CHAPTER 4 – AIRPORT FACILITY REQUIREMENTS AND ALTERNATIVES

4.1 Introduction / Background

FAA Advisory Circular 150/5070-6B, *Airport Master Plans*, notes that, "…planners should determine what, if any, additional facilities will be required to accommodate forecast activity." The FAA also notes that "…this analysis needs to clearly define the aviation problems and why the airport needs to resolve them." Further, the Master Plan must also identify "…the requirements for new or expanded facilities that reflect the unique circumstances of each airport."

In response to FAA's requirements, this facility requirements analysis addressed several issues:

- The need to provide adequate capacity to accommodate existing and future aviation activity
- Ensure compliance with appropriate FAA design standards
- Optimize the utilization of available land on the airport
- Enhance the appearance and overall experience of using GUC so that it reflects the character of the area.

Once the facility needs have been identified, it is also important to identify and analyze viable alternatives. Recent trends in aviation activity at Gunnison-Crested Butte Regional Airport (GUC) since the 2006 Airport Master Plan was completed have resulted in less demand for certain types of facilities than were projected in the 2006 study, which was accounted for in this facility requirements analysis.

The primary basis for the facility requirements identified below were the air service analysis and aviation forecasts prepared by Mead & Hunt[1]. The air service analysis and forecasts were reviewed by the Planning Advisory Committee (PAC) and the forecasts were approved by the FAA. In addition, input from airport tenants and users were also considered in defining facility requirements, as well as identifying various alternatives. The airport facilities that are analyzed include:

- General aviation aircraft parking apron and hangars
- Runway 6-24 and 17-35
- Taxiways
- Radio navigation and communications aids
- Aviation fuel storage and dispensing
- Airspace
- Terminal Building, Vehicle Parking, and Road Access

[1] The forecast chapter is available on the Gunnison-Crested Butte Regional Airport Master Plan website: http://sites.jviation.com/guc/2014mpdocuments.html

4.2 General Aviation Facilities

4.2.1 Summary and Recommendations

It is recommended that General Aviation Alternative 3 be implemented. The general aviation (GA) aircraft parking apron should be expanded north of the existing apron by approximately 61,000 square feet. Additional conventional/executive hangars should be constructed adjacent to the expanded apron, as demand warrants. Another row of T-hangars with up to 10 storage units should be constructed on Runway 17-35 when demand warrants. There is also sufficient space on Runway 17-35 to construct an additional transient parking apron, when demand warrants. Construction of the T-hangars and parking apron will require closing Runway 17-35.

The existing two rows of T-hangars in the vicinity of the GA terminal should be relocated to Runway 17-35 after that runway is closed, and the space where the existing T-hangars are located used for future executive hangars. The area adjacent to the GA terminal building would be all executive hangars.

The current access road to the GA terminal and hangars should be upgraded specifically to enhance the appearance of the airport and the community to users of GA aircraft, including additional signage. In addition, a new access road should be constructed to the new and relocated T-hangars on 17-35 when they are built. The additional transient parking apron and executive hangars adjacent to the GA terminal are needed in the short term to accommodate peak period traffic, when the number of transient aircraft exceed the capacity of the existing apron and hangars.

4.2.2 Existing GA Aircraft Parking and Storage Facilities

The facilities that accommodate general aviation activity at Gunnison Crested Butte Regional Airport (GUC) are situated south of the terminal building, in an area between Route 50 and the Runway 6 threshold. The GA facilities include a terminal building, vehicle parking lot, hangars for based and transient aircraft storage, paved parking apron for based and transient aircraft. All of the GA facilities combined encompass approximately 18 acres in the southwest quadrant of GUC Airport.

The GA facilities accommodate both based and transient aircraft (Table 4-1). The GA facilities include:

- The existing paved aircraft parking/tiedown apron is approximately 1,200 feet by 240 feet (288,000 square feet – see Figure 4-2). The apron pavement is asphalt, and the Colorado DOT Aeronautics Division study conducted in 2014 determined that the pavement condition index (PCI) ranged between 41-55, which means that it is in poor condition and requires major rehabilitation.
- The aircraft parking apron has 39 nested aircraft tiedown positions. According to the former FBO, GVA, there are no based aircraft parked on tiedowns (all based aircraft are in hangars). The apron is used only for transient aircraft parking. Except for the two transient pads described below, the remainder of the apron is not marked or striped for transient parking.
- Within the main tiedown apron there are two transient parking aprons – also referred to as jet pads (see Fig. 4-2). Each pad is approximately 200 feet by 100 feet (20,000 square feet), with three power-in,

power-out parking positions on each one. Both transient aprons (jet pads) were constructed with portland cement concrete (PCC), and are rated by CDOT in good to excellent condition, requiring just routine maintenance.

- Existing Taxiway A centerline to edge of GA aircraft parking = 129.5 feet[2], which meets FAA design standards.
- There are 12 corporate./box/conventional hangars, and they encompass a total area approximately 71,000 square feet. The hangars are used by both based and transient aircraft, and are full during winter holiday season, largely used by transient aircraft.

Figure 4-1 - General Aviation Aircraft Parking on July 4th Weekend

Source: GUC

FIGURE 4-2 - EXISTING GENERAL AVIATION FACILITIES

Source: Google Earth

[2] FAA ADG IV taxiway centerline to fixed or moveable object separation standard = 129.5 feet

TABLE 4-1 - GA FACILITY CAPACITY VS. DEMAND

GA Facility	Existing Capacity	2014 Demand	2034 Demand
Based Aircraft Tiedowns	39	0	10
Transient Aircraft Parking – Apron – Peak (July-Aug) – Off-peak	 20 20	 25 – 30 5 - 7	 30-35 7-10
Transient Aircraft Parking - Hangars – Peak (Winter Holiday) – Off-peak	 15 15	 15 – 20 3 - 5	 20-25 5-7
T-Hangar Units	10	8	12
Conventional Hangars – Based Aircraft	20	17	25

Notes:
The number of based aircraft fluctuates throughout the calendar year by 5 – 10 airplanes
All existing based aircraft in hangars – none are on tiedowns
The number of transient aircraft on the ground at GUC over July 4th varies between 25 – 30 airplanes. Overflow parking accommodated on air carrier apron.

- There are ten T-Hangars, of which eight units are currently occupied.
- The FBO, Gunnison Valley Aviation (GVA), leases the terminal building as well as eight conventional and eight T- hangars from the airport. GUC owns the GA aircraft parking apron.
- In CY 2014 there were an estimated 5,235 annual GA aircraft operations, and 25 based aircraft.
- According to FAA's Traffic Flow management System Counts (TFMSC) database, in CY 2014 there were 2,034 corporate jet operations.
- Peak months for GA activity are July & August, when an estimated 1,800 GA aircraft operations occur, or 35% of total annual operations. Based on FAA's Traffic Flow Management System Counts (TFMSC), there are approximately 700 corporate jet operations at GUC during those two months, which is approximately 38% of annual corporate jet operations.
- Over the July 4th holiday period there are typically 20- 30 transient aircraft parked on the airport.
- The GA terminal is a two-story, wood building, approximately 50 feet by 45 feet. The building has offices, conference rooms, as well as meeting, flight planning, and training rooms. The building has sufficient space to accommodate the FBO activities. There is also a paved vehicle parking lot with approximately 37 marked stalls, and there is also an adjacent turf/gravel parking area of approximately the same size.

The former FBO, Gunnison Valley Aviation (GVA), and the Airport have both noted that general aviation activity shows strong peaking characteristics. Approximately 35% of annual GA activity (1,800 operations +/-) occurs in July and August. This trend is substantiated by FAA's Traffic Flow Management System Counts (TFMSC) database. TFMSC records data from flight plans filed with the FAA, as well as aircraft contacts with Air Traffic Control (ATC).

FAA's TFMSC data for business jets flying into GUC indicate that approximately 37% of annual business jet operations occur in July and August. The July 4th holiday weekend typically generates the greatest concentration of corporate aircraft. As many as 20 – 30 aircraft are parked at the same time, which exceeds

the capacity of the aircraft parking apron. The overflow aircraft (approximately 7 - 10 airplanes) are parked on the terminal apron.

FAA's TFMSC data indicate that the large majority of corporate jets that fly into GUC are Design Group II airplanes with wingspan less than 79 feet. The jets include the Cessna Citation series, Dassault Falcon 10/20/50, 2000, and 900, Bombardier 600/604/605/300, Lear 40/45/60, etc., Hawker 800, etc.. Very few Design Group III corporate jets, such as the Gulfstream G-V/G-550 and Canadair Global 6000/7000, operate at GUC.

The forecasts of aviation demand prepared for the Airport Master Plan were reviewed and accepted by the FAA. The 20-year forecast period extended between 2014-2034. Both GA aircraft operations and based aircraft were projected to experience steady growth, at a compound annual average growth rate (CAGR) of 1.7% from 2014 through 2034. The forecast projected there will be 7,340 GA aircraft operations by 2034, and a total of 2,990 business jet operations by 2034.

The number of based aircraft is currently 25, but it fluctuates throughout the year by approximately 5 – 10 aircraft. All based aircraft are currently situated in the T-hangars and the conventional hangars – there are no based aircraft are on tiedowns. The number of based aircraft is projected to increase to 35 by 2034. Seasonal fluctuations in based aircraft are also anticipated to continue throughout the forecast period.

The former FBO (GVA) has noted there is demand for additional T-hangars for based aircraft storage, as well as additional transient parking apron to accommodate peak period demand, particularly in July, and hangar storage for transient aircraft over winter holiday periods.

Existing GA parking apron and hangars can accommodate current and projected based and transient parking demand, except for peak periods over the July 4th holiday for transient corporate aircraft parking, and also transient hangar aircraft storage demand over winter holidays. Primary facility needs are for overflow parking during the July peak, as well as additional transient aircraft hangar storage over winter holiday periods.

The capacity of the existing hangars and parking apron adequately accommodate existing GA activity throughout most of the year, except during peak periods in July. If based aircraft do use the tiedowns on the apron in the future, and only use hangar storage as is currently the situation, the parking apron can continue to be used exclusively for transient aircraft parking. To accommodate either based or transient aircraft parking the apron should be rehabilitated, as recommended by CDOT, and designed to accommodated corporate jets up to airport reference code C-II, including the Falcon 900, 2000, Cessna Citation series as well as the Cessna Sovereign and Excel, Hawker 800, Bombardier Challenger 300, Gulfstream 200/280, Learjet 40, 45, 60, 65, Beechjet 400, Embraer 100, 300, 500, Beech King Air 200 and 350, etc. Relatively few large corporate jets such as the Gulfstream 550, Global Express 600 and 700, Falcon 7X, and Boeing BBJ (737-700) fly into GUC.

4.2.3 GA Facility Requirements

The number of based aircraft at GUC is projected to increase by 10 (40%) over the 20-year planning period, from 25 to 35. Seasonal fluctuations in the number of based are projected to continue. All based aircraft are currently stored in T-hangars (eight airplanes) and conventional hangars (17 airplanes).

The previous FBO, GVA identified a need for an additional 8 -10 T-hangars for future based aircraft, and additional conventional hangars, primarily for transient aircraft. There is also a need to accommodate 7 -10 transient corporate aircraft, primarily over the July 4th holiday period.

The 2006 Airport Master Plan had projected that based aircraft would increase from 33 in 2007 to 44 by 2022. That Master Plan recommended constructing additional conventional hangars to the south of the FBO area, many of which have been constructed since 2006.

The 2006 Master Plan also recommended constructing T-hangars and conventional hangars to the north of the FBO terminal, as well as additional hangars on Runway 17-35. To date the hangars have not been constructed on 17-35. Given that the number of based aircraft and GA aircraft operations have not increased as projected in 2006, current levels of activity as well as the current forecasts do not warrant the same number of new hangars as recommended in 2006.

Based on input from the previous FBO, as well as the aviation forecasts, it is recommended that an additional 8 – 10 T-hangar units be constructed adjacent to Runway 17-35, south of Runway 6-24, as demand warrants. The 8 – 10 units may be accommodated in a single row. In addition, two conventional hangars, each approximately 100 feet x 100 feet in size, could also be constructed north of the terminal building, also as demand warrants. The conventional hangars can be used for transient as well as based aircraft. The two rows of existing T-hangars situated south of the G.A. terminal building should eventually be relocated to the area adjacent to 17-35, and the area developed for executive hangars. As a result, all T-hangars would eventually be situated south of Runway 6-24, and executive hangars will be concentrated adjacent to the GA terminal building.

