ASPEN/PITKIN COUNTY AIRPORT

May, 23, 2022

Mr. Amory B. Lovins

1739 Snowmass Creek Road

Old Snowmass, CO 81654

Dear Mr. Lovins:

Thank you for your letter dated April 19, 2022, articulating a number of items associated with both the existing and potential future operation, and configuration, of the Aspen/Pitkin County Airport (ASE). County staff, on behalf of the Pitkin County Board of County Commissioners and the Aspen/Pitkin County Advisoty Board, has attached responses, imbedded into your letter. While we have made an attempt to address the majority of your comments, some of the items will require additional study, and therefore cannot be effectively addressed at this time. It is anticipated that the forthcoming Airport Layout Plan (ALP) project, on-going discussions with the FAA, and continuously evloving trends and changes in the airline, aviation, and aerospace indistries, will provide additional clarrification over time.

We have also attached to the response, a followup correspondence between County staff and the FAA providng a synopsis of an in-depth conversation regarding Airport “Localization”. Also attached, is an independent white paper detailing the changes incorporated into the new FAA Advisory Circular (AC) 150/5300-13B, referenced in your letter. We hope that this will offer some insight into the changes that have transpired when compared to the previous version of this AC.

Again, thank you for your letter. We hope that this dialog results in the development and operation of a model airport facility of the future, in line with the values of Pitkin County and the that of the Common Ground Reccomentdations (BoCC Resolution 105-2020).

Sincerely,

Daniel P. Bartholomew, AICP, A.A.E.
Airport Director
Aspen/Pitkin County Airportvoicing

Cc.

Pitkin County Board of County Commissioners

Aspen/Pitkin County Airport Advisory Board

Jon Peacock, Pitkin Couty Manager

Rich Englehart, Assistant Coutny Manager

John Ely, County Attorney

To: Pitkin County Board of County Commissioners and Members of the Airport Advisory Board
From: Amory B. Lovins, 1739 Snowmass Creek Rd., [Old] Snowmass CO 81654
19 April 2022 ***Confidential***

Dear County Commissioners and Airport Advisory Board Members:

On 31 March 2022, the Federal Aviation Administration adopted new Airport Design guidelines (150/5300-13B), immediately superseding those that would previously have applied to the proposed redesign of the Aspen Airport. This regulatory change, mandatory for Airport Improvement Grant and Passenger Facility Charge funding (see e.g. Grant Assurance 34), may entail substantial rework—but also offers a fresh opportunity to rethink the project's plans and processes. I therefore presume to offer you respectfully some personal opinions, apprehensions, and suggestions reflecting both my views and those of a group of concerned and engaged citizens, informed by domestic and international sources[1].

County Staff Response: The adopted FAA Advisory Circular (AC) 150/5300-13B contains some significant changes over the previous version (13A), and has increased in length from 322 pages (13A) to 411 pages (13B). The primary changes are superficial, in that they focus on enhanced graphics and diagrams, however, other sections have added information to allow for greater specificity in airport design. For example, the previous AC discussed generalized aircraft parking apron areas while the new AC expands the guidance into a discussion of six different types of aircraft parking aprons. Areas which would have a significant impact on airport design at the Aspen/Pitkin County Airport, primarily the language focused on Modifications to Standards, remains in effect and has been strengthened.

"2.6 Modification of Standards.
Site-specific conditions may make it impractical to meet fully, all FAA design standards at an airport. The FAA will consider, on a case-by-case basis, modifications to the design standards provided the modification results in an acceptable level of safety and efficiency. Specific operational controls may be necessary to establish an acceptable level of safety for operation of aircraft at the airport. The FAA views approved modifications of standards as interim measures intended to mitigate unique local conditions. Unless the FAA explicitly states otherwise in the approval action, FAA expects airports with approved modifications to pursue ways to meet design standards either incrementally over time or at such time it becomes practical to correct fully the non-standard condition."

While the FAA remains resolute to address conditions where a Modification to Standard has been applied, the revised AC does lessen some dimensional requirements for the separation of

[1] To help make this document accurate and comprehensive, members of our group consulted confidentially with experts including Aspen Airport and Fixed Base Operations (FBO) employees, NetJet pilots, SkyWest management and pilots, Roaring Fork Valley pilots and aircraft owners, several major US airlines' senior operating personnel, Federal Aviation Administration personnel, noted Washington DC aviation counsel, well-known international and domestic airport architects, construction designers, and contractors, and aviation consultants with deep and comprehensive experience in airport design and redevelopment (including FBO operations, state-of-the-art terminal design, aircraft performance, airport navigation requirements, and virtually every required airport and aircraft discipline). We gratefully acknowledge their generous cooperation. Responsibility for any reporting errors is mine. Details of my prior analyses were documented in my 22 November 2020 memo (pp. 248–258) to the Pitkin County Board of County Commissioners (BOCC), and in the five preceding memos listed on its page 1.

airfield pavement surfaces and aircraft wingtips. For example, the Runway to Taxiway Centerline separation distance for an ADG III airport was decreased from 152-feet to 144-feet. This change may foster the allowance for an increased wingspan limitation at ASE due to this decrease in the separation requirement, which could potentially be applied to the existing Modification to Standard. It is agreed that this may offer a fresh opportunity to rethink the design of the airfield.

The Airport Design Guidelines provide additional clarity to design for airports but does not alter the safety related items nor the FAA's movement to eliminate modifications to standards that we will be assessing during the ALP process.

In December 2020, the Pitkin County Board of County Commissioners (BOCC) unanimously adopted Resolution 105.2020, requiring *inter alia* these actions, none mandated by the FAA:

> #12: Replace the current ADGIII Airport Layout Plan [which has non-standard conditions] with an improved ADGIII Airport Layout Plan [without those exceptions] that accommodates aircraft that meet community goals
>
> • Commission an updated fleet mix study after allowing airline industry to recalibrate after the disruptions caused by the COVID 19 pandemic
> • Negotiate with airlines[2] and FAA to achieve agreements with the county that ASE will be served by aircraft with the following characteristics:
> - greenhouse gas and other emissions that are significantly lower than the CRJ-700
> - quieter than the CRJ-700
> - weight limit of 140,000 MTOW
> - seat limitation of no more than 100-120 passengers
> • Retain and strengthen the voluntary noise restriction
> • Separate the runway from the taxiway by 400' between centerlines
> • Widen the runway to 150'
> • Charge the Airport Advisory Board to evaluate the success of the negotiations and/or the outcome of update [*sic*] fleet mix studies and make an alternative recommendation if necessary.

