



**ASPEN/PITKIN COUNTY AIRPORT  
WINGSPAN RESTRICTION  
BRIEFING PAPER  
MARCH 2014**

**OVERVIEW**

Pitkin County, Colorado limits the size of aircraft that can operate at the Aspen/Pitkin County Airport (Airport). Specifically, Section 10.12.030(C) of the Pitkin County Code prohibits the operation of aircraft with “a tip-to-tip wingspan of greater than 95 feet.”

The wingspan restriction is required because the Airport is physically constrained and cannot satisfy all of the applicable Federal Aviation Administration (FAA) design standards. In 1999, the FAA approved modifications to design standards for the Airport based on the County’s commitment to prohibit use of the Airport by aircraft with wingspans greater than 95 feet. These non-standard conditions include the separation between the Airport runway and taxiway, between the taxiway and parked aircraft, and between the runway and the locations at which aircraft wait to enter the airfield until receiving permission from the Airport Traffic Control Tower (known as the “holding position”).

The County currently is undertaking an extensive planning effort to determine whether changes are required in the physical configuration of the airfield to accommodate the next generation of commercial aircraft. Such capital improvements may alleviate the need for the current wingspan restriction. Until a decision is made and implemented based on the planning effort, the County will continue to enforce the 95-foot wingspan limit.

**BACKGROUND**

**1. Aspen/Pitkin County Airport**

The Airport has one runway, Runway 15/33, which is 8,006 feet long by 100 feet wide and runs north-south. Access to Runway 15/33 is provided by a partial parallel taxiway (Taxiway A) that is approximately 50 feet wide. Taxiway A is connected to the apron used by commercial service and general aviation aircraft.

The supporting background documents to this briefing paper, available online, include a copy of the current *Airport Layout Plan* for the Airport. The current Airport Master Plan and other Airport planning documents also can be accessed at [www.aspennairportplanning.com](http://www.aspennairportplanning.com).

## **2. FAA Airfield Safety and Separation Standards**

FAA classifies airports based on the operational and physical characteristics of the airport and the aircraft serving the airport. FAA assigns a Runway Design Code (RDC) for each airport. The RDC reflects aircraft approach speed, tail height, wingspan, and visibility minimums.<sup>i</sup> These factors determine what safety standards apply to particular airports.

The FAA prescribes airfield separation standards based on Aircraft Approach Category and Airplane Design Group (two of the three factors that make up RDC). Typically, separation standards serve to ensure that aircraft wingtips do not come into contact with each other. Safety and separation standards associated with runways also are intended to address the risks presented by aircraft veer-offs and missed approaches.<sup>ii</sup>

The Airport is classified as Aircraft Approach Category “D” and Airplane Design Group “III” based on the aircraft operating at, and projected to operate at the Airport.<sup>iii</sup>

The online supporting documents for this briefing paper include additional information on *relevant airfield safety and separation standards*.

FAA’s design standards are mandatory for airports that receive federal funding through the Airport Improvement Program. When an airport cannot meet all of the standards due to physical constraints, FAA must approve a modification to standards that will maintain an acceptable level of safety.<sup>iv</sup>

## **3. Planning and Capital Development Leading to Current Conditions**

The Airport is physically constrained and cannot satisfy all of FAA’s design standards for D-III facilities. In 1998, the County updated the Airport Layout Plan to consider capital improvements on the east side of the Airport. At the time, the separation between the Runway and Taxiway was 221.5 feet, a non-standard condition that required FAA approval of a modification to standards. The precise issue examined during the 1998 ALP Update was whether and how to relocate the Taxiway to achieve a higher level of safety while maintaining the largest practical apron area for parking and taxiing aircraft.

The ALP Update concluded that the FAA design standards could be met only through a comprehensive and costly relocation of Highway 82, the airport frontage road, auto parking lots, and as many as six buildings.<sup>v</sup> Instead, the ALP Update report recommended that the separation between the runway and taxiway be increased from 221.5 feet to 320 feet. This relocation did *not* enable the Airport to achieve full compliance with FAA design standards for D-III facilities. Nevertheless, the Taxiway relocation was critically important because it significantly increased the lateral separation between the Runway and Taxiway, enabled the Airport to achieve a standard Runway Object Free Area, and increased the available apron for taxiing and parking aircraft.

