

Essay #14 in Aspen Fly Right’s public-education series, 4 May 2023 (there is no Essay #13)  
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## Fact-checking Airport claims: over half are false

### Executive Summary

**Twenty-seven things the public is being told (*italic*), and what the evidence shows (roman)**

*The Federal Aviation Administration (FAA) requires Aspen Airport to accept bigger planes, raising Pitkin County’s unusual 95’ wingspan limit to the standard 118’.*

No, that’s entirely the County’s choice. If the County doesn’t demand bigger wingspans than 95’, it can keep its 95’ limit, and the existing airside built for those planes can safely remain as is.

*The FAA requires “critical safety improvements” to eliminate the 1999 exception.*

Only if the County wants to let in bigger planes that need more space to pass each other on the ground—not if it doesn’t. The County’s 20 January 2023 “Frequently Asked Questions” says a dozen times that raising the runway/taxiway separation from 320’ to 400’ is an FAA safety requirement, but every time, it omits the punchline “...if we want to bring in bigger planes.” When granting that exception in 1999, the FAA found Aspen Airport would be safe for up to 95’ wingspans—fully equivalent in safety to the standard 400’ separation for 118’ wingspans. It still is—as Rich Englehart told the *Aspen Daily News* last year, “about as safe as it can possibly be.”

*The FAA has long wanted to remove Aspen’s 1999 exception, and signaled that wish in 2013.*

True. The FAA likes standards, dislikes exceptions, and expands access. But this exception is justified by specific local constraints and costs. Bigger planes weren’t the FAA’s initiative: the County has sought them for far longer. Even in 1995, a business/SkiCo campaign (as *The Aspen Times* reported), invoking the same threats we hear today, wanted 737s. Voters refused by 3:2, and haven’t been asked since. Has 737s’ absence made the heart grow fonder?

*Without Aspen’s upgrade for bigger, heavier planes, the FAA may stop its discretionary grants to the Airport.*

The FAA’s John Bauer did tell the Commissioners that on 11 April 2023, and even said funding for the passenger terminal would depend on prior or concurrent airside upgrades—not doing the urgent terminal work first as Commissioners want. However, the FAA’s \$2+-million-a-year entitlement grants would continue. So would other airport revenues tenfold larger. The Airport wouldn’t need to fund the \$200+ million airside rebuild if it didn’t insist on bigger planes. FAA rules, too, say discretionary grants can be used to repair or rehabilitate (but not rebuild) nonstandard airfield elements without bringing them up to national standard—if the FAA has modified the standard, as it did for Aspen in 1999. It would be unusual to withhold funding that helps maintain the runway and taxiway vital to safe and efficient operation, like the FAA’s \$6 million grant on 17 March 2023. Scary old threats that the FAA may downgrade the airport or claw back past grants are “nuclear options” for airport sponsors defying, not following, past FAA orders, and FAA has confirmed they are extraordinarily unlikely—though the County, strangely, still brandished them in its five-page “ASE 2023: Frequently Asked Questions” document dated 20 January 2023.

*Aspen can’t maintain a modern airport without FAA discretionary grants.* Of course we can: the County’s 2023 budget shows only \$6.8 million in *all* Federal grants in a \$26.9-million airport total. The Commissioners also have a crucial opportunity in the next few weeks to offset any lost discretionary grants by retaking control of the private-aviation Fixed Base Operation. That could keep \$15+ million of new annual earnings reinvested in the Airport rather than supporting Atlantic’s private-equity-fund owner. It could sustain reasonable prices, fairness to local pilots, and high-quality services—and support a vibrant Aspen Airport evolving at a prudent pace fitting our community’s needs, not a Federal agency’s forced march to more, bigger, heavier, perhaps noisier and dirtier, fossil-fueled planes.

***The full scorecard of the fact-checks below: True 2; True, needs context 3; Half-true, half-unknown, needs context 1; Possible but unlikely 1; Misleading, needs context 3; False, needs context 1; False 14; Unknown 2.***

This Essay reflects the 11 April 2023 public meeting between the Federal Aviation Administration (FAA) representative Mr. John Bauer, the Board of County Commissioners, and the BoCC's Airport Advisory Board. It also reflects the 20 April 2023 Airport Advisory Board meeting, and County Staff's digest and summary, distributed there, of the 11 April 2023 briefing. We fact-check 27 statements, many official.

**1. The FAA requires the Aspen/Pitkin County Airport to accept bigger planes, eliminating the 95' wingspan limit (which the FAA approved in 1999) so planes up to 118' can land.**

**False.** That's entirely the County's choice. If the County doesn't demand bigger wingspans than 95', it can keep its 95' limit, and the existing airside design that accommodates those planes can remain as is<sup>1</sup>. That wouldn't be the FAA's preferred outcome—as a standards-driven organization, it continually tries to phase out exceptions, and it also seeks to maximize access for all kinds of aircraft and operators—but *if the County didn't insist on bigger planes, the FAA on its own wouldn't revoke its 1999 exception or insist on the costly airside rebuild*. In any event, probably about half of Aspen Airport's 85 current Modifications of Standards would remain because they're impracticable or prohibitively costly to fix, such as the slope of the runway.

**2. The FAA requires<sup>2</sup> “critical safety improvements” to eliminate the 1999 exception; the main Modifications of Standards, especially the runway/taxiway separation, “must be corrected for safety.”**

**False, needs context.** It's true if the County insists on letting in planes with bigger wingspans: everyone agrees those bigger planes would need more space, especially more separation between runway and taxiway, so their longer wings can't run into each other as they pass. But if the County chooses *not* to demand bigger wingspans, then the Airport remains safe as it now is, and the airside design needn't be changed. The County's 20 January 2023 “Frequently Asked Questions”<sup>3</sup> says a dozen times that raising the runway/taxiway separation from 320' to 400' is an FAA safety requirement, but every time, it omits the punchline: “...if we want to bring in bigger planes.” Without bigger planes, there's no need to make space for them. That's the big secret of the Aspen Airport discussion, and both the protagonists are motivated not to reveal it: the FAA because it wants to standardize Aspen's nonstandard airside design and has said so for a decade, and County Staff because they've wanted bigger planes for about three decades (for reasons that remain unclear—see #4–5 below) and find it convenient to pretend that the airside expansion is an FAA mandate, not the result of a County request.

**3. The FAA has long wanted to remove Aspen's 1999 design exception, and so signaled to the County in 2013<sup>4</sup>.**

**True, needs context.** As Mr. Bauer explained in 2018<sup>5</sup>, with our emphasis added in italics: “*The County came to us [the FAA] several years ago to discuss their growing concern that the current fleet of commercial aircraft would not be available, in the planning horizon, to serve the Aspen community. The County began reviewing options with our office that would allow the airport to serve a new [and larger] class of aircraft, and meet FAA standards. The County went through an extensive process looking at numerous options. The Agency provided feedback to the County regarding many of the options. One message remained constant throughout our conversations with the County. If the County wants to accommodate larger aircraft, the Airport must meet standards. The Agency will not invest Federal grant funding for a facility that will limit access to certain types, kinds, or classes of aircraft. The Agency has the expectation that at the conclusion of the project, the Airport will be able to accommodate the full range of group III aircraft*”—i.e. the larger types in that size class, with wingspans greater than 95' but less than 118'. But the

initiative for wanting those bigger planes came from the County; the FAA simply advised on how to do so in a way that would meet the Federal standards this choice would require.

#### **4. That FAA signal in 2013 stimulated the County to propose bigger planes.**

**Misleading, needs context.** Mr. Bauer implied this in responding to a public question<sup>6</sup> about whether the initiative to let in bigger planes came from the County or the FAA. He didn't answer that question. Instead, he described the FAA's 2013 signal to the BoCC that it could not make significant further improvements to the airside without meeting FAA standards. This signal did further encourage County Staff to pursue bigger planes, and gave them a regulatory argument to support that pursuit. Yet County Staff arranged the 2013 study that triggered it, and indeed had already been pushing for bigger planes long *before* 2013<sup>7</sup>, going back at least to the early 1990s. After the 1995 bond-issue rejection, when voters by a 3:2 margin rejected bigger planes in general and 737s in particular, County Staff has pursued the same bigger-planes agenda more systematically, in ways more likely to procure or bypass public consent and create an appearance of consensus. The history of this issue (documented in our Essay #4<sup>8</sup>) leaves no doubt that bigger planes were County Staff's proposal first and foremost, and have been for decades.

As Mr. Bauer told the BoCC and AAB<sup>9</sup>, the FAA "spent several years going through [Airport layout] options—there were 17 at one point that we sat down with Pitkin County [about]—all driven by the County. I want to make sure that is clear: all those options were driven by the County and what the County saw as the need for the Airport [to replace CRJ700s with bigger planes and thus preserve allegedly threatened commercial air service], and we [at the FAA] were weighing in with them on those options." He correctly traced that part of the history to the 2013–14 *Future Air Service Study*<sup>10</sup>, which wrongly predicted an immediate need to let in bigger planes to replace CRJ700s. However, that history began at least a couple of decades earlier....

#### **5. The community wants bigger airplanes.**

**Unknown.** Opinions differ, we are unaware of any public-opinion polling, and the only evidence is 28 years old (the decisive bond-vote rejection in 1995). More interesting is where the idea of bigger airplanes for Aspen originally came from and when<sup>11</sup>. The readily available evidence is unclear. Was it the local-businesses-and-SkiCo coalition reported by *The Aspen Times*<sup>12</sup> as the origin of the expansion for 737s, voted down in 1995? Was it the later lobbying effort reportedly funded by ~55 Gulfstream 650 owners (including some of the Aspen area's ~100 billionaires<sup>13</sup>) and their Washington, DC lobbying firm, who wanted to land their over-95' planes here—encouraged by a Gulfstream video ad (later removed) showing a simulated landing of that plane at Aspen, by premature announcements in the trade press, and by an erroneous G650 approval by Aspen's then Aviation Director, later reversed by the FAA when a citizen group questioned it<sup>14</sup>? The community may never know, unless someone funds a skilled investigative journalist to unearth the history. But whosever idea it was, its factual basis has crumbled, as summarized below. *All successively proposed rationales for prompt design and construction of a new airside to let in bigger planes—preserving airline service, protecting the environment, improving safety, and complying with FAA mandates—have now been exposed as unsound.* Whatever tacit reasons might underlie this policy, its expressed reasons cannot withstand critical scrutiny.