In addition, the paved aircraft parking apron should be expanded by approximately 61,000 square feet to the north of the existing apron. The expanded apron could accommodate 9 power-in, power-out parking positions for Design Group II aircraft. The new apron would serve primarily to accommodate overflow parking when the main apron is full, during peak periods. Approximately half of the expanded apron would underlie the Runway 17 protection zone (RPZ), although the parked aircraft would not penetrate the approach surface to 17. Runway 17 is visual, small airplane only (almost exclusively single-engine piston tailwheel). It is the least utilized runway at GUC, and is only operational from May 1 to December 1.

4.2.4 GA Facility Alternatives

The first alternative considered was the Status Quo – i.e. not expand the GA facilities. The primary advantage is low cost compared to constructing new facilities, and less potential environmental impacts. While the existing hangars and aircraft apron can adequately accommodate demand for most of the year,

using the air carrier apron for overflow parking during peak periods is not an acceptable alternative over the long term, particularly from an operational perspective.

GA Alternative 1: Status Quo

The first Alternative is defined as status quo – i.e. no new construction of new facilities. The existing hangars and tiedown apron can accommodate both existing and future based aircraft, as well as transient aircraft, except during peak periods. While this alternative does not require any capital investment, it is not considered to be viable because overflow parking during peak periods is accommodated on the air carrier aircraft apron.

While the peak GA transient demand occurs over the July 4th holiday period, which is typically off-peak period for air carrier traffic, the FAA recommends that GA and air carrier parking be completely separated because of the differences in their operating characteristics and the size of aircraft. If Runway 17-35 were closed there would be sufficient room for an overflow parking apron, but it would present the same issues discussed above – namely, aircraft would cross 6-24 between the GA terminal and the overflow parking which presents opportunities for runway incursions and traffic conflicts.

GA Alternative 2: Runway 17-35 Development

The second alternative is similar to the 2006 Master Plan prepared by Barnard Dunkelberg, which recommended closing Rwy 17-35 and constructing new hangars and aprons on Runway 17-35, south of Runway 6-24. Alternative 2 proposes all new GA development be focused where Runway 17-35 is currently located. If Runway 17-35 were closed there would be more than adequate room for new hangars and additional transient parking apron. Parking GA airplanes south of Runway 6-24 would require the FBO to occasionally drive vans around the end of Runway 6 to shuttle passengers and baggage from aircraft to the terminal area, as well as the FBO's mobile fuelers to service aircraft.

In addition, some aircraft may drop-off and pick-up passengers at the GA terminal and taxi across Runway 6-24 to park. The line of sight between 17-35 and Runway 6-24 is unobstructed, and aircraft use the unicom (the Common Traffic Advisory Frequency – CTAF) to self announce their position and intentions to other aircraft in the area. In this scenario, Runway 17-35 would be closed as soon as any development occurs on the runway. Runway 17-35 is a visual, daytime runway, and it is not open during the winter. As a result, 17-35 provide little additional operational capacity for the airport. In addition, hangar and apron development on 17-35 would generate revenue for the airport, which it presently does not receive as a runway.

GA Alternative 3: North Area Apron and South T-Hangar Development

This is the recommended alternative, and it shows Ruwnay17-35 remaining in place, expanded paved parking apron adjacent to the existing GA apron, four additional executive hangars, and two rows of T-hangars south of Runway 6-24, adjacent to 17-35. This alternative proposes to expand the existing aircraft parking apron by approximately 61,000 square feet (as shown in Fig. 4-3), and designate power-in, power-

out parking positions for transient aircraft on the whole apron - i.e. eliminate the painted nested tiedown positions. Based aircraft will continue to use hangars as opposed to tiedowns for storage.

At airports with aprons that cannot accommodate high volumes of peak transient traffic, FBO's use tugs to position aircraft into nested parking positions in order to maximize parking capacity. However, transient aircraft operators, particularly corporate airplanes, strongly prefer power-in, power-out parking vs. using tugs.

Neither corporate aircraft owners nor FBOs prefer the use of tugs to park aircraft – it requires trained and experienced line crews and there is a potential risk of damage to airplanes. Power-in, power-out parking, however, requires a large amount of space. For example, each parking position for a design group II aircraft should be approximately 79 feet by 79 feet in size, with 10 feet separation between each parking position. And FAA design criteria notes that the taxilane object free area (OFA) width is 115 feet for design group II aircraft. As a result, in order to accommodate peak parking demand at GUC, an additional 61,000 square feet of apron space would be required (see Figure 4-3).

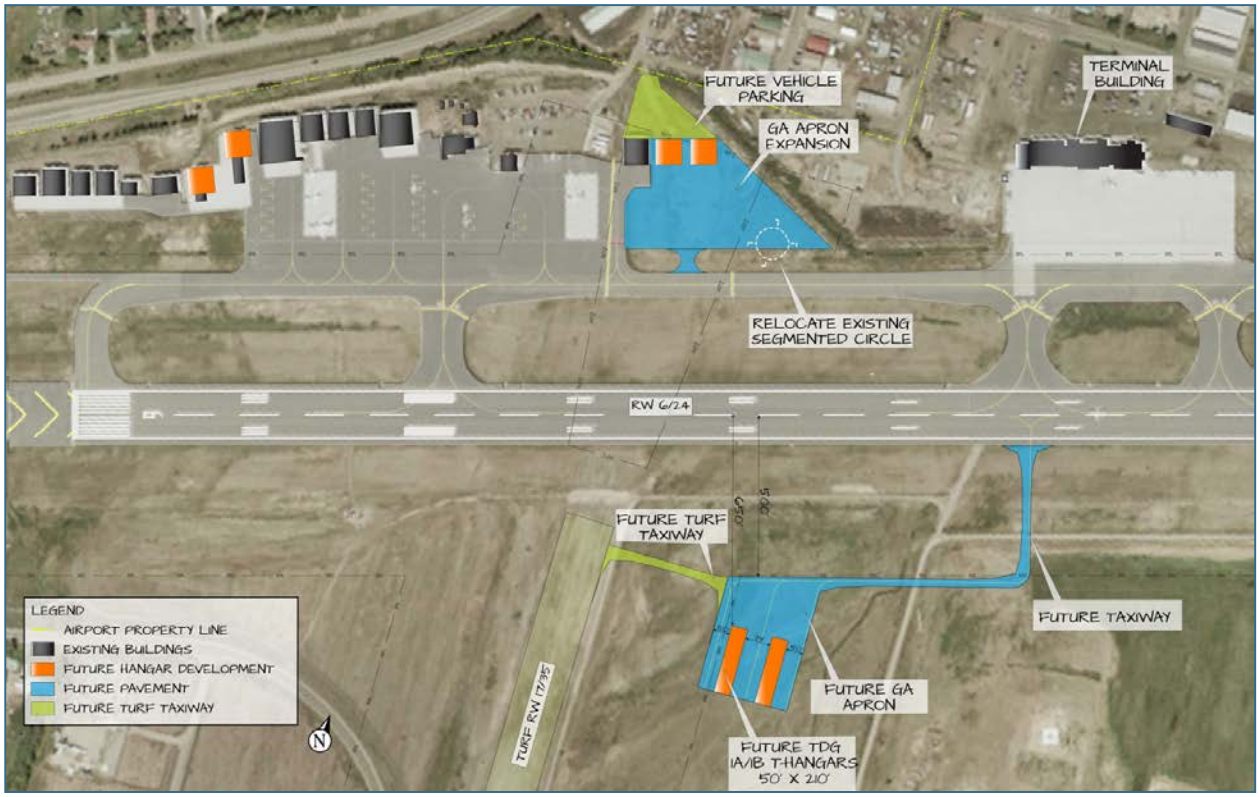
This alternative also includes developing T-hangars adjacent to Runway 17-35, south of 6-24. Runway 17-35 will remain open and operational except in winter. There is sufficient room to expand the T-hangars to the south, parallel to 17-35, to meet demand beyond the forecast period. A new taxiway to the T-hangars will need to be constructed. The existing access road to the GA terminal needs to be upgraded and landscaped, as well as additional signage to the GA terminal installed on Rio Grande Blvd.

4.3 Runway 6-24

4.3.1 Summary and Recommendations

It is recommended that GUC designate a clearway on the departure end of Runway 6 (i.e. to the north, off the end of Runway 24). No physical changes or alterations would be required to designate a clearway. It is recommended that discussions be held with the air carriers and air taxi operators that serve GUC to determine whether they would take any operational credit (in the form of increased takeoff weight) for a designated clearway for departures on Runway 6. The existing approach light system (MALSF) to Runway 6 would prevent the designation of a clearway on the departure end of Runway 24.

FIGURE 4-3 - GA ALTERNATIVE 3: RECOMMENDED FUTURE GA APRON EXPANSION AND HANGARS



Source: Jviation, Inc.

4.3.2 Background and Overview

There are two runways at GUC (6-24 and 17-35). The primary runway is 6-24, which is 9,400 feet by 150'. It has a precision instrument landing system (ILS) approach to Runway 6, as well as non-precision instrument approaches published to both Runway 6 and 24. As noted by Mead & Hunt[3]:

> "The current RDC for Runway 6/24 is C-IV-5000. Based on FAA's Traffic Flow Management System Counts (TFMSC) database of IFR filed flight plans in 2014, GUC received 2,182 operations by Category C aircraft and 81 operations by Group IV aircraft. While the total number of Group IV operations do not meet the FAA's substantial use threshold of 500, C-IV-5000 is still considered the appropriate RDC because the Airport already meets most design standards for this RDC and maintaining the Airport to these standards will provide the airlines maximum flexibility in choosing the type of aircraft they use to serve the Gunnison market. The breakdown of existing operations by RDC and a forecast of future operations by RDC is shown in the following table, entitled *Summary of Operations Forecast by RDC, 2014-2034*."

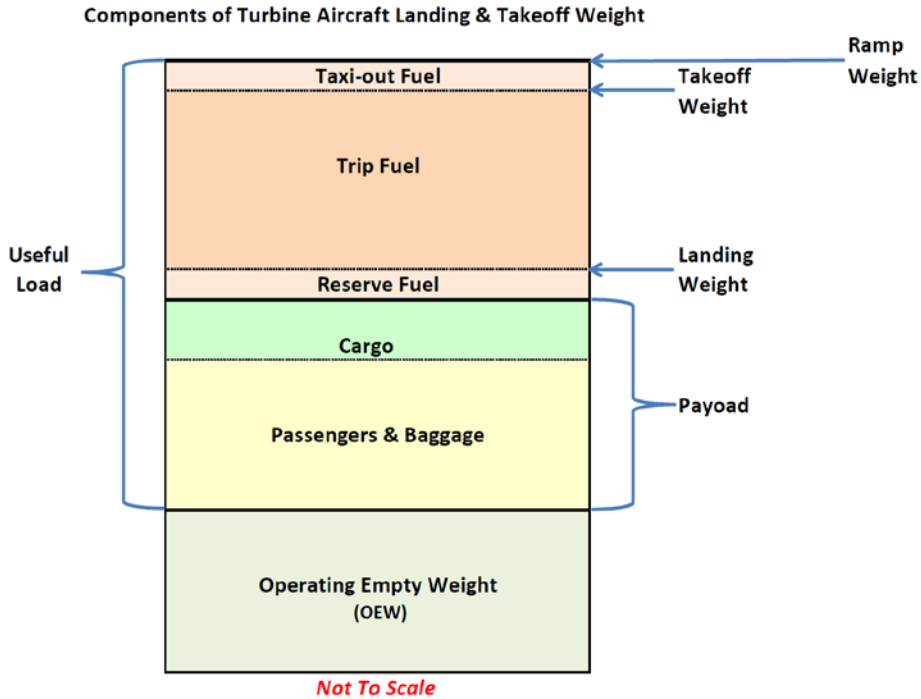
[3] Source: Gunnison - Crested Butte Regional Airport Master Plan, Aviation Forecasts, 2015

Runway 6-24 meets FAA's design standards for RDC C-IV-5000 facilities. However, the field elevation is 7,680 feet above mean sea level and there are obstacles (high terrain) in both the approach and departure routes to each runway. In addition, the runway has an upward slope of 0.3% from the 6 end to the 24 end.

Given its elevation and the obstacles in the vicinity of the airport, a large percentage of aircraft take weight penalties when departing from GUC. Turbine powered aircraft, particularly those used for commercial operations, are required to follow specific departure procedures for adequate obstacle clearance, accounting for both all engine and one engine inoperative (OEI) scenarios. Figure 4-5 illustrates the complexity of the departure procedures from airports surrounded by high terrain such as GUC. Aircraft operators typically reduce their takeoff weight to provide adequate climb performance, particularly from airports such as Gunnison.