In evaluating the maximum separations that could be achieved at the Airport while providing for a safe and efficient facility, the engineers considered the size of aircraft that could operate safely within alternate airfield configurations. The recommended modifications to standards only provide an acceptable level of safety when the wingspan of aircraft using the Airport is no greater than 95 feet. As a consequence, ***the modifications to standards were approved by the FAA contingent on the County's adoption of an ordinance limiting operations at the Airport to aircraft with wingspans less than 95 feet.***

The precise language of the ALP Update provides in relevant part:

Although the proposal [for a taxiway centerline at a separation of 320 feet from the runway centerline] does not meet criteria for all of Design Group III, the County is prepared to enact an ordinance restricting aircraft with wingspans greater than 95 feet. . . . This 95-foot restriction will establish that this modification is contingent upon the ordinance being enacted and that the modified standard applies only to operations by aircraft with wingspans less than 95 feet. Should regular operations by a larger aircraft occur, the modification would be rescinded and the airport would be required to meet the standard separation. This will ensure the airport meets the [Runway Object Free Area] standard even at the busiest times.”<sup>vi</sup>

The online supporting documents include a more complete excerpt from the ***1998 ALP Update***, which provides a technical explanation of how the airfield separations and 95-foot wingspan were derived.

The FAA approved the ALP Update and modification to standards in January 1999. The County relocated the Taxiway over several years.

The following table summarizes the relevant FAA design standards and the current conditions at the Airport:

| Lateral Separation                                      | FAA Standard                               | ASE Actual                             |
|---|--|--|
| <b>Runway centerline to adjacent taxiway centerline</b> | 400' on each side of the runway centerline | 320'<br>(eastern side of the Runway)   |
| <b>Runway centerline to aircraft holding position</b>   | 277'                                       | 272.5'<br>(eastern side of the Runway) |
| <b>Taxiway centerline to fixed or movable object</b>    | 93' on each side of the taxiway centerline | 76.5'<br>(eastern side of Taxiway A)   |

These and other modifications to standards are reflected on the current ***Airport Layout Plan***.

#### 4. County Wingspan Restriction

On October 3, 2001, the Board of County Commissioners adopted the ordinance as required by the FAA.<sup>vii</sup> In 2005, the Board adopted a resolution reaffirming the wingspan restriction and requiring that the restriction be codified as part of amendments to Title 10 of the County Code then under consideration.<sup>viii</sup> The online supporting documents contain the *relevant legal authorities*, including the 2001 ordinance, 2005 resolution, and a copy of the relevant section of the current Pitkin County Code.

The County is authorized to impose this restriction pursuant to the Pitkin County Home Rule Charter and as an express delegation under Colorado law.<sup>ix</sup> While the FAA prescribes airport design standards and regulates airspace, pilots and aircraft, the FAA traditionally does not impose airport-specific rules on the operation of aircraft, such as limitations on wingspan. This division of responsibility accounts for why the FAA approved the modifications to standards contingent upon *the County's* adoption and enforcement of a restriction on aircraft wingspan.

Further, the FAA recognizes that airport operators may impose safety-based restrictions at airports. The agreements signed by airport sponsors receiving grant funds under the Airport Improvement Program provide, “The sponsor may establish such reasonable, and not unjustly discriminatory, conditions to be met by all users of the airport as may be necessary for the safe and efficient operation of the airport.”<sup>x</sup> More specifically, the grant agreements provide, “The sponsor may prohibit or limit any given type, kind or class of aeronautical use of the airport if such action is necessary for the safe operation of the airport or necessary to serve the civil aviation needs of the public.”<sup>xi</sup>

The 95-foot wingspan restriction was not controversial for many years. This was due in part to the fact that only certain aircraft have the performance capabilities to operate at high altitude airports and because the County also restricts the weight of aircraft that safely can operate at the Airport, based upon the weight-bearing strength of the airfield pavements. Specifically, the Airport is limited to aircraft with a maximum allowable gross landing weight of 100,000 pounds (dual wheel) or 160,000 pounds (dual tandem wheel).<sup>xii</sup> To oversimplify somewhat, aircraft below the permissible weight and with the performance capabilities to operate at the Airport typically have wingspans less than 95 feet.