#### **6. The Airport is vital to the economy of the whole Aspen area.**

**True.** That's a major reason that Aspen Fly Right was formed to explore better solutions for the Airport. Fortunately, neither the Airport's continued operation and public benefit nor its employment is at risk. Existing airline planes could serve for at least two more decades, probably three-plus (Essay #4), and are now to be augmented starting in 2023/24 by a modern alternative regional jet that likewise fits the current 95' wingspan limit. Bigger planes won't make the Airport more stable, nor add fleet redundancy not already arranged. Conversely, keeping the airside as it is won't diminish jobs or air connectivity. The big issues are rather what sort of Aspen community the Airport's evolution will help to shape, who decides, whether those choices are made prematurely under artificial pressures or only when needed and prudent, and whether the public's voice is properly heard. An emergent strategy—keeping FBO control and revenue, reinvesting in the Airport the community wants and at the pace it chooses, and freeing the Airport from FAA growth priorities increasingly at odds with local needs and goals—could best serve the shared objective of a safer, cleaner, quieter, fairer airport for all.

### *The FAA as the latest proponent of bigger, heavier planes*

**7. The FAA requires improving the runway and taxiway (and increasing their separation) to the full FAA standard for bigger (up to 118' wingspan) airplanes because those airfield elements are now undergoing routine maintenance, triggering a mandatory upgrade.**

**False.** Mr. Bauer agreed<sup>15</sup> that FAA policy requires an upgrade to meet standards only if a non-standard airfield element is being rebuilt, not if it's just being maintained or rehabilitated (defined as improving it to a design life up to half its original life). However, some of his remarks seemed to imply that if the County doesn't demand bigger planes and agree to the full airside upgrade, the FAA may no longer provide discretionary funding even for normal airfield maintenance. This merits clarification, as it would seem contrary to the FAA's declared policy<sup>16</sup>, current behavior, and goal of sustaining safe and efficient airport operations.

**8. The runway can keep its 100' width regardless, without having to widen it to 150'.**

**Unknown (for now).** Some unnamed official reportedly said this<sup>17</sup> to the Airport Advisory Board's 6 January 2023 retreat, but Mr. Bauer said on 11 April 2023 that 150' will still be required (if, he neglected to add, the County demands larger planes and thus must give up its 1999 Modifications of Standard). The Airport Director has since clarified that the width depends on the required aircraft weight<sup>18</sup>. This won't be known until a new Airport Layout Plan has been submitted to and approved by the FAA. The current draft of the forecast proposed to underlie that Plan does recommend as the critical aircraft for airfield design the A220-300, which weighs more than 150,000 lb and would therefore trigger a 150' runway width. The forecasters told the Airport Advisory Board on 20 April 2023<sup>19</sup> that the FAA insists on assuming that airplane rather than the lighter A220-100, keeping options open for such bigger, heavier planes beyond 2042.

**9. The Airport needs to be made safer by upgrading the airside to full FAA standards.**

**False.** When it granted Aspen Airport's 1999 Modification of Standard, the FAA made the required official finding that the airport would remain safe, so long as the County passed and enforced an Ordinance limiting wingspans to 95', as was then done. In 2021, the Deputy County Manager overseeing the Airport "said the airport is about as safe as it can possibly be"<sup>20</sup>. The former FAA Chief Counsel (now apparently advising the County) emphatically told ASE

Vision<sup>21</sup>, “The airfield is not unsafe—it’s not unsafe.” Eliminating any ambiguity, the FAA’s John Bauer confirmed to the BoCC and AAB on 11 April 2023<sup>22</sup> that the 95’ wingspan limit was calculated to yield “an equivalent level of safety,” i.e. the same operational safety with 320’ runway/taxiway separation as the 400’ separation would provide with 118’ wingspans. The airfield design needed for operational safety (with proficient and Aspen-familiar pilots) hasn’t changed since, and needn’t—*unless* the County requires bigger planes to come in, since they’d be unsafe to operate on an airside designed for today’s smaller planes.

County Staff have unfortunately created confusion by publishing this alleged exchange in their 23-page summary<sup>23</sup> of John Bauer’s 11 April 2023 discussion with the BoCC and AAB:

**b. Is the FAA insisting on this redesign regardless, and what is the impetus?**

*(24:25) So back to[,] back to the original safety and access. And I mean, that really is the answer to that question is absolutely. We are interested in safety, first and foremost.*

The videotape shows approximately that answer at 24:25, but not in response to that question<sup>24</sup>, which appears to be a Staff paraphrase of other questions from other parts of the two-hour discussion. The resulting impression that Mr. Bauer’s answer was responding to that question—hence that “absolutely” the FAA is “insisting on this redesign regardless”—is therefore false, as Mr. Bauer’s answers elsewhere make clear (Ref. 1). Some other parts of Staff’s digest also may not accurately reflect the relevant content and actual flow of the discussion. Citizens seeking confidence in true matches between questions and answers should carefully review the posted video recording.

**10. The FAA could withhold discretionary grants to try to enforce its agenda.**

**True.** Mr. Bauer said this to the BoCC and AAB on 11 April 2023. He added that the County may not use discretionary grants to build a new passenger terminal first, but must build the new airside for bigger planes first or concurrently—the opposite of the County’s plan to fix the land-side first—because he doesn’t trust the County to fix the airside later. Whether the FAA would actually carry out these threats at Mr. Bauer’s level and above, and whether attitudes could be shifted by the determined application of facts and logic perhaps not yet presented to the FAA, remain to be seen, but the risk must be taken seriously. Fortunately, the County has sound alternatives (#11–12 below), which Mr. Bauer’s uncompromising stance just made more attractive.

**11. Losing discretionary grants would severely constrain Airport development.**

**False.** Mr. Bauer’s unexpected move to hold the urgently needed terminal rebuild hostage to prior or concurrent airside reconstruction will rightly focus Commissioners’ minds on their imminent opportunity to retake control of the Fixed Base Operation (FBO)<sup>25</sup>. Even if they hire a contractor to run it—a sensible and common solution (#14–16 below)—this shift from a private monopoly to a publicly directed asset could extract, we estimate, over \$15 million per year at reasonable fuel prices (or more at current unreasonably high fuel prices) in additional revenues for Airport use, rather than continuing to enrich the monopolist’s private-equity-fund owner. Of note, too, if the County *did* accede to the FAA’s demands, much of the funding otherwise needed from the FBO operator would be covered by FAA discretionary grants, further enriching the operator unless the County had already contracted to recover that contingent windfall.

## **12. Without FAA discretionary grants, we can't fund the urgently needed new terminal.**

**False.** Much higher revenues to the County if it owns the FBO, sets prices and terms, and keeps the profits, plus the FAA's continuing nondiscretionary FAA "entitlement" grants<sup>26</sup> (which grow further with enplanements), plus other continuing airport revenues *tenfold larger* than those continuing grants, could fund the passenger terminal and other needed improvements—especially if the County didn't proceed immediately (or perhaps at all) with the \$200+ million airside reconstruction. Prudently deferring that airside decision could also defer building a new, taller, relocated control tower (at the FAA's cost because they own it), and should reduce other costs.

Do the math: per year, \$26.9 million revenue in the 2023 proposed Airport Budget (posted 10 March 2023<sup>27</sup>), minus \$6.8 million in total Federal grants, plus ~\$2.3 million in continuing FAA entitlement grants, plus probably \$15+ million of new revenue<sup>28</sup> from the FBO. Total: \$37.4+ million, or *39% above the 2023 Airport Budget*, a surplus comfortably above what would be needed to finance the passenger terminal and other needed improvements. Moreover, deferring or foregoing the taxiway relocation should also avoid expenditures caused by the need to relocate so many other airport elements. One expert on the Aspen FBO estimates this should save about \$30 million on new ramps, and that the total cost of replacing the FBO and associated developments could drop from about \$150 million to very roughly \$50 million (for a new FBO terminal building and two lucrative hangars). The County should already have prepared such alternative budgets. If it did, they should be promptly published to inform public discourse, even though the County's stated intention (see our Essay #3<sup>29</sup>) is to publish, if at all, only after the decisions are made.

Thus the price of determining our own destiny, timing, and strategy for Aspen Airport appears to be less than zero—before counting the nine-figure capital savings if it turns out that innovations in aviation, plus the continuing CRJ700 availability and backups in Essay #4, plus the E175ER if it proves suitable, make the current airside upgrades premature or unnecessary. That is, if the Airport doesn't need a \$200+-million airside upgrade now, or perhaps ever, then losing funding to build it won't matter. Foregone FAA terminal funding could be significant, but financeable tax-free from the new FBO revenues, Customer Facility Charge, and other Airport revenues. Such increased self-reliance would free the County to chart its own course, at its own pace, and evolve prudently rather than by a Federally forced march to a possibly unwanted destination.

## **13. The County already picked incumbent Atlantic Aviation to keep operating the FBO.**

**Half-true, half-unknown, needs context.** Some local reporters did imply that, but Letters to the Editors, and later some reporters, correctly pointed out that the County has only selected one of seven candidates for detailed discussions—not accepted its bid. That decision will come later, if and only if the County, having negotiated Atlantic's actual contract offer, chose to continue the private-monopoly structure rather than return the FBO to County control<sup>30</sup>. The County wisely reserved the right to reject all bids. Last October, the County told the Airport Advisory Board that it could indeed choose instead to run the FBO itself or hire a contractor to do so<sup>31</sup>. The choice between a private-monopoly and County-controlled FBO—and if County-controlled, whether run by County Staff or by a third-party contractor—remains to be made in the coming weeks. That basic structural choice is even more important than which candidate (if any) is preferred to others.