Weight in the form of useful load (fuel and supplies) and payload (passengers and baggage) can be adjusted to match the takeoff runway length as well as the obstacle clearance requirements on departure for both all engine and one-engine inoperative scenarios (see Figure 4-4). Airlines and corporate aircraft operators routinely limit aircraft weight by limiting the number of passengers, baggage, cargo (i.e. payload) and fuel (note: fuel combined with payload is known as useful load. *In fact, the large majority of all corporate and air carrier jet takeoffs and landings are conducted at reduced weight (i.e. below maximum allowable takeoff and landing weight).* Taking off at less than maximum weight has a number of operational and financial benefits: reduced operating costs due to lower fuel burn; lower power settings result in less noise and emissions on takeoff; greater safety margins for obstacle clearance and emergencies; less stress and wear on the landing gear, brakes, tires, and other aircraft components.

FIGURE 4-4



Source Jviation

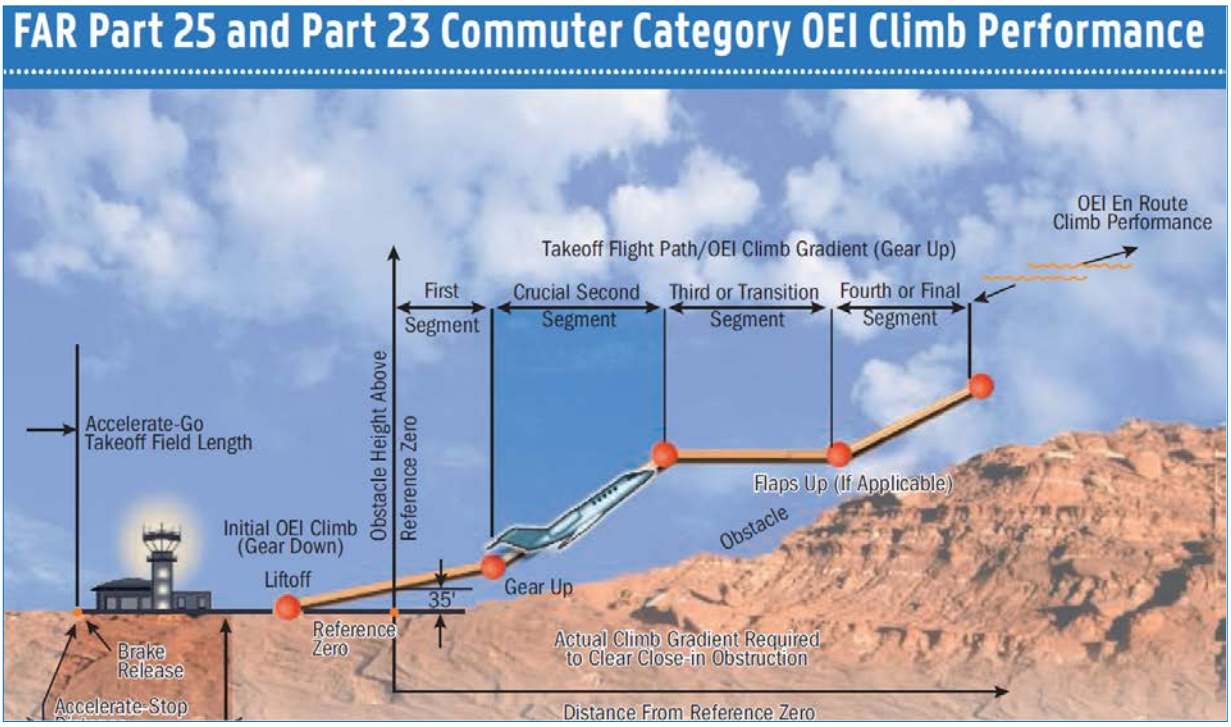
Takeoff and landing runway length requirements, particularly for corporate and air carrier jets, are a function of many variables:

- Aircraft weight (function of stage length to be flown, reserve fuel required, payload, etc.)
- Field elevation above sea level
- Accelerate-stop distance (i.e. distance needed for rejected takeoffs – RTO)
- Runway slope (gradient) and surface type (e.g. grooved, smooth, etc.)
- Wind direction and speed
- Amount and type of precipitation
- Ambient air pressure, temperature, humidity (density altitude)
- Runway pavement condition (wet, snow, slush, ice, dry)
- Obstacle clearance procedures with all engines operating and one-engine-inoperative (OEI)
- Noise abatement procedures
- Use of aircraft equipment: bleed air for anti-icing, air conditioning packs, anti-skid devices, etc.
- Flap setting (dependent on aircraft weight, runway length, density altitude, obstacle clearance)
- Power setting
- Maximum tire speed and brake energy limits
- Credits taken for clearways and declared distances[4]

A number of the variables noted above change daily and hourly (for example, weather – wind/temp/pressure, and runway conditions, e.g. wet/dry). Other conditions can change within a given year (such as growth of vegetation or new construction), while others only change over a number of years (runway length, pavement type, gradient, etc.)

[4] GUC has published declared distances, but has not designated clearway. FAA defines clearway as: "A defined rectangular area beyond the end of a runway cleared or suitable for use in lieu of runway to satisfy takeoff distance requirements." FAA also notes: "Takeoff Distance Available (TODA) – the TORA plus the length of any remaining runway or clearway beyond the far end of the TORA; the full length of TODA may need to be reduced because of obstacles in the departure area."

FIGURE 4-5 – FAR PART 25 AND PART 23 COMMUTER CATEGORY OEI CLIMB PERFORMANCE



Source: Business and Commercial Aviation, May 2014

Based on performance data published by Airbus, the A-319, which is operated at GUC by American and United Airlines, has a maximum allowable takeoff weight of 166,000 lbs. At 7,700 feet pressure altitude, with a 9,400-foot runway available for takeoff, the A-319 can takeoff at 160,000 pounds at standard temperature (30^{0}F) and pressure. The A-319 can takeoff at 158,000 pounds with an outside temperature of 89^0 F. (which is standard temperature at 7,700 feet MSL + 59^{0}F). Therefore, on a standard day, the A-319 takes a weight penalty of 6,000 pounds, and on a hot day (ISA + 59^{0}F) the A-319 would take a weight penalty of 8,000 pounds, not factoring in obstacle clearance climb requirements. The weight figures for the A-319 shown above are representative from Airbus and are not specific to either American or United Airlines. The same is true for each air carrier and air taxi aircraft. The weight figures also do not take into account many of the variables listed above, including obstacle clearance requirements.

Each airline takes delivery of their airplanes with different basic operating weights (BOW), and therefore have different useful loads and payloads when operating the same type of aircraft. Each airline also develops their own individual operations specifications (Ops Specs), which prescribe all of the operating procedures that must be followed. Each carrier's Ops Specs are different, so two airlines operating the same type of airplane will take different weight penalties and use different operating techniques when flying in and out of GUC at the same time.

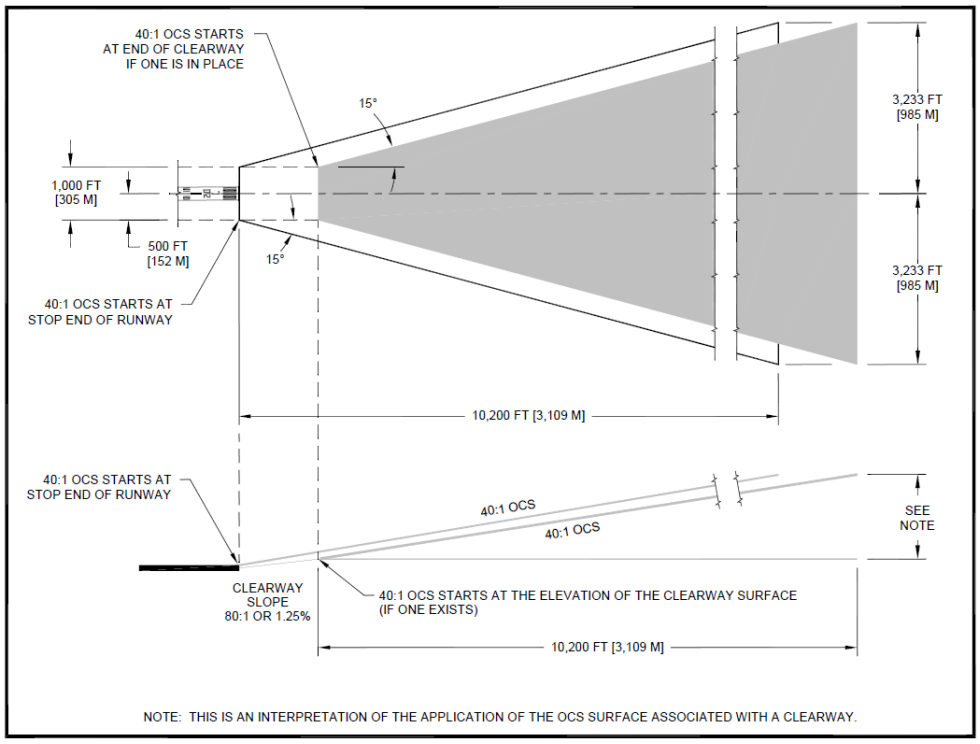
When developing their Ops Specs, airlines start with aircraft manufacturers' data presented in aircraft flight manuals (AFM) and certification authority requirements. The AFM's are tailored to each airline's individual operating requirements. As a result, airlines operating the same aircraft (such as the A-319)

frequently have different runway length and obstacle clearance requirements, and take different weight penalties when departing on the same runway at the same time. Therefore, it is important to discuss specific runway length and obstacle clearance requirements with each operator in relation to their particular operations specifications (Ops Specs).

Clearways are 500 feet wide, and can be a maximum length of no more than half the runway length (i.e. 4,700 feet on 6-24.) See Figure 4-6. Clearways have slope of 80:1 (1.25 percent). At the end of the clearway, there is an obstacle clearance surface (OCS) with a slope of 40:1 that extends an additional 10,200 feet.

However, not all air carriers or air taxi operators take credits for clearways, so each individual carrier needs to be consulted to determine what operational benefit, if any, a clearway may provide in terms of their takeoff weight under various conditions. If the primary constraint in terms of takeoff weight is meeting obstacle clearance requirements on climb-out vs. runway length limitations, then the designation of a clearway may provide relatively little or no benefit to air carriers.

Figure 4-6 - Obstacle Clearance Surface (OCS) Associated with Runway Clearway



Source: FAA AC 150/500-13B, *Airport Design*, Chapter 3

4.4 Runway 17-35

4.4.1 Summary and Recommendations

It is recommended that Runway 17-35 remain open three seasons of the year as a turf runway, and closed during the winter. Future T-hangar development is recommended to be sited to the east of 17-35, with a turf taxilane between the runway and T-hangars.

4.4.2 Overview/Background

Runway 17-35 is a gravel/turf runway, 2,981 feet by 150 feet, and is operational only during three seasons of the year. It is visual daytime only, and has no lights or navigation aids. It is used by certain airplanes, both civilian and military, when the winds favor the north-south direction. There are no taxiways to 17-35; aircraft in GA hangars or the tiedown apron north of 6-24 taxi across Runway 6-24 to 17-35, and then back-taxi on the runway if departing on 35. Runway 17-35 is not plowed in the winter, and is published as closed between December 1 and May 1.

4.5 Taxiways

4.5.1 Summary and Recommendations

Runway 6-24 is served by a full parallel Taxiway A . It is recommended that islands be installed between three stub taxiways that run between the air carrier and GA aprons, across Taxiway A, to Runway 6-24. The FAA recommends eliminating straight taxiway access between parking aprons and runways as one way of eliminating runway incursions. The islands can be installed when the aprons or the taxiways require any rehabilitation or reconfiguration.

4.5.2 Background and Overview

Runway 6-24 has a full parallel taxiway (A), with the taxiway centerline situated 400 feet from the runway centerline, which meets FAA criteria. Taxiway A is 75 feet wide, which meets FAA's Taxiway Design Group (TDG) 5 and 6 standards.

There are eight exit (stub) taxiways between Taxiway A and Runway 6-24, all of which are right angle connections. The number and location of the exit taxiways minimizes runway occupancy time, and therefore enhances operational capacity.

The stub taxiway serving the GA aircraft parking apron, and two taxiway stubs serving the air carrier apron, are not in compliance with FAA's latest guidelines presented in FAA AC 150/5300-13A, *Airport Design*, Chapter 4, Figure 4-2. FAA currently recommends that taxiways should not provide straight access between aircraft parking aprons and runways. Taxiways should be configured such that aircraft taxiing between a runway and a parking apron are required to make turns, vs. being able to taxi in a straight line between a parking apron and a runway, as is currently the case at GUC. In order to comply with FAA criteria, it is recommended that the pavement in the vicinity of each apron be painted with ovals denoting no-taxi areas,

which would require aircraft taxiing between Runway 6-24 and the GA or air carrier apron to make turns, and not be able to taxi in straight lines.