I'm aware of no public information about an updated fleet mix study or the negotiations described—nor about any progress in satisfying these important, though obscurely drafted, preconditions set by the BOCC for #12, #13 (leave the runway where it is), and #14 (phase the work):

County Staff Response: The County has not met with the FAA or Airlines to discuss these recommendations as of the date we received the letter. Now that the Advisory Board has been formed and we are close to being under contract with the ALP Consultant, we will begin to address these components contained in the recommendations. In addition, the ALP project will involve an updated fleet mix study. Nothing will be finalized until such time the AAB and BoCC have reviewed and approved the ALP. At that point, a proposed roadmap for implementation will be drafted taking into consideration construction timing and affordability for review and approval.

[2] All commercial airlines serving Aspen simply put their names on aircraft chosen, provided, and operated by a single firm—SkyWest (St. George, UT)—to best satisfy mission needs. The County would in practice be talking to SkyWest or its lessors, not to the airlines—currently American, Delta, and United.

> Pursuit of the work in the proposed Airport Layout Plan will not be approved by the Board of County Commissioners until such time as either negotiations with the FAA and/or the airlines, and other partners, or clear and convincing evidence in an updated fleet mix study indicate that only aircraft which are cleaner, quieter, and of certain [*sic*] size that [*sic*] will serve ASE.

If achieved, the call to "negotiate with airlines and FAA" to switch ASE's commercial service—but not its fourfold larger General Aviation (GA) traffic—to aircraft with emissions and noise less than the current CRJ-700 fleet's would effectively rule out the CRJ-700. It would also bar the noisier, dirtier E-175 now being promoted as its likely successor, and probably the A-220 previously proposed in that role (all using the BOCC's per-plane metric). (The widely available Dash 8-Q400 turboprop *would* qualify but was already improperly excluded.) Thus the falsity of the CRJ-700 prompt-retirement projections that have underlain this project from ~2011 through at least 2020, and explicitly underlie the Vision Technical Working Group's report (p. 13), becomes irrelevant, because the basic rationale has been quietly changed from about-to-retire CRJ-700s to noise, emissions, and pollution. I don't expect the mandated negotiations would succeed—the County lacks authority, the operator lacks motive, and there's no qualifying jetliner in sight—but tacitly abandoning the project's original rationale is remarkable. Notably, the new criteria are per aircraft, not per fleet, so ultraclean (e.g. electric) planes could not be offset against CRJ-700s; that plane, profitably operating and ideally suited to Aspen's unique conditions, would simply be banned. As we'll see, there are no analytically valid noise or pollution data to support this risky policy.

County Staff Response: The types of viable aircraft with the size and performance characteristics to operate at ASE is decreasing. Horizon Airlines, a subsidiary of Alaska Airlines, recently (March 2022) announced a decision to retire its fleet of Q400, with the E175, as the probable successor. This follows the Airline's phase out of the Dash-8 aircraft in 2019 and 2020. All other mainline US airlines have discontinued use of these aircraft. Therefore, the "fact that this model of aircraft was "*already promptly excluded*" during the Visioning process was quite intuitive. The phase out of these aircraft is based on business decisions focusing on leveraging the limited availability of flight crews to fewer aircraft models, and aircraft which are able to foster faster segment times.

For better or worse, all variables being equal, airlines make decisions on the use of aircraft into a particular market on economic principles. The specific limitations associated with operations at the Aspen/Pitkin County Airport (ASE), has not been primarily the wingspan limitations, but, among other things, the close in terrain and high density altitude operational environment. The introduction of electric aircraft would be greatly welcome, however the timeframe for their introduction into the national aircraft fleet is unknown at this time. This would require the certification and use of electric aircraft with at least a seating capacity of the commercial aircraft currently serving ASE (~65 seats), since the use of smaller aircraft would overtask the airspace.

The Commissioners also instructed staff to open "discussions with the Federal Aviation Administration…, Airlines and other partners," based on the BOCC-approved resolution, "as a starting point for the eventual development of an FAA required Airport Layout Plan," and to

"Continue to update studies, forecasts and develop appropriate noise and emissions data to be included as part of Airport Advisory Board review and Board of County Commissioners approvals moving forward." I'm aware of no public information on progress toward those requirements. That they exist is a tacit admission that these ASE Vision products were inadequate for design decisions and now need to be done over. There is no public indication that this work has begun, nor that the Vision consultants who were chosen and instructed to produce the misleading results they did (or new consultants similarly compliant with client demands) will not simply be asked to repeat, with similar outcomes. Yet on 17 February 2022, the Airport Advisory Board was told that the new Airport Layout Plan (ALP), consistent with achieving full ADG-III status in 7–15+ years, is estimated to be completed *in 12 to 24 months*.

County Staff Response: The primary purpose of updating the ALP at this time is to codify the ASE Vision recommendations onto a formal FAA document. This includes a potential shift in the location of the taxiway rather than the FAA's (an option codified on the current ASE ALP) preferred configuration where the runway is shifted west. Timing is somewhat crucial at this time given the age and condition of the runway pavement. Since the current approved ALP depicts the runway location shift, the FAA will not provide grant funding to reconstruct a capital asset that (1) continues to facilitate a long-term Modification to Standard, or (2) Would be temporary in nature. Given that the runway shift, rather than a taxiway shift, is depicted on the approved ALP, the FAA would only provide funding for a runway shift at this time, as a pavement reconstruction option. If the runway pavement is not approved to be replaced in the current location (something that the updated ALP is attempting to accomplish) the runway will either be required to be shifted, or the airport would need to be closed indefinitely due to non-viable runway surfaces. By not updating the ALP to achieve FAA compliance of a taxiway shift rather than a runway shift, the shifting of the runway would need to commence in the next couple of years (Due to aging pavement associated with the existing runway configuration). If the runway is allowed to be reconstructed in place, then the taxiway shift could be potentially deferred until later in the future. The phased approach may offer an opportunity for viable, 50-70 seat electric commercial aircraft to come to fruition at or near the time of the taxiway shift.