**14. If the County chose to retake control and ownership of the FBO but hire a contractor to run it, Atlantic Aviation would be that contractor anyhow.**

**Possible but unlikely.** All three finalist firms—all large FBO consolidators owned by private equity funds—would probably find a mere contractor role, with fuel and service prices and conditions set by the County, insufficiently profitable to interest them. They may also not be the best choice (and, to judge from pilots’ survey and comments, would probably not have been chosen by their customers). All seven candidate operators were evaluated solely as potential private-monopoly operators who would finance, build, own, and operate the FBO on a long-term contract for major profits, doubtless with an increased County take that they could pass through to users by charging even higher fuel prices and fees; in essence, they could bid for the County’s favor using their customers’ money. No candidate was assessed as a short-term contractor operator. At least one firm specifically proposed that alternative too, but was not evaluated on that basis and was not interviewed. The County can certainly find a capable contractor to run the FBO, but would need to seek and evaluate firms for that specific role, and has not yet run such a process. The County can almost certainly take the time to do that search properly: the incumbent operator would almost certainly be thrilled to extend its current lucrative arrangements as long as needed. Or if time were of the essence, the County could interview any existing applicants based on a new determination of “best value to the County.”

**15. The County has no expertise to run the FBO.**

**True, needs context.** The County could, but need not, use its own staff. It could hire the existing employees now running the FBO. Or it could hire an experienced third-party contractor to run the FBO using existing, its own, or new employees.

However, there is one important grain of truth in this argument: our overworked Board of generalist County Commissioners has no expertise to run the FBO and far too many other important issues to consider. It should probably therefore appoint a manifestly independent and aviation-expert Board of Directors to oversee Airport operations. That Board would not perform day-to-day management but would set strategy to meet BoCC goals, oversee and advise the Airport Director’s execution of that strategy, and report to the BoCC. Such a structure, reflecting deep experience of airport management, aviation business practice, and aviation strategy, is almost certainly a basic precondition for the long-run success of Aspen Airport. It is a common, though not universal, practice for the governance of other airports of comparable complexity. This is also a very different function, purpose, and composition than the existing Airport Advisory Board: the two are complements, not substitutes.

**16. FBOs are all run commercially. A local government has no business trying to run one.**

**False.** Although many small (“mom-and-pop”) FBOs have been consolidated into large private firms, and all three of the top bidders for Aspen’s FBO contract follow that consolidation-and-monopoly business model, many publicly owned airports do remain publicly operated. As our Essay #3<sup>32</sup> quoted a National Academies study of FBOs, four years ago some 42% of the United States’ 5,092 public-use airports were publicly owned. Of those, 43% or 1,562 publicly owned airports owned their own FBOs, *three-fourths of which were owned by county or municipal governments*. Among many other benefits, the public owner then has full access to its own operating data and can set prices and policies (if reasonable and not unjustly discriminatory), and can achieve directly the same public-service, fair-price, and equitable-treatment goals as

competition between multiple private FBOs—plus public responsiveness and accountability. And of course the public owner can collect very substantial net revenues to sustain the airport. Supposed risks and barriers were addressed in our Essay #3 and found insubstantial. Empirical results are often highly encouraging in financial returns, quality, and customer satisfaction.

Our Essay #3 further described at p 14 the three available business models that the National Academies' FBO report illustrated by case-studies, such as by Appleton, Wisconsin for engaging a contract manager, or Fort Wayne, Indiana's successful and instructive transition from a private FBO (Atlantic Aviation) to a public-sponsor-owned FBO. Other publicly owned FBOs run by a private contractor under public direction include Charlotte Douglas International, North Carolina, and Chattanooga, Tennessee. Nearer examples of publicly owned and run FBOs include Leadville/Lake County, Colorado, and Cheyenne and Jackson Hole, Wyoming—that state's busiest airport, and analogous in many ways to Aspen's Airport and resort economy.

As our Essay #3 remarked, Jackson Hole's "independent Board unanimously approved an early FBO buyout as more advantageous than a second FBO. The Board reportedly expected a pay-back within five years and \$25–30+ million in annual revenue in the following five years, up from the initial \$16 million (similar to Aspen's). Public ownership and operation would let the airport set fuel prices and 'mark the end of pricing that some pilots say is indicative of a monopoly and created an oppressive environment for light aircraft.'" Jackson Hole Airport began operating the FBO itself from 1 May 2023. Run by a former ASE director<sup>33</sup> under a City- and County-appointed Board, Jackson Hole Airport has a bit more commercial traffic than Aspen's due to its use of A319, A320, and B737 aircraft (in 2022<sup>34</sup>, 405,693 enplanements, 4,705 flights, 14 summer nonstop destinations) but fewer General Aviation operations, all managed with ~90 Airport staff (Aspen has ~43 plus the private FBO staff) and a \$19 million operating budget. The reports and accounts appear unusually transparent, with even the check registers posted online. The BoCC should invite the Jackson Hole Airport's Board and Airport Director to a prompt public conversation about their FBO experience and governance structure.

Such case-studies merit a close look. We hope the County has commissioned and will promptly publish independent due diligence on all relevant cases. There should be no proprietary sensitivity about such public information.

### *What's the rush to decide?*

**17. The County must decide immediately whether to move forward with the new airside.** **False.** Making major airside design choices now would be premature and imprudent because of the extraordinary speed of changes in aviation<sup>35</sup>—changes that the new Airport Forecast explicitly excludes, so only the AAB and BoCC can consider them when setting strategy. We have been offering to brief this material to both since last October, with nothing yet scheduled.

As Aspen Fly Right has said from the start, even more important than *whether* to upgrade the airside is the question of *when to decide*. A wise structural decision on the FBO in the coming weeks would unlock many new airport solutions, keep the money on the Airport and in town, and buy time to make far better airside choices, informed by how aviation actually evolves. The



Airport’s latest forecast confirms, as our imminent review will show, that we have at least another decade to make that choice, with no material effect on meeting Aspen’s aviation needs.

**18. Proceeding with the airside upgrade is urgent because SkyWest’s CRJ700 commercial jets serving Aspen Airport’s three airlines will retire in the next 2–7 years (or, says the current draft Forecast, the next 4–9 years).**

**False.** This decade-old claim, dating back at least to the 2013 *Future Air Service Study*, has never been true. The County’s top technical consultant on aviation (Jacobsen | Daniels, via its Director Bill Flock) said last October that the CRJ700 “is going to be flying for the next 20 or 30 years, that it’s not going away,” as we documented in Essay #4 and Ad #4<sup>36</sup>. That sounded to us like a forecast, but Mr. Flock’s colleague Brad Jacobsen told the Airport Advisory Board on 20 April 2023 that another 20 years’ operation of CRJ700s (from 2022) is really a capability, not a prediction, and he thought it unlikely for economic reasons, so his firm’s forecast now phases it out by 2032 in the “best estimate” midrange forecast or 2042 in the lower forecast. We agree that actual aircraft choices will depend on complex analyses by the operators. However, nothing in the 20 April 2023 draft Forecast changes our Essay #4’s facts, logic, or conclusion that continued long-term operation of CRJ700s, even well into the 2040s, is probably the least risky and least uncertain option for SkyWest and the three airlines it serves. At a minimum, the 20-year operating life that the Forecast agrees is possible offers plenty of time to see how new aircraft and rapidly changing aviation route architectures and business models evolve, rather than basing a nine-figure investment now on a Forecast *that explicitly excludes all such changes and all actual Aspen constraints on aviation growth.*

Aspen Airport’s plan, consistent with Jacobsen | Daniels’s current forecast, is instead to modify the remaining ASE gates during the 10–24 May 2023 airport shutdown<sup>37</sup> to accept Embraer’s E175ER, extended-winglet<sup>38</sup> aircraft—a newer, similar-sized regional jet that fits the present airside and its 95’ wingspan limit. However, substantial questions remain about the E175LR’s profitability and suitability for Aspen. Only the least important of the three airlines SkyWest serves in Aspen (Delta) strongly prefers it, for unique reasons related to past strategy, and aims to run it in winter when its weaknesses are mildest. If the E175LR proves unsuitable for the other 97% of the Aspen airline market, as it well may<sup>39</sup>, then the obvious answer, as explained in our Essay #4, would be to simply keep flying the durable CRJ700s, and if needed, apply for life extension beyond their original 80,000 cycles, as is routinely done for other rugged and successful aircraft. “Measured in years,” as our Essay #4’s analysis found at the start of 2023, “*the CRJ700 fleet is now probably less than halfway through its life—before likely extensions.*” To claim that the CRJ700s need replacing in this decade is as foolish as saying that a 32-year-old person (halfway from birth to retirement) is about to leave the workforce, so we’d better start hiring a replacement.

As our Essay #4’s history documents, in 2014 the Pitkin County Commissioners authorized rebuilding the Airport for bigger planes—*because* the 2013 forecast claimed that CRJ700s had a useful life of just 15–17 years, so they’d start retiring by 2018. (That’s less than half the norm for good airplanes; the buyers would have wanted their money back.) In 2014, Jon Peacock and JD Ingram told our County Commissioners that the US CRJ700 fleet would be over 50% retired by 2021 and 100% retired by 2025: you can read their slide on p 5 of Essay #4. The actual number

retired through 2022 was *zero*, because *those forecasts were wrong by about two or three decades*<sup>40</sup>. Yet the policy they launched a decade ago still keeps cruising along on autopilot.

The oldest CRJ700s serving Aspen are the five airplanes that provide Delta’s winter-only service. Delta provides only 3% of Aspen’s airline flights, but is the sole example Jacobsen | Daniels offered the Airport Advisory Board’s 20 April 2023 meeting<sup>41</sup> to conjure an industry-wide trend or movement to retire the plane. They provided no evidence of such a movement, and airlines’ perspectives differ markedly. United bought another 18 CRJ700s in October 2022 to strengthen its own regional fleet. United provides 72% of Aspen’s 2022 airline enplanements, and its CRJ700s average only 13 years old; so does SkyWest’s entire CRJ700 fleet, the world’s largest. American’s CRJ700s, 25% of 2022 enplanements, are ~5–6 years older, but still at only about half a normal operating life *before* any life extension.

