis did not evaluate the environmental impacts associated with siting an airport on or near wetlands. That analysis would occur during the environmental analysis of the sites that move forward in the EIS process.

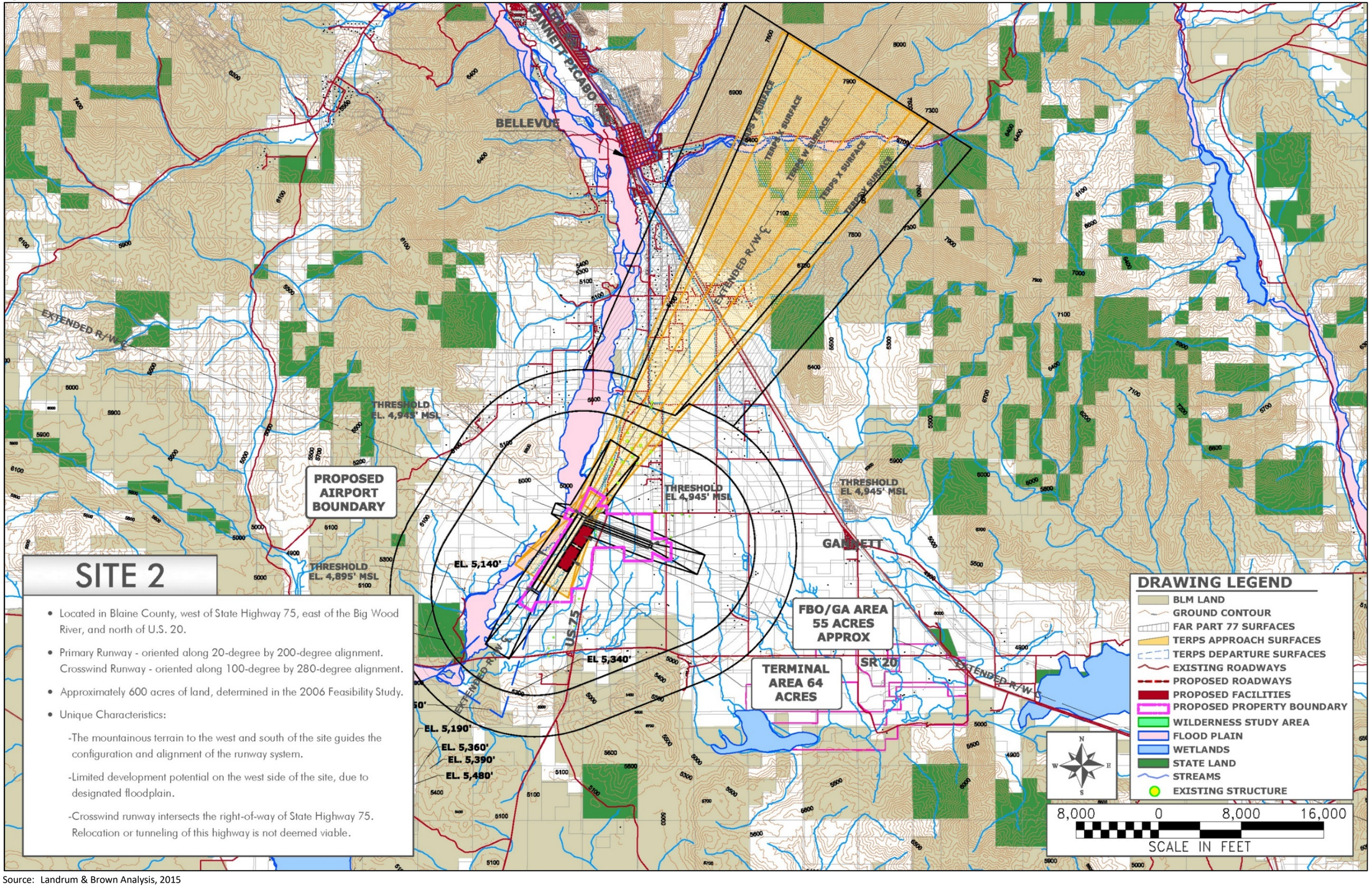
Several of the above criteria comprised multiple sub-criteria. For example, under Site Development Factors, seven individual sub-criteria were combined to arrive at an overall site rating score ranging between 0 (worst) to 5 (best) for that individual evaluation criteria.