That timeline seems risky and implausible. It's hard to imagine how new noise and emissions studies could be properly done in time to inform ALP development. (If noise and pollution were as serious a concern to the County as they are to the community, the County would long ago have installed standard mitigations like berms, deflectors, and absorbers.) This timeline invites the inference that the consultants already chosen by County staff are expected to issue, in parallel with ALP development, findings supporting staff's agenda—presumably based on published commercial aircraft data per passenger rather than per aircraft, let alone actual field measurements taken on and near the airport, let alone ASE-specific commercial *and GA* measurements—and that the BOCC will then be asked to accept such theoretical calculations as "clear and convincing evidence" that the proposed full-ADG-III Airport Layout Plan can proceed.

County Staff Response: Simply because an airport ALP depicts infrastructure to accommodate ADG-III operations, it does not become a predestined catalyst for the implementation of that infrastructure. First, an ALP only receives "Conditional Approval" from the FAA. It must still go through the required environmental studies (the taxiway shift was not included in the latest EA). In addition, several other projects would take precedence (Passenger Terminal, FBO, etc.) before any changes to the airfield geometry are addressed (unless the FAA requires otherwise).

Given this seeming haste, it's time to take stock of what has changed since December 2020. In the intervening five quarters, the County has:

- chosen and launched the Airport Advisory Board (AAB);
- privately selected consultants for ALP development and perhaps supporting tasks;
- quietly quintupled to a quarter-million dollars the legal budget for the new ALP in the 9 March 2022 Supplemental Appropriation;
- presumably learned that Skywest tested the Embraer E-175 at ASE, with unannounced but poor results that would dictate very significant operational restrictions and less profitability—yet officials announced in the press that the E-175 "is the only option" and will probably be Aspen's follow-on aircraft (as if one were needed other than as a rare fleet fill-in). The Vision process had correctly found the E-175 only marginally suitable, consistent with the new test results; increasing E-175 engine power would require a total aircraft recertification (unlike the CRJ-700); and the increased-power E-175 E2 model was just again postponed to at least 2027—the same year in which Embraer expects to release an attractive new turboprop declared to have strong market prospects;
- nonetheless arranged, apparently without public discussion, to add 3–4 E-175-compatible pads during the May 2022 airport maintenance shutdown.

These events, coupled with silence on the BOCC's important prerequisites just listed, have deepened community concerns that there is no obvious path or credible process for satisfying the BOCC's preconditions, nor for meeting many other critical needs if this process is to merit and receive FAA and ultimately bond-issue voter approval. Those needs include issues that are standard to any project of this nature, vital for risk management, but missed by the Vision Group and by its County-selected advisors over the past few years. The following nine are top-of-mind:

County Staff Response: A number of these statements/assumptions/presumptions will be addressed with the ALP process in an open and transparent process involving the AAB. Staff follows a transparent and legally specified process as defined by Pitkin County and the FAA with any selection process dealing with any consultants or contractors selected for work associated with the Airport. The staff has engaged the support of legal services familiar with airports to begin to assist with even further discussions with the FAA regarding the stipulations contained in Resolution 105-2020.

1. **Aviation safety** is the top community priority identified by the Vision process, as well as for the FAA's mission, but is not an apparent County or AAB core focus. The County has still not done a study of the causes of the past 45 years' accidents associated with Aspen Airport. Most

aircraft operations continue to use downwind routing, which the FAA strongly discourages. This daily practice undermines safe aerodynamics and causes risky head-to-head traffic. Correcting this major risk would not need time or investment. General Aviation pilots continue to lack the critically important, airport-specific training required of ASE's all-Skywest commercial pilots; this conspicuous lack boosts the continuing toll of roughly one GA accident per year that makes Aspen one of the nation's most dangerous airports. The tower continues to lack full airport visibility, modern area surveillance, and today's standard FAA tower equipment (though at least the first two are apparently intended to be fixed). Unauthorized aircraft types are being given clearance to operate at ASE: 95'-wingspan, unknown-weight private 737s have landed at ASE, but it's unclear whether or why they were felt to be safety-qualified for ASE under standard contingencies like engine loss after rotation, bad-weather go-around, and accelerate/stop distance. They were apparently allowed to land regardless. This risky practice and all other sloppy enforcement should cease immediately to ensure strict compliance with the FAA's rules and safety philosophy (*e.g.* Ch. 5 (esp. §5.2.3), Ch. 9, and Appendices, Order 5280.5D). Further, plausible concerns persist about the adequacy of large-wildlife exclusion measures, and of medical response capabilities for a mass casualty incident even for the 70+ souls on board a CRJ-700—especially when passengers per plane are proposed to rise by up to 71%.

County Staff Response: All aviation related accidents investigations, including causes, are one of the primary tasks of the National Transportation Safety Board (NTSB). No reasonable benefit would be ascertained from the County performing its own accident study since all this information can be gleaned from the NTSB reports.

Although downwind operations are not ideal, the terrain environment in the Aspen area limits operations to/from the south, especially during instrument conditions. The introduction of operations to/from the south would likely introduce new, and possibly, more egregious safety issues than those encountered in the current operational configuration. In addition, operations to/from the south would introduce impacts upon more urbanized areas (City of Aspen) that do not currently occur on a regular basis. Runway operations to/from the south can also introduce a degradation in aircraft performance due to the significant slope of the runway (increased takeoff roll and increased stopping distances). The final approach corridor from the south is also much more compressed than that from the north, decreasing the amount of space/time in which a pilot has to make close in corrections.