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Nonetheless, the current forecast *assumes*, with no evidence, that CRJ700s will phase out at ASE in the next 4–9 years<sup>42</sup>, displaced largely or wholly by E175LRs whose suitability and profitability for ASE *is* are far from established. Casting doubt on that rapid replacement, the same Forecast says<sup>43</sup> “it is possible to assume CRJ-700 will have a remaining viable service life of approximately 20 years (through 2042) [apparently without assuming life extension], while its maker, consistent with Aspen Fly Right’s Essay #4 analysis, says<sup>44</sup> “They can continue on for another couple of decades easily.” The Forecast provides zero evidence justifying its assumption of rapid retirement of CRJ700s in favor of E175LRs, plus A220s in the higher-growth variants. It appears that assumption was driven by client and regulator preferences, not by actual analysis.

**19. Even if we could keep running the CRJ700s, they’re too noisy, dirty, and climate-harmful to meet community goals, so they should be phased out soon to protect the environment.**

**False.** The E175LR aircraft officially forecast to replace the CRJ700s starting in 2023/24, with new gate arrangements already added or being installed, *performs worse* than the CRJ700 on *every one* of these criteria. As ASE Vision found and the Aspen Skiing Company wrote, its allegedly now-underway adoption “would result in going backward on every one of [ASE Vision’s] Common [Ground] Goals.” The larger A220 narrowbody jet forecasted ultimately to start replacing both these regional jets would be slightly quieter than the CRJ700, far more NO<sub>x</sub>-emitting per departure (though slightly less per passenger because it has nearly twice as many seats), and probably lower in CO<sub>2</sub> by an amount we haven’t been able to ascertain<sup>45</sup>. However, its 115’ wingspan would require and is being used to justify the \$200+-million airside upgrade—thus triggering unstoppable arrivals of bigger, heavier, and possibly dirtier and noisier airline and private planes, so its net climate benefit is unknown and could be negative.

The environmental and health impacts that the community is rightly concerned about are best addressed instead by the specific means synthesized in our Essays #7 (Climate), #9 (Noise), #10 (Air Quality), and #12 (Regulation and Siting)—while encouraging rapid entry of the superefficient, -clean, and -quiet aircraft documented in Essay #5 (“Flight Without Fossil Fuel”).

***Could the FAA impose severe penalties for not promptly upgrading our Airport?***

## 20. Not upgrading the Airport to full FAA standards risks the FAA’s clawing back past grants.

**False.** The FAA would be legally entitled, if it wished, to require repayment of grants specifically given to fund upgrading the Airport to full Aircraft Design Group III (ADG-III) standards—shorthand for the 400’ runway/taxiway separation and associated lesser changes. Aspen’s Airport Director was unable to identify any such grants<sup>46</sup>. If there were any, they’d probably be for paper studies, totaling ~1% or less of the physical upgrade costs deferred or avoided. The only such grant specifically mentioned by the FAA<sup>47</sup>, #53-2016, does not exist<sup>48</sup>. We asked the County to identify any grants they think might be subject to repayment, and the Airport Director was unable to specify any, saying the question was “far too speculative and nebulous” to answer<sup>49</sup>. However, it is apparently not too speculative and nebulous to keep repeating to the public, most recently in the 20 January 2023 “ASE 2023: Frequently Asked Questions” five-pager<sup>50</sup> that the County and its PR consultants prepared with the apparent intention of posting it publicly.

When asked about clawing back past grants, FAA Regional Director John Bauer told the BoCC and AAB<sup>51</sup> (all emphases in original): “**Quite honestly, I always refer to this as the nuclear option. It’s not what we’re in the business of doing. We are in the business of developing airports to standard and providing access.**...It does us no good, from an agency perspective, to try and claw back funds that have already been spent. Can we? Absolutely. Is it statutorily allowed? Absolutely. Does it happen? In some cases, it does. But it is the last resort. That is when we have met a thousand times and we can’t come to any conclusions. And we’re forced into that from a legal process, and that would be the Part 16 process” (a draconian tool he’d explained earlier, for airports that break their grant agreements and refuse to come into compliance, endangering their entitlement grants—all subject to various administrative and legal appeals). His clear message for the BoCC was that merely choosing to continue present FAA-approved Airport arrangements is extraordinarily unlikely to risk having to repay prior grants.

## 21. Not upgrading the Airport to full FAA standards risks the FAA’s downgrading Aspen to a Class II airport that can accept wingspans only up to 79’<sup>52</sup>, such as small turboprops flying just to Denver<sup>53</sup>.

**False.** County Staff have been invoking this bogeyman for decades. A downgrade from III to II would be unprecedented in its aggressiveness<sup>54</sup>. Mr. Bauer came as close as he could to saying FAA would never do such a thing because it’d defeat their mission to promote rather than constrain civil aviation<sup>55</sup>. The literature agrees. We cannot find any credible source who can imagine the FAA’s so restricting the third-biggest airport in Colorado, so long as it remains safely and fairly operable for the aircraft it serves. Of course, the FAA would *prefer* that Aspen allow wingspans in the >95’–<118’ range, but if they can’t get that wish, it’s inconceivable they’d be so piqued that they’d try to remove much of the commercial service to a vital and successful airport.

When Aspen Fly Right requested “any communications from the FAA about the possibility of a downgrade to ADG II,” the Airport Director replied on 20 April 2023: “The County has not discussed the prospect of ‘downgrading’ the category of the airport from the current ADG-III to ADG-II. Mr. Bauer mentioned at the BoCC Special Work Session [on 11 April 2023] that the FAA is not supportive of ‘downgrading’ a facility in a manner that would create restrictions to access and functionality, and such an effort would require justification and significant additional study.” Nonetheless, the County’s “Frequently Asked Questions,” dated 20 January 2023<sup>56</sup>,

repeats both the grant-clawback and the downgrade threats. It is hard to comprehend why County Staff apparently think that invoking these hoary hobgoblins improves their public credibility.

By the way, the wingspan of the CRJ700 aircraft is 76'3'', so even in the extremely remote case of a downgrade to ADG-II, the existing airline planes could still fly into Aspen just as now. It seems odd that the authors of the small-turboprop fiction didn't notice this.

**22. The FAA no longer approves non-standard conditions unless an airport is so physically constrained that it cannot meet FAA standards, in which case operational restrictions are put in place.<sup>57</sup>**

**Misleading, needs context.** It's true that the FAA no longer approves *new* Modifications of Standard except in those special circumstances. But it *did* approve Aspen Airport's Modification of Standard for Aspen Airport in 1999, precisely because of its physical constraints, contingent on the operational restriction to 95' wingspan that the County passed as an Ordinance. (The FAA also approved a new Modification of Standard and 100' wingspan limit in Hailey, Idaho in 2013<sup>58</sup>, and there may be others.) As Mr. Bauer confirmed<sup>59</sup>, Aspen's Modification of Standard and accompanying wingspan Ordinance can remain in force so long as the County does not feel it needs to accommodate planes with wingspans over 95'. The Airport is currently compliant with FAA safety standards *for the airplanes that it regularly allows to land*, all with wingspans not over 95'. The Airport would become unsafe only if it regularly let in airplanes wider than its FAA-coordinated Ordinance allows.

**23. Now that the County has shown the FAA how full ADG-III compliance is physically feasible, and the FAA has issued an environmental finding of No Significant Impact for the needed improvements, the County is obligated to carry them out.**

**False.** As Mr. Bauer said, as long as the County doesn't demand admission of airplanes with wingspans over 95', it can keep its current airside. Moreover, the FAA is required to consider not just feasibility and environmental impact but also cost, which would exceed \$200 million just for the airside improvements (plus the FAA's own cost to relocate and rebuild its control tower). Even if the FAA gave its maximum 90% grant for the airside investment as a prioritized safety measure, that's still a big net investment, plus the substantial community costs of prolonged airport closure during such a major reconstruction. The County is entitled to consider those factors when deciding whether it really needs bigger planes and when it could become comfortable making that choice. The County should also consider other important context missing from the official Forecast, including all innovation in aviation technology, and the realism of the predicted growth, which ignores the County's declared goals and actual constraints. Aspen Fly Right is now reviewing the Forecast and will soon publish its assessment, which raises serious issues.

***What other solutions are available?***

**24. The Board of County Commissioners called on the Airport to negotiate with airlines for service by planes that are cleaner and quieter than, and about the same size as, those that have previously served the Airport.<sup>60</sup>**

**True, needs context.** The BOCC’s Resolution 115-2020 did ask for this, but as far as we know, such substantive negotiations have not occurred more than two years later, the County’s brief to the AAB on 20 April 2023 implies they’re no longer expected, and if they do occur, they look very unlikely to succeed. The County and Airport currently have no authority to tell the airlines which planes to fly—that’s their sole business decision—and the airlines have no incentive to give up any of that authority. The Commissioners meant well, but this part of their Resolution is a political fig-leaf, not a serious solution, and is very unlikely to have any practical effect.

**25. We need to accommodate future commercial aircraft, which “those who study the evolution of aircraft technology” say have wider wingspans than today’s planes and are likely to be more fuel-efficient, less polluting, and quieter.**

**Misleading, needs context.** Wider wingspans are *one* important way to achieve those results, but they’re not the only way: an eightfold-more-efficient plane thoroughly flight-tested since 2020 (from a developer led by the former Chief Scientist/Avionics for the B1 bomber) has just 52’ wingspan for a six-passenger or ~70’ for a 19-to-well-over-30-passenger version. The same technology can scale to regional-jet size, and probably to about 737 size, still within Aspen’s 95’ wingspan limit. Similarly, Eviation’s *Alice* electric commuter plane has just a 53’ wingspan<sup>61</sup>.

As we’ve pointed out to the BoCC since August 2020, these planes all achieve superlative efficiencies and impacts by a different aerodynamic strategy despite their shorter wings; moreover, if longer wings *are* chosen, they can fold up after landing—a technology Boeing developed for the 777X (so it would fit at normal gates) and has sold for a decade<sup>62</sup>.

We continue to think, as Essay #5 documented, that far quieter, cleaner, and more efficient aircraft of requisite size and range, and fitting the current ASE airside, are likely to be available for ASE commercial service *in this decade—before a new airside for bigger planes could be built, and another decade before any question might reasonably arise about the CRJ700s’ service life*. The only material risk of major delay would be in FAA certification, but the major government and industry focus on green imperatives, plus EASA certification in Europe, make this unlikely.