There are commercial service and general aviation aircraft in the research and design or production stage that have wingspans close to, but greater than, 95 feet. Commercial service aircraft are discussed in the next section. With respect to general aviation aircraft, both the Gulfstream 650 and the Bombardier Global 7000/8000 have wingspans above the prescribed limits for the Airport.

The FAA certified the Gulfstream 650 in September 2012, and these aircraft are being manufactured and delivered. There initially was some uncertainty about whether the Gulfstream 650 complied with the County Code. In August 2008 and January 2012, the County advised that the Gulfstream 650 would satisfy the wingspan limit, based on the fact that the width of the aircraft *without winglets* is less than 95 feet. However, in May 2012, the FAA advised the County that wingspan must be calculated to *include winglets*, and, in September 2012, the FAA

adopted a formal definition of “wingspan” that includes winglets.<sup>xiii</sup> According to Gulfstream’s technical specifications, the wingspan of the G650, including winglets, is 99 feet 7 inches.<sup>xiv</sup>

## 5. Current Planning Effort

In August 2013, the FAA conditionally approved the updated *Airport Layout Plan* based on the updated Airport Master Plan. The online supporting documents include a copy of the *FAA approval letter*. Although the Airport Master Plan recommended construction of a new taxiway to the west of the Runway at a distance of 320 feet from the Runway centerline, the FAA determined, “The FAA’s approval of this ALP does not apply to the proposed runway/taxiway separation distance of 320 feet on the west side of Runway 15/33. FAA is evaluating this nonstandard separation distance and will continue to coordinate the issue with Pitkin County.”

During this time, the County began examining changing aircraft technology and its implications for the Airport. In September 2013, the County initiated a three-phase planning study to evaluate the next generation of commercial service aircraft and the associated impacts on commercial air service at the Airport (Phase I), to identify and evaluate options to sustain commercial service (Phase II), and engage the public and present a recommendation to the Board of County Commissioners (Phase III).

Planning efforts to date have confirmed that advancing design and technology of regional aircraft will adversely impact the ability of the Airport to support commercial air service in the future with the current wingspan restriction in place. In particular, it is anticipated that approximately 50% of the CRJ700 fleet – the most common commercial service aircraft operating at the Airport – will be retired by 2021. This issue is illustrated in the following table of technical specifications for the current and future regional fleet mix.

### AIRCRAFT TECHNICAL SPECIFICATIONS

| AIRCRAFT TYPE                    | WINGSPAN    |       | MAX LW (LBS) | ASE PERFORMANCE-CAPABLE | MEETS / DOES NOT MEET ASE OPERATIONAL RESTRICTIONS |
|----------------------------------|-------------|-------|--------------|-------------------------|--|
|                                  | FEET/INCHES | METER |              |                         |  |
| <b>Current Regional Aircraft</b> |             |       |              |                         |  |
| CRJ-700                          | 76' 3"      | 23.2  | 67,000       | YES                     | Meets  |
| Q-400                            | 93' 3"      | 28.4  | 62,000       | YES                     | Meets  |
| CRJ-900                          | 81' 7"      | 24.9  | 73,500       | NO                      | Meets  |
| CRJ-1000                         | 85' 11"     | 26.2  | 81,500       | NO                      | Meets  |
| E-170                            | 85' 4"      | 26    | 72,312       | NO                      | Meets  |
| E-175                            | 85' 4"      | 26    | 74,957       | NO                      | Meets  |
| E-190                            | 94' 3"      | 28.7  | 94,799       | NO                      | Meets  |
| E-195                            | 94' 3"      | 28.7  | 99,208       | NO                      | Meets  |
| <b>Future Regional Aircraft</b>  |             |       |              |                         |  |
| E-175 E2                         | 101' 7"     | 31.0  | 86,201       | TBD                     | Does not meet                                      |
| E-190 E2                         | 110' 6"     | 33.7  | 109,018      | TBD                     | Does not meet                                      |
| E-195 E2                         | 110' 6"     | 33.7  | 118,498      | TBD                     | Does not meet                                      |