Figure E3 EIS PHASE I PLAN OF STUDY (2008) – NEW REPLACEMENT AIRPORT SITES



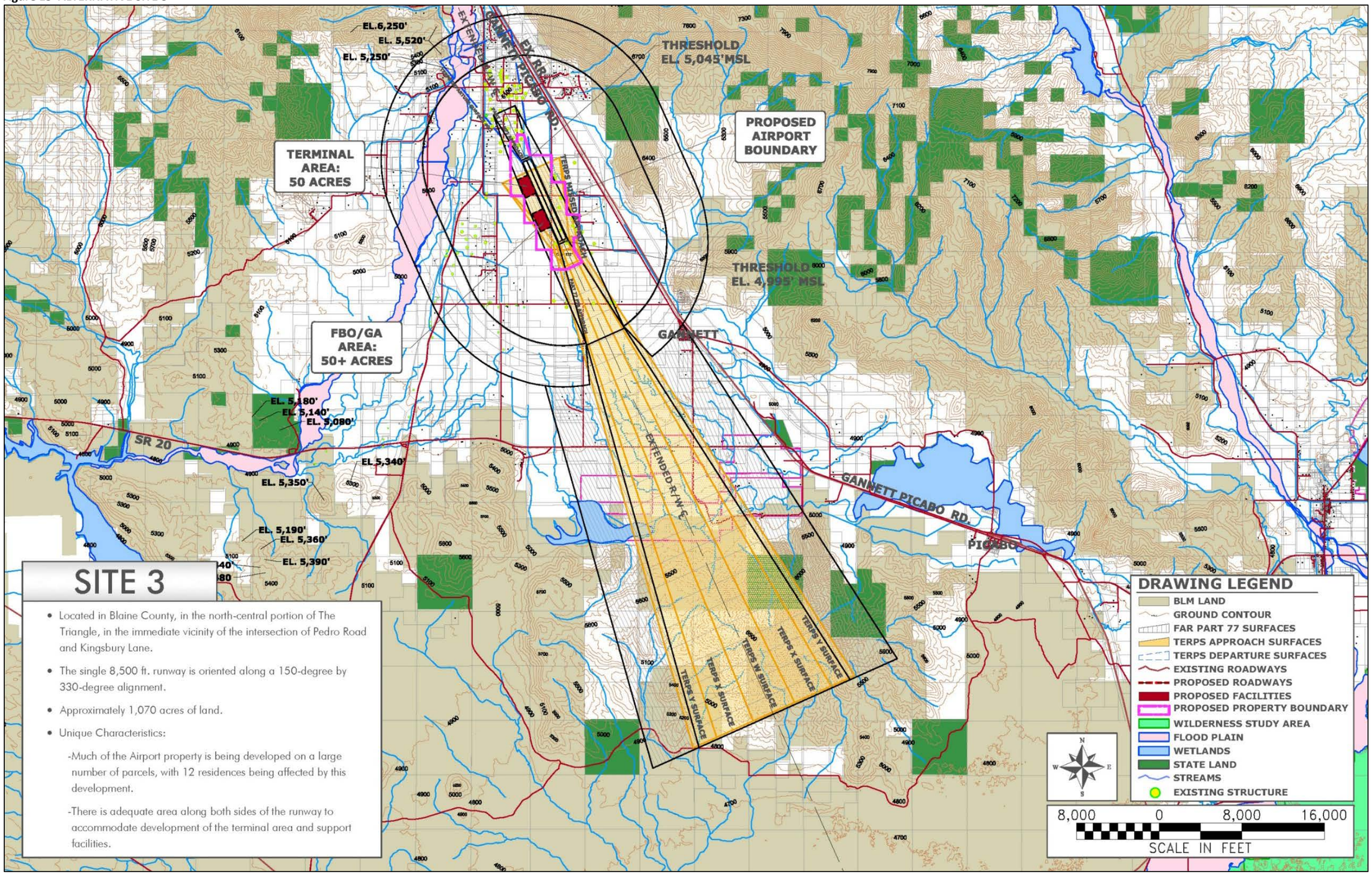
Source: Landrum & Brown Analysis, 2015

Figure E4 ALTERNATIVE SITE 2



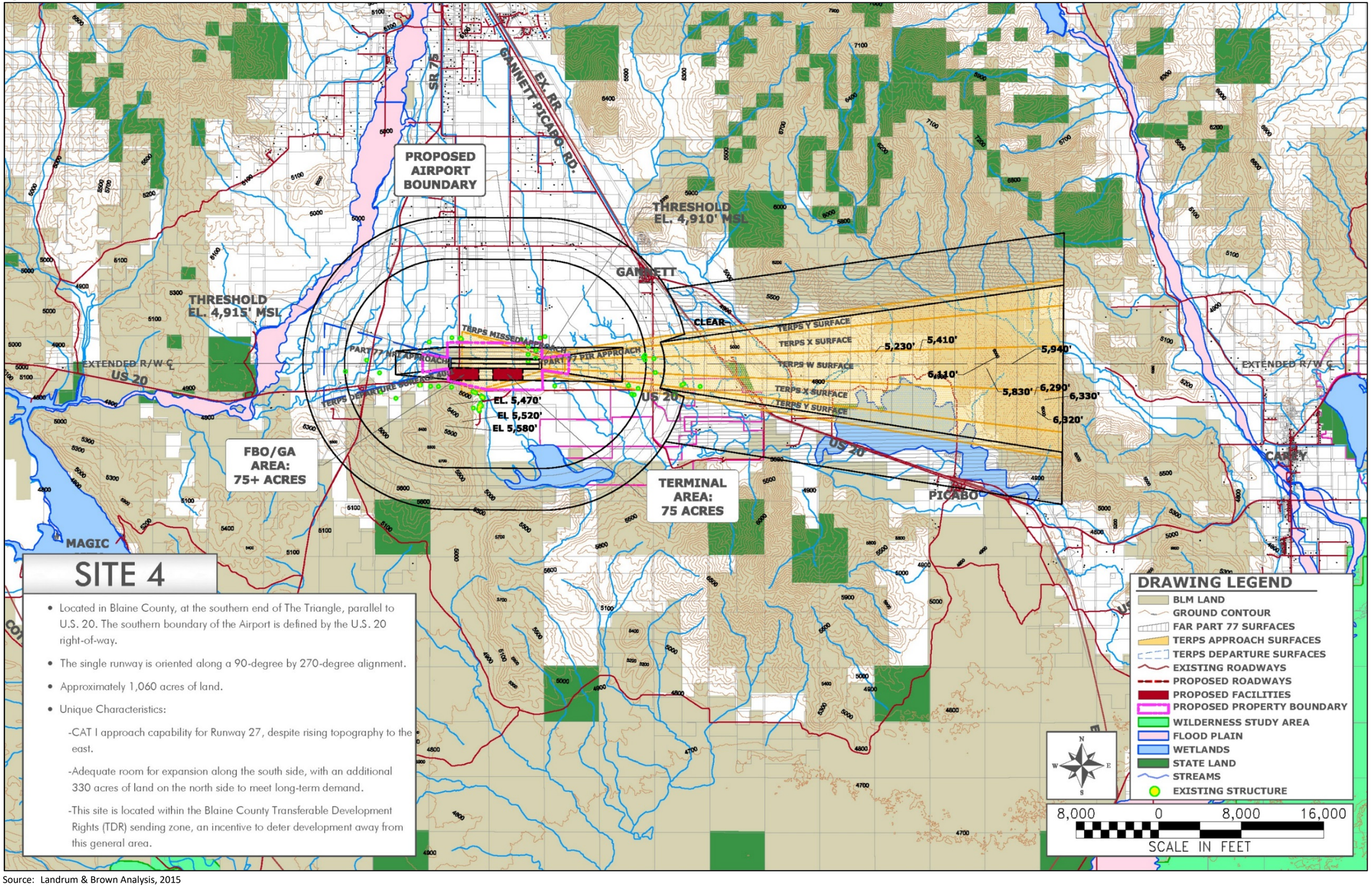
Source: Landrum & Brown Analysis, 2015

Figure E5 ALTERNATIVE SITE 3



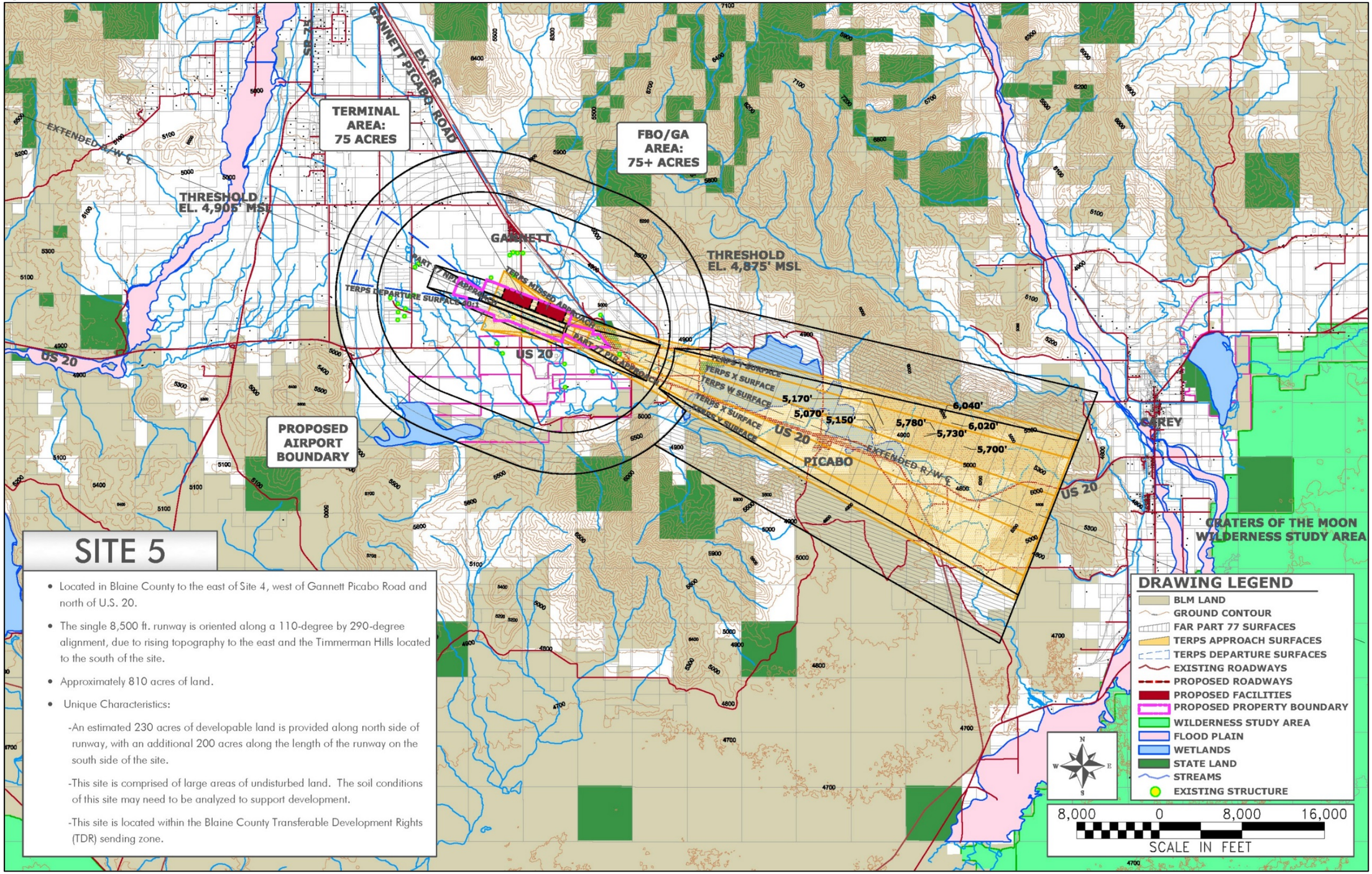
Source: Landrum & Brown Analysis, 2015

Figure E6 ALTERNATIVE SITE 4



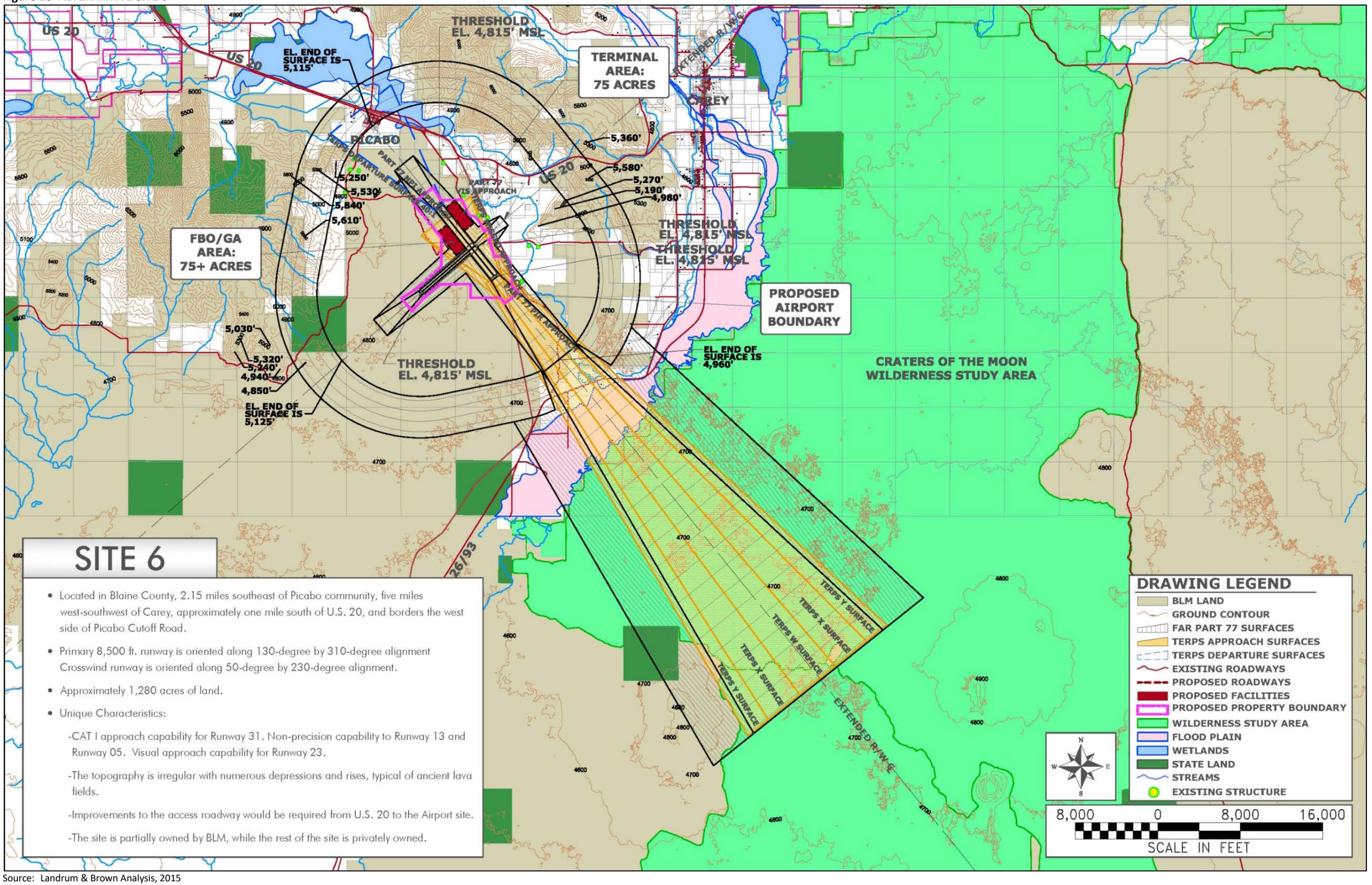
Source: Landrum & Brown Analysis, 2015

Figure E7 ALTERNATIVE SITE 5



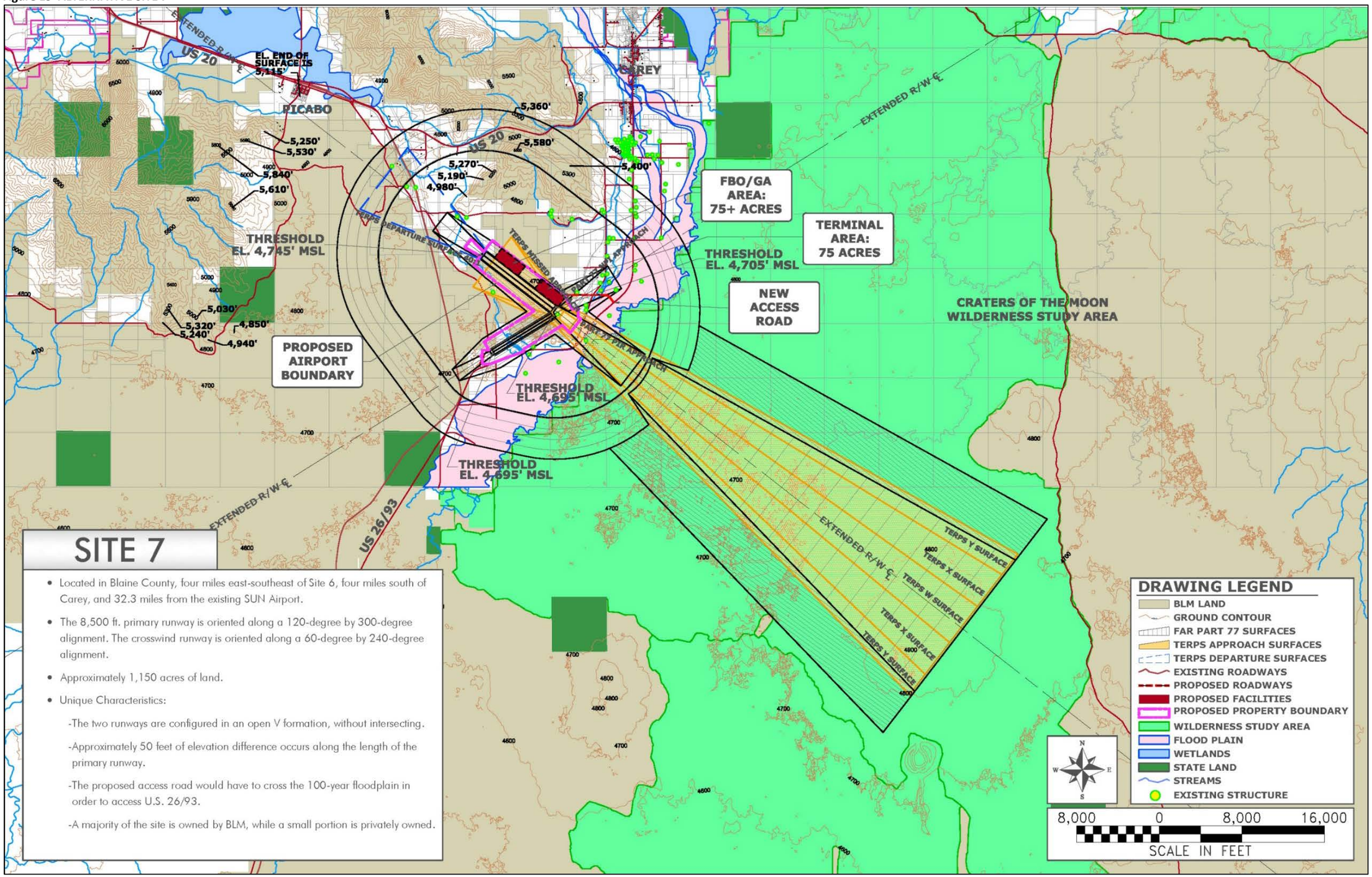
Source: Landrum & Brown Analysis, 2015

Figure E8 ALTERNATIVE SITE 6



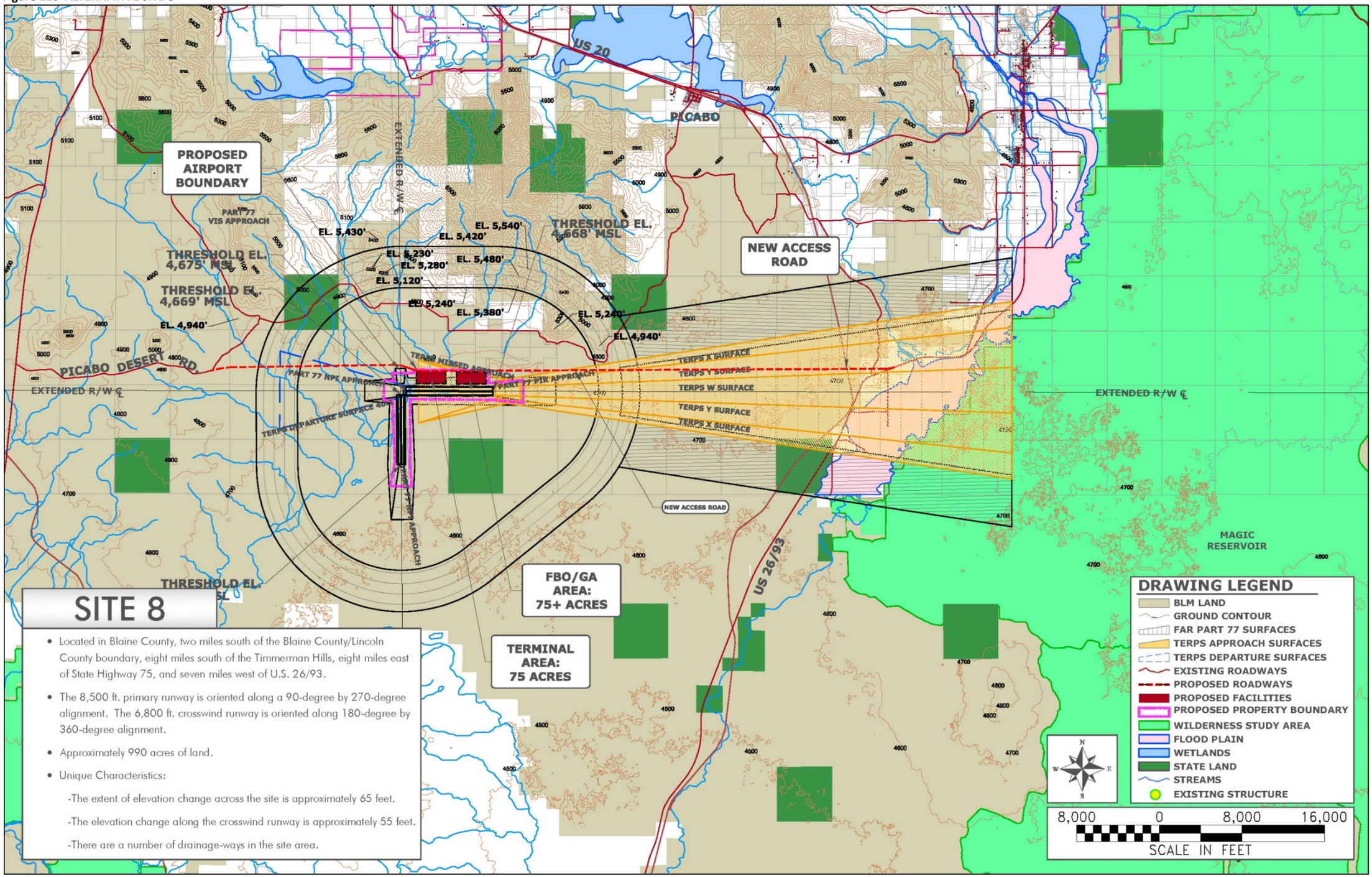
Source: Landrum & Brown Analysis, 2015

Figure E9 ALTERNATIVE SITE 7



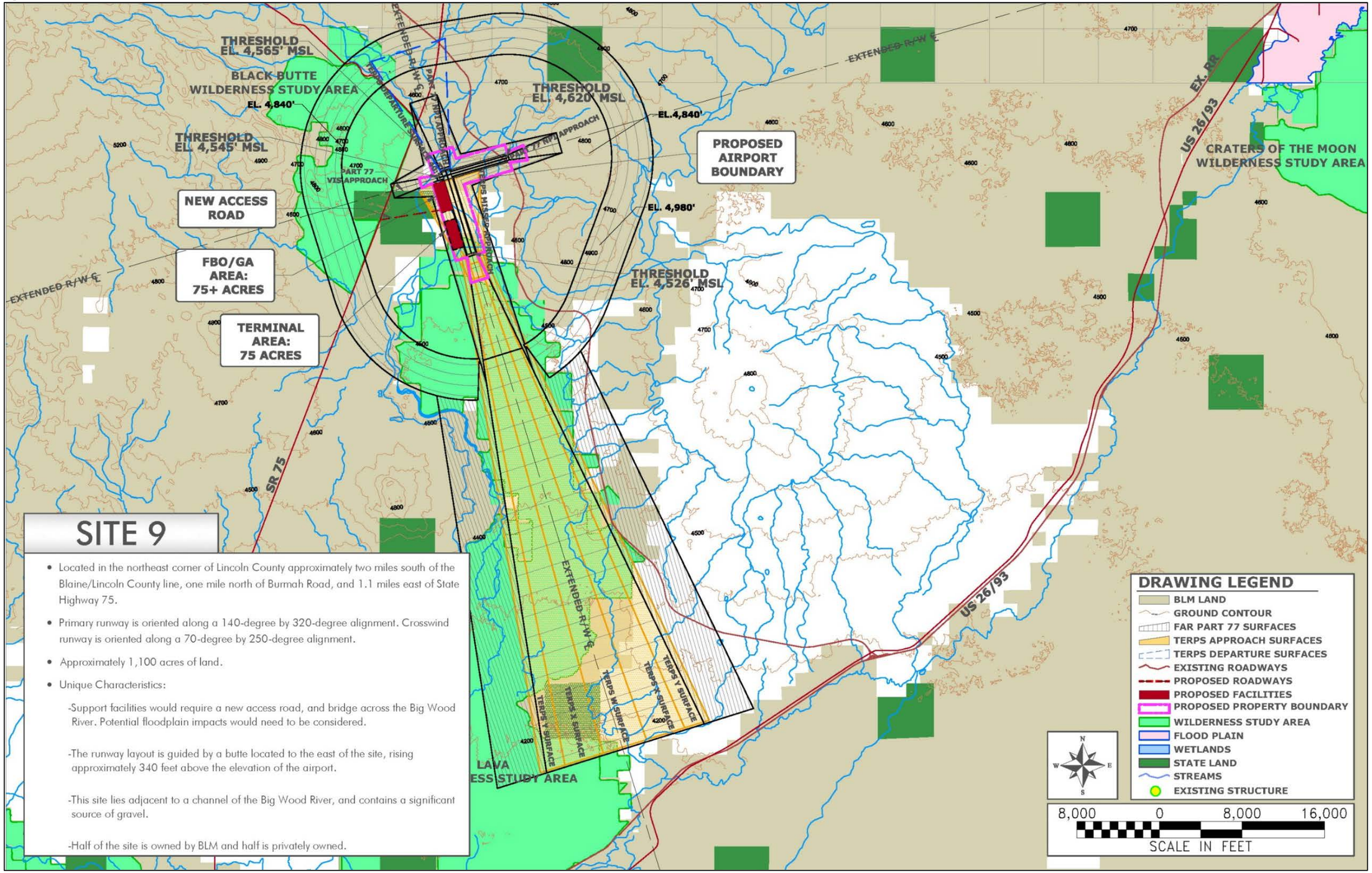
Source: Landrum & Brown Analysis, 2015

Figure E10 ALTERNATIVE SITE 8



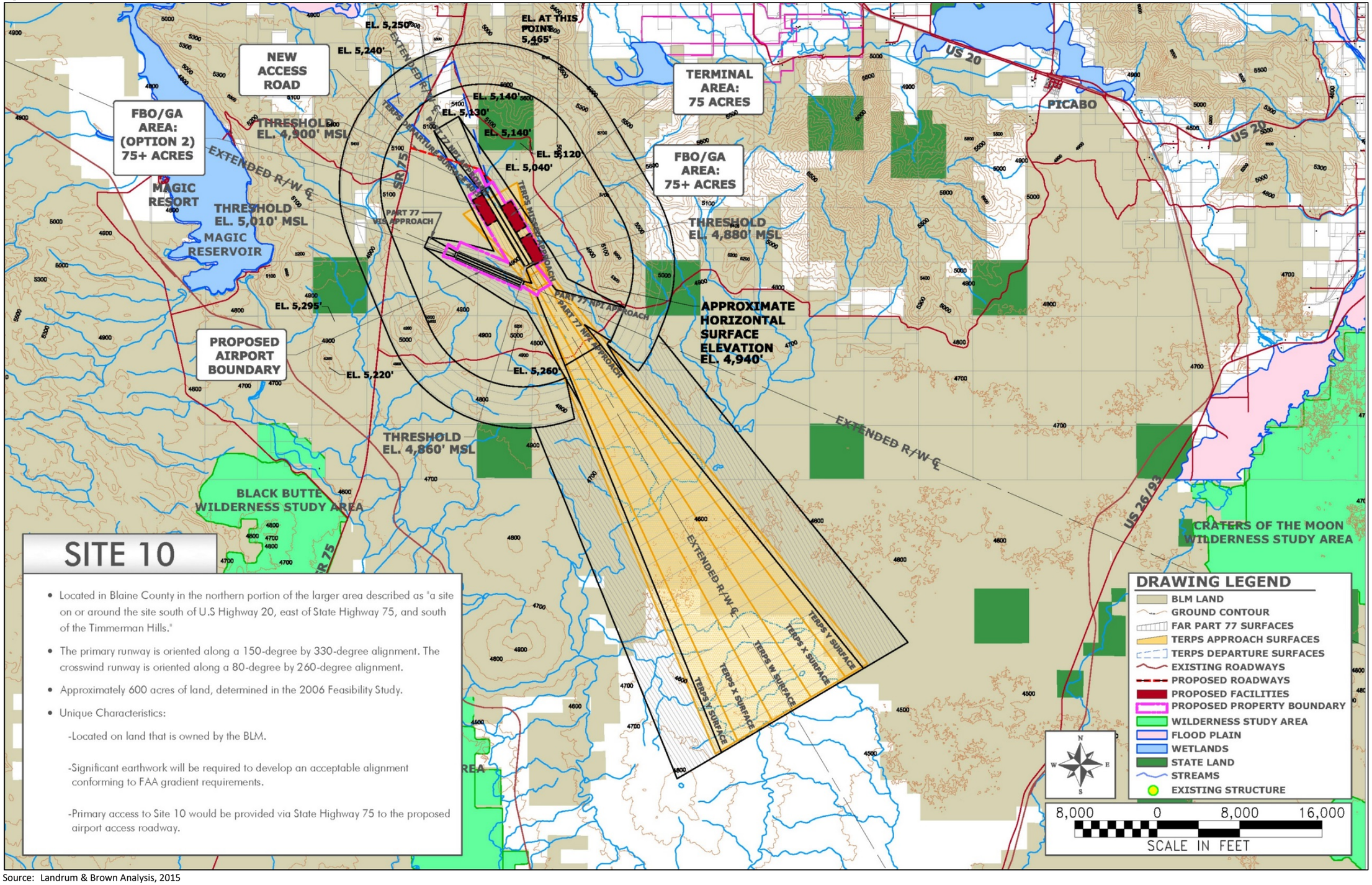
Source: Landrum & Brown Analysis, 2015

Figure E11 ALTERNATIVE SITE 9



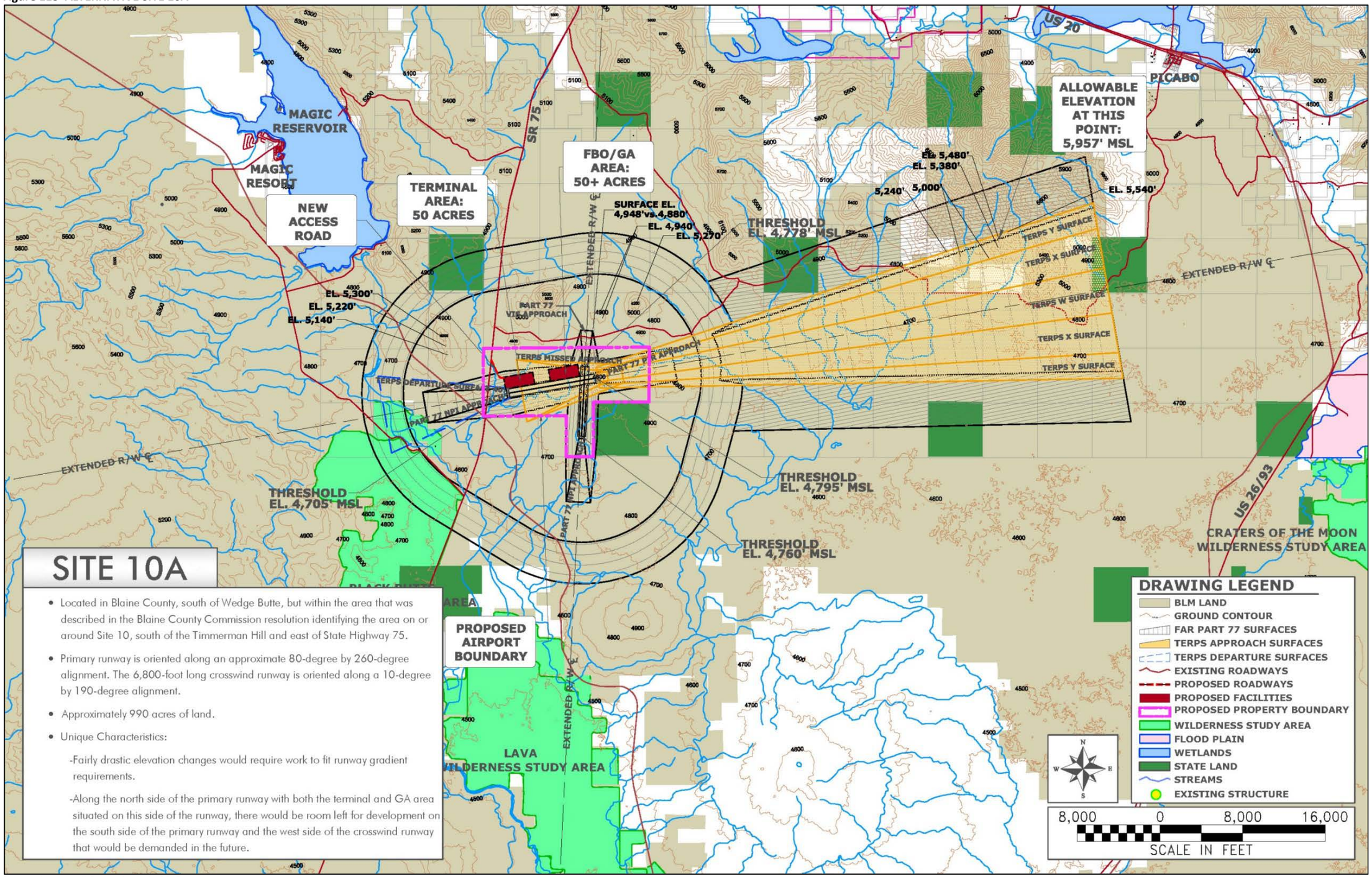
Source: Landrum & Brown Analysis, 2015

Figure E12 ALTERNATIVE SITE 10



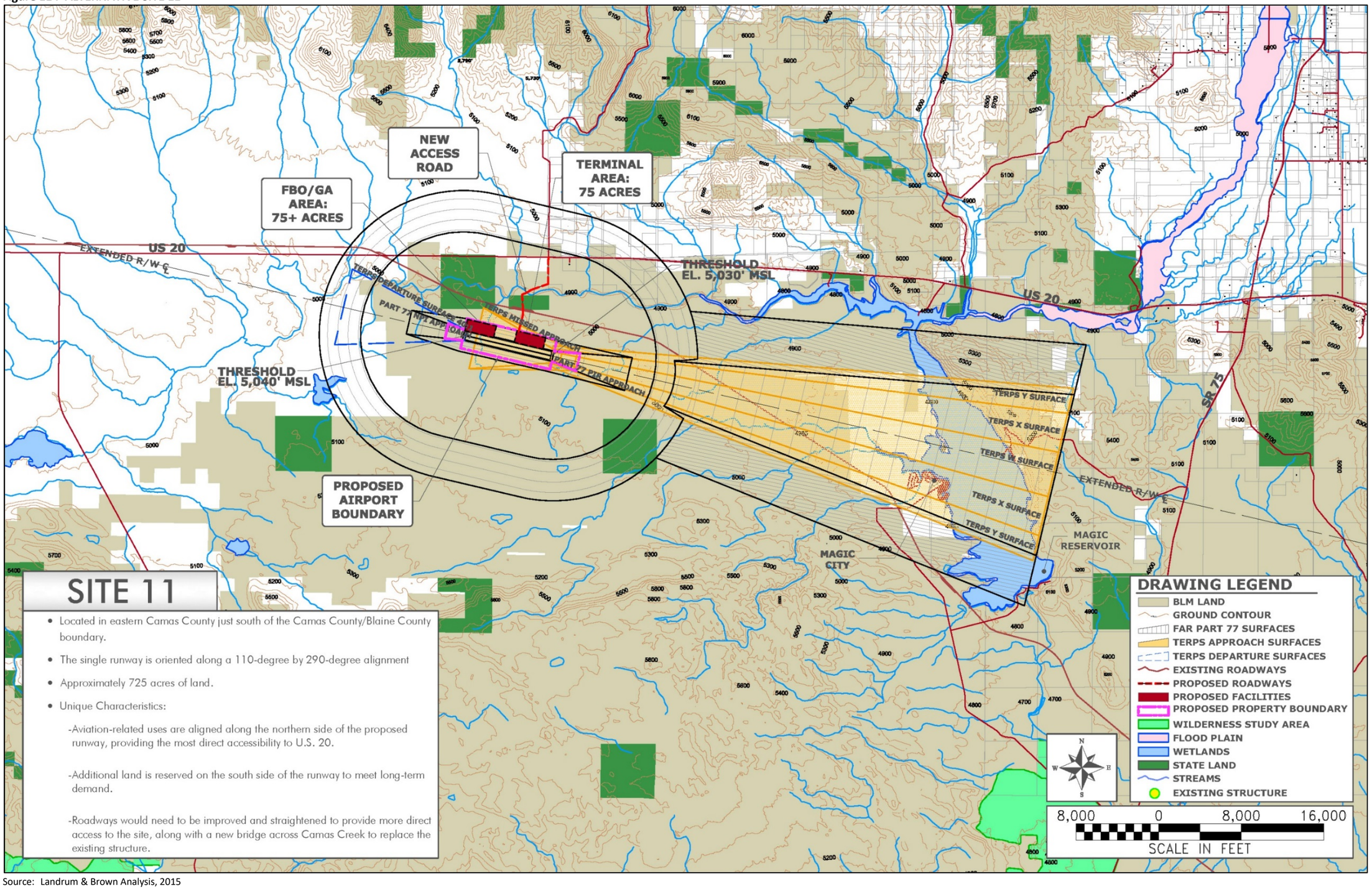
Source: Landrum & Brown Analysis, 2015

Figure E13 ALTERNATIVE SITE 10A



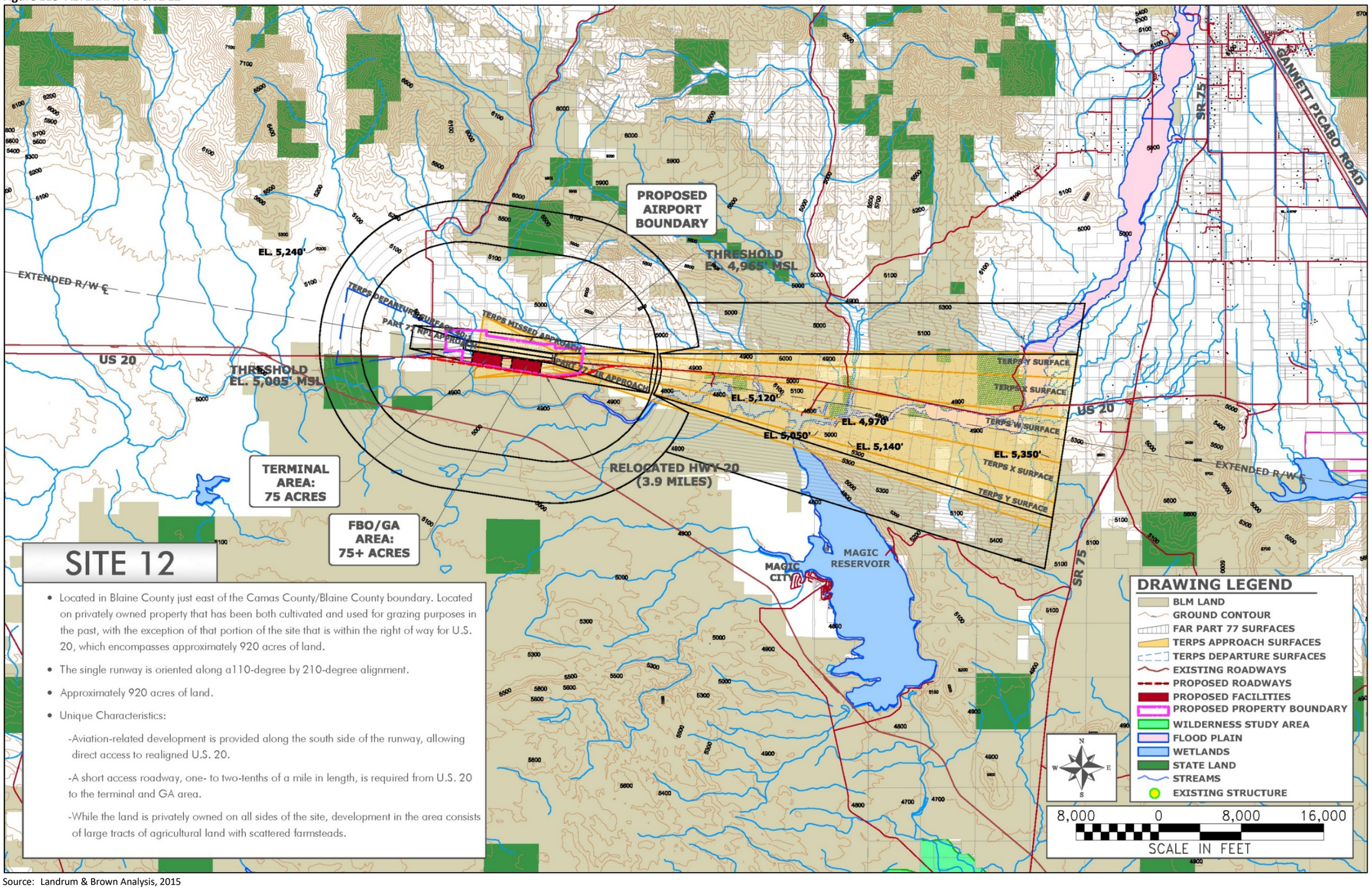
Source: Landrum & Brown Analysis, 2015

Figure E14 ALTERNATIVE SITE 11



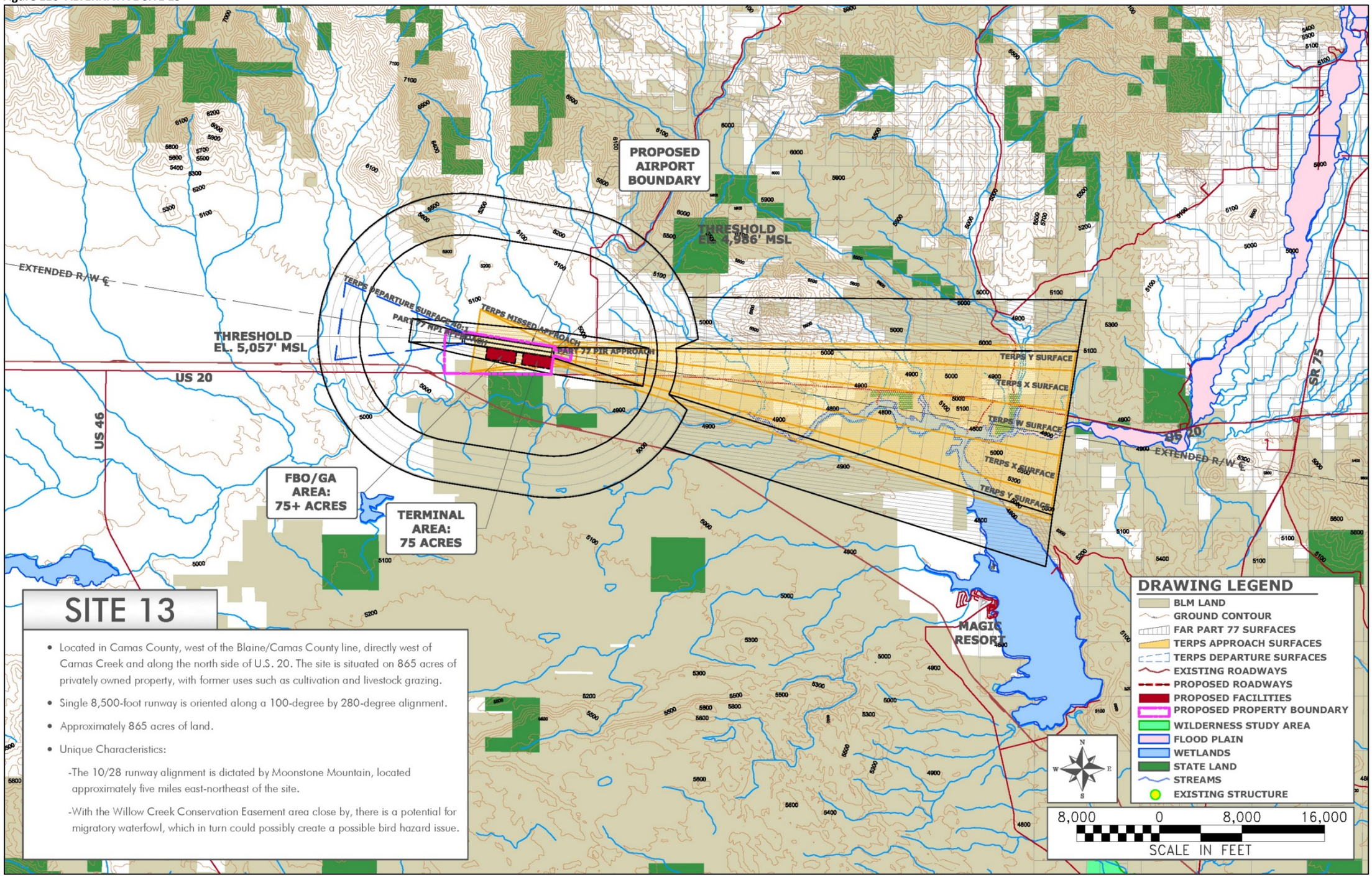
Source: Landrum & Brown Analysis, 2015