Additional pilot training is always encouraged, but the County cannot require pilots to do so. While the FAA could require such training, even training that would result in a licensing endorsement, this is likely seen by many aviation advocacy groups, and some pilots, as an added expense. The Airport does work with the FAA in support of their safety video series "From the Flight Deck", which addresses safety initiatives at certain unique airport facilities, including ASE. It is the responsibility of pilots and aircraft operators to become educated on best practices.

Tower concerns are part of the conversation with the FAA dealing with safety. We are seeking funding and approval to move the tower from the current location that will improve visibility and address an aging facility. We are unaware of any unauthorized aircrafts being given clearance to operate at ASE. We would encourage those facts being shared.

All comments related to use of the 737 aircraft are simply speculation.

In regards to aviation safety, Tom Keough spoke to Mr. Englehart and Mr. Bartholomew, about eliminating the "downwind routing" and the "risky head-to-head traffic" operations at ASE. This letter seems to share the same perspective. Staff pointed out in the meeting that this type of operational change would allow planes to arrive or depart over the City of Aspen. That was recognized by Mr. Keough in which he felt with proper educational campaigns, the community would accept this. In conjunction with the elimination of the head-to-head traffic, additional operations could occur since the distance requirements would not be as tight. Mr. Keough stated the airport was not maximizing revenue potential so added operations would generate additional revenue for ASE. Mr. Keough also suggested an ASE GA pilot training facility located in the AABC area to assist in revenue generation and increased safety education. This program would call for increased touch and go operations currently experienced with the current pilot school conducted at the airport.

It is highly doubtful the City of Aspen elected officials and the BoCC would consider opening up traffic in and out over the City of Aspen as part of regular operations at ASE.

2. **Pollution and noise data**. The declared Guiding Principles of reducing "overall airport emissions (aircraft & facilities)" and "Airport Noise Intensity" each by 20–30% are being applied only to aviation operations, only to commercial planes (not the dominant GA planes), and based on unsound analysis. The County's air-pollution contractor's deeply deficient October 2021 report was released 12 April 2022 to a citizen who insistently requested it, and is now also planned to go to the Airport Advisory Board. That contractor measured in the wrong place—atop the North 40 fire station 62 in the Airport Business Center across Highway 82, rather than off the end of the runway, where takeoffs with maximum power set before brake release (and thus maximum noise and pollution) are common due to aircraft weight and specific performance parameters plus runway restrictions and altitude. Strong jetstreams therefore blow directly downwind toward the Powder Pandas children's ski-lesson area and toward the X-Games zone with up to 10,000 people, respectively ~1,652' and less than 2,000' from those spooling-up aircraft. Yet air quality at those critical sites remains unknown. The contractor also measured the wrong things—no particulates, such as PM_5 and PM_{10}, and no NO_x, but only volatile organics. The study thus reveals nothing about primary air pollution from ASE operations—only that fuel odors (such as many passengers and staff experience at the terminal) are unmeasurable far away and crosswind. The result is manifestly useless for public health policy.[3]

[3] The study, by Air Resource Specialists (Fort Collins CO), explored only the origin of local fuel-odor complaints. But "Winds blowing across Highway 82 from [the airport] toward the monitoring station and the local neighborhood were infrequent" (p. 15), so measurements were dominated by Highway 82 traffic emissions, the nearby gas station and other non-airport local emitters, and a substantial but indeterminate amount of interfering wildfire smoke. The near-irrelevance of airport emissions to the chosen measurement site's VOC levels (at least on those specific dates) was confirmed when September 2020 data showed no significant difference between a three-day airport shutdown and heavy operations. The report concluded that airport operations "do not appear to make any significant contribution to local air quality levels in residential areas…adjacent to the…Airport." Yet the firm made no measurements in those neighborhoods, nor at the airport. It only claimed its measurement site (secret at the time), being nearer the airport than the neighborhoods are, must be more affected—yet "closer" wasn't weighted for prevailing wind directions. Moreover, the firm measured only volatile organics and equated those with "air quality," but measured none of the major jet-engine combustion products of chief health concern. My half-century's

County Staff Response: The aircraft operational changes suggested in item #1 "Aviation Safety" (*"Most aircraft operations continue to use downwind routing, which the FAA strongly discourages. This daily practice undermines safe aerodynamics and causes risky head-to-head traffic. Correcting this major risk would not need time or investment."*), suggests directing a portion of aircraft operations over Powder Pandas children's ski resort and the X-Games and the 10,000 spectators. It is assumed that this would introduce many additional concerns.

As mentioned, the Airport's Air Quality Consultant will be presenting at the June Airport Advisory Board meeting. The questions of air quality testing, monitoring, and modeling will be forwarded to them to be addressed at that meeting.

The BoCC and the AAB all have agreed upon common goals to reduce noise and pollution. They both share the desire to set up monitoring to adequately capture baselines in order to record changes towards reductions of both. This will be the focus of the AAB in the coming year as we begin the process related to the ALP and steps specific to air and noise quality.

Likewise, the County's noise expert was told not to measure noise along the takeoff path and at 1000' intervals off the end of the takeoff runway; and noise metrics have been reported as 24-hour averages (including curfew hours with no flights) rather than revealing the peaks relevant to public health and comfort. If her proposed noise study was ever done, it remains apparently unpublished. She said the County "has a lot of past noise and emissions testing results," but those too seem unpublished, so ASE Vision lacked vital baseline data, and so do current decisions.

Reinforcing my impression that these outcomes are not accidental, during 2019–21 some knowledgeable citizens solicited competent, independent, and affordable proposals for noise and air-pollution studies and presented them to the County, with no response despite a reminder. A citizen proposal to measure baseline aircraft emissions data during pandemic and construction shutdowns was acknowledged by the County to be a good idea but doesn't seem to have been done.

County Staff Response: As with any consultant performing work using Airport funds, the party can only be selected via a formal request for qualifications (RFQ) process. The existing Noise Consultant was selected in this manner. Airport funds cannot be used to fund a consulting firm resulting from a citizen proposal.

These questions can be forwarded, and answered, by the Airport's Noise Consultant at a forthcoming Airport Advisory Board meeting.