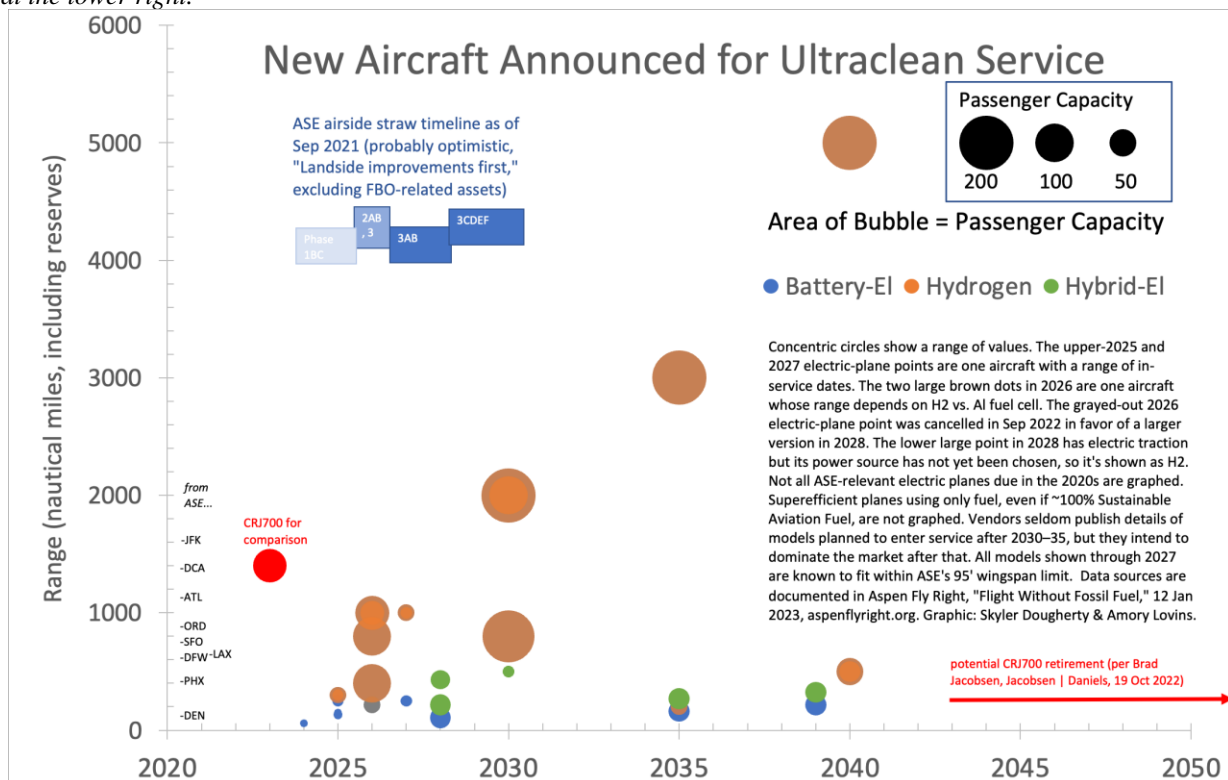
While some future planes will indeed be more efficient, clean, and quiet than today’s CRJ700 fleet, some may be worse in some or all of these attributes, and many existing over-95’ planes are much worse, yet an upgraded Aspen Airport would have to admit them all. Thus the new airside that any quieter or cleaner but bigger new airline planes would require could undo their benefits.

**26. We should design only for the airplanes now available, not speculative future ones that are “likely many years away”<sup>63</sup>.**

**False.** The County’s forecasting consultant says the FAA requires it to consider only currently certified and available aircraft. That seems true. However, a client seeking a fully informed view of future aviation would request an additional analysis, beyond the officially required forecast based on past technologies, to consider important developments likely to affect the design, functionality, and success of the Airport. Pitkin County did not request this important contextual work. It preferred to use a “forecast” that extrapolates the past and explicitly ignores the future.

Fortunately, Aspen Fly Right already did that future-aviation analysis for free<sup>64</sup>. The County's forecasting consultant and Airport Director, despite our repeated requests, had no quarrel with or correction to its underlying technical brief<sup>65</sup> that we prepared and presented to them at their request on 19 October 2022; as the video recording confirms, they highly praised our analysis. Yet their and the County's decision process appears to have ignored it, not because the consultant couldn't perform its own analogous assessment, but because County Staff didn't want it done. Our analysis has also not been shared as promised with the Airport Advisory Board that needs it to assess the Forecast on 18 May 2023. Unlike the official zero-innovation forecast, RMI's analysis *compared* the timeline of a new airside with the timeline of very efficient, clean, and quiet planes that would probably make it unnecessary sooner, ensuring a new airside not fit for purpose. A reasoned decision process would address that analysis, not ignore it. Here's Essay #5's concluding graphic, which the 11 January 2023 Essay documents in detail:

Fig. 8. Timeline of expected in-service dates and passenger (pax) capacities for some very-low-or-zero-emissions aircraft using electric or hybrid propulsion, as of the end of 2022. Three 2024–25 electric Vertical Takeoff and Landing examples are shown, but not the follow-on eVTOL swarm. The superefficient, 3500-nm, all-SAF-fuelable diesel Celera 500L and its doubled-size 1000L variant are not graphed. They and all the electric entrants through 2029 except the Heart Aerospace ES-30—that is, three of the four ultraclean aircraft announced for the 2020s—meet Aspen's current wingspan limit. The 2030+ entrants' wingspans haven't yet been announced, and the non-Otto ZeroAvia airframes' wingspans haven't yet been determined. The timing targets for ZeroAvia's hydrogen systems are for the powertrains, not the aircraft that will adopt them (except the announced Otto Aviation 750L), but those new models are expected to be planned and certified to converge as closely as possible with powertrain certification. Not all Aspen-relevant 2020s options are graphed. The blue blocks near the upper left show a rather optimistic timeline for proposed ASE airside revisions during 2023–2030 to accept bigger planes. By then, at least five kinds of planes far cleaner and quieter than the BOCC's long-range goals should be in commercial service with capacities and ranges comparable or superior to the current CRJ700 fleet (in red at the far left)—which the County's top aviation technical consultant also expects to remain in service to nominally ~2042–52<sup>66</sup>, as shown by the red arrow at the lower right.



A nine-figure investment would seem to warrant close attention to such a fundamental challenge to the ASE project's basic premise. While superefficient and electric planes of near- or more-than-regional-jet size and range are indeed "likely many years away" at Aspen's density altitude—toward the end of this decade—*so is a new airside*, now officially forecast for 2032 if not later. The new airside's prospects seem to be slowing while revolutionary airplanes' prospects are rapidly accelerating—already a decade or two sooner than we and most others expected just three years ago. These options should be compared. What the County has instead done, and apparently told its consultant to do, is to split airplane evolution into two categories—already existing and hence unchangeable, and too far off to speculate about. That's not a forecast; it's static history writ larger. Unless innovation suddenly stopped last year, it is certain to be wrong, by an ever-increasing amount. It can lead nowhere but to surprises that may be unpleasant, costly, and risky. Betting against aviation innovation is singularly unwise.

**27. Mr. Bauer's uncompromising statement of the FAA's position to the County Commissioners on 11 April 2023 left them little or no discretion in whether to allow bigger planes, and no way to limit the impacts.**

**False.** It may have seemed so, largely because of some important things he didn't say—especially that the need for a new airside *flows from and depends upon the County's insistence on bigger planes*—but that would not be a correct conclusion. The following day, Aspen Fly Right published a surprising (even to us) synthesis<sup>67</sup> of a rich menu of policy options available to the County to achieve community goals, but not yet explored. There's as rich a stew of innovation brewing in local aviation policy as in aviation technology. Neither has yet been considered.

We respectfully commend that combined menu of opportunities to the County Commissioners' attention. We hope it will swiftly stimulate a vigorous discussion of solutions that could be both constructive for the community and acceptable to, even endorsed and welcomed by, the FAA.

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<sup>1</sup> The FAA's Denver regional director John Bauer specifically confirmed this when questioned by Amory Lovins in front of the Board of County Commissioners and the Airport Advisory Board at their BoCC Work Session / Special Meeting on 11 Apr 2023: <https://pitkincounty.ompnetwork.org/embed/sessions/266309/04-11-2023-bocc-work-session-special-meeting-04-11-2023>, at 2:19:36–2:21:55 (answer at 2:21:37–2:21:53), reinforced at 2:42:50–2:43:45. This crucial point would not otherwise have been revealed by Mr. Bauer's statement nor by the Commissioners' and AAB members' questions. Yet the County's Airport Forecast consultants continued even on 20 Apr 2023 to claim that "FAA does not allow restrictions such as" Pitkin County Code §10.12.030(C), the 95' wingspan limit that FAA itself required and approved in 1999 (Jacobsen | Daniels brief to Airport Advisory Board, numbered slide 7, <https://pitkincounty.com/DocumentCenter/View/30817/AAB-Aviation-Forecast-Meeting-42023>). It's impossible to tell whether they meant FAA no longer makes *new* exceptions of that kind (generally true, #22 below) or whether the existing exception must be rescinded (true if and only if the County insists on bigger planes). In further confirmation, p 9 of the County's digest of Mr. Bauer's 11 April remarks, distributed to the Airport Advisory Board on 20 April 2023, asks "Could ASE maintain the existing 320-foot runway/taxiway separation (34:36)?" and Mr. Bauer answers, "Yes, you can. But again, we then go into kind of an entitlement [grants] only situation" as described in statement #10 below.

<sup>2</sup> Aspen Airport, "ASE 2023: Frequently Asked Questions," ASE FAQs\_2023.01.20(1).docx. This 20 January 2023 5-page document was requested 22 Jan 2023 and provided 7 Apr 2023 under the Colorado Open Records Act. Its requested URL was promised 20 April and re-requested 3 May 2023. Meanwhile, at the 20 Apr 2023 AAB meeting, County Staff distributed a 23-page document called "Frequently Asked Questions for the FAA (April 11, 2023)," <https://www.aspenairport.com/about-aspen-airport/airport-advisory-board-faqs/>, which is completely different, but the two FAQs are often confused. It's not yet clear whether the County's 5-page FAQ ever got posted.

<sup>3</sup> Ref. 2.