Figure E15 ALTERNATIVE SITE 12



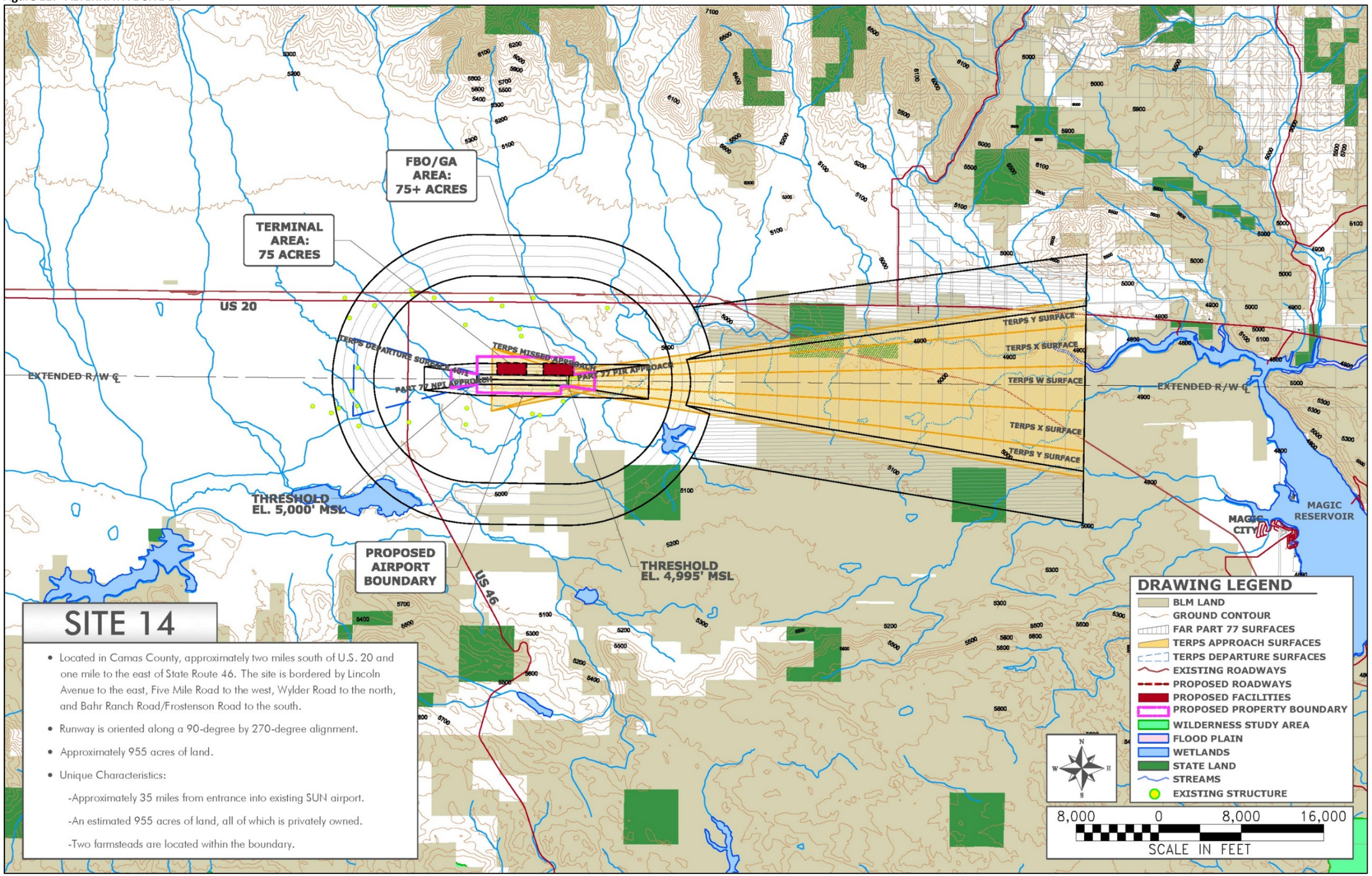
Source: Landrum & Brown Analysis, 2015

Figure E16 ALTERNATIVE SITE 13



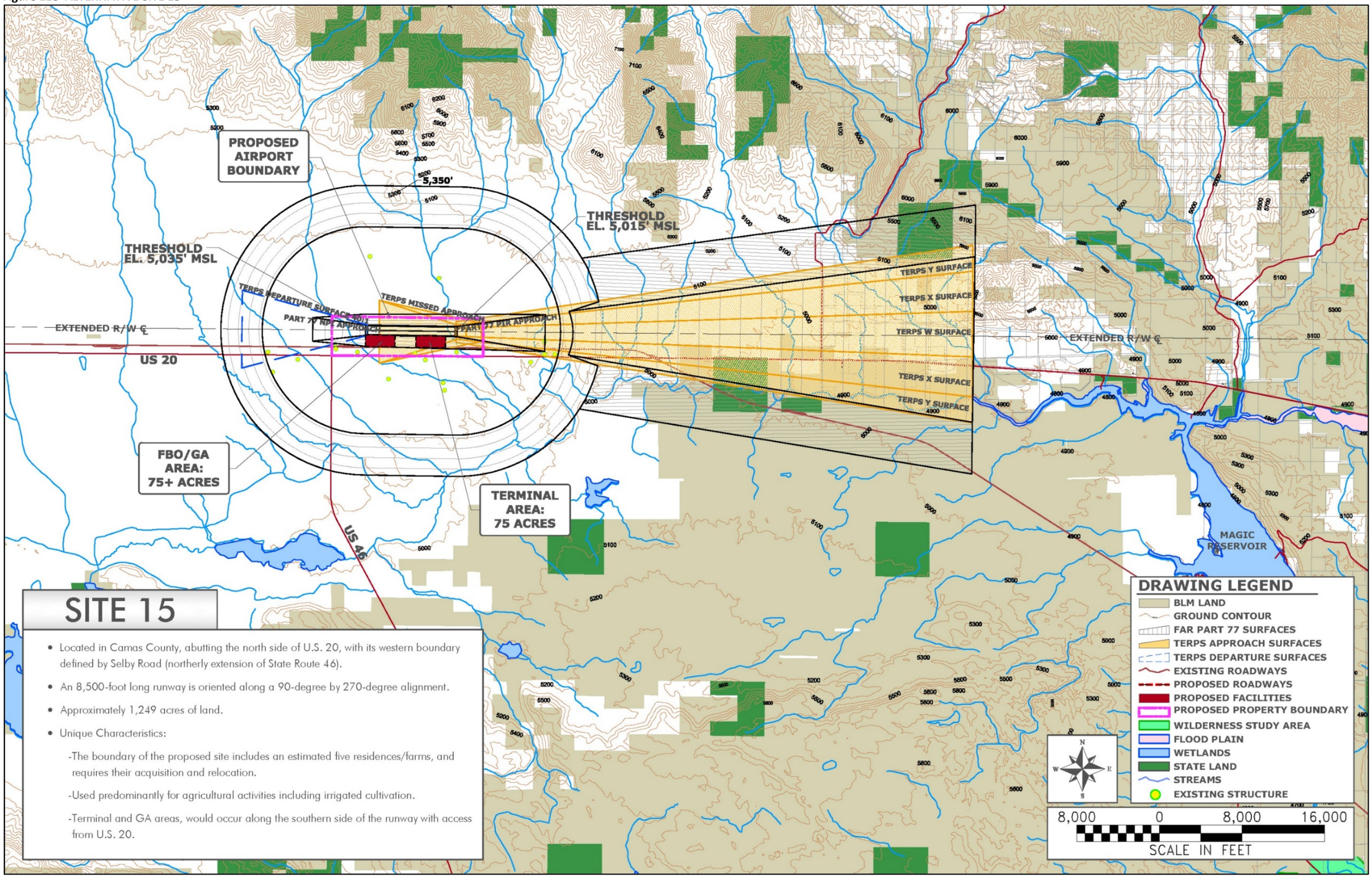
Source: Landrum & Brown Analysis, 2015

Figure E17 ALTERNATIVE SITE 14



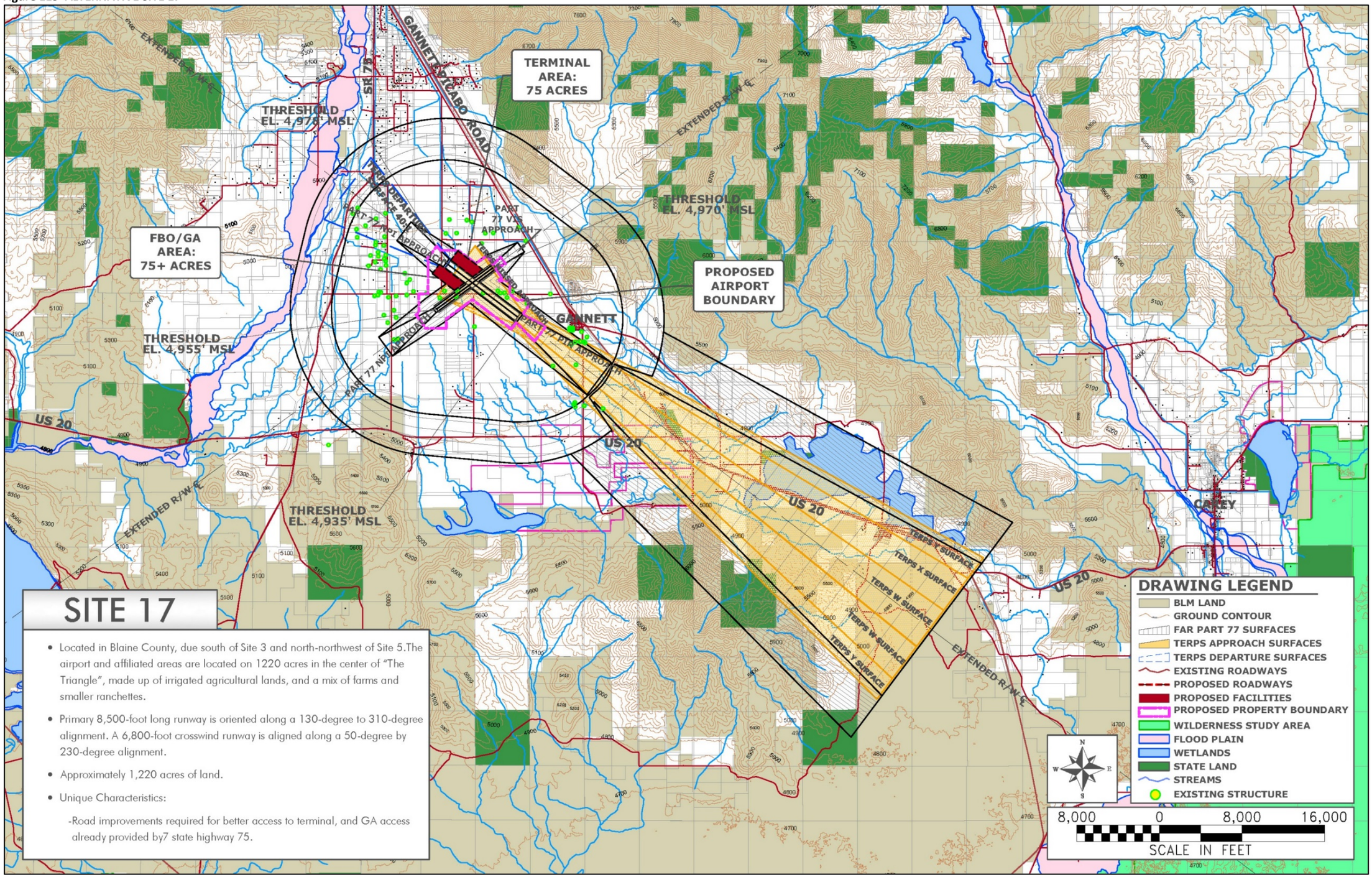
Source: Landrum & Brown Analysis, 2015

Figure E18 ALTERNATIVE SITE 15



Source: Landrum & Brown Analysis, 2015

Figure E19 ALTERNATIVE SITE 17



Source: Landrum & Brown Analysis, 2015

A summary of the Tier Two site evaluation rankings for the nine sites discussed above is presented in **Figure E20**. A perfect score in all categories would have yielded a total score of 55 points. All of the sites analyzed in Tier Two scored between 35 and 47 points, with six of the nine sites scoring between 35 and 41 points. Sites 6 and 9 scored the lowest with 37.7 and 35.7 points respectively. Four sites (5, 10, 13, and 17) ranked between 39 and 41. Three sites rated above 44 points, including Site 4, Site 10A, and Site 12. For a site to carry forward to the next level of analysis (Tier Three), the site required a score of or above the 80th percentile or 44.2 points. Sites 4, 10A, and 12 ranked superior as compared to any of the other Tier Two sites and met or exceeded the 80th percentile threshold. Therefore, due to their ranking, sites 4, 10A, and 12 were selected for further evaluation (Tier Three) to identify which, if any, would not be able to support additional or enhanced instrument approach capabilities in the future.