Further, as ASE Vision's Community Character Committee complained, no data have been released on the relative impacts of GA and commercial operations (whose ratio is >4:1), although the County has ample aircraft, noise-complaints, and other data that could illuminate

experience in experimental science makes it hard to imagine any useful conclusion that could be drawn from these measurements. The study could hardly have been better designed to *not* detect any air-pollution health risks from the airport, despite noting (p. 3) "Pitkin County's interest in evaluating potential health effects from exposure to emissions...."

their relative importance. The County continues to focus almost exclusively on one-fifth of aviation operations. And even the 2018 Environmental Assessment estimated only air pollution from airport construction, not from aircraft operations.

Thus County staff have consistently prevented the formulation of scientifically valid and policy-meaningful aircraft noise-and-pollution baseline measurements, standards, and goals. The public has not been told that the work already done will now need to be redone with proper instructions—currently, however, resting in the same hands responsible for these past deficiencies.

County Staff Response: County staff has not prevented but simply maintained consistent means to record noise and emissions data year-over-year. It is a fact that there has been no major airside movement by staff to take on adjustments related to Resolution 105-2020. Staff has held off knowing the AAB would be formed and would be heavily involved in establishing a supportable baseline for data collection. The process to establish these will begin to be addressed in the next couple of months as we move forward by the AAB. The AAB will be making recommendations for BOCC consideration and the information mentioned in this report will be considered as part of the evaluation.

Enforcement of existing standards is questionable too: some old Gulfstream IIIs recently operated at ASE with their required hush kits unused or inoperable. An online noise-complaint option has been added but appears fragmented and ineffective. Reportable fuel spills have apparently not all been reported. On the brighter side, the 2300 landing curfew was commendably enforced on 5 March 2022 against UA5362, to some residents' surprise and gratification.

County Staff Response: Since December 31, 2015, no jet aircraft in the United States has been allowed to carry an Airworthiness Certificate for operation if it did not have either Stage 3 compliant engines or a husk kit bringing it into compliance with Stage 3 noise standards. A hush kit is effectively a physical apparatus mounted to the exhaust end of a jet engine, where it mixes exhaust gasses with bypass air, reducing noise. Being a fixed physical apparatus, similar to an automobile muffler, it doesn't seem possible to either disable the device or operate the aircraft if it was not functioning properly. Please provide evidence regarding aircraft where their hush kits had been unused or inoperable.

Airport staff is diligent about the release of any contaminant including fuel, and has been notified and responded to releases of as little as less than one-gallon. Please provide evidence of unreported reportable fuel spills.

We appreciate the acknowledgement of the County's strict enforcement of the Airport's Nighttime operational curfew.

3. **Future fleet.** The obsolete or incorrect information given to the Vision process (and still repeated by County officials) about the availability, timing, and characteristics of future aircraft

and the rapid shifts in airline route architectures needs to be modernized. The passage of time only continues to confirm that the Vision participants and the Commissioners were systematically misled by their staff and advisors into approving the full-ADG-III airport conversion, explicitly predicated on the supposedly imminent retirement of the CRJ-700 fleet—a claim established in my Public Forum introduction (pp. 9–11) to be wrong by about two decades, probably longer.

Despite clear evidence consistently obfuscated, rejected, or suppressed throughout the Vision process and ever since, the County continues to plan for bigger commercial planes in hub-and-spoke routes rather than more but smaller, less-or-zero pollution and CO_2, extremely quiet planes flying point-to-point within 5–10 years. This powerful market trend and its ignored GA analogy create a high risk that the airport now being planned will be obsolete before it could be built.

County Staff Response: Given that it is estimated that it will be years before the airfield would be converted into a ADG-III facility, this should offer ample time for the implementation of "*extremely quiet planes flying point-to-point*" from the airport. The ability to meet this time horizon is squarely now on aircraft manufacturers. As mentioned previously, these aircraft would need to accommodate at least as many passengers as the current CRJ-700 due to airspace limitations. "*More but smaller*" operations/aircraft would not be a viable option since it would introduce significant safety issues by decreasing spacing between aircraft in the finite airspace available, and would negatively impact the viability of the facility.

The County's official planning horizon was 30 years, but the Vision process scarcely looked five years ahead (perhaps ten for the terminal), its choices were confined to currently commercial aircraft, its brief mentions of emergent aircraft are already badly outdated, and I see no intent or means to repair these gaps. On the contrary, the Airport Advisory Board (#8 below) was told to rely on the original Vision data and to implement its BOCC-edited-and-adopted recommendations "to the greatest extent possible."

County Staff Response: Planning horizons of 30-years are typical in such studies, however, as with any forecast, the level of accuracy deteriorates exponentially as the time horizon increases. For this reason, any process that provides specific information beyond five years is going to be somewhat speculative, and considered a "best guess". Within the 30-year horizon, every five to ten years, the information, and forecast will need to be recalibrated with a revised datum.

Again, if the aircraft manufacturers meet the stated time horizon of "*5-10 years*" for the functional operation of electric and/or "extremely quiet planes", certified to operate at ASE, then this should not be an issue.

Thus all the original errors are to be unquestioned and perpetuated. The consultants are already chosen and being hired. Having the same people choose and instruct them who drove the previous error-ridden results can't be expected to yield different results. This information monoculture intensifies all aspects of project risk.

County Staff Response: Updated fleet forecasting is a task that is part of the ALP process and that process will allow us to evaluate changed conditions since the report was filed. The AAB will be involved in what will be an open and transparent process to the highest extent possible protecting proprietary information.

4. **Regulation.** As the Commissioners have been told, the FAA is eager to explore and offer "localization" arrangements that preserve public ownership and operation but return non-safety regulation, notably noise and pollution, to local control, including such key issues as curfew times, ASE-specific GA pilot training, additional FBOs, and authorized aircraft types. This flexible Investment Partnership Program could solve Aspen Airport's most pressing problems, especially around GA impacts and GA/commercial priorities. Yet it remains unexplored, because County staff and advisors have consistently, and apparently deliberately, confused that proposal with others unrelated—notably becoming a private airport or a privately owned airport.