Runway 17-35 has no taxiways. Aircraft using Runway 35 for departure, or Runway 17 for arrivals, are required to back-taxi on the runway. As noted above Runway 17-35 is gravel/turf and is 100 feet wide, and is the least utilized runway at GUC. It is a VFR daytime runway used by single-engine piston airplanes, primarily tailwheel aircraft. In addition the runway is published as closed from December 1 to May 1. Therefore it is not recommended that a parallel taxiway be constructed to Runway 17-35, or taxiway turnarounds.

4.6 Radio Navigation and Communications Aids

4.6.1 Summary and Recommendations

No additional electronic navigation or communication aids are recommended. GUC is adequately served by existing ground-based and GPS radio navigation and communications aids. The volume of existing and projected traffic at GUC does not meet FAA's cost-benefit ratio criteria for the installation or operation of an air traffic control tower (ATC).

4.6.2 Background and Overview

In terms of navigation aids, GUC is currently served by a variety of ground-based and GPS instrument approaches, including a precision instrument ILS approach to Runway 6, which also has a medium intensity approach light system with sequenced flashers (MALSF), as well as high intensity runway lights (HIRL). There are also published GPS non-precision instrument approaches to Runway 6 and 24; precision approach path indicator (PAPI) lights to both 6 and 24, and runway end identifier lights (REIL) on 24. Given the level and type of traffic at GUC, the existing navigation aids provide adequate operational capacity to meet existing and future demand.

There is no air traffic control tower at GUC, and the volume of existing and projected traffic does not meet FAA's cost-benefit ratio for a control tower. Civilian aircraft radio communications are conducted primarily on Very High Frequency (VHF) radio frequencies, which require clear line-of-sight between sender and receiver. The location of GUC in a valley limits the range of VHF radios as well as air traffic control radar. The mountains effectively limit conventional air traffic radar services to aircraft that are approximately 15,000 feet or higher. The Colorado DOT Aeronautics Division in cooperation with FAA installed the wide-area multilateration (WAM) aircraft surveillance system throughout the Western Slope region of the state, which enhanced FAA air traffic control's ability to direct aircraft that are arriving and departing from airports in the mountains, including GUC. The WAM has reduced delays for arriving and departing aircraft by allowing ATC to monitor and control aircraft down to ground level at GUC. Aircraft can also communicate directly with Denver Center on the ground at GUC through the use of a remote communications outlet (RCO). With WAM, air traffic control applies less separation between arriving and departing aircraft, which increases the arrival and departure rates, particularly under instrument meteorological conditions (IMC). The provision of full conventional radar coverage down to ground level

in the Western Slope region would require the installation and maintenance of a number of new radar stations, which would be extremely expensive, which is not currently programmed by FAA.

The advent of FAA's new technology aircraft tracking system, known as ADS-B (automatic dependent surveillance-broadcast), is a key part of FAA's NextGen ATC system. Using satellites, ADS-B will greatly enhance ATC's ability to provide radar-like monitoring and flight following services to aircraft flying in to and from mountain airports, as well as increase airspace capacity by reducing aircraft separation standards.

There is an automated weather station (AWOS III) located on GUC. The federal aviation regulations that govern commercial aircraft operations under FAR Part 135 and 121 require the availability of on-site weather reporting. Airport personnel, including the airport manager, are trained and certified weather observers under the National Weather Service Supplementary Aviation Weather Reporting System (SAWRS). They can provide weather observations that are required for commercial aircraft operations at GUC if the AWOS is out of service. However, neither the FAA nor the National Weather Service prepare terminal weather forecasts for GUC, which adversely impacts scheduled and air taxi operations. The reason why the National Weather Service cannot prepare terminal forecasts for GUC is that the AWOS III does not provide the cause of reduced visibility (e.g. rain, snow, fog, etc.) In addition, the Doppler radar located in the vicinity of Durango cannot 'see' Gunnison due to the intervening mountains. Commercial aircraft operators (Part 135 and 121) are required to use area weather forecasts in lieu of site-specific terminal weather forecasts, and cannot takeoff from their point of origin, or start an instrument approach to GUC, if the area forecast indicates that the weather is lower than the minimums published on the instrument approaches to the Airport. Airport management has reported there have been a number of occasions when the weather at the Airport was better than the area forecast for the region, so air carrier and air taxi aircraft cancelled flights to GUC when they may have been able to land at GUC if they had airport-specific weather forecasts.

The National Weather Service recently installed a Doppler radar (a Nexrad WSR-88D) on top of the Grand Mesa, just east of Grand Junction, Colorado. Because of the radar's line-of-sight limitations in the vicinity of GUC, the NWS/FAA are still unable to prepare terminal aerodrome weather forecasts for GUC. FAA has stated that it replace the AWOS III located on GUC in September 2016, and the NWS/FAA will be able to start issuing terminal weather forecasts for GUC after the new ASOS is installed.

4.7 Aviation Fuel Storage and Throughput Capacity

4.7.1 Summary and Recommendations

It is recommended that no additional fuel storage tanks be installed, as the existing fuel storage tanks and mobile fuelers adequately meet existing and future demand. There are a number of studies currently underway exploring alternatives for 100LL avgas fuel. If a replacement fuel is found and certified by FAA, and if 100LL avgas production is discontinued, then it is possible that the existing avgas fuel storage tank and mobile fueler may need to be replaced to accommodate the alternative fuel.

4.7.2 Background and Overview

TABLE 4-2 - GUC'S CURRENT FUEL STORAGE FACILITIES

Fuel Type	No. of Tanks	Capacity of Ea. Tank	Total Capacity
Jet A	2	25,000 gals	50,000 gals.
100LL Avgas	1	10,000 gals.	10,000 gals.

Source: Gunnison Airport

All three storage tanks are above ground, and are situated in the vicinity of the FBO terminal area. A total of approximately 530,000 gallons of Jet A, and 38,000 gallons of 100LL avgas were sold in a recent calendar year. The FBO services both the airlines and general aviation aircraft, and manages the fuel farm, which is owned by the airport. The FBO operates two Jet A mobile fuelers (trucks) and one avgas mobile fueler (truck). Based on the current storage and throughput capacity, and the forecasts of demand, no additional fuel storage tanks are needed.

4.8 Air Cargo Facilities

4.8.1 Summary and Recommendations

Air cargo is flown into and out of GUC in the form of mail, freight, and small packages. It is carried in airline aircraft belly holds, as well as by regional carriers serving UPS and FedEx flying turboprop aircraft. In YTD 2015 the US DOT Bureau of Transportation Statistics (BTS) recorded 115,000 pounds of mail and freight flown into GUC. Based on that volume of freight/mail/small packages, there is no need for additional cargo handling facilities at the Airport. In addition, based on the economy of the County and trends in the freight forwarding industry, it is not anticipated that air cargo demand will increase substantially at GUC within the forecast period.

4.9 Ground Service Equipment (GSE)

Airlines use GSE to service aircraft. GSE includes baggage carts, deicing trucks, tugs, mobile loading stairs, start carts, etc. The FBO, Gunnison Valley Aviation, provides a number of those services to the airlines at GUC. Enclosed storage areas for GSE equipment will be included in the proposed terminal building renovation program.

4.10 Aircraft Rescue and Firefighting (ARFF) and Snow Removal Equipment (SRE) and Storage Building

GUC has a dedicated ARFF and SRE building, which was constructed in 2004. The Airport recently acquired a new ARFF vehicle and upgraded snow removal equipment. The existing equipment and storage building meets the needs of the Airport, including the requirements specified in 14 CFR Part 139, Certification of Airports, Index B.

4.11 Airport Administration Offices

The airport administration offices for the airport manager, administrative assistant, and other staff are located in the ARFF/SRE building, which is separate from the terminal building. When possible, airport management offices should be located in the terminal building.

4.12 Related Aviation Support Facilities

GUC accommodates a wide variety of activity including high-altitude aircraft testing by aircraft manufacturers and military units, as well as training flights by military units, primarily in C-17 and C-130 aircraft. There is a concrete hardstand on the south side of Runway 6-24 used by helicopters testing for heavy lift at high density altitudes. The existing airport facilities adequately accommodate these activities. In addition, these types of activities occur on an as-needed basis, and typically do not operate at GUC for extended periods. As a result, it is not cost effective to make large capital investments to accommodate flight testing and military flight training.

4.13 Airspace

4.13.1 Summary and Recommendations

There are no changes recommended to the airspace structure or air traffic control procedures in place at GUC. The mountains around Gunnison greatly impact line-of-sight radio communications and conventional radar coverage. The recently installed Wide Are Multilateration (WAM) System has improved tracking of aircraft by ATC down to ground level at GUC. There are plans underway to provide terminal area weather forecasts for GUC by late 2016, which would help improve air carrier on-time performance and potentially reduce diversions or delays. The FAA is in the process of implementing the NextGen air traffic control system, which may provide additional operational and airspace capacity for mountain airports such as Gunnison. The current time frame for full implementation of NextGen is 2020 and beyond.

The airspace over GUC is classified by the FAA as Class E. The configuration of Class E airspace is circular, centered on the Airport, with a radius of approximately 5 miles. It extends from ground level up to 18,000 feet MSL. Class E denotes that the airspace is uncontrolled, which means that under visual meteorological conditions (VMC) aircraft do not need an ATC clearance to operate on or in the vicinity of GUC. However, when the reported weather at the airport indicates a cloud ceiling of less than 1,000 feet above airport elevation, and/or visibility is less than three statute miles, aircraft are required to obtain a clearance (either special VFR or IFR) from Denver Center in order to operate in Class E airspace. The visibility and cloud clearance requirements increase for aircraft flying above 10,000 feet, as well as the allowable speed limit.

The existing and projected levels of activity at GUC do not meet FAA's cost-benefit criteria for the installation or operation of an air traffic control tower. As a result, the existing airspace designation cannot be upgraded by FAA from Class E to Class D (i.e. surrounding an operating air traffic control tower).

4.14 Regional Airport System Role

GUC is included in the FAA's National Plan of Integrated Airport Systems (NPIAS), as well as the Colorado Aviation System Plan. It is classified by the FAA and CDOT as a commercial service airport. The forecasts of demand conclude that GUC will remain in that role throughout the forecast period and beyond. In addition to accommodating scheduled air carrier activity, the Airport will continue to accommodate general aviation and military activity as well.

4.15 Airline Terminal Area

4.15.1 Summary and Recommendations

It is recommended that the existing terminal building be completely renovated, as well as constructing an approximately 5,500-square-foot addition to the building. This option includes constructing a designated passenger loading and drop zone area in front of the terminal building, renovating and expanding the vehicle parking lot, constructing a dedicated bus/van loading area, as well as designating Rio Grande Boulevard as the primary airport access road and associated improvements, which are discussed below.

The alternatives analysis focused on three alternatives: Alternative 1: Status Quo; Alternative 2: Constructing a New Terminal Building and Parking Lot; and Alternative 3: Renovating the Existing Building and Parking Lot. Both Alternatives 2 and 3 include upgrading signage/wayfinding system to the Airport, designation of a primary airport access road, and landscaping to enhance the Airport and the community's image to visitors. The improved signage and access road alternatives would be equally applicable to the new terminal building and the renovation alternatives. Alternative 1: Status Quo, i.e. basic improvements to building systems and code compliance, was eliminated because it would not meet existing or future demand. The analysis concluded that Alternative 3, Renovating the Existing Terminal Building and Parking Lot, is the most cost-effective alternative, in combination with improved signage, designation of the primary airport access road (W. Rio Grande Boulevard off of SR-50), and improved landscaping.

4.15.2 Background

The terminal area consists of the terminal building, the air carrier aircraft parking apron, the vehicle parking lot, and the access road. The existing airport terminal building and air carrier apron is located off of W. Rio Grande Boulevard, and north of and approximately at the mid-point of Runway 6-24. The main building is more than 35 years old, with more recent additions constructed since 1980. It is a two-story wood building that is approximately 38,400 square feet in size. There are two second-floor loading bridges and a ground-level door for passengers enplaning and deplaning ramp side. The terminal building was recently brought into compliance with a number of code issues identified in a 2004 engineer's report.

In CY 2013, approximately 62,000 passengers used the terminal building (31,000 passenger enplanements and 31,000 deplanements). All of the passengers are origin and destination (O&D) – in other words, they did not connect with another flight in GUC. The fact that there are no transfer/connecting passengers at GUC is an important consideration in terminal building design, space requirements, and layout. 19% of

the passengers are local, originating within the Airport's service area. The remaining 81% of passengers are visitors to the Gunnison area, the majority of which fly in to access the ski resorts between December and March. A large percentage of arriving passengers use buses and vans to access the ski resorts, which reduces the demand for auto parking.