TIER THREE EVALUATION: REFINED AIRSPACE AND APPROACH CAPABILITY

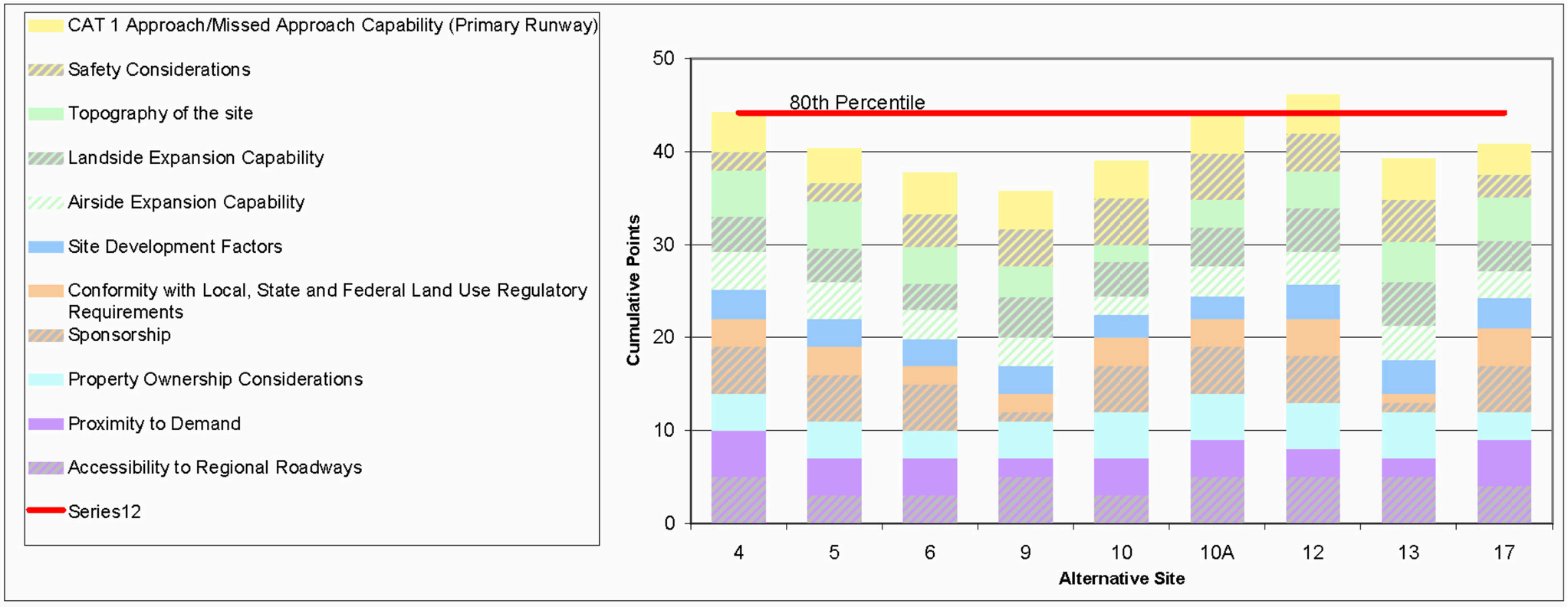
13. Ability to accommodate multiple Category I approaches
14. Ability to accommodate one or more Category II approaches

Upon completion of the Tier Two evaluation of sites, three replacement airport sites were identified for further consideration (Sites 4, 10A, and 12). Discussions were held with representatives from the contractor providing air traffic control services at the existing airport. These discussions also took place with representatives of the FAA's Northwest Mountain Region, including the Planning division, Flight Standards, Airspace, Facilities Groups, and the Salt Lake ARTCC. During these discussions, questions arose relative to the ability of various sites to accommodate multiple CAT I approaches and the ability to meet CAT II approach criteria. The premise of the comments maintained that, while meeting the minimum threshold criteria of providing a single CAT I approach was reasonable, the flexibility of a site to provide for expanded approach capabilities should also be considered as a comparative tool to further differentiate and define those sites possessing the best possible flexibility and capability.