The FAA offered to fly out three experts to discuss actual localization, but the County chose a phone call apparently discussing only private ownership, and FAA was deflected from discussing actual localization. The County's legal advisors likewise discussed private ownership, not localization, with the Commissioners. The Vision Chairman stated that a lawyer for the County had comprehensively dismissed localization, but it appears that was a different concept. This can't be checked, because the relevant record was declared confidential—as if it were about sensitive litigation rather than a policy innovation of high public interest. This pattern of behavior invites the inference that perhaps County staff covertly wish to *prevent* the option of locally controlling precisely the impacts of noisy and dirty GA aircraft that arouse the greatest public concern. Continued FAA preëmption would avoid politically delicate local choice and accountability.

Meanwhile, the County's approaches to the FAA cannot have left a good impression; nor will the County's seeking high-level political interventions to secure funding outside normally independent FAA processes.

County Staff Response: Pitkin County staff held a meeting on July 28, 2021 with three FAA officials whom Mr. Tom Keough requested we meet. We set up that meeting with the "experts" as requested. In that meeting they had no recollection of talking with Mr. Keough and had no idea what "localization" means. They said there is nowhere in the FAA regulations that allows for an airport to receive FAA funding but not adhere to FAA requirements or not be held to Grant Assurances. We did pursue this, but to no avail, based on the misrepresentation of localization vs privatization. If you read the attachment, it is a privatization program that would remove the BoCC as the operator, a governance model not supported by the BoCC. There is no localization program as represented. **See the attached email follow up sent to FAA following that conversation to confirm our understanding**

5. **Lumberyard.** The City of Aspen's very active Lumberyard proposal would put hundreds of units of high-density housing, 4–5 stories high, far closer to the runway than the FAA's policy

allows (the property is just 750' from the taxiway and 150' from the Airport property line). There is no assurance of FAA approval—quite the contrary, as specifically noted in the 1998 Airport Plan Update's boilerplate language (p. II-20) and continuing in current policy. Though FAA won't intervene until there's an actual decision to proceed, the City and County have long been told by informed citizens that such approval seems unlikely, putting continuing City planning and design investments at risk. The public doesn't know this either.

County Staff Response: We are unsure under what circumstances, or for what reason/s, that the FAA would not approve (or approve) the Lumberyard project. First, the Lumberyard development does not require FAA approval for a number of reasons. Unless the project creates a safety or operational impact to aircraft or the airport, and is located on federally obligated property, the development is outside the regulatory authority of the FAA. Federal Grant Assurances are very clear that land use is entirely a local issue and should, if appropriate, be solved through local land use controls. Given that the Airport predates the development of the proposed Lumberyard development, all impacts on the Lumberyard from the Airport, and all impacts on the Airport resulting from the Lumberyard development, are the sole responsibility of the Lumberyard project developer to mitigate.

6. **FBO.** The reportedly imminent issuance of an RFP for competing the expiring FBO operating contract is cart-before-horse, and urgently needs policy, process, and data transparency. The County should already have launched a searching public discussion, led by an independent expert on airport finances and operations, of the Aspen Airport's business model, revenue flows, and earnings prospects. That information could then illuminate whether the County should own the FBO and conduct or contract out its operation, rather than continuing to allow a private operator to keep most of the profits that could support airport improvements and County operations.

There are strong indications that the County now earns only a small fraction of what Aspen Airport operations would conventionally yield under businesslike management at market prices and values. The public, and apparently the Commissioners, lack any insight into that opportunity, or even transparent financial accounting of FBO operations. The current FBO operator sets its own landing fees but seems not to collect them consistently, and the operator is incentivized for its own profits, not the County's. County staff's implicit strategy seems to be to avoid public discussion and quietly perpetuate existing cozy arrangements, to the County's great disadvantage.

County Staff Response: The County has evaluated the various options for the operation of the new FBO. Although FBO businesses can be lucrative endeavors, there is also a significant amount of cost, risk and industry expertise required to operate an FBO safely and profitably. The existing FBO facilities are at or near the end of their useful life. This requires the complete redevelopment of the facility, requiring a significant capital outlay. An evaluation of the capital costs, plus on-going maintenance, coupled with the capital leverage for a new Airline Passenger Terminal, would significantly stress the Airport's financial capacity. Even if the County contracted portions of the operation of the facility to a third party (likely required since FBO operations are specialty), the County would still need to finance the required facility redevelopment and hire County employees to operate this aspect of operations. This is just not a viable financial option and increased challenges in today's market to recruit and

retain the numerous added employees. The BoCC has directed staff to produce an RFP to seek an FBO and no longer consider a County operated FBO. Staff is carrying out that direction.

In addition, there is a significant amount of risk associated with the management and ownership of an FBO. The financial leverage, coupled with the significant liability, outweighs any potential gain. The forthcoming RFP solicitation along with the subsequent new FBO contract, will address revenue issues experienced during the past 30-years and provide clauses to ensure Airport realized revenue correlates, and is calibrated to, the FBO's revenue.

The Pitkin County Board of County Commissioners sets the aircraft landing fees, which are evaluated and adjusted annually, per Pitkin County Code, Title 10, Airport, Section 10.16.020. The recording of each aircraft landing activity is controlled by the Airport and is completely outside any actions that the FBO can control. The only aircraft that are not charged a landing fee by the County are locally based, non-commercially operated, aircraft. Whatever the FBO charges, or does not charge, an aircraft operator, they do so out of their own finances.

7. **Governance** is a perennially overlooked need that Aspen Airport, seemingly alone among its peers, lacks. Other US airports in ASE's league generally have an independent and expert governing Board reporting to the owner and professionally qualified for this complex and demanding task. Normally an experienced Airport Manager reports to such an aviation-savvy governing Board rather than directly to the Board of County Commissioners—which (like its other staff) manifestly lacks that expertise, has no time to acquire it, and is called to apply its wisdom and accountability to a vast range of other demanding issues. Global aviation experts say Aspen Airport can't expect to succeed under its current governance, which intensifies every kind of risk.