Approximately 71% of the total annual passenger enplanements occur during peak season of December to March. Within that three- to four-month period, there are approximately 22,000 enplanements and 22,000 deplanements, which generate an average of approximately 6,400 passenger enplanements per month within the peak period. Passenger enplanements tend to be concentrated on weekends - average-day (AD) volume on Saturdays typically range between 280 and 300 enplanements, with the same volume on Sundays. Weekdays typically experience lower passenger volumes. American and United Airlines both operate Airbus A-319s with 128 passenger seats during the peak season.

Both carriers also utilize regional partners that operate ERJ-145 and CRJ-700s. United and its regional partners enplaned approximately 67% of passengers at GUC in 2014, and generated an average 70% load factor. American and its regional partners enplaned approximately 33% of passengers in 2014, and generated an average 75% load factor. Until 2014, American operated the B-757-200 at GUC, which it has since discontinued. United Airlines (through its regional partners Trans States and SkyWest) operate Embraer ERJ-145 and CRJ-700 regional jets, with 50 and 76 passenger seats, respectively. It is anticipated that Alaska Airlines began service between GUC and LAX in the winter of 2015-2016 with DHC Dash 8-Q400 turboprops.

There are a number of functional and space constraints in the existing terminal building and parking lot, including:

- The building does not comply with the American with Disabilities Act (ADA).
- There are insufficient waiting areas for enplaning and deplaning passengers. The number of passengers in the second-floor hold room frequently exceeds capacity, particularly when a departing or arriving flight is delayed and overlaps with another scheduled departure (Figure 4-7).
- Deplaning passengers must walk through enplaning passengers waiting to board. Most of the seats in the second-floor hold room are portable and can be moved by travelers to locations that interfere with arriving and departing passengers. The seats are also relatively old, small, and have no arm rests.
- The restaurant closed in 2014, and there are only vending machines in the second-floor waiting area that are accessible to passengers – no restaurants, newsstands, snack bars, etc.
- There are no electronic flight information display systems (FIDS) on the second floor. Passengers use cell phones to find information on the status of inbound and outbound flights.
- The main terminal doors are manual, which creates congestion and difficulty moving luggage in and out of the building.
- Many of the building's utilities, including heating and plumbing, do not work well. The building is cold in the winter and hot in the summer.

- There are two men's and two women's restrooms (four total), which is not sufficient capacity for peak winter traffic.
- The ground floor has very little natural light. It is difficult for employees in the building to monitor activities outside of the building due to the lack of windows.
- Departing passengers go through security screening on the first floor, and must walk up a flight of stairs (there is one elevator) to the second-floor hold room. However, arriving passengers use the same stairs to access baggage claim and ground transportation, creating congestion and safety hazards on and in the vicinity of the stairs.
- There is inadequate signage for both arriving (deplaning) and departing (enplaning) passengers inside the terminal building. As a result, some passengers are confused about where to proceed.
- The security screening area is too small to accommodate peak periods of enplaning passengers.
- There is insufficient queuing area in front of the airline ticket counters. During peak periods lines extend out the terminal door.
- The acoustics inside the building are very loud – there is no sound deadening. The ground floor material increases noise, particularly by roller bags.
- There is no wi-fi in the building; also there are insufficient power stations for passengers.
- The airport manager's office is in the ARFF/SRE building, not the terminal.

FIGURE 4-7 - GUC TERMINAL BUILDING – SECOND FLOOR HOLD ROOM

Source: GUC

- There needs to be a baggage conveyor belt behind the airline ticket counters to take checked bags to TSA security. Presently, checked bags are carried by hand, which is very inefficient.
- TSA identified a need for a designated lunch/break room, separate from the screening area.
- There are no designated curbside drop-off or pick-up areas in front of the terminal building.
- There is no designated cell phone lot for short-term waiting.
- There is no designated hold rooms/meeting areas for bus passengers going to the resorts, either inside or outside of the terminal building. There is no specifically designed bus parking area or passenger shelters outdoors.
- When certain air carrier jets are parked at the loading bridges, particularly the B-757-200, the tail penetrates the FAR Part 77 transitional surface off of Runway 6. FAA has reviewed the situation and determined that it does not interfere with any navigation aids nor constitute a hazard to air navigation.
- The landscaping, access road, and general appearance around the outside of the terminal needs to be improved to enhance the Airport's, the city's, and the region's gateway image to visitors.

Any future increase in airline service, including a new airline serving GUC and/or existing carriers increasing frequencies to existing markets, would increase traffic flows and exacerbate the problems listed above. Ski resorts use buses to transport air passengers from GUC to the resorts. The bus staging area is an open lot, unpaved with no shelters, located east of the terminal building. Demand for auto parking is reduced in comparison to other similarly sized airports for two reasons: a) the majority of air passengers fly into GUC from other points or origin (vs. local residents driving to and parking at the airport); and b) the ski resorts provide busses and vans to transport a large share of passengers to resorts in the winter, thereby reducing rental car and auto parking demand. However, demand in the parking lot exceeds capacity in the winter, and the overflow lot is needed.

4.15.3 Forecast of Passenger Demand

Mead & Hunt (M&H) prepared the forecasts of demand, as well as a detailed air service and market analysis. Based on their analysis, M&H developed forecasts of passenger enplanements, air carrier operations, and fleet mix. The forecast projected that passenger enplanements will increase by 1.7% per year (CAGR) through 2034, from 30,831 enplanements in 2014 to 43,430 in 2034.

The type of scheduled service will remain the same, and the type of equipment will remain similar – Airbus A-319 and CRJ-700s, as well as the DH Dash 8-Q400. Primary destinations from GUC will continue to be Denver, Dallas, Houston, Chicago, as well as new service to Los Angeles. The forecasts also project similar peaking characteristics throughout the period, with the majority of passenger traffic occurring between December-March.

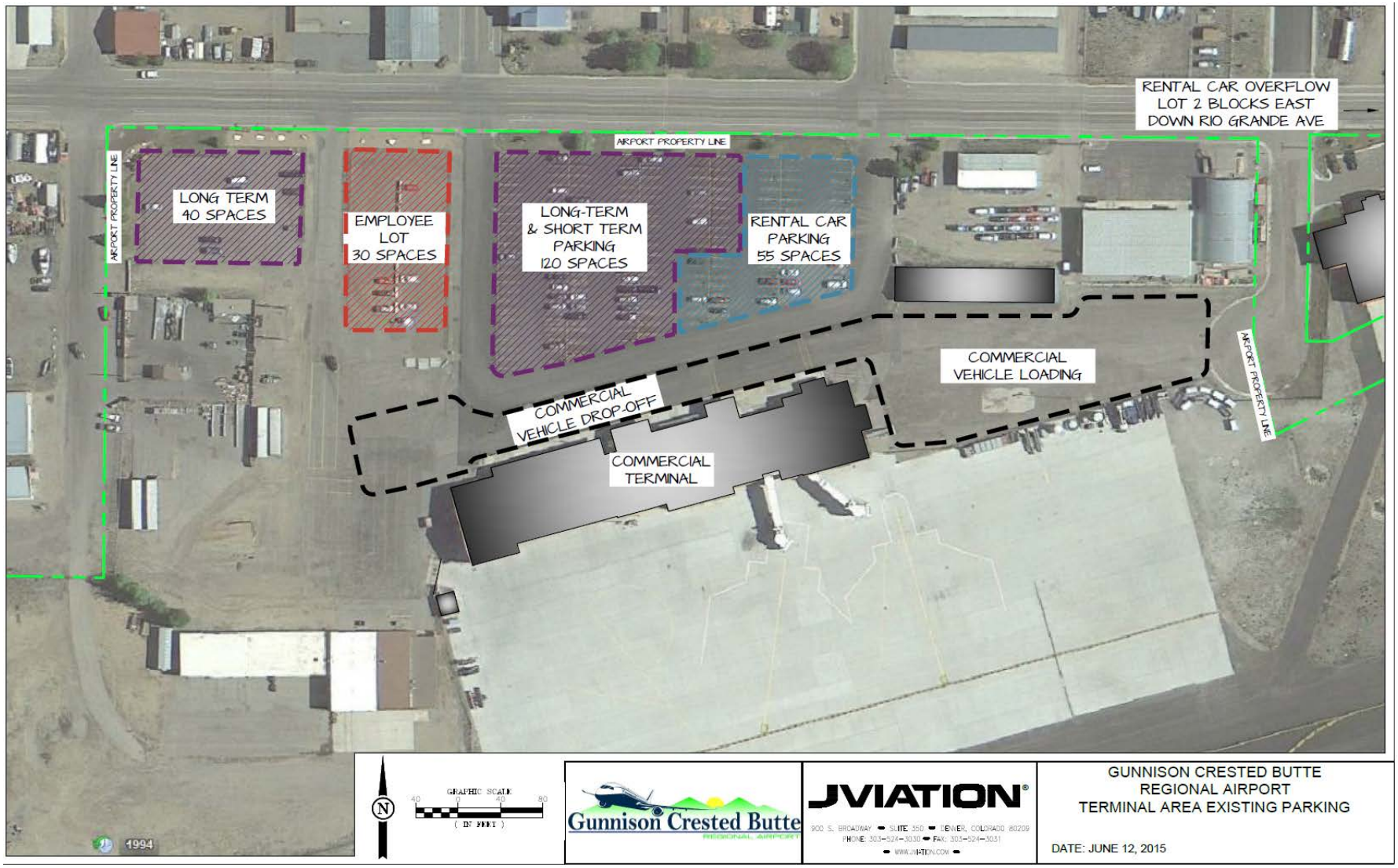
4.15.4 Existing Terminal Building Condition

Inspections were conducted of the terminal building and the overall site by a registered architect, airport planners, and engineers. Existing building plans and reports were also reviewed. The following observations and conclusions were reached:

- The existing terminal building size (38,400 square feet) can accommodate the existing and projected level of passenger traffic, including the peak winter season, if the building space were configured efficiently.
- All of the building's current utilities and systems need to be replaced during the planning period.
- The building needs to be upgraded to be in compliance with ADA, as well as all of the latest building and fire codes.
- The existing building structure appears to be sound and could be renovated.
- The Airport owns sufficient property to allow the building and associated air carrier apron to be moved to the east or west of its current location.
- Curb front drop-off and pick-up areas should be designated. A covered bus and van drop-off and pick-up areas need to be constructed adjacent to the terminal building.
- The access road to the airport needs to be improved with better signage and landscaping - i.e. create an attractive entrance road and image for the Airport. Improvements are needed to the area around the Airport to enhance the attractiveness of Gunnison to visitors.
- Better signage to the Airport around the City and close into the Airport is also needed.
- Grading and drainage in the parking area adjacent to the terminal should be improved to alleviate ponding water and ice.
- The auto parking lot should be reconfigured to increase parking capacity, particularly for rental cars, and internal traffic flow in the lot should be logical and clearly marked. Automated pay stations should also be installed.

In order to address these issues, three alternatives were defined and evaluated. These alternatives are discussed below.

FIGURE 4-8 - EXISTING TERMINAL BUILDING AND PARKING LOTS



Source: Jviation, Inc.

4.15.5 Alternative 1: Status Quo

This alternative calls for only basic improvements needed to meet building and fire codes, safety, and functionality of the building's systems. No major renovation or expansion of the terminal building or vehicle parking lot, or of W. Rio Grande Avenue, would be undertaken in this Alternative.

4.15.5.1 Building Considerations

The baseline alternative is to continue using the existing facility as it is, with no additional investment or improvement, except to meet building and fire code, safety, and functionality requirements. The building's tenants and users have identified numerous deficiencies with the existing building, and these deficiencies would not be addressed with this alternative, including ADA access issues; difficult interior circulation and flow through the facility; acoustical and noise complaints; the utilities or building systems; or improve the aging and dated interiors.

4.15.5.2 Site Considerations

The parking lot and access roads would remain as they are, with no improvement.

4.15.5.3 Cost Consideration

Alternative 1 would have a cost range of approximately $2 million to $3 million, which is the least expensive of the three alternatives.