As the FAA moves toward a satellite-based air navigation system, employing GPS supplemented by Wide Area Augmentation System (WAAS) and Local Area Augmentation System (LAAS), the need for ground-based Localizers, Glide Slope Antennas, and Inner, Middle, and Outer Marker beacons (as elements of instrument landing systems) will be phased out. This will significantly reduce the cost to the FAA and airport sponsors when developing multiple instrument approach capabilities and make it easier for airports to implement multiple instrument approaches in a much more cost-effective manner. Since the replacement airport is intended to serve the region well into the future, it is clear that during the life span of the airport, the FAA will fully implement their satellite-based systems. The results will be the ability of an airport to deploy multiple instrument approaches at a significant reduction in cost to the sponsor and the agency. Thus, while full achievement and implementation of this intended goal is still in the future, evaluating alternative sites from the perspective of having the ability and flexibility to accommodate this capability is a prudent and reasonable action.

Figure E20 TIER TWO SITE EVALUATION RANKINGS

Category	Alternative Site								
	4	5	6	9	10	10A	12	13	17
CAT 1 Approach/Missed Approach Capability (Primary Runway)	4.2	3.7	4.4	4.0	4.0	4.4	4.2	4.4	3.2
Safety Considerations	2.0	2.0	3.5	4.0	5.0	5.0	4.0	4.5	2.5
Topography of the site	5.0	5.0	4.0	3.3	1.8	3.0	4.0	4.3	4.7
Landside Expansion Capability	3.8	3.6	2.8	4.4	3.8	4.1	4.8	4.7	3.3
Airside Expansion Capability	4.1	4.0	3.2	3.0	2.0	3.3	3.5	3.8	2.9
Site Development Factors	3.1	3.0	2.9	3.0	2.4	2.4	3.7	3.6	3.3
Conformity with Local, State and Federal Land Use Regulatory Re	3.0	3.0	2.0	2.0	3.0	3.0	4.0	1.0	4.0
Sponsorship	5.0	5.0	5.0	1.0	5.0	5.0	5.0	1.0	5.0
Property Ownership Considerations	4.0	4.0	3.0	4.0	5.0	5.0	5.0	5.0	3.0
Proximity to Demand	5.0	4.0	4.0	2.0	4.0	4.0	3.0	2.0	5.0
Accessibility to Regional Roadways	5.0	3.0	3.0	5.0	3.0	5.0	5.0	5.0	4.0
Total	44.2	40.3	37.7	35.7	39.0	44.3	46.2	39.2	40.8



Source: Landrum & Brown Analysis, 2008

With this in mind, it was determined, based on the input from an array of FAA divisions, which upon completion of the second tier evaluation's initial short listing of sites, a third and final tier of evaluation of those short-listed sites would be undertaken. The third tier addressed each short-listed site's ability to accommodate multiple CAT I approaches/missed approaches, and then assessed the ability of the short-listed sites to accommodate a CAT II approach and missed approach, should such capability ever be necessary. For clarity, the minimums associated with these two categories are listed below:

- **CATEGORY I -** DH 200 feet and RVR or horizontal visibility; 2,400 feet
- **CATEGORY II –** DH at 100 feet and RVR of 1,200 feet

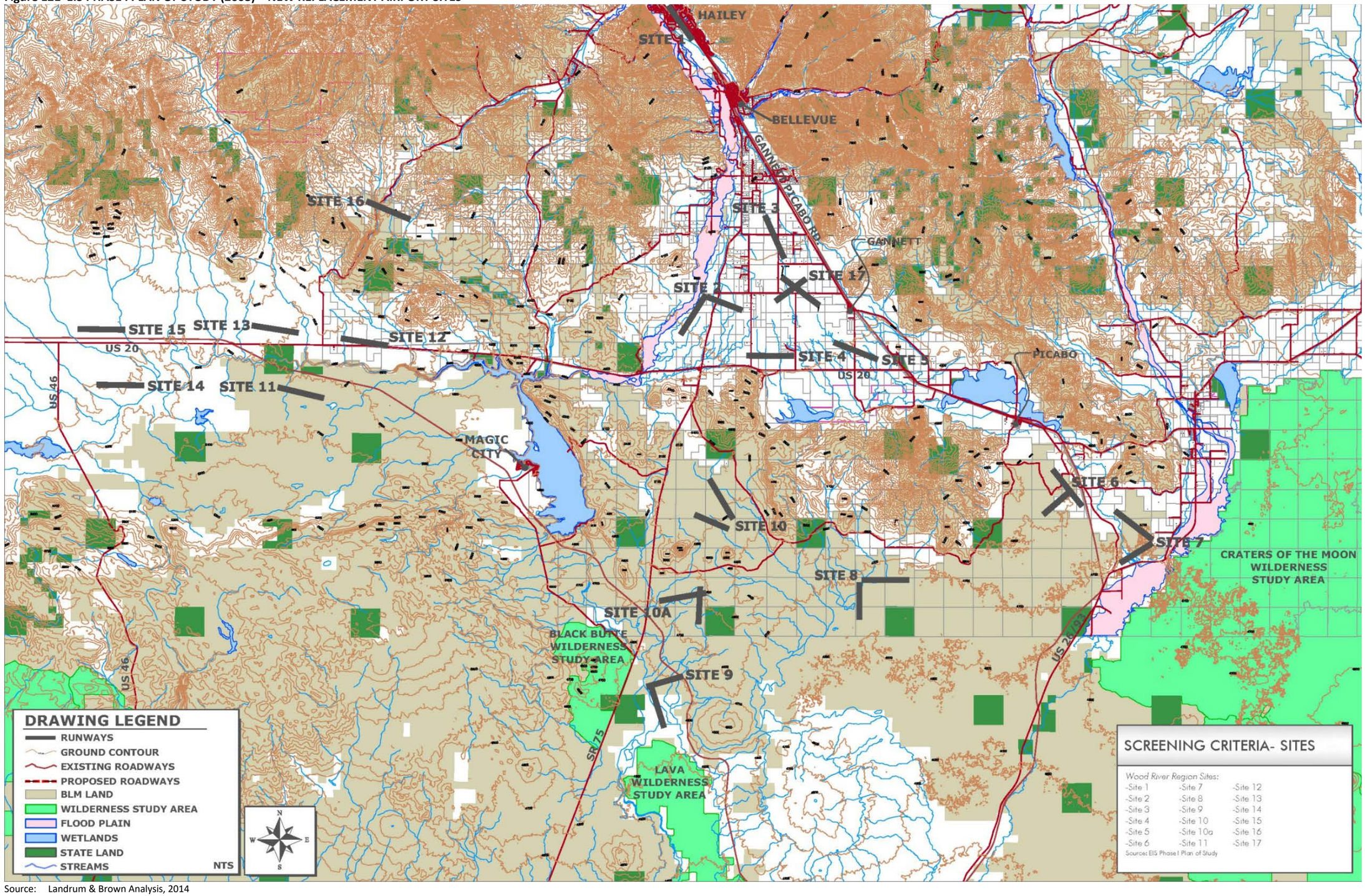
The analysis of additional instrument approach capabilities was intended to provide a final, more refined level of detail to determine the attributes and constraints of the three sites carried forward from the Tier Two evaluation. If a site had significantly less flexibility and capability to respond to future technological changes than others, that prevented the site from moving forward in the EIS process. Ultimately, all three sites (4, 10A, and 12) survived this evaluation process and were identified to carry forward into the EIS process for further evaluation.

Elements of and knowledge acquired during the EIS Phase I Plan of Study was incorporated into formal draft EIS chapters. However, due to cost and wild life issues, the FAA eventually terminated the EIS.

3. Alternative Replacement Airport Sites

Seventeen potential replacement Airport sites were identified by previous planning studies or efforts and have been summarized in the previous sections. The 17 sites are presented again on **Figure E21** for reference. These 17 sites include Site 16, which was eliminated from further evaluation in the EIS Phase I Plan of Study (2008). For the purposes of this Study, and presentation of potential alternative replacement airport sites, Site 16 has been added back into the range of alternatives to ensure nothing is inadvertently overlooked in the future. No additional sites were identified, added, or evaluated as part of this effort. The 17 sites will be evaluated on a pass/fail basis using the screening criteria presented in the next section. The following is a description of Sites 2 through 17.

Figure E21 EIS PHASE I PLAN OF STUDY (2008) – NEW REPLACEMENT AIRPORT SITES



Source: Landrum & Brown Analysis, 2014

Site 2

Site 2 is located in Blaine County near the Bellevue Triangle, which encompasses the area west of State Highway 75, east of the Big Wood River, and north of U.S. 20. The *2006 Feasibility Study* originally identified Site 2. The independent review of potential airport sites conducted in the 2008 EIS Phase I Planning Study moved the site north to adjust for topography south of the proposed location and to factor in the potential need to provide for a crosswind runway.

Site 3

Site 3 is located in Blaine County in the north-central portion of the Bellevue Triangle, which encompasses the area west of State Highway 75, east of the Big Wood River, and north of U.S. 20. The *2006 Feasibility Study* originally identified Site 3. The independent review of potential airport sites conducted in the 2008 EIS Phase I Planning Study did not modify the site.

Site 4

Site 4 is located in Blaine County at the southern end of the Bellevue Triangle parallel to and immediately north of U.S. 20. The *2006 Feasibility Study* originally identified Site 4. The independent review of potential airport sites conducted in the 2008 EIS Phase I Planning Study did not modify the site.

Site 5

Site 5 is located in Blaine County to the east of Site 4 (in the southeastern portion of the Bellevue Triangle), west of Gannett Picabo Road, and north of U.S. 20. The *2006 Feasibility Study* originally identified Site 5. The independent review of potential airport sites conducted in the 2008 EIS Phase I Planning Study did not modify the site.

Site 6

Site 6 is located in Blaine County approximately two miles to the southeast of the community of Picabo, 5 miles west-southwest of Carey, approximately 1 mile south of U.S. 20, and abuts the west side of Picabo Cutoff Road. The *2006 Feasibility Study* originally identified Site 6. However, the independent review of potential airport sites conducted in the 2008 EIS Phase I Planning Study modified the site to incorporate a crosswind runway alignment.

Site 7

Site 7 is located in Blaine County approximately four miles east-southeast of Site 6 and four miles south of Carey, Idaho. U.S. 26/93 is located a short distance to the east of the site and turns to form a portion of the southern boundary for the site. The *2006 Feasibility Study* originally identified Site 7. The independent review of potential airport sites conducted in the 2008 EIS Phase I Planning Study moved the site to incorporate a crosswind runway.

Site 8

Site 8 is located in Blaine County two miles north of the Blaine County/Lincoln County boundary, approximately eight miles south of the Timmerman Hills, eight miles east of State Highway 75, and seven miles west of U.S. 26/93. The *2006 Feasibility Study* originally identified Site 8. However, the independent review of potential airport sites conducted in the 2008 EIS Phase I Planning Study modified the site in an attempt to achieve a CAT-I approach.

Site 9

Site 9 is located in the northeast corner of Lincoln County approximately two miles south of the Blaine/Lincoln County line, one mile north of Burmah Road, and approximately one mile east of State Highway 75. The site lies adjacent to a channel of the Big Wood River and was originally identified by the *2006 Feasibility Study*. However, the independent review of potential airport sites conducted in the 2008 EIS Phase I Planning Study modified the site to address the potential need for a crosswind runway.

Site 10

Site 10 is located in Blaine County approximately two miles to the east of State Highway 75 and approximately two miles to the north-northeast of Wedge Butte. The site is situated between Wedge Butte to the south and the Timmerman Hills to the north. The *2006 Feasibility Study* originally identified the site. However, the independent review of potential airport sites conducted in the 2008 EIS Phase I Planning Study modified the site to address the potential need for a crosswind runway

Site 10a

Site 10a is a modification of Site 10 and was not part of the original *2006 Feasibility Study*. As this is a modification of Site 10, this site is referred to as Site 10a. Site 10a is situated approximately two miles south-southeast of Wedge Butte and one mile east of State Highway 75 in Blaine County.

Site 11

Site 11 is located in eastern Camas County just south of the Camas County/Blaine County boundary. The independent review of potential airport sites conducted in the 2008 EIS Phase I Planning Study adjusted the location of Site 11 from the locale identified in the *2006 Feasibility Study*. Originally located approximately two miles south of Moonstone Mountain, the proposed site was shifted west approximately 2.5 miles to a location two miles due south of the County Line Road/U.S. 20 intersection to take advantage of an existing road and bridge over Camas Creek.

Site 12

Site 12 is located in western Blaine County just east of the Camas County/Blaine County boundary. The independent review of potential replacement airport sites conducted in the 2008 EIS Phase I Planning Study adjusted the location of Site 12 from that originally identified in the *2006 Feasibility Study* to address the potential impact that Moonstone Mountain had on the viability of runway approach capabilities. Originally located approximately 0.5 mile north of U.S. 20, the proposed site was shifted south requiring realignment of U.S. 20. The site was also shifted east to keep the entire airport site and its associated RPZs within Blaine County.

Site 13

Site 13 is located in Camas County west of the Blaine/Camas County line, immediately west of Camas Creek and along the north side of U.S. 20 in Camas County. No substantial changes in location or configuration occurred to the original site, identified in the *2006 Feasibility Study*.

Site 14

Originally identified by the *2006 Feasibility Study*, Site 14 is located in Camas County, approximately two miles south of U.S. 20 and one mile to the east of State Highway 46. The site is bordered by Lincoln Avenue to the east, Five Mile Road to the west, Wylder Road to the north, and Bahr Ranch Road/Frostenson Road to the south. The independent review of potential sites conducted in the 2008 EIS Phase I Planning Study did not modify the site.

Site 15

Originally identified by the *2006 Feasibility Study*, Site 15 is located two miles north of Site 14. Site 15 is located in Camas County, abutting the north side of U.S. 20, with its western boundary defined by Selby Road (northerly extension of State Highway 46). The independent review of potential sites conducted in the 2008 EIS Phase I Planning Study did not modify the site.

Site 16

The *2006 Feasibility Study* originally identified Site 16. However, the independent review of potential airport sites conducted in the 2008 EIS Phase I Planning Study modified the site to incorporate the need for a crosswind runway. The site is located in Blaine County north of Site 12 along Camp Creek Road and approximately eight miles from U.S. 20.

Site 17

Site 17 is a new site, not previously identified in the *2006 Feasibility Study*. The site is situated due south of Site 3 and north-northwest of Site 5 in the center of the Bellevue Triangle in Blaine County.

4. Identify Screening Criteria

Four of the more "technical" screening criteria from those discussed already in this chapter were re-visited/updated in an effort to ensure current industry/local conditions and planning/design standards were reflected in the alternatives evaluation. These four screening criteria are defined below and used to re-evaluate each of the 18 alternatives.