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<sup>4</sup> In a 21 May 2019 email to Valerie Braun, cc John Kinney, Mr. Bauer explained (with emphasis added in italics), “In response to a request from the Board of County Commissioners (BOCC), we reviewed an Airport Layout Plan update in August of 2013. The ALP update showed a runway/taxiway separation distance of 320’ on the West side of Runway 15/33. We conditionally approved the ALP with the following caveat[:] ‘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. The FAA is evaluating this nonstandard separation distance and will continue to coordinate the issue with Pitkin County.’ In essence, this was a message to the BOCC that the FAA would not allow for future development at the airport to continue under the previously approve[d] modification for runway/taxiway separation.... *We did not state that we would remove the modification*, but we did inform the BOCC that we would not approve additional improvement under the same modification. To the best of my knowledge, *we have not said that we would attempt to recoup grant funds for **past*** [bold italics in original] ADG-III improvements. We have stated however that grants issued to date for improvements to meet group-III runway/taxiway standards, specifically Airport Improvement Program Grant (AIP) 53-2016, must be repaid if the project does not move forward.” That grant doesn’t exist (Ref. 48).

<sup>5</sup> John Bauer, 13 Sep 2018 memo to John Kinney, p 1221 (repeated until p 1248), provided 7 Apr 2023 in response to Aspen Fly Right’s 22 Jan 2023 CORA request for FAA communications. Mr. Bauer was responding to Mr. Kinney’s 13 Sep 2018 query: “Do we have any written correspondence from the FAA either internal or from your office that says.... ASE must move the runway. / We have all heard and repeated this history that this is the case .....but the community is looking for this in writing or a regulation – see the email below [a query from citizen Charles H. Hopton]. / Can you help me out?” In Ref. 1 at 2:22:22–2:22:32, Mr. Bauer reconfirmed that the County had come to the FAA requesting bigger planes, and Amory Lovins said the FAA’s signal reinforcing that wish came many years after the County had begun pushing for bigger planes.

<sup>6</sup> Ref. 1, first response.

<sup>7</sup> A useful history is on pp 2–5 of the Final Report (20 Dec 2019) of ASE Vision’s Technical Working Group, <https://aspensairport.wpenginepowered.com/wp-content/uploads/2020/09/Meeting-7-Final-Technical-Working-Group-Report-and-Recommendations-PDF.pdf>. Paraphrasing it: The runway was made longer and wider in 1983, supporting the 100-seat BAe 146 jetliner with an 86’ wingspan, operating from 1985 to 2006. However, a \$1.9-million bond issue in 1995 to widen and strengthen the runway to accept even larger aircraft, specifically 737s, was rejected by voters 3:2. In 1998 the County proposed increasing the runway-taxiway separation from 221.5’ to 320’, and in 1999, the FAA approved this Modification of Standard on condition that the County pass and enforce an ordinance limiting planes to 95’ wingspans. That ordinance was adopted in 2001, then readopted in 2005 when the separation was completed. The routine 2012 update of the Airport Layout Plan did not recommend changing these conditions, but the FAA’s approval did not include the 320’ separation, kicking off a 2013–14 [Future of Air Services study](#) that found bigger planes would be needed to replace the CRJ700 commercial airplanes. That argument evolved into the current ASE debate. It is impossible to determine, from information currently available to the public, exactly who in the County Government is pushing for bigger planes and why, but that agenda is evident, longstanding, and relentless. The FAA’s interest currently coincides with the County’s desire, because the FAA seeks to maximize safe access to public-use airports, and thus to extend access to airplanes with wingspans in the >95’-to-<118’ range, thus accommodating up to the largest of what are called Aircraft Design Group III or ADG-III aircraft.

<sup>8</sup> Ref. 36.

<sup>9</sup> In the 11 Apr 2023 FAA/BoCC/AAB discussion at <https://www.youtube.com/watch?v=d2Sp9S8RRIM>, starting at 29:24. The County’s original posting of the same video is in Ref. 1.

<sup>10</sup> The reports and briefs, including a 2018 update, are at <https://www.aspensairport.com/operation/planning/future-air-service-study/>. The contrary evidence assembled in Aspen Fly Right’s Essay #4 (Ref. 36) has never been officially acknowledged or addressed. The BoCC quietly backed away from reliance on the increasingly indefensible early-CRJ700-retirement thesis at the end of 2020, but that thesis continues to underlie the whole airside-redesign conversation—currently in the form of the 20 April 2023 Draft Airport Forecast and Fleet Mix Study now under review by Aspen Fly Right.

<sup>11</sup> Some historical roots may stretch back to the lengthening of the runway in 1963, widening in 1969, apron and terminal construction in 1973 and 1976, more lengthening and widening in 1983, and final lengthening in 2011. These events were punctuated by aircraft transitions from Convairs (1968–85) to Twin Otters (1968–86) to Dash-7s (1978–94) to BAe 146s (1985–2006) to Dash 8/Q400s (1997–2016), plus some stragglers in the 1990s. The mythology of an about-to-vanish aircraft is not new: for example, starting at 34:42 in the first ASE Vision meeting (21 Feb 2019), <http://www.youtube.com/watch?v=rviaWAbW-E4>, Wayne Ethridge said, “About 25 years ago I was a member of the Board of County Commissioners when a similar process started.....At that time, the sky was falling and the BAe [146] aircraft was going away. The FAA was asking for 24/7 operation at the Airport, and there was a



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strong confirmation bias at the Staff level of Pitkin County, sort of at the BOCC level, and there was fortunately some community pushback....We were facing allegedly the loss of our [commercial air] service aircraft. We were facing a demand from some level of pilots and the aviation industry at large to operate 24/7. You can imagine what 24/7 operation would be like in this community. Thanks to the funding, frankly, of Don Henley of the Eagles, who used to live in Woody Creek, myself and some others started a process....to try to get a handle on this process....” That work continues. Only the names have changed. Three variants of the BAe146 ultimately served Aspen for two decades, and its newly electrified retrofit version (Essay #5) may well return to Aspen later in this decade.

<sup>12</sup> S. Condon, “Will Aspen’s economy take off with \$15 million runway extension?,” *Aspen Times*, 6 Nov 2009, [www.aspentimes.com/news/will-aspens-economy-take-off-with-15-million-runway-extension/](http://www.aspentimes.com/news/will-aspens-economy-take-off-with-15-million-runway-extension/): “The Aspen Skiing Co. and the business community lobbied [in 1995]...for an expanded and strengthened runway that could handle Boeing 737 jets. They claimed the 737 was the jet of the future and that the Aspen-Pitkin County Airport would be bypassed by major carriers if it couldn’t accommodate that aircraft. A county-wide vote on the topic spurred a sometimes bitter and divisive campaign. Foes...won by a landslide. The proposed runway extension now [in 1995] being pursued won’t allow larger or heavier aircraft to land at Aspen. ‘That issue has been put to bed,’ [County consultant Ryk] Dunkelberg said. The maximum weight for aircraft will remain at 100,000 pounds and the maximum wingspan at 95 feet.” So much for such assurances.

<sup>13</sup> R. Carroll, “Expanded runway would mean bigger Gulfstreams in Aspen,” *The Aspen Times*, 13 Sep 2021, quotes Airport Director John Kinney as saying 33 Aspenites had ordered a G650 in autumn 1995. No doubt the remaining members of that cohort, and they or others about to buy the successor Gulfstreams, would be eager to fly directly into Aspen without having to change to a smaller plane, typically in Rifle. A curious historical quirk: since 1959, Gulfstream has been owned by General Dynamics. Its largest shareholder was Henry Crown (who died in 1990); his son Lester was the firm’s President and Chairman; and Lester’s son Jim Crown is its Lead Director. Coincidentally, this fine citizen is also Chairman Emeritus of the Aspen Institute and the managing partner of the Aspen Skiing Company—a holding whose value appears to far exceed that of the remaining General Dynamics shares.

<sup>14</sup> <https://www.ainonline.com/aviation-news/aviation-international-news/2012-06-04/g650-wont-spread-its-wings-aspen-airport>.

<sup>15</sup> Ref. 1 at 2:21:54–2:22:20.

<sup>16</sup> Former (1998–90) FAA Chief Counsel Prof. Greg Walden, on 20 March 2019 at <https://www.youtube.com/watch?v=4nDFi3x90wg>, 51:52, showed a slide saying: “In the event of a pre-existing non-standard airfield configuration, AIP [Airport Improvement Program] funds may only be used to rehabilitate or reconstruct the affected airfield element if FAA has formally approved a modification to standards [as it did in this case in 1999] or the airfield element is brought up to standards. (FAA Order 5100.38D, page 3-19.)” That provision is at [https://www.faa.gov/airports/aip/aip\\_handbook/media/AIP-Handbook-Order-5100-38D-Chg1.pdf](https://www.faa.gov/airports/aip/aip_handbook/media/AIP-Handbook-Order-5100-38D-Chg1.pdf), p 3-19, and Mr. Bauer just confirmed it (Ref. 15). We interpret it to mean that since FAA *did* formally approve a modification to standards in 1999, AIP funding (i.e. FAA discretionary grants) may continue to be used to “rehabilitate or reconstruct” the runway, taxiway, etc without thereby requiring an increase in separation to eliminate the MoS. However, we presume FAA retains discretion to withhold such grants; in Ref. 4, Mr. Bauer did state in 2019, “The FAA also has concerns with moving forward with rehabilitation projects on the runway and taxiway in their current locations, while allowing the airport to remain under the modified group III description. The work the County did under the [Future Air Service] Study shows that the Airport can meet runway/taxiway separation for group-III, therefore there is a viable alternative to the modification that meets FAA runway/taxiway design standards.” On the other hand, withholding grants for sustaining the Airport’s safe and efficient operation would seem to undercut the FAA’s mission. The County, whose 25 January 2023 emails importuned Mr. Bauer to come support its narrative, may also have overinterpreted his 2019 letter: on 24 June 2019, John Kinney wrote to two contractors, seemingly glad to have that narrative confirmed, “there you have it...Bauer’s saying we don’t allow you to further develop the airport....let’s have a[n] interpretation from [Greg] Walden on what this really means....” But it doesn’t seem to us to mean that all airport development, let alone sustaining its airside infrastructure, must halt. On 11 April 2023 (Ref. 1, ~2:21:50), Mr. Bauer did refer to the County’s still being able to get “entitlement funding for rehabilitation purposes,” and his subsequent answer (Ref. 15) appeared to open the door wider.