FIGURE 4-9 – ALTERNATIVE 1: STATUS QUO

Gunnison-Crested Butte Regional Airport
Airport Masterplan
Terminal Improvement Alternatives

An "**X**" is given to the item that achieves the goal the best compated to all the Options.
Costs: 1(cheap) to 5(expensive)

	Option 1 - Status Quo	
BUILDING CONSIDERATIONS	**Optimal**	**Costs**
Building Code Compliance		2
Life Safety		2
ADA Access		2
Building Core		0
Building Shell		0
Functional Areas		
Ticket Lobby		0
Airline Offices		0
Airline Ops Area		0
Baggage Make-up		0
Ground Service Equipment		0
Holdroom		0
Baggage Claim		0
Airline Storage and Support		0
TSA Checkpoint		0
TSA Baggage Screening		0
TSA Offices		0
Food and Beverage Concessions (serve both secure and non-secure)		0
News and Gift Concessions		0
Rental Cars		0
Ground Transportation		0
Concession Storage, Support and Loading		0
Public Restrooms		2
Circulation		0
HVAC		0
Electrical		0
Plumbing		0
Construction Considerations		
Construct/Budget Over Phases		
Minimize Impact to Operations	X	
	1 Point	0.31
SUBTOTAL Estimate of Building Cost	$0 to $0.5M	
SITE CONSIDERATIONS	**Optimal**	**Cost**
Landside Location (Parking Lots, Roadways)	X	3
Airside Location	X	1
Utilities	X	3
Parking & Roadways	X	3
No Land Acquisition Required	X	0
	5 Points	2.00
SUBTOTAL Estimate of Site Cost	$2M to $3M	
TOTAL Estimate of Cost (Rough Order of Magantude)	$2M to $3.5M	

Source: Jviation, Inc.

4.15.6 Alternative 2: Renovate/Improve the Existing Terminal Building

This option would leave the building in its current location and keep most of the existing building structure. In this alternative, the terminal's interior would be completely renovated and reconfigured for much more efficient utilization of space and enhanced traffic flows. The improvements would enhance interior and exterior lighting, acoustics, and passenger amenities (e.g. restrooms, power stations, FIDS, etc.) There would also be an approximately 5,500-square-foot addition to the east end and front of the terminal building to provide more space for airline ticket counters, queuing area, and baggage claim.

This alternative would replace all of the building's existing utilities and systems. This alternative also includes enhancing W. Rio Grande Avenue so that it becomes the primary Airport entrance road, as well as landscaping along the access road. This alternative includes reconfiguring and expanding the vehicle parking lot and adding Airport signage around the City.

4.15.6.1 Building Considerations

The existing wood-framed commercial terminal building has gone through multiple additions and modifications. Recently, an automatic fire suppression system and an egress stairway were added to improve the fire safety in a portion of the building.

The International Building Codes recognizes the value of wood construction as a readily available, renewable, schedule efficient, and cost-effective material. The existing building does not meet the code requirements. A large-scale renovation requires solutions for how to address code deficiencies for reconciliation with the Building Department. There are a variety of allowable ways to incorporate fire barriers, fire suppression systems, and separated fire areas in order to achieve a code-compliant terminal facility.

The terminal's multiple levels and confusing circulation paths result in a building that is very difficult for passengers to navigate, especially for those in wheelchairs or on crutches. A large-scale renovation could simplify the flow within the space and include modifications to meet all ADA standards, enabling all people to have equitable and efficient access throughout the terminal building.

FIGURE 4-10 – ALTERNATIVE 2: RENOVATE/IMPROVE THE EXISTING TERMINAL BUILDING

Gunnison-Crested Butte Regional Airport
Airport Masterplan
Terminal Improvement Alternatives

An "**X**" is given to the item that achieves the goal the best compated to all the Options.
Costs: 1(cheap) to 5(expensive)

	Option 2 - Renovate Existing	
BUILDING CONSIDERATIONS	**Optimal**	**Costs**
Building Code Compliance		5
Life Safety		3
ADA Access		5
Building Core		4
Building Shell	X	4
Functional Areas		
Ticket Lobby	X	3
Airline Offices	X	2
Airline Ops Area	X	2
Baggage Make-up	X	3
Ground Service Equipment	X	2
Holdroom		5
Baggage Claim	X	4
Airline Storage and Support	X	1
TSA Checkpoint		5
TSA Baggage Screening	X	3
TSA Offices	X	1
Food and Beverage Concessions (serve both secure and non-secure)		5
News and Gift Concessions	X	3
Rental Cars	X	1
Ground Transportation	X	1
Concession Storage, Support and Loading	X	1
Public Restrooms	X	3
Circulation		5
HVAC		5
Electrical		5
Plumbing		5
Construction Considerations		
Construct/Budget Over Phases	X	
Minimize Impact to Operations		
	16 Points	**3.31**
SUBTOTAL Estimate of Building Cost	**$6M to $10M**	
SITE CONSIDERATIONS	**Optimal**	**Cost**
Landside Location (Parking Lots, Roadways)	X	3
Airside Location	X	1
Utilities	X	3
Parking & Roadways	X	3
No Land Acquisition Required	X	0
	5 Points	**2.00**
SUBTOTAL Estimate of Site Cost	**$2M to $3M**	
TOTAL Estimate of Cost (Rough Order of Magantude)	**$8M to $13M**	

Source: Jviation, Inc.

As a pre-9/11 terminal building, a key component for a renovation would be to provide an efficient and properly sized space for TSA passenger screening lanes. This would greatly improve the passenger experience and allow the other adjacent spaces to function as they were intended.

Interior spaces could be improved by increasing natural daylight and providing views of the surrounding scenery.

The terminal update would incorporate newer and up-to-date materials. Acoustical treatments would be used to dampen the "liveliness" of the space for enhanced comfort. The restaurant/concessions space would be strategically located to allow for a single kitchen that can serve customers in both the sterile and non-sterile areas. Curbside baggage checking would be added to streamline the passenger flow. A baggage conveyor system, located behind the ticket counters, could be utilized to reduce congestion in the ticketing and lobby areas, simplifying the baggage screening process.

The highly seasonal nature of the passengers using the terminal is conducive for allowing renovations to take place during the summer when the passenger count is much lower. Therefore, the impacts of construction on a "working" facility would be less substantial and disruptive to the public and the airlines. Furthermore, improvements could be phased over time to allow for incremental improvements to fit within the confines of a budget.

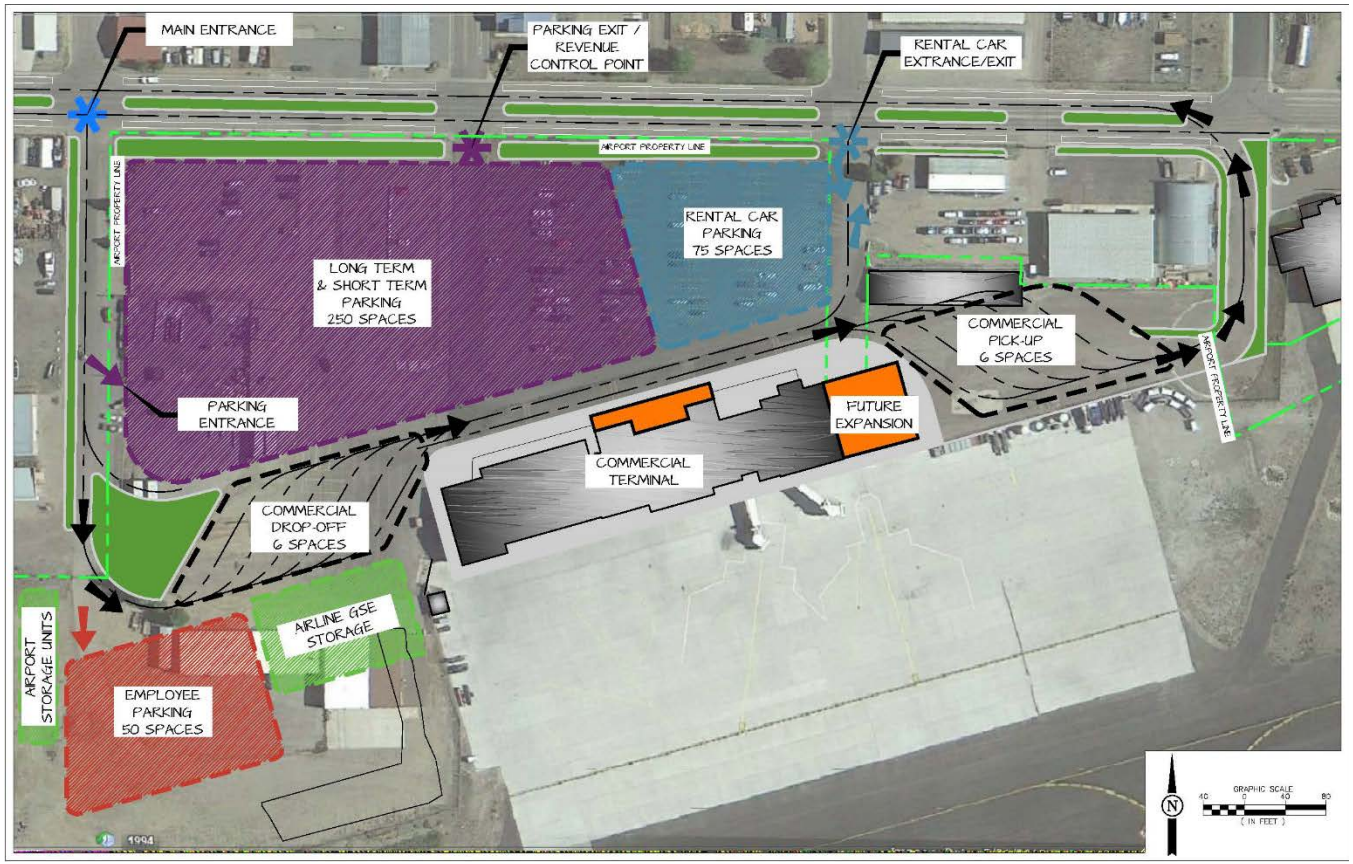
4.15.6.2 Site Considerations

The location of the existing terminal building is adequate for its size and functional requirements. The current terminal site is conveniently located to W. Rio Grande Boulevard, and also has room for expansion on either end. The current terminal site provides sufficient depth on the landside between the building and W. Rio Grande Avenue to allow for a new terminal loop roadway, designated commercial drop off zones, and close proximity for additional auto parking (Figure 4-11). Any required improvements to the existing utility infrastructure serving the Airport could be performed concurrently with a landside roadway project.

4.15.6.3 Cost Consideration

Alternative 2 would have a cost range of approximately $8 million to $13 million. It also has an added cost advantage in that it can be phased over time.

FIGURE 4-11 - ALTERNATIVE 2: RENOVATE EXISTING BUILDING, PARKING LOT, AND AIRPORT LOOP ROAD



Source: Jviation, Inc.

4.15.7 Alternative 3: Construct New Terminal Building

This alternative would involve designing and constructing a new terminal building, as well as a new air carrier apron and vehicle parking lot. This alternative would also include enhancements to W. Rio Grande Avenue so that it would become the primary Airport entrance road. In addition, this alternative would reconfigure and expand the vehicle parking lot and include an addition of airport signage in key locations within the city.

Both Alternatives 2 and 3 include improvements to W. Rio Grande Avenue that would enable it to become the primary Airport access road. Improvements would also be required at the intersection of W. Rio Grande Avenue and SR-50. Upgrading W. Rio Grande Avenue would not preclude vehicles from using other access routes, such as S. Boulevard Street and S. 12th Street, but the upgrade would result in directing the majority of ground vehicles traveling to/from the Airport onto W. Rio Grande Avenue and off the other streets.

4.15.7.1 New Terminal Building Considerations

A new terminal would be built to comply with the current building codes. A new terminal would also comply with ADA standards, be more energy efficient, and resolve interior circulation issues. Post 9/11 terminals are able to incorporate current TSA screening requirements into their architecture so that the facility can be appropriately sized and allow for efficient flow of traffic.