- **Ability to Meet Updated Airport Facility Requirements (as presented in this Master Plan)**
- **Ability to Prove Sponsorship/Location within Blaine County**
- **Expansion Opportunity**
- **Ability to Meet CAT I Approach Capabilities**

These four screening criteria also reflect the three primary considerations that continue to drive the purpose/need for a new replacement airport and relate directly to the operation and viability of a new replacement Airport. These primary considerations are:

- **Provide an airport that conforms to FAA airport design standards, criteria, and orders (meaning it has a feasible location) and has a viable sponsor.**
- **Ensure the reliability of an airport serving the Wood River Region by providing approach capability that will allow operations during periods of reduced visibility. At a minimum, provide an approach capability allowing for operations down to a ceiling of 200 feet above airport elevation and one-half mile visibility.**

- **Ensure the ability of the Airport to accommodate growth in operational demand and in demand for new and expanded facilities.**

4.1 Ability to Meet Updated Airport Facility Requirements

The newly drafted capacity and facility requirements presented in *Chapter C, Capacity Analysis & Facility Requirements* (completed for this Master Plan Update), were compared to all 17 replacement airport sites to ensure industry planning and design standards were still being successfully realized by the alternatives. If a specific future facility requirement was not provided by the 2015 Draft MPU, but was required for new replacement airport site, then the facility requirements developed for the EIS Phase I Plan of Study (2008) were located, verified and/or updated if needed, and then used for the purposes of this task. The following functional areas were reviewed and results are presented below:

- **Airside Facility Requirements**
- **Landside Facility Requirements (including Support Facility Requirements)**

4.1.1 Airside Facility Requirements

Airside facility requirements developed for the current draft Master Plan examined a multitude of physical facilities and improvements needed to safely and efficiently accommodate projected demand, including airfield dimensional criteria, approaches, NAVAIDs, lighting, and safety surfaces. Pavement strength and condition were also assessed in the facility requirements, but they do not affect the layout of the airfield at the replacement airport sites. However, pavement strengths are expected to meet and/or exceed anticipated critical aircraft types in order to meet future demand.

AIRFIELD DIMENSIONAL CRITERIA

As part of this Master Plan Update, airfield dimensional criteria, including runway length, airfield design standards, and taxiway system standards, were examined to determine whether existing facilities met current and future demands. As part of this analysis, it was determined that the airport reference code is ARC C-III. However, although portions of the existing airfield do not meet C-III requirements, it is recommended that all replacement airport site alternatives be designed to handle C-III standards. In addition, runway length was analyzed using 60-, 70-, and 80-percent useful load factors in *Chapter C, Capacity Analysis & Facility Requirements*.

The analysis determined that most, if not all, commercial aircraft currently departing from SUN take weight penalties. Also, any future change in commercial service at SUN that incorporates larger passenger service aircraft would result in the need for additional runway length. In anticipation of replacing regional jets such as the CRJ700, larger potential replacement aircraft such as the CRJ900 and E170/175 series aircraft would also require longer runway lengths. Note that the EIS Phase I Plan of Study (2008) also conducted runway length requirements from an alternative replacement siting perspective and determined new primary runway length requirements for replacement sites. Based on that Study, if full payload and fuel weight were used for the SUN runway length calculations for all the proposed aircraft, then runway takeoff lengths required for a number of the aircraft types would be above typical runway lengths at comparable airports. Therefore, several payload and fuel weight scenarios were considered in the runway length analysis and revealed a consistent runway length of 8,500 feet (on average) for the primary runway of a new airport. For alternatives with a crosswind runway, the length required for the crosswind runway was 6,800 feet.

For the purpose of this analysis, 8,500 feet for primary runways will continue to be assumed for the 17 replacement sites. While a secondary runway was not deemed necessary (for the existing site) under the *Chapter C, Capacity Analysis & Facility Requirements* to meet the 20-year operations forecast for the planning period, some of the replacement airport sites will require a secondary 6,800-foot crosswind runway to meet wind coverage requirements and make the alternative feasible.

Airfield design standards required for future demand at SUN were determined to comply with RDC C-III-5000, meaning all replacement sites being considered will be designed to comply with corresponding FAA standards located in AC 150/5300-13A. This includes parking and operational safety separations, safety area and zone dimensions, and runway widths. All taxiways at SUN replacement sites will also need to comply with taxiway standards ADG III and TDG 5, as presented in *Chapter C, Capacity Analysis & Facility Requirements*.

INSTRUMENT APPROACHES, NAVAIDS, AND AIRFIELD LIGHTING

A study to improve the existing Airport's limited instrument approach procedures, NAVAID equipment and capabilities, and airfield lighting is currently underway. It is recommended that the new replacement airport sites continue to include an instrument approach procedure for (at least) the primary runway end, capable of handling CAT I operations (200-foot ceiling and ½-mile visibility) if possible. At such time that a new replacement airport is required, and if an environmentally acceptable site cannot be identified that can accommodate a CAT I approach with 200-foot ceiling and ½-mile visibility minimums, then an environmentally acceptable site should be selected with the highest CAT I approach minimums possible. In addition, all replacement airport sites should be capable of accommodating all FAA required equipment and lighting associated with the approach minimums, including all other necessary NAVAIDs, communication facilities, and weather surveillance facilities (deemed necessary by the FAA) should also be accommodated.

FAR PART 77 AND THRESHOLD SITING SURFACES

Based on FAA design guidelines, any existing or proposed manmade or natural structures affecting the takeoff and landing operations at an airport should be analyzed using FAR Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace*. Therefore, a FAR Part 77 analysis of the new replacement airport sites was conducted as part of the alternatives development process in the previous planning study (2008 EIS Phase I Plan of Study) – so that each alternative was configured in the most efficient and safest manner possible (at that time). Following the analysis of the alternatives, the FAA then conducted a more in depth FAA Part 77 analysis, as well as, an analysis of the Threshold Siting Surfaces at each replacement site. These results are presented in Section 1.3.4 – Ability to Meet CAT I Approach Capabilities.

APRON AREA

Chapter C, Capacity Analysis & Facility Requirements determined the existing Airport's passenger apron area will require expansion and a maximum of seven aircraft parking positions will be needed during peak operations in the long-term planning period. The replacement airport sites should also accommodate an apron of this size, including additional room for possible post-planning period expansion.

4.1.2 Landside Facility Requirements

Landside facility requirements developed for the current draft Master Plan include analyses of terminal facilities, aprons, access roads, and support facilities that affect the airside facilities, but do not fall within the aircraft movement area of the airfield. *Chapter C, Capacity Analysis & Facility Requirements* determined the landside requirements necessary to meet existing and future demand at SUN. The following paragraphs present these requirements and review them relative to the 17 identified replacement airport sites.

PASSENGER TERMINAL FACILITIES

The current passenger terminal building at SUN is currently undergoing an expansion plan that allows for an overall terminal expansion of 34,150 square feet. Renovations to the terminal facilities include baggage make-up areas, security, hold rooms, concessions, baggage claim, rental car counters, terminal parking lot, and apron work such as grading, paving, lighting, and GSE parking. The renovations associated with the terminal expansion are expected to be sufficient throughout the planning period; however, all components will experience congestion during the peak hour in the later part of the planning period, if forecast passenger levels materialize. Passenger terminal area size was examined for the replacement sites in the previous EIS Phase I Plan of Study (2008), which found that 50 acres would be sufficient for future demand at the replacement sites, with ample room for future expansion if needed. The 50 acres estimate includes the area occupied by the commercial passenger building, the terminal aircraft parking ramp, terminal circulation roadways, public parking areas, rental car ready return parking areas, and rental car service areas. This assumption meets and exceeds the requirements laid out in *Chapter C, Capacity Analysis & Facility Requirements.*

ACCESS ROADS

Chapter C, Capacity Analysis & Facility Requirements explains that the current road system that connects to the existing Airport is sufficient throughout the planning period. Ample space for a road system that offers safe and efficient travel to and from the replacement airport sites was also considered in the previous study and continues to be an adequate future benchmark.

SUPPORT FACILITIES

Proposed renovations to the existing Airport, outlined by the current Draft Master Plan suggest some alternatives with a net loss of GA facilities such as hangars and tie-down space. As a result, it is important that the replacement airport sites offer ample space for GA facilities. An approximate 25-percent increase in based aircraft is expected to take place over the planning period, as well as an estimated 300 GA peak day (of the year) operations (90 percent of those being jets). In order to meet the 20-year GA forecast demand, an additional 400,000 square feet of apron space is needed, along with 100,000 square feet of hangar area and landside parking adjacent to these hangars. This reflects the expansion plans for the current Airport in Chapter D, *Existing Airport Site Alternatives* as Alternative 3. This is the only alternative that meets 100 percent of the 20-year GA forecast demand and is recommended if an alternative Airport site is selected, offering ample space for expansion.

Air cargo areas are currently sufficient, following the recent apron expansion completion. The new apron now offers nearly 53,000 square feet of apron area for cargo aircraft. This area can also accommodate additional GA and GSE parking when needed. This size would be sufficient for replacement sites as well, throughout the planning period.

Maintenance facilities expansions are also planned, offering a multi-use 14,000-square-foot space for equipment storage and maintenance, ARFF, and other support facility needs and storage. This facility is expected to be

sufficient throughout the planning period and the sizing should be used when planning for maintenance facilities at the replacement sites.

4.1.3 *Facility Requirements Summary*

At such time that a new replacement airport is required, the aforementioned airside, landside, and support facility requirements should be taken into account during planning. A summary, shown in **Table 1.3-1**, is provided below that lists all physical facility components recommended for a replacement airport and approximate "opening day" square footages/units.

Table E3
REPLACEMENT AIRPORT- FACILITY REQUIREMENTS

REPLACEMENT AIRPORT REQUIRED (PHYSICAL) FACILITIES	
FACILITY DESCRIPTION	**SQUARE FEET**
Terminal/Concourse	21,000
ATCT	13,000
Fuel Farm	12,000
FBO Facilities/Area	102,000
Corporate GA - Medium Size Hangars	8,000 each
Corporate GA - Large Size Hangars	32,000 each
Snow/Maintenance/ARFF/Airport Ops Facilities/Area	32,000
Tie Down Apron (large enough for 60 tie downs)	-
Rental Car Maintenance with Fueling Station Facility/Area	42,000
T-Hangars (multi-unit; approx. 14 units)	21,000 each
Condo Hangars (multi-unit; approx. 10 units)	4,000 each
U.S.F.S./BLM (Bureau of Land Management) Operations	5,000 each
Self Service Fueling Area	2,000
Cargo Facilities/Area	7,000
Aeronautical Development Expansion Area	750,000

Source: Landrum & Brown, June 2015.

All 17-replacement airport sites are capable of accommodating the facility requirements set forth in *Chapter C, Capacity Analysis & Facility Requirements*, of this current Draft Master Plan Update and all FAA standards set forth in AC 5300-13a. Based on this re-evaluation of airport facility requirements, all 17 sites will move onto the next level of screening (see **Table 1.3-2**).

4.2 Ability to Prove Sponsorship/Location within Blaine County

A joint partnership between the City of Hailey and Blaine County currently provides sponsorship to the existing SUN Airport; providing financial and organizational capacity to construct projects, operate, and manage the Airport. However, several of the alternative replacement Airport sites are not located within Blaine County, so the current joint partnership would not apply to those sites. Therefore, shortly after the EIS Phase I Plan of Study (2008) was completed, it was determined that a practical sponsor for each Airport site must be established and

must have the financial and organizational capability to construct, operate, and manage the Airport on that site for the site to be considered feasible.

As a result, formal letters were requested on behalf of any governing bodies wishing to sponsor an Airport alternative site. In some cases, there was no response. Letters that were received at that time, either indicated no interest in or financial capability to sponsor an airport, or indicated an interest in sponsoring an airport, but no proof of financial capability to build, own, and operate an airport was provided. None of the counties or cities contacted Blaine County indicating an interest in participating in a joint or regional sponsorship. Therefore, it was determined at that time that the FMAA/Blaine County partnership was the only viable sponsor for a replacement airport to SUN. This would have eliminated five sites (9, 11, 13, 14, and 15) in the Lincoln and Camas Counties from further study (see **Table E4**).

However, since that time, considerable regional- and state-level economic development activity focused on the Magic Valley region has occurred. Businesses and whole industries have been established in the region, which reach customers around the world and the value of air service to economic development has received wider recognition and acknowledgement. Therefore, as time passes and replacement airport discussions continue, changing conditions may warrant a fresh look at the regional airport concept.[4] As a result, sites 9 and 11 mentioned above are shown as passing this criterion. Sites 13, 14, and 15 were not and are not seen as serving the regional economy, due to their location away from the Highway 75 corridor.

A summary of the process for creating a regional airport is as follows:

1) Upon receipt of a petition signed by at least 25 electors from each legislative district in the region, the Idaho Transportation Board shall create an interim board of trustees (1 from each district).
2) Each interim trustee shall establish a degree of financial participation for each county based on each county's distance from the proposed airport, tax base and population of the county. Prior to an election to establish a regional airport authority, the interim board must establish, on a percentage basis, the degree of financial participation expected from each county in the region as well as the location of the proposed airport.
3) A Regional Airport Authority is established by a vote of electors in the region consistent with the following provisions:
    - A petition signed by at least five percent of the electors of each county in the region requesting the organization of the authority including the location and participation percentages filed with the Idaho Transportation Department (ITD).
    - The ITD sets the election; counties hold the election (May of even numbered year).
    - If a majority of votes in three or more contiguous counties vote in favor, then the ITD creates the authority based in counties that voted in favor. Counties voting against are excluded from the authority.
    - At the next primary election following creation of the authority, counties in authority elect a board of trustees (one from each legislative district).

[4] Development of Regional Airports in Idaho is governed by Title 21, Chapter 8 of the Idaho Code (the "Act"). The purpose of the Act is to provide for the development of regional airports, with the financial participation of individual counties based on the benefits received therefrom. The Act divides the state into five distinct "air regions." Blaine county is located in the "south central region," which is made up of the following counties: Blaine, Camas, Cassia, Gooding, Jerome, Lincoln, Minidoka and Twin Falls.

4) The Board of Trustees then has authority to construct an airport, receive grants, assess and collect taxes in participating counties based on agreed percentages of benefit – budget not to exceed .05 percent market value in any county, etc.

4.3 Expansion Opportunity

As the ability to accommodate growing demand decreases at the existing Airport site, it drives home the importance of considering and providing for expansion opportunities when looking at Airport alternative sites. The Wood River Valley is continuing to grow with both residents and tourists and with that growth comes increased aircraft activity and demand for airport facilities. The ability to accommodate not only existing demand but also future long-term demand is critical for any Airport alternative site. There is no point in building an Airport in a different location that has no room for expansion.

It has been determined that all twelve remaining new replacement airport sites have adequate land available to accommodate future expansion opportunities when the time comes (see **Table E4**).

Table E4
SUMMARY OF NEW REPLACMENT AIRPORT SITE ALTERNATIVES

Alternative Site	Ability to Meet Design Standards, Criteria, and Orders	Located within Blaine County	Ability to Accommodate Future Demand	Ability to Meet Category I Approach (no minimums specified)	Ability to Meet Category I Approach and Missed Approach (200-foot ceiling and ½-mile visibility)	Reasonable Alternative
Site 2	Pass	Pass	Pass	Fail	NA	Fail
Site 3	Pass	Pass	Pass	Fail	NA	Fail
Site 4	Pass	Pass	Pass	Pass	Fail	Fail
Site 5	Pass	Pass	Pass	Pass	Fail	Fail
Site 6	Pass	Pass	Pass	Pass	Fail	Fail
Site 7	Pass	Pass	Pass	Pass	Fail	Fail
Site 8	Pass	Pass	Pass	Pass	Fail	Fail
Site 9	Pass	Pass[1]	Pass	Fail	NA	Fail
Site 10	Pass	Pass	Pass	Pass	Fail	Fail
Site 10a	Pass	Pass	Pass	Pass	Pass	Pass
Site 11	Pass	Pass[1]	Pass	Fail	NA	Fail
Site 12	Pass	Pass	Pass	Pass	Pass	Pass
Site 13	Pass	Pass[1]	Pass	Fail	NA	Fail
Site 14	Pass	Pass[1]	Pass	Fail	NA	Fail
Site 15	Pass	Pass[1]	Pass	Fail	NA	Fail
Site 16	Pass	Pass	Pass	Fail	NA	Fail
Site 17	Pass	Pass	Pass	Fail	NA	Fail

Notes:
1. Site would have failed criterion if original survey results were applied (see narrative in Section 1.3.2).
2. NA – Site was not evaluated for the screening criteria because it "failed" a previous screening criteria.

Source: Landrum & Brown, 2015.