<sup>17</sup> A. Salvail, “FAA says Aspen runway widening not required to achieve higher level,” *Aspen Daily News*, 20 Jan 2023, <https://www.aspen.gov/DocumentCenter/View/358/2012-Aspen-Area-Community-Plan-AACP-PDF>.

<sup>18</sup> In response to Aspen Fly Right’s 15 Apr 2023 request under the Colorado Open Records Act, Airport Director Dan Bartholomew replied on 20 Apr 2023 that the required runway width would be 150’ if the FAA determines in the Airport Layout Plan process that the runway needs to be designed for a maximum takeoff weight (MTOW) over 150,000 lb, otherwise 100’. He refers to the 11 Apr 2023 FAA/BOCC/AAB meeting (Ref. 1) at 38:10–39:00, and says “No specific internal County/FAA communications exist regarding the future runway width.” The MTOW is

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156,300 lb for the A220-300 that starts to enter the highest forecast in the current draft (whose 20 April 2023 AAB presentation calls it the “Future critical aircraft...forecasted to initiate service at ASE by 2032”) and 139,000 lb for the A220-100 that starts to enter the midrange forecast proposed to be submitted to the FAA:

<https://pitkincounty.com/DocumentCenter/View/30817/AAB-Aviation-Forecast-Meeting-42023>, slides 3, 17, 29. If that forecast is submitted to and approved by the FAA, it would therefore presumably require a 150’ runway.

<sup>19</sup> Ref. 41, starting at 1:01:40.

<sup>20</sup> A. Salvail, “Aspen Airport operations up 20% for first half of 2021,” *Aspen Daily News*, 18 Aug 2021, [https://www.aspendailynews.com/news/aspen-airport-operations-up-20-for-first-half-of-2021/article\\_c29e6c3e-ffcf-11eb-9f55-eb760153232b.html](https://www.aspendailynews.com/news/aspen-airport-operations-up-20-for-first-half-of-2021/article_c29e6c3e-ffcf-11eb-9f55-eb760153232b.html).

<sup>21</sup> G. Walden, Ref. 16, at 57:25.

<sup>22</sup> FAA/BoCC/AAB Work Session / Special Meeting, 11 Apr 2023, <https://www.youtube.com/watch?v=d2Sp9S8RRIM>, at 25:20–25:50.

<sup>23</sup> Aspen/Pitkin County Airport, “Frequently Asked Questions for the FAA,” 20 April 2023, p 10, <https://www.aspenairport.com/about-aspen-airport/airport-advisory-board-faqs/>, not to be confused with Ref. 2.

<sup>24</sup> The actual question from AAB Chair Jacque Francis, summarizing diverse questions previously submitted by unstated Staff or citizens, is #4 in the six-page question list handed out at the end, and she correctly read it out starting at 24:10: “Is the FAA’s insistence on eliminating Modifications to Standards at ASE just for safety, or for some other reason as well, and what are the advantages or disadvantages of such changes?” Mr. Bauer’s quoted reply follows at 24:25, in our transcription from the video recording: “So back to, back to the original safety and access [issues he had discussed previously]. And I mean, that really is the answer to that question. Absolutely. We are interested in safety, first and foremost.” He then concluded: “But we are also interested in access to this facility. When federal funding is involved, that dictates that kind of fair and level playing field for access.” He is *not* answering Staff’s subsequently made-up and quite different question “Is the FAA insisting on this redesign regardless, and what is the impetus?”

<sup>25</sup> Aspen Fly Right, “Runway robbery,” 29 Dec 2022, [https://aspenflyright.org/wp-content/uploads/2023/01/ABL-essay\\_3.-FBO\\_dr21\\_29-Dec-2022rev5Jan2023.pdf](https://aspenflyright.org/wp-content/uploads/2023/01/ABL-essay_3.-FBO_dr21_29-Dec-2022rev5Jan2023.pdf); summarized in ad, “Big decisions on private aviation,” 29 Dec 2022, [https://aspenflyright.org/wp-content/uploads/2022/12/AFR\\_BigDecisionsOnPrivateAviation\\_AspenDailyNews\\_12-29-22HR.pdf](https://aspenflyright.org/wp-content/uploads/2022/12/AFR_BigDecisionsOnPrivateAviation_AspenDailyNews_12-29-22HR.pdf), and updated in ad, “Taking back public control of Aspen Airport’s private-plane terminal,” 30 Mar 2023, [https://aspenflyright.org/wp-content/uploads/2023/03/AFR\\_Ad11\\_TakingBackPublicControlOfAspenAirportsPrivatePlaneTerminal\\_3-30-23HR.pdf](https://aspenflyright.org/wp-content/uploads/2023/03/AFR_Ad11_TakingBackPublicControlOfAspenAirportsPrivatePlaneTerminal_3-30-23HR.pdf).

<sup>26</sup> The formula at [https://www.faa.gov/airports/aip/aip\\_handbook/?Chapter=4#P0400](https://www.faa.gov/airports/aip/aip_handbook/?Chapter=4#P0400) (2021) is \$7.80 for each of the first 50k passenger (pax) enplanements, \$5.20/pax for the next 50k, \$2.60/pax for the next 400k, \$0.65/pax for the next 500k, and \$0.50/pax for any above 1 million, subject to a minimum of \$650k and a maximum of \$22M per airport. Thus for 2022, with 298,561 enplanements (Pitkin County Budget 2023, p 450), the entitlement payment is \$1.17 million based on passengers, plus a \$1-million primary entitlement, for a total of \$2.2 million, plus possibly other terms; Mr. Bauer quoted \$2.3 million. The County’s posted accounts combine all grants without detailing their type or source, and we have requested details.

<sup>27</sup> Ref. 28.

<sup>28</sup> Airport fuel sales totaled 7.45 million gallons in 2022 (down from nearly 11 million in 2021) and have exceeded 7 million since at least 2018 (Pitkin County Budget 2023, p 451, [https://drive.google.com/file/d/1obQgmvx-KOhZo8M\\_qOGxF0cCnbfU6TI0/view](https://drive.google.com/file/d/1obQgmvx-KOhZo8M_qOGxF0cCnbfU6TI0/view)). In round numbers, Aspen Fly Right’s analysis (see Essay #3) and an FBO expert familiar with Aspen Airport confirm that the County can confidently extract at least \$3 of net revenue per gallon, after paying the associated costs including contracting for an experienced FBO operating firm earning a normal profit. We’ve rounded down by at least \$5 million a year for conservatism, as we are not privy to the current or prospective Aspen FBO operators’ financial data, but those figures are now known to the County, which could therefore do a careful and detailed calculation.

<sup>29</sup> Ref. 25 at pp 20–21.

<sup>30</sup> J. Taris, “Dueling views on who should run the FBO at Aspen’s airport, with some still pushing for the county to do so,” *Aspen Times*, 20 Apr 2023, <https://www.aspentimes.com/news/dueling-views-on-who-should-run-the-fbo-at-aspens-airport-with-some-still-pushing-for-the-county-to-do-so/>: “Pitkin County Deputy County Manager Rich Englehart said the commissioners have final say whether to accept or deny the contract, start the negotiating process with the second-choice applicant Signature Flight Support, or deny all applicants and direct staff to look into sponsor-operated FBO — or the county operating the FBO itself or hiring a third party to do so. / ‘They can’t react until they see a negotiated contract,’ said Englehart.” The self-operated or County-directed-contractor-operated

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options were not mentioned in the same newspaper's 14 April unbylined Staff report "County goes back to the future, sticking with Atlantic Aviation as No. 1 choice for FBO," <https://www.aspentimes.com/news/county-goes-back-to-the-future-sticking-with-atlantic-aviation-as-no-1-choice-for-fbo/>, and leading many readers to conclude, wrongly, that the decision process was over, rather than just starting. This again illustrates that press releases by interested parties are no substitute for solid journalism.

<sup>31</sup> Ref. 25.

<sup>32</sup> Ref. 25 at p 5. The underlying report, which merits careful study, is National Academies of Sciences, Engineering, and Medicine 2020, *Characteristics of the FBO Industry 2018–19*, p 28, <https://doi.org/10.17226/25846>.

<sup>33</sup> He also earlier led the Pueblo and Eagle County Airports: M. Koshmrl, "Elwood's love of flying led to airport career," [https://www.jhnewsandguide.com/valley/people/closeup/elwood-s-love-of-flying-led-to-airport-career/article\\_925d01d7-8408-5f9d-ab91-fa600ca5667b.html](https://www.jhnewsandguide.com/valley/people/closeup/elwood-s-love-of-flying-led-to-airport-career/article_925d01d7-8408-5f9d-ab91-fa600ca5667b.html), 27 Jun 2018.

<sup>34</sup> Operating statistics at <https://jhair.wpenginepowered.com/wp-content/uploads/2023/01/Year.pdf>.

<sup>35</sup> Detailed, with documented timing expectations, in Ref. 61, which has received no County acknowledgement or reaction. We reprint its key graphic on p 14 below. Please see Essay #5's text for discussion and documentation.

<sup>36</sup> Aspen Fly Right, Essay #4, "The Airlines' Planes Aren't Vanishing," 5 Jan 2023, [https://aspensflyright.org/wp-content/uploads/2023/01/ABL-essay\\_4.-Fleet\\_01Jan2023.pdf](https://aspensflyright.org/wp-content/uploads/2023/01/ABL-essay_4.-Fleet_01Jan2023.pdf), and summary Ad #4, 5–6 Jan 2023, at [https://aspensflyright.org/wp-content/uploads/2023/01/AFR\\_TheAirlinesPlanesArentVanishing\\_AT\\_1-6-23\\_HR-1.pdf](https://aspensflyright.org/wp-content/uploads/2023/01/AFR_TheAirlinesPlanesArentVanishing_AT_1-6-23_HR-1.pdf). These references misreported that this remark was by Brad Jacobsen (Executive VP of Jacobsen | Daniels), who is leading the Airport Forecast project for the County. We just regretfully discovered, and have posted a correction saying, that the remark was actually by his senior colleague, lead ASE forecaster, and Jacobsen | Daniels Director William Flock. It is at 2:23:15 in our 19 Oct 2022 conversation at [https://drive.google.com/file/d/118-LR-uA6jvN0yRs-VERgB\\_m9FMGfuzj/view?usp=sharing](https://drive.google.com/file/d/118-LR-uA6jvN0yRs-VERgB_m9FMGfuzj/view?usp=sharing).