|   |          |      |         |            |                      |
|---|----------|------|---------|------------|----------------------|
| MRJ-70 Standard                         | 95' 9"   | 29.2 | 79,807  | <b>TBD</b> | <b>Does not meet</b> |
| MRJ-90 Standard                         | 95' 9"   | 29.2 | 83,776  | <b>TBD</b> | <b>Does not meet</b> |
| CS100 Base                              | 115' 1"  | 35.1 | 110,000 | <b>YES</b> | <b>Does not meet</b> |
| CS300 Base                              | 115' 1"  | 35.1 | 121,500 | <b>YES</b> | <b>Does not meet</b> |
| <b>Comparison Non-Regional Aircraft</b> |          |      |         |            |                      |
| Airbus A319                             | 111' 11" | 34.1 | 138,000 | N/A        | <b>Does not meet</b> |
| Boeing 737-700                          | 117' 5"  | 35.7 | 128,928 | N/A        | <b>Does not meet</b> |
| Boeing 717                              | 93' 5"   | 28.5 | 100,000 | N/A        | <b>Does not meet</b> |

*Source: Manufacturers*

The County completed Phase I in November 2013. The online supporting documents include a copy of the *Phase I report*. As a result of the findings of Phase I, the County Commissioners directed staff to proceed with Phase II. Evaluation of potential airfield and airspace configurations is underway and it is anticipated that the Phase II report will be presented to the County in June 2014.

<sup>i</sup> FAA Advisory Circular 150/5300-13A, Airport Design (“*Airport Design*”) ¶ 105(c). The references herein to the FAA Advisory Circular include Change 1, issued February 26, 2014.

<sup>ii</sup> See FAA Advisory Circular 150/5300-13A ¶ 320 (explaining that airfield separation standards are determined by “landing and takeoff flight path profiles and physical characteristics of aircraft.”); J. Hall, *Airport Cooperative Research Program Report 51, Risk Assessment Method to Support Modification of Airfield Separation Standards* (TRB 2011) at 9 (describing the separation standards between runways and taxiways adopted by the International Civil Aviation Organization as follows: “A parallel taxiway is located such that no part of the largest aircraft expected to operate on the parallel taxiway would penetrate into the adjacent runway strip. This is intended to accommodate any potential veer-off of a landing aircraft when the taxiway is being used and also to provide a sterile area, free of obstacles that may endanger an aircraft executing a missed approach or balked landing maneuver.”).

<sup>iii</sup> Aircraft Approach Category D includes aircraft with approach speeds of 121 knots or more but less than 141 knots. Airplane Design Group III includes aircraft with tail heights between 30 and 45 feet (9 – 13.5 meters) and wingspans between 79 and 118 feet (24 and 36 meters). *Airport Design* at Tables 1-1 and 1-2.

<sup>iv</sup> *Airport Design* ¶ 102(cc) (definition of “Modification to Standards”); *id.* ¶ 106(b) (“Due to unusual site, environmental, or other constraints, the FAA may approve an ALP not fully complying with design standards. Such approval requires the FAA to determine the proposed modification to standards is safe for the specific site and conditions. See Order 5300.1.”).

<sup>v</sup> *Aspen/Pitkin County Airport, Airport Layout Plan Update* at IV-20 (Dec. 1998).

<sup>vi</sup> *Id.*

<sup>vii</sup> Pitkin County Ordinance 041-2001.

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<sup>viii</sup> Pitkin County Resolution 108-2005.

<sup>ix</sup> *See C. R. S. § 41-4-106* (“In connection with the erection, maintenance, and operation of any such airport or navigation facilities, any county has the power and jurisdiction, when acting singly, or by agreement, when acting jointly with any other county, city and county, city, or town, to . . . provide rules and regulations governing the use of such airport and facilities and the use of other property and means of transportation within or over said airport, landing field, and navigation facilities . . .”).

<sup>x</sup> Airport Sponsor Assurance 22(h).

<sup>xi</sup> Airport Sponsor Assurance 22(i).

<sup>xii</sup> Pitkin County Code § 10.12.030(D).