4.4 Ability to Meet CAT I Approach Capabilities

Air service reliability continues to be one of the primary factors in the need for an airport to replace SUN. "Air service reliability" applies to both commercial aviation and all facets of GA; both segments of the aviation community need to be able to reasonably access the Airport during periods of reduced visibility. The current Airport experiences substantial periods, particularly during winter months, when the Airport is closed due to the high operational minimums required by the surrounding topography. According to the FMAA, the capability to accommodate a CAT I approach (no minimums specified) is deemed a necessity to ensure a reasonable level of operational reliability for a replacement commercial service airport. According to the FAA, the capability to accommodate a "full" CAT I approach, which includes a 200-foot ceiling and ½-mile visibility and the associated missed approach procedure, is deemed a necessity to ensure a reasonable level of operational reliability for a replacement commercial service airport. Therefore, this section evaluates each of the remaining sites to determine if they are capable of providing for a CAT I approach (no minimums specified) and a full CAT I (200-foot ceiling and ½-mile visibility and the associated missed approach procedure). **Table E4** summarizes this evaluation.

Based on the evaluation, of the twelve remaining sites, sites 4, 5, 6, 7, 8, 10, 10a, 12, and 17 have runways capable of providing some form of a CAT I approach (albeit, maybe not a 200-foot ceiling and ½-mile visibility), as illustrated in **Table E5**. Sites 2, 3, and 16 are the only three sites (of the twelve) that could not provide at least one CAT I approach regardless of the ceiling or visibility minimums; therefore, these three sites were eliminated from further consideration. The nine remaining sites were then evaluated to determine if they could meet the "full" CAT I minimums of a 200-foot ceiling and ½-mile visibility; Sites 10a and 12 are the only two replacement airport alternatives that could a provide 200-foot ceiling with ½-mile visibility minimums.

Table E5
AIRPORT ALTERNATIVE SITES - CAT I CAPABILITIES

CAT I Capabilities						
Site #	Primary Runway End			Secondary Runway End		
	Runway End	Ceiling (ft)	Visibility (miles)	Runway End	Ceiling (ft)	Visibility (miles)
Site 10a	**7**	**200**	**1/2**	**25**	**250**	**1**
Site 12	**27**	**200**	**1/2**	**9**	**618**	**1 5/8**
Site 6	13	247	1	31	1511	3
Site 7	11	250	3/4	29	250	1
Site 8	8	250	1	26	250	1
Site 10	32	250	1	14	N/A	N/A
Site 17	29	418	7/8	11	N/A	N/A
Site 4	26	493	1 1/4	8	1,148	3
Site 5	8	1,440	3	26	N/A	N/A

Notes: N/A- The Site cannot accommodate a CAT I approach.
Sites in green indicate they meet the full CAT I approach minimums (with 200-foot ceiling and ½-mile visibility).
Source: Landrum & Brown, 2015.

5. Summary – Based on Category I Approach and Missed Approach with a 200-foot Ceiling and ½-mile Visibility

The EIS Phase I Plan of Study (2008) identified Sites 4, 10A, and 12 to carry forward into the EIS process for further evaluation. However, based on additional analysis conducted by the FAA Flight Procedures Office (FPO) shortly following the completion of the 2008 EIS Phase I Plan of Study, it was determined that Site 4's Runway 8 would actually have a 1,148-foot ceiling and three-mile visibility, and Runway 26 would have 493-foot ceiling and a 1¼-mile visibility. Therefore, only Sites 10A and 12 ended up having full CAT I approach capability. As a result, of the 17 new replacement airport sites, only sites 10a and 12 do the following:

1. Have the ability to meet design standards, criteria and orders,
2. Are capable of having a viable sponsor,
3. Have the ability to accommodate future demand, and
4. Provide for a category I approach and missed approach with a 200-foot ceiling and ½-mile visibility.

As previously mentioned, these four criteria closely reflect the three primary considerations that continually drive the purpose and need identified by every replacement airport siting study done for SUN:

- **Provide an airport that conforms to FAA airport design standards, criteria, and orders (that is, has a feasible location) and viable sponsor.**
- **Ensure the reliability of an airport serving the Wood River Region by providing approach capability that will allow operations during periods of reduced visibility. At a minimum, provide an approach capability allowing for operations down to a ceiling of 200 feet above airport elevation and one-half mile visibility.**
- **Ensure the ability of the Airport to accommodate growth in operational demand and in demand for new and expanded facilities.**

The following is a summary description of Replacement Airport Sites 10a and 12.

SITE 10A

Site 10a, depicted in **Figure E22**, consists of a southerly shift and realignment of Site 10, from the *2006 Feasibility Study*, moving the airport from the north side of Wedge Butte to the south side of the butte. However, it remains within the geographic area described in the Blaine County Commission resolution identifying the Sponsor's Proposed Airport site in the area on or around Site 10, south of the Timmerman Hills, and east of State Highway 75. This is a modification of the Sonners Flat site referenced as Site 10 in the Site Selection and Feasibility Study. Therefore, it is referred to as Site 10a. Site 10a takes advantage of the large expanse of high mountain desert that lies between the Blaine County/Lincoln County boundary to the south and Wedge Butte and the Timmerman Hills to the north.

The center of Site 10a is approximately two miles south-southeast of Wedge Butte and 1.5 miles east of State Highway 75. The site encompasses an estimated 1,532 acres of land, all of which is under the management of the BLM. Access to the site is via State Highway 75 and a proposed new access road that would extend approximately 1.5 miles east from State Highway 75 to the terminal development area. Given the identified location of Site 10a, the airport would be approximately 22 miles from the entrance into SUN.

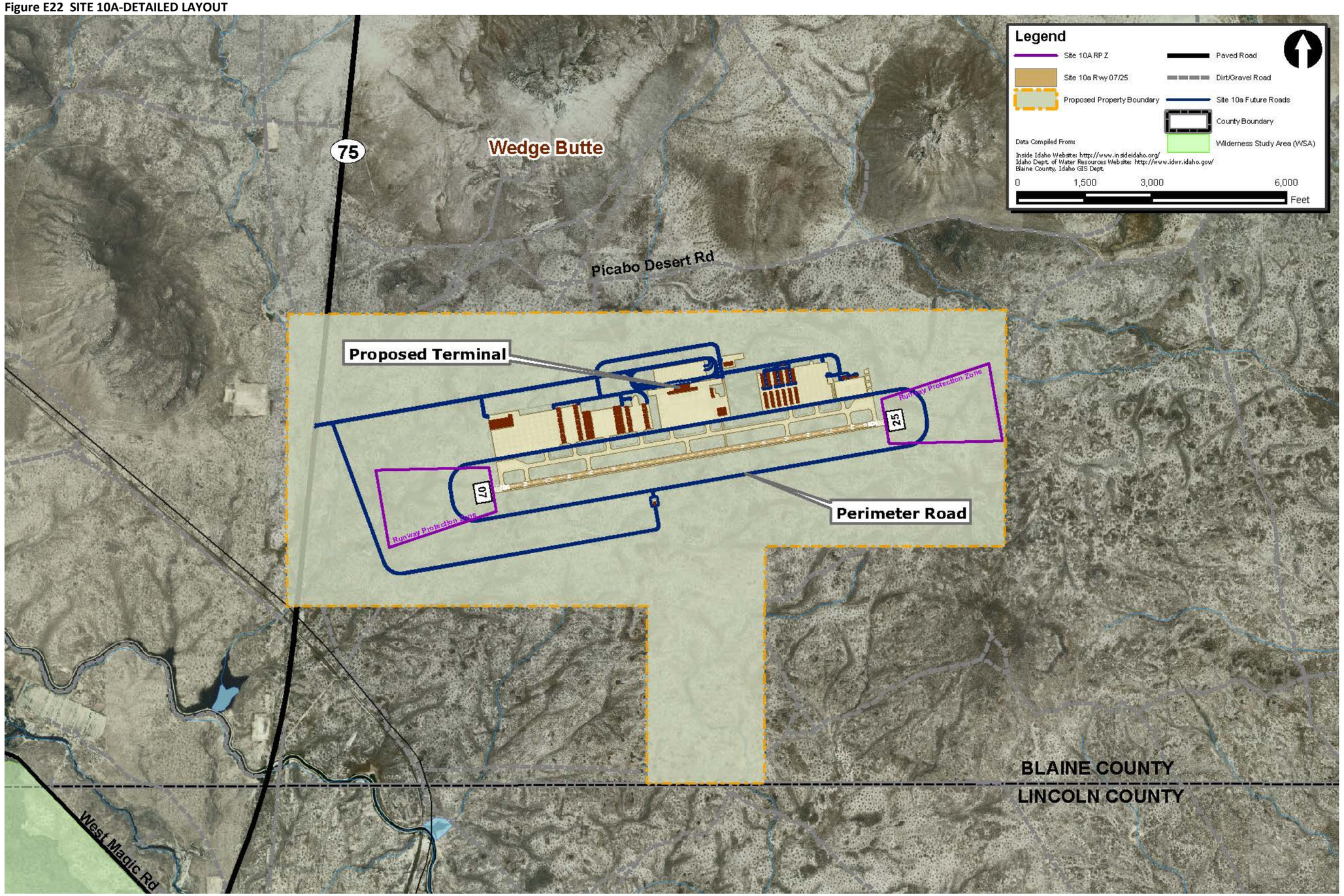
The initial layout of the site considered the results of a limited wind-monitoring program conducted during the *2006 Feasibility Study*. The wind monitoring equipment was located near the Blaine County/Lincoln County boundary, east of State Highway 75, and southwest of the general vicinity of Site 10a. The results of this preliminary effort suggested that winds in the general vicinity of the site could require the need for a crosswind runway to conform to FAA's recommended wind coverage criteria.

Following the 2008 EIS Phase I Planning Study and during the course of the EIS analysis (which was eventually terminated), a weather station was placed to the immediate east of Site 10a to gather detailed information relative to wind direction, velocity, ceiling, and visibility. The FAA collected data for 20 months from November 2008 through June 2010. Based on this data, the FAA determined that a crosswind runway was not necessary at Site 10a. Given this determination, the alignment of the runway shifted approximately 2,300 feet to the east to better conform to the site topography. The layout of the site also considered the elevation of several buttes in areas around the proposed site as it related to the development of approaches to both runway ends. Based on these factors, the runway was aligned along an approximate 070-degree by 250-degree orientation. In addition, the weather station verified that the airport would remain operational 98.1 percent of the time with a CAT-I instrument approach system. As previously described, CAT-I approaches can be accommodated at both ends of the runway at Site 10a, although, only Runway 7 could achieve a CAT-I approach with a 200-foot ceiling and ½-mile visibility. The weather data also suggests that if an airport is located at Site 10a ***without a CAT-I instrument approach system,*** it is possible that the Site will only remain operational 84.5 percent of the time. In comparison, the existing site remains operational 95.3 percent of the time based on VFR conditions.

The aviation development area for Site 10a is along the north side of the runway along with the terminal, GA area, and most of the airport support uses. The ATCT would likely be situated on the southern side of the runway. In addition, land would be reserved on the south side of the runway alignment, within the defined airport property boundary, to accommodate future demand that might occur well into the future when the area on the north side of the runway is built out.

Site 10a slopes from the north-northeast to the south-southwest towards the Big Wood River. Within the limits of the site, the extent of change in elevation is approximately 100 feet, taking into consideration the 1,000-foot Runway Safety Areas (RSAs) off each runway end. The construction of the runway would have to address longitudinal grade requirements contained in FAA guidance. This would necessitate cutting and moving material (earth). Over the course of the 8,500-foot long Runway 7/25, the existing land elevations range from 4,830 feet MSL at the east runway end to 4,755 feet MSL at the west end of the runway.

Figure E22 SITE 10A-DETAILED LAYOUT



Source: Landrum & Brown Analysis, 2010.

SITE 12

Site 12, depicted in **Figure E23**, is located in western Blaine County just east of the Camas County/Blaine County boundary. Site 12 is located approximately 26 miles from the existing SUN. Following the 2008 EIS Phase I Planning Study and during the course of the EIS analysis (which was eventually terminated), the Site 12 proposed airport configuration was modified slightly from that proposed by the *2006 Feasibility Study*. The airport location in the *2006 Feasibility Study* was further to the north and slightly west of the airport configuration that was subsequently identified. Shifting the airport south and east within the general limits of Site 12 addressed a key flaw, the inability to accommodate instrument approaches that had limited the original Site 12 concept. With the refinement of the concept, there was the need to incorporate an approximate two-mile realignment of U.S. 20 into the development of the airport site and the associated utilities and facilities that extend along the relocated roadway.

Site 12 is located on private property owned by five different parties. The site has been both cultivated and used for grazing purposes in the past, with the exception of a portion that is within the right of way for U.S. 20. As configured, Site 12 encompasses approximately 1,296 acres of land; including land required for the relocation of U.S. 20 and the associated realigned rights of way around the southern boundary of the proposed airport site. Using 20 years of historic wind direction and velocity information from an Agrimet weather station located immediately west of Fairfield, it was determined that a single east-west runway would meet FAA wind coverage criteria. Site 12 and its associated runway are oriented along an estimated 090-degree/270-degree alignment. Additionally, following the 2008 EIS Phase I Planning Study, the FAA placed a weather station near the vicinity of Site 12 to gather detailed information relative to wind direction, velocity, ceiling, and visibility. The FAA collected data for 20 months from November 2008 through June 2010. The data confirmed that a crosswind runway was not necessary nor warranted at Site 12. In addition, the weather station verified that the airport would remain operational 93.6 percent of the time with a CAT-I instrument approach system.

As previously described, CAT-I approaches can be accommodated to both ends of the runway at Site 12. Although, only Runway 9 could achieve a CAT-I approach with a 200-foot ceiling and ½-mile visibility. The weather data also suggests that if an airport is located at Site 12 ***without a CAT-I instrument approach system,*** it is possible that the Site will only remain operational 78.6 percent of the time. In comparison, the existing site remains operational 95.3 percent of the time based only on VFR conditions. Given the weather conditions recorded for Site 12 by the FAA's 20-month sampling, it is recommended that when warranted (that is, when the sponsor is ready to replace the existing airport), additional analysis be conducted to verify weather conditions and evaluate operational reliability.

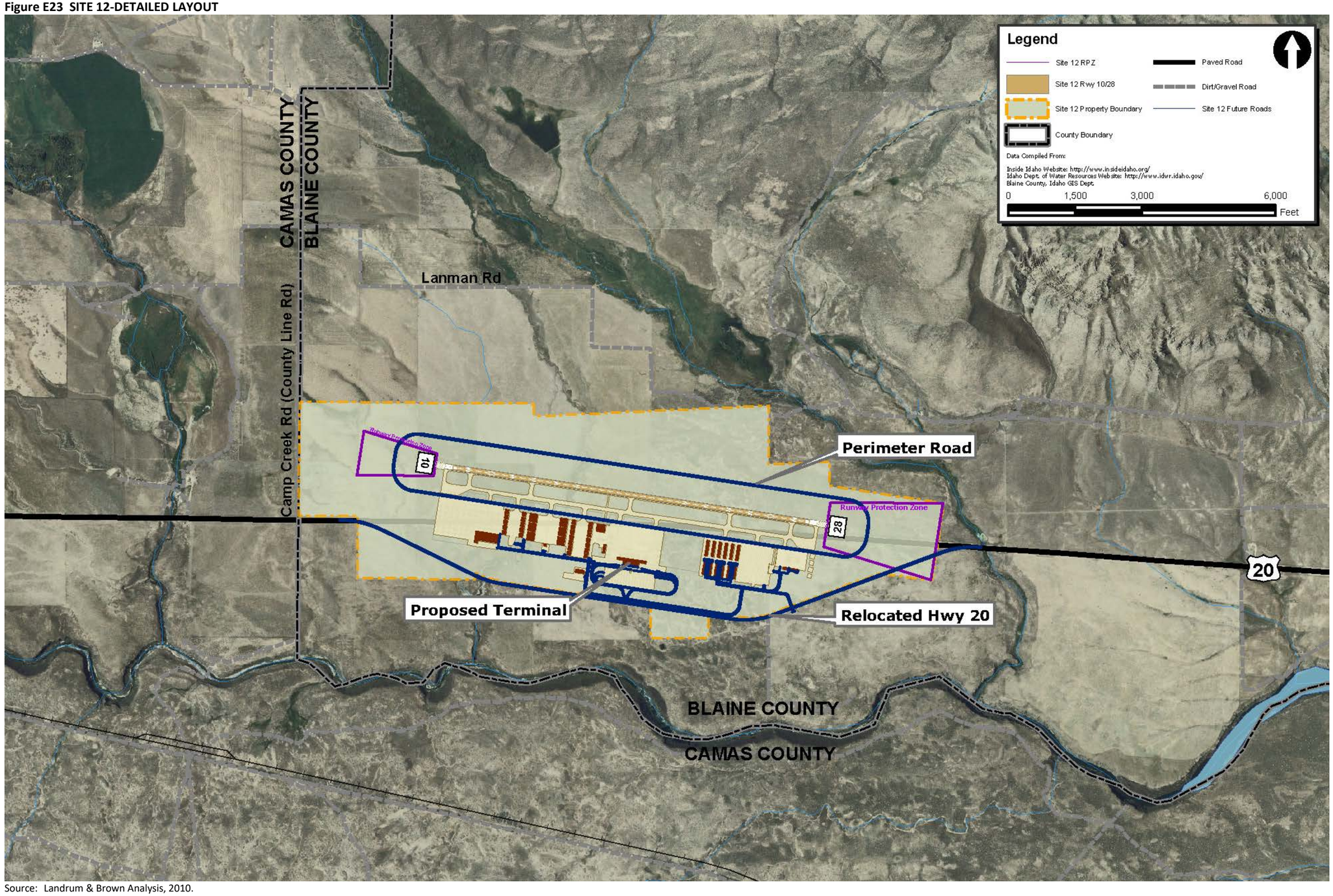
The land area beyond the runway end to the east is generally level, with rising topography only occurring to the north of the site and in the area east of the Magic Reservoir (approximately 3.6 nautical miles from the runway end). West of the site, the land is level with the extended centerline not impacting rising topography for at least nine nautical miles from the western end of the runway.