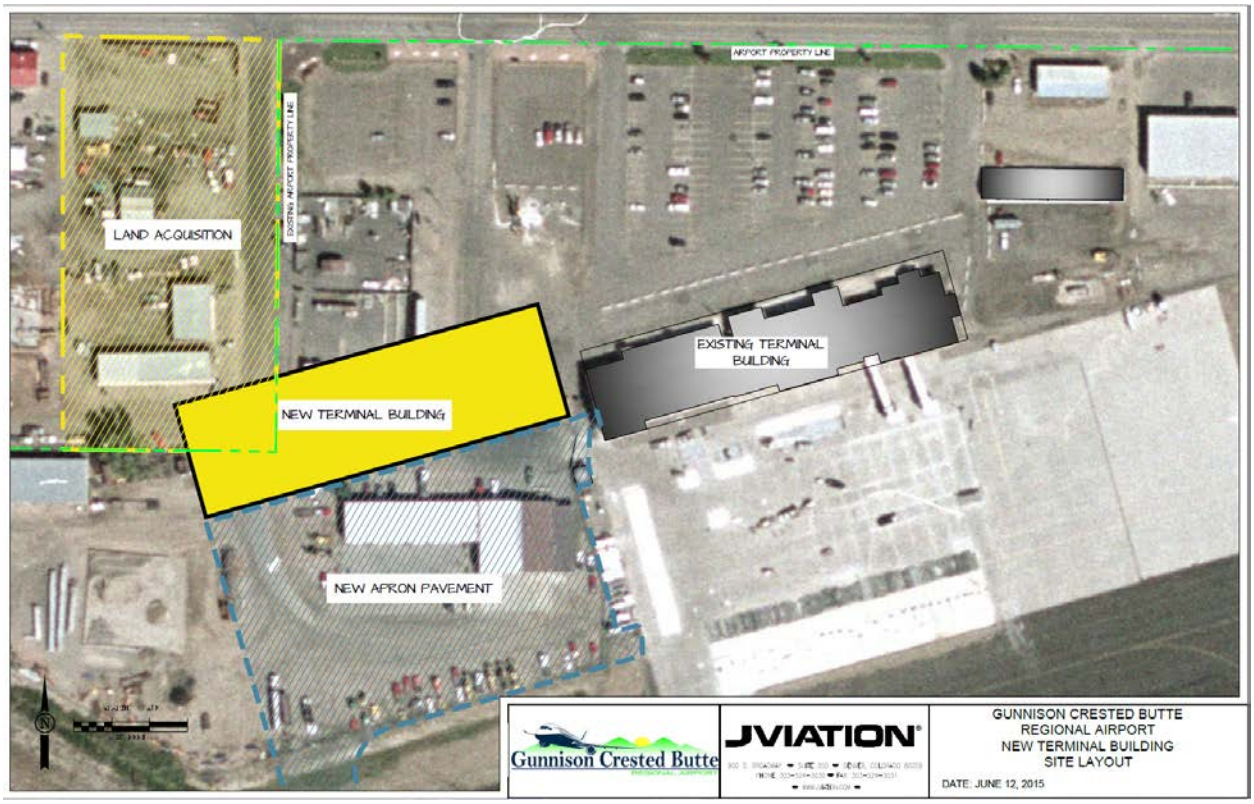
The building's interiors could be designed to incorporate increased natural daylight, improved views of the scenery, and would include new, up-to-date materials. An additional benefit of a new facility would be that it can be constructed while the existing one is still in use with minimal disruptions to daily operations.

4.15.7.2 Site Considerations

A new terminal building would be sited further back from the runway so that the tail height of parked aircraft would be outside of the FAR PART77 surfaces (Figure 4-12). The existing Airport site property boundary and location of the ARFF building, to the east, are too constricting to allow for a new building to be constructed in that area. The greater depth of the available site, to the west, indicates that this would be the optimal location for a new terminal building to accommodate parking, ground transportation, and adequate airside apron depth.

Approximately one half of the adjacent city block to the west, from 10th Street to the alley way would need to be acquired in order to construct this alternative. The airside apron would need to be expanded to the west as to provide new aircraft parking positions. The new building would be located in close proximity to existing utility infrastructure. New utility service lines and necessary improvements to the existing utility system could be accomplished with a landside roadway project.

FIGURE 4-12 - ALTERNATIVE 3: NEW TERMINAL BUILDING, APRON, LAND ACQUISITION



Source: Jviation, Inc.

FIGURE 4-13 – ALTERNATIVE 3: NEW TERMINAL

Gunnison-Crested Butte Regional Airport
Airport Masterplan
Terminal Improvement Alternatives

An "**X**" is given to the item that achieves the goal the best compated to all the Options.
Costs: 1(cheap) to 5(expensive)

	Option 3 - New Terminal	
BUILDING CONSIDERATIONS	**Optimal**	**Costs**
Building Code Compliance	X	3
Life Safety	X	3
ADA Access	X	3
Building Core	X	3
Building Shell		5
Functional Areas		
Ticket Lobby		5
Airline Offices		5
Airline Ops Area		5
Baggage Make-up		5
Ground Service Equipment		5
Holdroom	X	5
Baggage Claim		5
Airline Storage and Support		5
TSA Checkpoint	X	5
TSA Baggage Screening		5
TSA Offices		5
Food and Beverage Concessions (serve both secure and non-secure)	X	5
News and Gift Concessions		5
Rental Cars		5
Ground Transportation		5
Concession Storage, Support and Loading		5
Public Restrooms		5
Circulation	X	5
HVAC	X	5
Electrical	X	5
Plumbing	X	5
Construction Considerations		
Construct/Budget Over Phases		
Minimize Impact to Operations	X	
	12 Points	**4.69**
SUBTOTAL Estimate of Building Cost	**$15M to $18M**	
SITE CONSIDERATIONS	**Optimal**	**Cost**
Landside Location (Parking Lots, Roadways)		5
Airside Location		5
Utilities	X	3
Parking & Roadways		5
No Land Acquisition Required		5
	1 Points	**4.60**
SUBTOTAL Estimate of Site Cost	**$7M to $10M**	
TOTAL Estimate of Cost (Rough Order of Magantude)	**$22M to $28M**	

Source: Jviation, Inc.

4.15.7.3 Cost Consideration

Alternative 3 would have a cost range of approximately $22 million to $28 million, the highest of the three alternatives. A portion of the airside improvements in this alternative would be eligible for FAA funding.

4.15.8 Terminal Building Alternatives Evaluation Matrix

An evaluation matrix was prepared that incorporated a number of evaluation factors broadly categorized in building considerations, functional areas, construction considerations, and site considerations (Figure 4-14). Within each of these four categories, special sub-factors were evaluated. For each sub-factor under building, functional area, and site considerations shown in the matrix, the alternative that scored the best for the lowest overall implementation cost was given an "X" and 1 point.

All sub-factors in these three categories were scored from 0 to 5 on their relative cost to implement. In this scoring system, a 0 represents the lowest relative cost and a 5 represents the highest cost. Based on the noted scoring (each sub-factor receiving an X scoring a 1) as it relates to the alternative that best satisfies the sub-factor, the three alternatives score as follows for all four evaluation categories:

- Alternative 1 – Status Quo = 2 points
- Alternative 2 – Renovate Existing = 5.31 points
- Alternative 3 – New Terminal = 9.29 points

Alternative 2 balances costs and best meets the objectives for the needed improvements.

Both Alternatives 2 and 3 include designating W. Rio Grande Boulevard as the primary airport access road, landscaping of the boulevard, and installation of new airport signage. Based on that process, the three alternatives were ranked as shown below.

1. Alternative 2 – Renovate the Existing Building,
2. Alternative 3 – Construct New Building, Aircraft Apron, Parking Lot
3. Alternative 1 – Status Quo

Considering all of the factors, Alternative 2 had the highest ranking. The advantages of Alternative 3, constructing a new terminal building, include designing the space and configuration to meet exact needs, having the newest utilities and building systems, and having relatively low maintenance and operating expenses. The cost to construct a new terminal building, however, would be higher than renovating the existing building.

The higher cost for constructing a new terminal building is primarily due to the recommendation to construct the building in a new location, west of its current location. The proposed location would provide more space for the air carrier apron, vehicle parking lot and on-airport circulation. The new location would require property acquisition and the construction of a new air carrier aircraft apron. A new aircraft apron would not be needed in the renovation alternative.

Alternative 1, Status Quo, was ranked the lowest. Although it is the lowest cost alternative, it was considered to be unacceptable for a number of reasons: it does not address the deficiencies identified in the existing building, auto parking lot, or access road. Without renovation, the cost of operating the existing terminal building will continue to escalate.

4.15.9 Utilities

GUC has full utility connections including electricity, water, sewer, phone, cable, and wi-fi. As part of the terminal enhancement program each of the utilities will be analyzed and upgraded as needed to meet future demand.

4.15.10 Aircraft Deicing Facilities

The FBO, Gunnison Valley Aviation, manages the deicing services to airlines and corporate operators. There is no need for additional glycol storage facilities, spray trucks, or detention facilities.

4.16 Airport Access Road, Terminal Loop, Passenger Drop-Off, Pick-up, and Vehicle Parking Improvements

4.16.1 Summary and Recommendations

It is recommended that W. Rio Grande Boulevard be designated as the primary airport access road, with an upgraded intersection on SR-50. The airport access road should be fully landscaped and airport signs installed; the vehicle parking lot should be renovated and expanded, interior circulation improved including additional signage, and automated ticket/toll machines installed; the on-airport loop road be enhanced for improved traffic flows; a curbside passenger drop-off/pick-up area designated, as well as possibly a cell phone lot if sufficient demand is identified; a new bus/van loading area should be developed adjacent to the terminal building; and additional signs be posted along SR-50 and elsewhere clearly showing directions to the airport.

It is also recommended that the City of Gunnison's plans to develop a multi-use trail system, as described in the City's report; *Non-Motorized Transportation Plan, 2013*, particularly the along the W. Rio Grande Boulevard, as well as to the south side of the airport, be accommodated to the extent feasible, consistent with airport operations. The on-airport multi-use trail system will be required to meet all appropriate airport and FAA requirements, and receive prior approvals from the airport and FAA.

FIGURE 4-14 – ALTERNATIVES EVALUATION MATRIX

Gunnison-Crested Butte Regional Airport
Airport Masterplan
Terminal Improvement Alternatives

An "**X**" is given to the item that achieves the goal the best compated to all the Options.
Costs: 1(cheap) to 5(expensive)

	Option 1 - Status Quo		Option 2 - Renovate Existing		Option 3 - New Terminal		
BUILDING CONSIDERATIONS	**Optimal**	**Costs**	**Optimal**	**Costs**	**Optimal**	**Costs**	**NOTES**
Building Code Compliance		2		5	X	3	Existing building needs extensive work; perhaps divided into fire areas.
Life Safety		2		3	X	3	Existing building needs extensive work.
ADA Access		2		5	X	3	Existing building needs extensive work.
Building Core		0		4	X	3	Fire resistant materials could be utilized. Larger spans and bay spacing could be used.
Building Shell		0	X	4		5	Western Style Building is fitting, could be retrofitted for greater efficiency improvements.
Functional Areas							
Ticket Lobby		0	X	3		5	
Airline Offices		0	X	2		5	
Airline Ops Area		0	X	2		5	
Baggage Make-up		0	X	3		5	
Ground Service Equipment		0	X	2		5	
Holdroom		0		5	X	5	
Baggage Claim		0	X	4		5	
Airline Storage and Support		0	X	1		5	
TSA Checkpoint		0		5	X	5	
TSA Baggage Screening		0	X	3		5	
TSA Offices		0	X	1		5	
Food and Beverage Concessions (serve both secure and non-secure)		0		5	X	5	
News and Gift Concessions		0	X	3		5	
Rental Cars		0	X	1		5	
Ground Transportation		0	X	1		5	
Concession Storage, Support and Loading		0	X	1		5	
Public Restrooms		2	X	3		5	
Circulation		0		5	X	5	A new building could dramatically improve circulation.
HVAC		0		5	X	5	A new system would be more efficient.
Electrical		0		5	X	5	Existing conduits are full, new ones need to be run.
Plumbing		0		5	X	5	Existing leaks need to be fixed.
Construction Considerations							
Construct/Budget Over Phases			X				
Minimize Impact to Operations	X				X		
	1 Point	**0.31**	**16 Points**	**3.31**	**12 Points**	**4.69**	
SUBTOTAL Estimate of Building Cost	**$0 to $0.5M**		**$6M to $10M**		**$15M to $18M**		
SITE CONSIDERATIONS	**Optimal**	**Cost**	**Optimal**	**Cost**	**Optimal**	**Cost**	**NOTES**
Landside Location (Parking Lots, Roadways)	X	3	X	3		5	The existing site is the optimal location for the terminal building for parking & roadways within the current property boundaries. New building/expansion to the East the site is too narrow. New building/expansion to the West requires new apron and land acquisition costs.
Airside Location	X	1	X	1		5	Existing location on the apron is satisfactory
Utilities	X	3	X	3	X	3	Existing utilities are aging and need improvements/replacement regardless
Parking & Roadways	X	3	X	3		5	Existing location on the site provides both maximum depth to Rio Grande Ave, and central location for all potential parking
No Land Acquisition Required	X	0	X	0		5	New Terminal will require land acquisition
	5 Points	**2.00**	**5 Points**	**2.00**	**1 Points**	**4.60**	
SUBTOTAL Estimate of Site Cost	**$2M to $3M**		**$2M to $3M**		**$7M to $10M**		
TOTAL Estimate of Cost (Rough Order of Magantude)	**$2M to $3.5M**		**$8M to $13M**		**$22M to $28M**		

Source: Jviation, Inc.