<sup>37</sup> The first four gates have already been modified, with four to go, both with little or no public discussion.

<sup>38</sup> Some sources describe this aircraft as having extended wingtips rather than enhanced winglets. They're all the same 2014 plane, sometimes written as -LR + EW. United calls its 70-seat variant the -LL.

<sup>39</sup> For reasons discussed in our Essay #4 and to be elaborated shortly.

<sup>40</sup> Ref. 36.

<sup>41</sup> Airport Advisory Board, Jacobsen | Daniels brief, 20 April 2023, <https://drive.google.com/file/d/10vyIQ-p1MLLCQ9CXdyAs4kn8W4dgltsO/view>, at 1:09:30.

<sup>42</sup> Ref. 41 at 1:00.

<sup>43</sup> Jacobsen | Daniels 20 Apr 2023 ASE Draft Airport Forecast, review draft for Airport Advisory Board, at p 59.

<sup>44</sup> G. Waldron, "MHIRJ sees long future for CRJ regional jets," 25 Jul 2022, *Flight Global*, <https://www.flightglobal.com/farnborough-2022/mhirj-sees-long-future-for-crj-regional-jets/149595.article>.

<sup>45</sup> Airbus says online that this type's CO<sub>2</sub> emissions are "up to 25%" lower than an unstated base case, due to operational as well as aeronautical improvements. Airbus has not yet responded to a request for clarification. A referenced Wikipedia fuel-economy compendium gives 2.8 kg/km for the A220-100 and 3.10 for the A220-300, both for 500–700-nm stages, compared with 2.95 for the CRJ700 flying 300 nm or 2.80 for the E175 (not listed as LR or +EW) flying 605 nm. These comparisons scale to CO<sub>2</sub> emission intensity, but being measured over different stage lengths, they don't permit comparisons of CO<sub>2</sub> per landing-and-takeoff cycle. While the A220's geared-turbofan engines and nearly half-composite structure should and reportedly do considerably cut fuel burn (e.g. <https://simpleflying.com/airbus-a220-vs-boeing-737/>), we have not yet found CO<sub>2</sub>/LTO comparisons.

<sup>46</sup> Ref. 49.

<sup>47</sup> John Bauer, email 21 May 2019 to Valerie Braun (Ref. 4): "We did not state that we would remove the modification [of standard], but we did inform the BOCC that we would not approve additional improvements under the same modification. To the best of my knowledge, we have not said that we would attempt to recoup grant funds for past ADG-III improvements. We have stated however that grants issued to date for improvements to meet group-III runway/taxiway standards, specifically Airport Improvement Program Grant (AIP) 53-2016, must be repaid if the project does not move forward."

<sup>48</sup> It's not in the FAA's online grant database, and when we asked the FAA, it said "there were no grants issued in 2016 to Aspen Airport." In response to Aspen Fly Right's 15 Apr 2023 request under the Colorado Open Records Act, Airport Director Dan Bartholomew replied on 20 Apr 2023, "Grant #53-2016 for the Aspen/Pitkin County Airport does not exist." We do not know why Mr. Bauer would have referred to a nonexistent grant.

<sup>49</sup> Aspen Fly Right's 15 Apr 2023 CORA request asked: "Mr. Bauer and others have mentioned the possibility that if the airside is not upgraded to full ADG-III standard, the FAA might require repayment of grants which supported that prospective upgrade. Please specify the subject, number, date, and amount of any such potentially repayable grants." Dan Bartholomew replied on 20 Apr 2023: "It would not be possible to identify which federal grants would

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require repayment under any particular scenario. The question is far too nebulous and speculative to respond to given the structure of the FAA grant system, the fair market value of certain airport assets at the time of prospective repayment, the useful life of specific assets and/or improvements for which grants were applied, and FAA discretion.” We had not asked, however, for the value that might need to be repaid—only for the [initial] value of the grants. To respond, he would only have needed to specify which grants “supported that prospective upgrade.”

<sup>50</sup> Ref. 2.

<sup>51</sup> BoCC recording at <https://pitkincounty.ompnetwork.org/embed/sessions/266309/04-11-2023-bocc-work-session-special-meeting-04-11-2023>, around 31–34, from text circulated to the AAB 20 April 2023 by County Staff, pp 7–8, with our correction of one mistranscribed sentence boundary based on reviewing the video recording.

<sup>52</sup> Ref. 2, p 4.

<sup>53</sup> As claimed in e.g. C. Abraham, “The Future of Flight in Aspen,” *Aspen Daily News*, 19 Aug 2018, [https://www.aspendailynews.com/news/the-future-of-flight-in-aspen/article\\_548a2c3e-a351-11e8-a4ed-e3017be8c5c5.html](https://www.aspendailynews.com/news/the-future-of-flight-in-aspen/article_548a2c3e-a351-11e8-a4ed-e3017be8c5c5.html).

<sup>54</sup> Former FAA Chief Counsel Walden (Ref. 16) was far more restrained in his oral discussion (starting at 55) than in his starkly framed slide to ASE Vision’s organizing meeting.

<sup>55</sup> In Dan Bartholomew’s paraphrase (20 Apr 2023 response to Aspen Fly Right’s 15 Apr 2023 CORA request), “The County has not discussed the prospect of ‘downgrading’ the category of the airport from the current ADG-III to ADG-II. Mr. Bauer mentioned at the BoCC Special Work Session [11 Apr 2023] that the FAA is not supportive of ‘downgrading’ a facility in a manner that would create restrictions to access and functionality, and such an effort would require justification and significant additional study.” Yet the County’s 20 Jan 2023 “Frequently Asked Questions” (Ref. 2) specifically warns on p 4, “Should the County decide not to make the necessary improvements to more fully comply with ADG III, the FAA may downgrade the airport to ADG II, which allows aircraft with up to 79 foot wingspans. Funding implications of this decision include lower priority for future funding for airfield development and maintenance grants. More significantly, if the FAA downgrades the airfield the FAA may seek repayment of grants issued over the past 20 years which supported the current ADG III classification.” That statement doesn’t mention the County’s option to stop seeking bigger planes and therefore, as Mr. Bauer confirmed on 11 Apr 2023 (Ref. 1), keep its current Modification of Standard.

<sup>56</sup> Ref. 2.

<sup>57</sup> Ref. 2, p 3.

<sup>58</sup> Hailey, Idaho’s main airport (Friedman Memorial Airport, SUN) offered nonstop service to six cities on three airlines as of 2019, plus General Aviation. The airport has topographic, site, and other constraints somewhat analogous to Aspen’s. Its Nov 2013 MoS limits regular airport use to 100’ wingspans and 95,000 lb gross weight. “It is expected the airport will continue to operate in its existing location and configuration for many years to come,” due to the costs and impacts of relocating the airport, though the FAA could still force a return to that option if it wished to. See “Blaine County Comprehensive Plan—Public Airport Facilities,” undated, apparently ~2019–20, <https://www.co.blaine.id.us/DocumentCenter/View/11241/Chp-1A-Public-Airport-Facilities>, pp 8–9.

<sup>59</sup> Ref. 1.

<sup>60</sup> Ref. 2, p 4.

<sup>61</sup> Aspen Fly Right, “Flight Without Fossil Fuel,” 12 Jan 2023, [https://aspenflyright.org/wp-content/uploads/2023/01/ABL-essay\\_5.New-fleet\\_11Jan2023r.pdf](https://aspenflyright.org/wp-content/uploads/2023/01/ABL-essay_5.New-fleet_11Jan2023r.pdf).

<sup>62</sup> Amory Lovins included this point when mentioning bigger wings at the 13 November 2019 Doerr-Hosier symposium ([https://www.youtube.com/watch?v=IWMvV\\_d2pEQ&feature=youtu.be](https://www.youtube.com/watch?v=IWMvV_d2pEQ&feature=youtu.be)), but when shorter-winged but superefficient alternatives were revealed starting in August 2020, he promptly updated that discussion twice—most fully in a 22 Nov 2020 memo to the BoCC posted at <https://pitkincounty.com/DocumentCenter/View/26724/ASE-Public-Comments-Comb-121620-Redacted>. New evidence justifies new conclusions.

<sup>63</sup> Aspen/Pitkin County Airport, “ASE 2023: Frequently Asked Questions” (Ref. 2), p 4.

<sup>64</sup> Ref. 61.

<sup>65</sup> Aspen Fly Right, technical brief to Jacobsen | Daniels and Airport Director, 19 Oct 2022, <https://aspenflyright.org/wp-content/uploads/2023/01/PitcoFleetMixBrief19Oct2022r.pdf>.

<sup>66</sup> See our essay #4, [https://aspenflyright.org/wp-content/uploads/2023/01/ABL-essay\\_4.-Fleet\\_01Jan2023.pdf](https://aspenflyright.org/wp-content/uploads/2023/01/ABL-essay_4.-Fleet_01Jan2023.pdf), p 7 and n 32. Of course, they could be superseded by superclean competitors like the new aircraft graphed in Fig. 8. “Expects to” is from Bill Flock, 19 Oct 2022; his colleague Brad Jacobsen now restates that as “expects could.”

<sup>67</sup> Aspen Fly Right, “Using smart regulation and siting to cut Airport impacts,” 13 Apr 2023, <https://aspenflyright.org/wp-content/uploads/2023/04/Essay-12-Regulation-dr-7.pdf>, summarized in ad “Who is asking for bigger planes?,” 13 April 2023, [https://aspenflyright.org/wp-content/uploads/2023/04/AFR\\_Ad13\\_WhoIsAskingForBiggerPlanes\\_4-20-23.pdf](https://aspenflyright.org/wp-content/uploads/2023/04/AFR_Ad13_WhoIsAskingForBiggerPlanes_4-20-23.pdf).