The conceptual airport layout plan for an airport at Site 12 proposes aviation-related development along the south side of the runway, allowing direct access to realigned U.S. 20. In addition, the planning conceptually identified two points of access from U.S. 20. The first would be located near the eastern end of the site and would provide access into the FBO and GA areas. The second would consist of a short access roadway, one- to two-tenths of a mile in length from U.S. 20 to the terminal area. The two roadways would connect and all would be contained within the airport boundary. Land was reserved, within the proposed airport property boundary, on the north side of the runway to meet long-term growth.

The long-term growth is beyond which could be accommodated along the southern side of the runway. The conceptual layout provides access to property on the north side of the airport either by a roadway off U.S. 20, or by a short access road extending from County Line Road on the western end of the airport site to the property development north of the runway alignment.

The natural elevation along the alignment of the proposed runway ranges between 5,005 feet MSL on the western end to a high of 4,965 feet MSL at the east end. The general topography of the site falls from north-northwest to south-southeast.

Figure E23 SITE 12-DETAILED LAYOUT



Source: Landrum & Brown Analysis, 2010.

6. Summary of Alternative Evaluation Considerations

The summary in Section 1.4 is based on information available from previous planning efforts and the update of four specific criteria. Those four criteria are the ability to meet design standards, criteria and orders; a site capable of having a viable sponsor; the ability to accommodate future demand; and, providing for Category I approach and missed approach capability with a 200-foot ceiling and ½-mile visibility. While this is a thorough and defendable approach resulting in a solid conclusion, this section explores the possibility of a different overall result based on altering screening criteria/assumptions that could influence future evaluations of potential replacement airport sites. The screening criteria/assumptions that this summary challenges include the following:

- **It is unlikely that any site located on land controlled by the BLM will survive an environmental impact/analysis process due to the associated regulatory process.**
- **Accepting a replacement airport site that provides for better minimums than the existing SUN (but not a "full" Category I Approach and Missed Approach) is better than the existing situation.**
- **Site 17's runway orientation could be rotated slightly to achieve "full" Category I approach and missed approach capability.**

Due to the BLM regulatory process, it is unlikely that any new replacement airport site located on BLM land would gain environmental approval and implementation. Current BLM and U.S Forest Service land use plans target the conservation of Sage-Grouse habitats by restricting economic development across 165 million acres in the American West[5]. The level of development permitted within the various Sage-Grouse Habitat Management designations is a key factor in understanding the practicability of developing each replacement airport site, while recognizing these designations/restrictions could change in the future. The majority of the replacement airport sites located in the study area falls within a Sage-Grouse Habitat Management Area. Based on the current understanding of conservation areas, it would be considered unreasonable to develop airport facilities on BLM land. Given this information, it is recommended that a new evaluation criterion be added to the screening process: BLM Land vs. Non-BLM Land. Based on this new criteria, if any or a portion of a new replacement airport site is located on BLM land it will "fail" to move forward in the screening process. Of the 17 sites, eight are located on BLM land (Sites 6, 7, 8, 9, 10, 10a, 11, and 16) so they would be eliminated from further consideration. The alternative evaluation/screening summary has been revised to reflect this new criterion and is presented in **Table E6**.

It would be preferable to build a new replacement airport with the ability to accommodate an instrument approach procedure for the primary runway end capable of CAT I operations (200-foot ceiling and ½-mile visibility). If a replacement airport site could be identified that was capable of providing a CAT I approach with higher visibility minimums, and was an excellent candidate site in all other regards, the FMAA might want to consider the site(s). Especially if any of the sites had an overall better ceiling/visibility and was operationally safer than the existing location. Of course, the FAA would have to agree to the justification as well, since federal funds would be required to develop the replacement airport. If this viewpoint is given merit, the evaluation process would require that an alternative not only "fail" the Category I Approach criteria (either the "no minimums specified" or "full"), but would also have to exhibit another fatal flaw or fail another screening criteria to be eliminated as a potential replacement airport site.
As previously mentioned, during an additional analysis conducted by the FAA FPO shortly following the completion of the 2008 EIS Phase I Plan of Study, it was determined that Site 17's runway orientation could possibly be rotated

[5] BLM Sage-Grouse Habitat Conservation Program: http://www.blm.gov/wo/st/en/prog/more/sage_grouse_home2.html

approximately five degrees to achieve "full" CAT I capability. The other sites analyzed by the FAA FPO (Sites 4, 5, 6, 7, 8, 10, 10a, and 12) would not benefit from a similar adjustment.

Table E6 presents a summary of this alternative evaluation/screening scenario. A site "Fails" to be a "Reasonable Alternative" if it "fails" more than one evaluation criteria; it earns a "Fail/Pass" if it only "fails" one evaluation criteria.

Reading from left to right on the evaluation summary, Sites 2 through 17 (including 10a) all meet FAA design standards, criteria, and orders, and have the ability to accommodate future demand. While Sites 9, 11, 13, 14, and 15 were determined not to have a viable sponsor (based on previously completed outreach efforts) and therefore, would have been eliminated from further consideration, it was decided to "pass" the sites on this criteria given that changing conditions may warrant a fresh look at the regional airport concept in the future. Eight of the sites are located on BLM land (Sites 6, 7, 8, 9, 10, 10a, 11, and 16) and could be eliminated from further consideration.

This leaves six sites remaining; Sites 2, 3, 4, 5, 12, and 17. Sites 2 and 3 cannot provide for at least one CAT I approach regardless of the ceiling or visibility minimums; therefore, these two sites could be eliminated from further consideration.

Table E6
ALTERNATIVE SUMMARY - NEW REPLACMENT AIRPORT SITE ALTERNATIVES

Alternative Site	Ability to Meet Design Standards, Criteria, and Orders	Ability to Accommodate Future Demand	Located within Blaine County	Located on Private Property (no BLM Land Required)	Ability to Meet Category I Approach (no minimums specified)[5]	Ability to Meet Category I Approach and Missed Approach (200-foot ceiling and ½-mile visibility)[5]	Reasonable Alternative
Site 2	Pass	Pass	Pass	Pass	Fail	Fail	Fail
Site 3	Pass	Pass	Pass	Pass	Fail	Fail	Fail
Site 4	Pass	Pass	Pass	Pass	Pass	Fail	Fail/Pass
Site 5	Pass	Pass	Pass	Pass	Pass	Fail	Fail/Pass
Site 6	Pass	Pass	Pass	Fail	Pass	Fail	Fail
Site 7	Pass	Pass	Pass	Fail	Pass	Fail	Fail
Site 8	Pass	Pass	Pass	Fail	Pass	Fail	Fail
Site 9	Pass	Pass	Pass[6]	Fail	Fail	Fail	Fail
Site 10	Pass	Pass	Pass	Fail	Pass	Fail	Fail
Site 10a	Pass	Pass	Pass	Fail	Pass	Pass	Fail
Site 11	Pass	Pass	Pass[6]	Fail	Fail	Fail	Fail
Site 12	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Site 13	Pass	Pass	Pass[6]	Pass	Fail	Fail	Fail
Site 14	Pass	Pass	Pass[6]	Pass	Fail	Fail	Fail
Site 15	Pass	Pass	Pass[6]	Pass	Fail	Fail	Fail
Site 16	Pass	Pass	Pass	Fail	Fail	Fail	Fail
Site 17	Pass	Pass	Pass	Pass	Pass	Fail/Pass	Fail/Pass

Notes:

1. Site Fails as a "Reasonable Alternative" if it fails more than one category. Site earns a Fail/Pass if it only fails one category.
2. Sites 2 through 17 (including 10a) all meet design standards, criteria, and orders, and have the ability to accommodate future demand.
3. Sites 4 and 5 can achieve a CAT I approach (no minimums specified), but not Full CAT I approach; if it's decided that a CAT I approach (no minimums specified) is acceptable then Sites 4 and 5 could be feasible. However, the CAT I minimums that can be achieved are very high and there are still possible environmental issues.
4. Based on the FAA's FPO review of Site 17, following the completion of the 2008 EIS Phase I Planning Study, it might be possible to rotate the proposed runway alignment by five degrees and achieve a "full" Category I Approach and Missed Approach (200-foot ceiling and ½-mile visibility). This is not true for the other sites.
5. Criterion refers to a site's ability to meet airspace requirements. The percentage of time a site is in VFR/IFR weather conditions is not a factor of this comparative evaluation. Evaluating site "reliability" (i.e. percentage of time the potential replacement airport would be operational) can only be compared to Sites 4, 10a, and 12 because of data availability. If deemed appropriate, additional weather data could be collected to expand the evaluation of potential replacement airport sites.
6. Site would have failed criterion if original survey results were applied (see narrative in Section 1.3.2).

Of the four remaining sites (4, 5, 12 and 17), only Site 12 is able to meet and pass all evaluation criteria.[6] Sites 4, 5, and 17 each only failed the "full" Category I Approach criteria. However, Site 4 has very high ceiling/minimums for a Category I Approach and is not easy to adjust to improve the situation. Site 5 can only have one CAT I capable approach on the Runway 8 approach end and it cannot be adjusted to achieve "full" CAT I minimums. In addition, a substantial portion of Sites 4 and 5 would encompass jurisdictional wetlands and waters of the United States. The Clean Water Act, Section 404 (b) (1) Guidelines limit the US Army Corps of Engineers to permitting the least environmentally damaging practicable alternative to accomplish the project purpose.

Therefore, because it is likely there are other sites that would accomplish the need and would not impact wetlands or waters of the Unites States, it would not be possible to obtain a federal permit to impact the wetlands or waters of the United States by constructing an airport on Sites 4 or 5. Idaho and Blaine County each have jurisdiction through their respective stream alteration permitting processes and floodway, floodplain or wetland regulations. A Blaine County stream alteration permit also is contingent upon a Section 404 permit. Under these state and local regulations, the impacts of an airport to the waterways and wetlands of Blaine County at sites 4 or 5 would not be permissible**.**

SINCE THE FAA FPO DETERMINED THAT ROTATING SITE 17 BY APPROXIMATELY FIVE-DEGREES COULD MAKE IT A FEASIBLE ALTERNATIVE, IT IS RECOMMENDED THAT, AT THE TIME THE AIRPORT SPONSOR CHOOSES TO FURTHER INVESTIGATE THE POSSIBILITY OF REPLACING THE EXISTING AIRPORT, SITE 17 SHOULD BE FULLY VETTED WITH THE FAA FPO. THE FAA FPO CAN USE THEIR MODELING TOOLS TO DETERMINE IF THERE IS A MODIFICATION THAT COULD BE MADE TO THE SITE (BASED ON CURRENT WIND DATA) THAT WOULD MAKE THE SITE A VIABLE ALTERNATIVE. Based on this optional evaluation scenario, Site 12 is the most viable, followed by Site 17 (if it can be adjusted to achieve a "full" Category I Approach), Site 4 (if higher Category I Approach ceilings/minimums are acceptable to the FAA), and then Site 5 (if only one CAT I Approach is acceptable and it has high ceiling/minimums).

7. Evaluation Criteria Limitations

Based on the extensive analysis and evaluation criteria used to assess potential replacement airport sites over the past 15 years by both the FMAA and FAA, one thing is clear: there is no easy solution and/or perfect site for a replacement airport. Moreover, the evaluation criteria used to assess the potential replacement airport sites have their own challenges and will likely continue to evolve as existing conditions change. Several challenges exist with the replacement airport sites located within the Bellevue Triangle and the associated evaluation criteria. These challenges include impacts to the Silver Creek watershed, consisting of a number of wetlands, natural springs and spring-fed creeks, which are tributary to main-stem Silver Creek, a tributary of the Little Wood River. The 800-acre Silver Creek Preserve is owned by the Nature Conservancy and is part of the Silver Creek watershed, which is protected by over 10,000 acres of private conservation easements, either sold or donated to the Nature Conservancy, or other agencies. Sites 4 and 5 would encompass portions of these natural features and protected

[6] Following the 2008 EIS Phase I Planning Study, the FAA placed a weather station near the vicinity of Site 4, 10a, and 12 to gather detailed information relative to wind direction, velocity, ceiling, and visibility. The FAA collected data for 20 months from November 2008 through June 2010. The weather data suggests that an airport located at Sites 4, 10a, or 12, **without a CAT-I instrument approach system,** may not be as reliable as the existing site (i.e. the new airport may require flight diversions more often than currently required by the existing site). Given the weather conditions recorded for Sites 4, 10a, and 12 by the FAA's 20-month sampling, it is recommended that when warranted (i.e. when the sponsor is ready to replace the existing airport), additional analysis be conducted to verify that the weather conditions at these sites allow for improved reliability over the existing site. New and additional/updated weather information will be required for any sites that show promise as a replacement airport site.

lands. In addition, future analyses of alternative Airport sites located within the triangle would have to consider consistency with the Blaine County Comprehensive Plan and compliance with Blaine County land use and related ordinances. None of the replacement airport sites located in the Bellevue Triangle would be an allowable use under current Blaine County land use regulations. An update to the Blaine County Comprehensive Plan is underway, and could potentially affect the plausibility of the replacement airport sites located in Blaine County should the Plan and the land use codes be amended.

Since the EIS was suspended, considerable regional- and state-level economic development activity focused on the Magic Valley region has occurred. The value of air service to economic development has received wider recognition and acknowledgement. This and other factors may suggest a need to revisit the regional airport concept.

Finally, the Sage-Grouse issues associated with federally-administered public lands located outside the Bellevue Triangle should also be monitored. The U.S. Department of Interior, in its Environmental Impact Statement Record of Decision published in September 2015, has classified Greater Sage Grouse (GSG) habitat in areas where replacement airport sites are being considered as Priority Habitat Management Area, or its higher-priority subset, Sagebrush Focal Area. Listing of Greater Sage-Grouse under the Endangered Species Act has been avoided because its habitat will be managed under the rules of these classifications. Airports are not considered an acceptable development within these areas. The delineation of these sensitive habitat areas could change depending on the success of sage grouse recovery, or other factors.

As time passes and replacement airport discussions continue, it will be important to encourage future studies not only to "understand" previously identified alternatives and the extensive analysis performed for each potential airport site, but also to build upon that knowledge based on current local conditions. Changed local conditions may warrant a fresh look at the replacement airport sites and regional airport alternatives.

8. Executive Summary

The purpose of this Master Plan chapter is to document and re-evaluate, as needed, replacement sites that have been identified previously as potential sites for SUN, once relocation becomes necessary. Ultimately, seventeen sites (including 10a) in addition to the current site were identified in the 2006 Feasibility Study and 2008 Environmental Impact Statement (EIS) Phase I Planning Study. All have been reviewed and updated primarily according to technical screening criteria including the ability to meet design standards, criteria and orders; to have a viable sponsor; to accommodate future demand; and to provide for Category I approach.

Additionally, all sites have been subjected in this chapter to consideration under some alternative evaluation criteria. These include the ability to survive regulatory criteria; the acceptability of less than full Category I approach and missed approach that are nevertheless better than at the current site; and the acceptability of re-orienting Site 17's runway to make it a feasible site. Finally, limitations of all these evaluation criteria are discussed, including environmental and land use regulations affecting Blaine County, at the time of writing.

In conclusion, combining the technical and alternative evaluation criteria and accounting for the limitations, only Site 12 is a viable replacement airport site located within Blaine County. It is possible that if, or when, some of these conditions change, a fresh look at any of the replacement airport sites – or a regional airport concept – may be warranted in the future.