County Staff Response: We would welcome a dialog with these "*global aviation experts*" to discuss the risks of our governance model. Under Pitkin County, the operations have proven safe and successful since ASE's opening day. ASE will continue to be successful in meeting the aviation requirements as set out by the FAA, with educated and professional employees, and leadership.

An Airport Authority Board, as well as the Privatization, have been discussed, and both models were not supported by the Visioning Committee or BoCC. Title 41 Section 3 of Colorado Revised Statute allows cities and towns, and counties, and the state of Colorado, through their joint action, and by counties acting by independent action or jointly with the state, to create airport authorities. An airport authority is a political subdivisions of the state of Colorado, for the purpose of acquiring and improving airports, air navigation facilities, and related facilities, and financing by the issuance of bonds or other obligations. Once created, an airport authority no longer needs to seek voter approval for bonds issued to finance airport projects. An airport authority board consists of at least five members, but no more than nine members, and are appointed by the counties or municipalities who created the authority.

There are 13 commercial airports in Colorado, including ASE. The majority of commercial airports in Colorado are operated by a county or municipal government and not as an airport authority, including the state's busiest commercial airports, DIA, Colorado Springs, and Aspen.

The AAB has been set up to advise the BoCC, and is made up of community and aviation-savvy individuals appointed by the BoCC. The BoCC looks towards the AAB's work on policy issues that will give the BoCC that added value.

8. **Advice**. As I and others feared, the Airport Advisory Board has been cast in the same mold as the Vision process. The AAB's agenda and information flows will remain fully controlled by the same County staff responsible for all the unsatisfactory outcomes just described. The AAB is offered only hearsay filtered through County staff, not access to primary information sources. The AAB's consultants are to be chosen and instructed by County staff, not by the AAB itself. By design, the AAB lacks the independence, scope, budget, and authority that could have made it valuable to the Commissioners, credible to the FAA, and convincing to the public.

Moreover, conflicts of interest abound. The AAB's Chair and another member were among the three leaders of the Vision process whose flawed findings it is now charged to implement but unlikely to scrutinize. Another member works for the Aspen Skiing Company. So does the appointed Alternate Member. Thus three of the seven currently active members, plus a fourth one in the wings, have an agenda to defend. Two members are private pilots, but no member has any experience in the arcane art and science of airport design. Over decades, I've served on many advisory boards. I don't think this one is set up to deserve that name or fulfill that purpose.

The 17 February 2022 catchup brief to non-Vision members of the AAB didn't mention Vision's minority report, minority committee reports, dissents, recantations, or unvarnished history. The AAB seems unlikely to hear, or be allowed to consider, any evidence seriously questioning County staff's agenda. Rather, the AAB will, like Vision, add a veneer and illusion of independent scrutiny that it cannot actually provide. Most regrettably, this will add little, no, or negative value to the BOCC's deliberations and to the County's credibility with the FAA. The AAB members are good people—most are old friends of mine—but their personal quality can't compensate for basic, designed-in structural flaws. The distorted framing, facts, and logic that handicapped Vision from its start will now simply be replicated under different names.

County Staff Response: No comment from Staff as this is a criticism of the AAB and the BoCC.

9. **Communications**. Public communications about the Vision process have been and remain consistently misleading. County staff have masterfully conjured the illusion of a thoughtful, informed, and inclusive community Vision process yielding virtual consensus and now happily proceeding to implementation. The facts differ.

Of the nearly 160 citizens who volunteered and got appointed for the ASE Vision process, more than half dropped out—many complaining of biased assignments and information and of feeling forced out—and *just one-third* completed the process and support its products. That's hardly a ringing endorsement. In fact, the 44 citizens who publicly called for a pause in the BOCC's airside decision *were 85% as numerous as the 52 who ultimately voted for the Vision recommendations*. They are also no less knowledgeable, including two former ASE directors (one of whom also ran the FBO for 26 years), distinguished local pilots, and former County

Commissioners. Further dissent was filed in a minority report that is posted but ignored, and in multiple unposted committee minority reports, including an unmentioned 5–0 rejection by the Community Character Working Group[4]. In County staff's narrative, all these inconvenient truths are airbrushed out.

The Vision process was and is also portrayed as open and agenda-free, but a major consultant revealed[5] having been instructed on the County's very specific (though denied) agenda of allowing large planes, specifically G-650s, to legally use ASE. Local media have not mentioned this, and have knowingly or unwittingly contributed to the deception by running misleading headlines. The *Aspen Times* just restored to its website, at a reader's specific request, the mysteriously removed and officially ignored 20 September 2020 letter in which four (actually five—one was inadvertently omitted and restored later) Vision members reversed their vote once they had learned more. Those editors' and reporters' behavior could be partly explained by severe, and I think improper, pressure from County staff and powerful local interests.

In short, the current trajectory is toward requesting new commercial aircraft that cash-strapped airlines have no incentive or qualifying airplanes to substitute for existing CRJ-700s good into the 2040s; to allow G-650 and other GA airplanes strongly opposed by most of the community; to rebuff the FAA-proffered and -preferred localization that could actually ensure community goals are met with local choice and accountability; to ignore rapid and profound changes in aircraft and route architectures; to continue refusing to hear competent independent advice inconsistent with County staff's agenda; and to keep planning to build an airport not fit for purpose.

This is not a healthy picture. It's a portfolio of failure conditions. If these issues and the resulting risks persist, they will cast FAA and voter approval into serious doubt. When last asked in 1995, the community rejected a comparable expansion by more than two-to-one. Thus my colleagues and I fear that the Commissioners' current handling of the airport issue, directly and by delegation, risks embarrassing failure in a vast, critical, and highly visible public works project. This could reflect poorly on all concerned and on Aspen's, Pitkin County's, and Colorado's global reputation.

Like many concerned citizens who have voluntarily and diligently tried to help the County put its process on a sounder track, including those citizens who have kindly contributed to this letter, I wonder how our County Commissioners intend to deal with these festering issues. If you keep doing what you've done, you'll keep getting the results you've gotten, and it won't end well.