4.16.2 Overview/Background

The primary access road to GUC is via SR-50/Tomichi Avenue and W. Rio Grande Avenue. However, there is a lack of signage on SR-50/Tomichi Avenue to the Airport, and passenger cars, buses, and vans use a variety of roads to access the Airport from SR-50, including S. Boulevard Street, S. 12th Street, S. Main Street, as well as other streets in the vicinity of the airport. All of these streets serve single and multi-family residential units, as well as commercial businesses. Many lots along these streets serve as storage areas, and there is no uniform landscaping or wayfinding in the vicinity of the Airport.

The paved, open, ground-level vehicle parking lot is situated between W. Rio Grande Avenue and the terminal building (Figure 4-8). There are 174 parking positions in the main lot; 120 for the public and 55 for rental cars. Rental car agencies have said they need additional parking spaces.

The internal traffic flows within the lot are confusing and not clearly marked. There are wooden posts with a chain between the posts that separate the parking lot from the loop road and the terminal, with walkways through the fence. The parking lot is uncovered.

Passengers use the honor system to pay for parking, either on-line or by inserting money in an envelope and dropping it in the terminal. Airport staff track parked vehicles, and will warn/fine owners who do not pay for parking. Compared to automated pay stations, the current system is inefficient and time consuming, and generates less than maximum potential revenue, coupled with additional labor and administrative costs to identify cars that have not paid.

There is no terminal curb front drop-off or pick-up areas, and no designated cell phone lot. There is an employee parking lot with 30 spaces, as well as an overflow parking lot with 40 spaces that is used primarily between December-March. The bus/van loading/unloading area is to the north of the terminal building, and is an uncovered and unmarked dirt lot.

Improvements to the airport access road, on-airport circulation road between W. Rio Grande Boulevard and the vehicle parking lot and the terminal building, as well as improved signage and landscaping are incorporated in both Alternative 2, Renovate the Existing Building, and Alternative 3, Construct New Terminal Building.

Access road, on-airport circulation road, signage, and parking lot improvements could potentially be included as part of the Status Quo Alternative discussed above, however, those improvements were not included in that scenario because it was defined as minimal improvements to the building for life safety and code compliance issues, and also as the lowest cost alternative of the three that were analyzed.

There are numerous limitations and operational constraints with the existing airport access road, signage, and landscaping, which have been discussed previously. A number of alternative airport access routes were examined (see Figure 4-15), but for a number of reasons, designating W. Rio Grande Boulevard from SR-50 to the airport terminal as the primary airport access road is recommended as the preferred alternative. This alternative also includes landscaping along the length of W. Rio Grande Boulevard, and improved signage.

4.16.3 Site Considerations

For both the renovation and construct new alternatives, it is recommended that the Airport make improvements to the site immediately adjacent to the existing commercial terminal. The existing parking layout should be modified to improve internal circulation, clearly designate short- and long-term areas, and rental car parking. Auto parking should be upgraded to include automated payment and revenue controls.

The commercial drop-off and pick-up lanes should also be improved and incorporated into an efficient loop roadway. Clear signage to direct various types of traffic and welcome signage for the Airport should also be included. The addition of lighting, landscaping, site furniture would be an enhancement for the terminal area. Any aging utility infrastructure in the area can be repaired or replaced as part of the roadway project.

The preferred access road alternative should include clear signage on multiple points along SR-50 to direct traffic towards the Airport along the preferred route. The absence of a well-marked and clearly defined route to the Airport results in meandering of airport related traffic through adjacent neighborhoods. The preferred alternative would accomplish the following:

- Define primary access point
- Provide route
- Improve visual / aesthetic experience
- Reduce neighborhood traffic / improve safety
- Be cost effective

4.16.4 Airport Access Route, Alternative 1: W. Rio Grande Avenue from SR-50

The W. Rio Grande Avenue route is currently signed by CDOT as the turn-off point from SR-50 to the Airport. SR-50 is the main highway through town and as such is designed to accommodate large volumes of traffic and heavier commercial vehicles.

The approximately 1,000-foot-long stretch of W. Rio Grande Avenue to the Airport from the intersection with SR-50 is the main arterial street to access the Airport. The current pavement is 50 feet wide, which is sufficient to accommodate two lanes of traffic with bike lanes and curbside parking. The adjacent industrial properties do not reflect the image the community wants to portray to visitors.

There is ample room within the existing right of way to make modifications to improve the landscaping and aesthetics on the main approach to the Airport. The length of this road is the shortest of the alternatives making it the most direct connection for commercial traffic onto SR-50 and the least expensive to implement. The route along SR-50 presents the simplest path with the most constant speed, making it ideal for commercial traffic and visitors who are not familiar with the layout of the city.

4.16.5 Airport Access Route, Alternative 2: Main Street to W. Rio Grande Ave.

This route utilizes the main intersection of SR-50 and Main Street as the route to the Airport. Main Street does not go through to W. Rio Grande Avenue, so the route would jog on San Juan Avenue to Wisconsin Street to W. Rio Grande Avenue. This route is approximately 4,600 feet long. Main Street is 70 feet wide for the first block off of Highway 50 towards New York Ave, which includes 17 feet for angled parking.

The width of Main Street reduces to 65 feet wide with curbside parking for the next two blocks to San Juan Avenue. San Juan Avenue and Wisconsin Street are 50 feet wide, which is sufficient to accommodate two lanes of traffic with bike lanes and curbside parking. East of the ARFF building on the Airport, W. Rio Grande Avenue is only 35 feet wide. This route traverses industrial, residential and commercial neighborhoods. It would require extensive work to clearly sign and mark this route and to provide sufficient landscaping to upgrade the aesthetic along this corridor.

4.16.6 Airport Access Route, Alternative 3: Boulevard Street

This route utilizes the divided Boulevard Street to funnel traffic from SR-50 South towards the Airport. Boulevard Street is 90 feet wide from SR-50 to San Juan Avenue, which includes a 15-foot landscaped median and curbside parking on each side. The landscaped median ends at San Juan, and the street reduces in width to 35 feet from Evans Avenue to W. Rio Grande Avenue. This route is approximately 2,600 feet long.

While a portion of this street has existing landscaping with the highest curb appeal of any of the routes, this area has a strongly residential character and is not suited to transforming into an arterial street. The portion from San Juan to the Airport has a strong industrial character and would require extensive landscaping to improve the aesthetics, and the narrow width of this portion of this street is not conducive to much improvement or heavier traffic. This route intersects the Airport at the departure side of the terminal which adds some additional maneuvering for arriving vehicles, but simplifies operations for departing vehicles.

4.16.7 Airport Access Route, Alternative 4: 10th Street

10th Street is currently a local street. This route utilizes the 10th Street as the most direct path from SR-50 to the Airport; 10th Street is 50 feet wide from SR-50 to New York Avenue, and then tapers to 35 feet wide at Gunnison Avenue to the Airport. This route is approximately 2,600 feet long. This route intersects SR-50 at a curve, which is a less than optimal condition; a driver's visibility and awareness are best when roads cross perpendicular to one another. In addition, the intersection of 10th and Tomichi is a three-quarter movement intersection, with prohibited left-turn movement.

The portion from New York Avenue to the Airport has a strong industrial character and would require extensive landscaping to improve the aesthetics, and the narrow width of this portion of this road is not conducive to much improvement or heavier traffic. This route intersects the Airport at the passenger arrival side of the terminal which adds some additional maneuvering for departing vehicles, but simplifies operations for arriving vehicles.

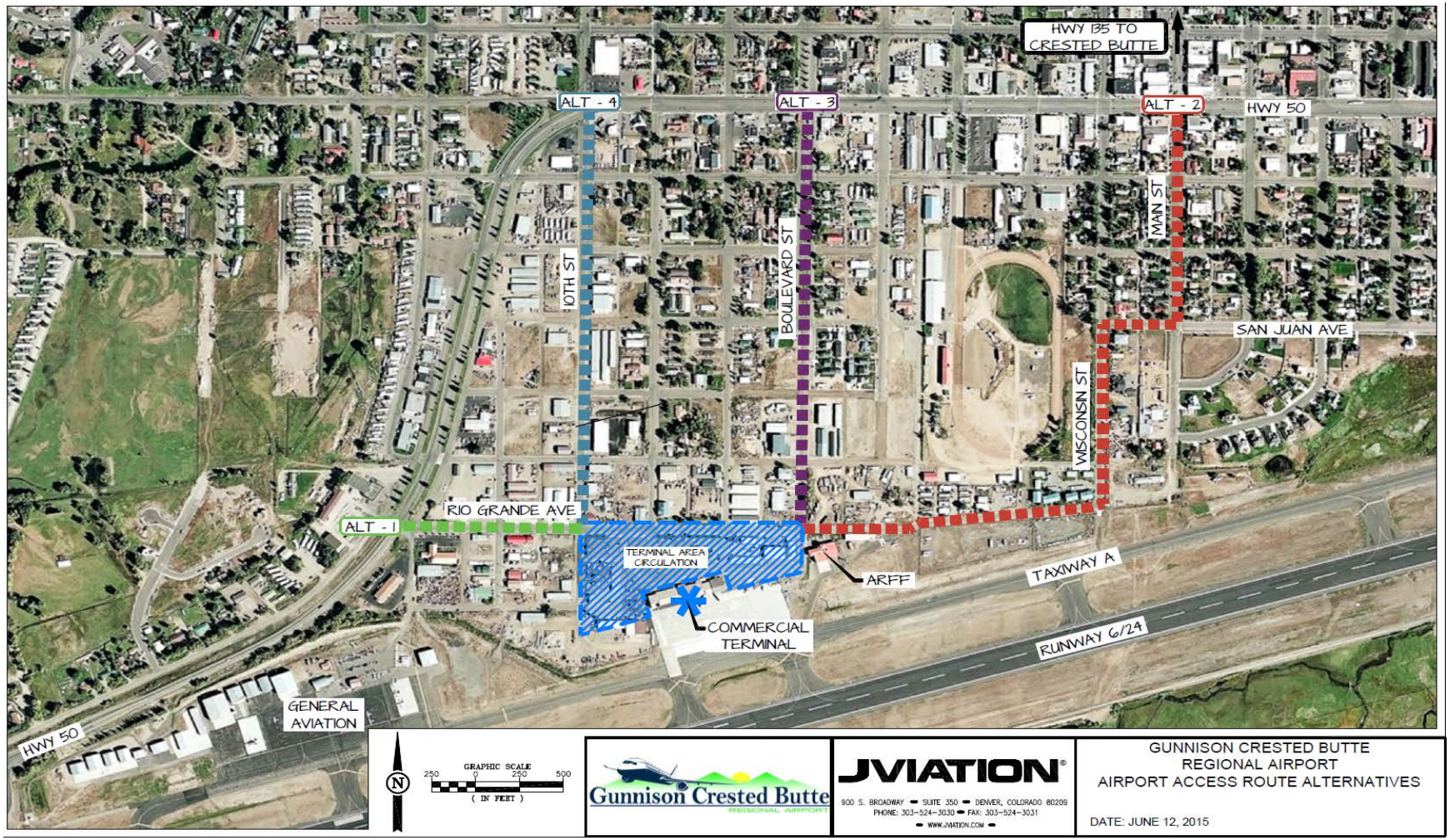
4.16.8 Terminal Concept Study

Implementation of Alternative 2 - The Renovation Option described above, including designating and upgrading Rio Grande Boulevard as the primary airport access road, will require more detailed analysis to address the following issues:

- Whether the terminal building should remain two-story, or be converted to a single story structure.
- How the internal space of the building should be configured based on whether it is a two-story or single story building, and the needs of the users and building tenants.
- The actual condition of the building systems (heating, electrical, plumbing, etc.), and whether any of the systems can be maintained, and which ones need to be replaced.
- Bring the building into compliance with current building codes, including the American with Disabilities Act (ADA).
- How much of the reconfigured building will be designated as public use/common area, and how much will be leased to tenants. That will directly affect FAA's level of participation in the terminal building cost.
- The configuration/layout of Rio Grande Boulevard as the primary access road, including landscaping, signage, as well as the addition of the City's non-motorized trail system.
- The schedule for the design and construction of the terminal improvements, including a detailed staging of development plan.

In order to address those issues, as well as develop detailed conceptual terminal layouts, solicit input from users and tenants, and develop a detailed financial pro forma for the program, a Terminal Concept Study is proposed to be undertaken, separate from the Airport Master Plan. The Terminal Concept Study will be eligible for FAA financial participation.

FIGURE 4-15 - AIRPORT ACCESS ROAD ALTERNATIVES



Source: Jviation, Inc.