Sincerely,

[4] 27 Dec 2019 (1 abstention, 8 absences); partly quoted on p. 13 of my introduction to the 22 Oct 2020 Public Forum (pp. 189–204). This supplementary report specifies serious discrepancies, gaps, and impracticalities in the Technical Working Group report, which the Community Character Working Group had not previously been able to review—yet they remained unreconciled and unmentioned in the Vision materials published and sent to the Commissioners.

[5] Quoted in n. 14 on p. 8 of my introduction to the 22 Oct 2020 Public Forum cited in the previous footnote.

Amory B. Lovins

cc: FAA

To: Kevin Willis, Director, Federal Aviation Administration Office of Airport Compliance and Management Analysis

From: Daniel Bartholomew, Airport Director, Aspen/Pitkin County Airport

Date: August 2, 2021

Subject: Airport Privatization and "Localization" Discussion Follow-up

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Per our discussion on July, 28, 2021 the following is our understanding related to the subjects of Airport Privatization and "Localization" in respect to how they may be imposed and/or applied at a federally obligated public US airport, including the Aspen/Pitkin County Airport (ASE).

During our discussion, it was evident that the term "Localization" is not used by the Federal Aviation Administration (FAA) to describe or evaluate an airport business model, ownership type, or operating environment. In the absence of "Localization", the closest alternative would be the concept of Privatization and possibly a Public Private Partnership (P3) model. The FAA has worked with a select number of airports to evaluate, and in a few cases, implement an airport privatization concept. Such airports include San Juan Puerto Rico International Airport (SJU), Tweed New Haven Airport (HVN), and Gary/Chicago International Airport (GYY). These airports essentially operate under private managerial agreements/contracts with targeted facilities owned and operated via private interests.

Although a handful of airports have undergone a privatization process, our understanding is that the aeronautical (movement and non-movement) areas of the airfield are still under FAA regulatory control (including FAA Grant Assurance obligations) to ensure continued safety and operational efficiency standards, ensure the protection of people and property on the ground, and prevent adverse impacts to federal investments in aeronautical assets. It is the preservation of FAA control over these airfield areas, and FAA Grant Assurance obligations, that allow an airport sponsor continued access to federal funding. Private entities, under privatization can, via a formal agreement, manage the operational aspects of the facility, and construct non-aeronautical and support facilities using private equity funds. While the codification of Section 163 of the FAA Reauthorization Act of 2018 removes some FAA oversight over non-aeronautical airport real property, the adherence to FAA Grant Assurances remains intact. The underlying purpose and intent of the FAA Privatization Program is to provide airport sponsors an avenue to access some portions of the revenue generated on the airport and improve the overall management of the airport.

Furthermore, it is also our understanding that no variation of Privatization, P3 or "Localization" would allow for the airport sponsor to discriminate or dictate which aircraft type could operate at the facility, nor exhibit any authority regarding the volume of aircraft operations. While an airport sponsor may make attempts to market their respective facility to a specific type of aircraft, or communicate their desire to favor a particular type/s of aircraft, ultimately, aircraft access limitations can only be dictated by the airport's specific design standards and/or the operational performance capabilities of a particular aircraft model, not local control. Any access restriction based on noise, size, or other factors would require the successful application of FAR Parts 150 and 161. In addition, operational volumes can only be limited by

airfield and/or airspace throughput capacity constraints, based on delay and safety factors, and cannot be implemented locally.

Finally, based on our discussion, the intent, application, and boundaries of the FAA Privatization Program appear to be counter to the opinions expressed in the following commentary presented in the Aspen Daily News on September 5, 2020. We would greatly appreciate your assessment of the validity of this article as it relates to FAA policy and regulations, primarily with respect to airport access limitations, while still remaining eligible for federal funding.

Guest Commentary: So-called retirement of CRJ-700s a myth

By Tom Keough Guest Commentary
Sep 5, 2020

Given where we now are, I urge the Pitkin Board of County Commissioners to seriously consider an option that the ASE Vision process strangely didn't offer them, but that's familiar to me from four decades of global experience with airport design: changing the county's relationship with the Federal Aviation Administration, and thus relieving, among other things, any concerns about inappropriate kinds of aircraft landing in Aspen.

Our language is important here. Technically, such a transition is called "privatization" to show that the airport's non-safety choices will no longer be subject to FAA rules, but the word is very misleading and best avoided. It encourages false rumors, already being circulated, that the airport would become privately owned and would lose FAA safety and funding. All that is categorically untrue. We can avoid confusion by using plain language, such as "gaining local control of all non-safety issues."

After this transition, the airport would still be owned and governed by a county entity just as it is now. Though officially called a "private airport," it would remain classified by the FAA as public-use — hence eligible for FAA funding, especially for safety. It would stay under FAA safety rules, procedures and tower control — all so vital to safe operations, public confidence, and Aspen's reputation. The county as proprietor would shed the FAA's nondiscrimination rule, and therefore could control virtually all operational aspects, including who can land, how many and which kinds of aircraft, when, with what pilot training, with what noise and emissions, and paying what fees. The FAA would remain a vital ally and partner but would stick to safety, while choices important to community values and goals would be made locally. Those wanting more or less growth would have to be transparent about their goals.

This local authority could make ASE far safer, more efficient, more revenue-generating, and more operationally sound. The county's control and the airport's success would embrace not only the airlines' one-fourth of operations but also General Aviation's three-fourths, which currently proposed solutions can't address. From 30 years of experience working with the FAA, including involvement in this reform elsewhere, I am confident this key ally would enthusiastically support such a proposal, and that capable financial negotiation with the FAA would achieve attractive outcomes. The result could be a big win for safety, environment and a proven but innovative operating model that would merit and receive worldwide attention.

Source: https://www.aspendailynews.com/opinion/guest-commentary-so-called-retirement-of-crj-700s-amyth/ article_cb2782-ef0e-11ea-8b78-ebe7fc0ae37d.html

Just When You Thought You Knew Where Everything Was…

A Review of

Draft FAA Advisory Circular 150/5300-13B, *Airport Design*

by

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T-O Engineers, Inc.
www.to-engineers.com

FAA Advisory Circular (AC) 150/5300-13, *Airport Design* has been the "bible" of airport design in the U.S. since 1989. Seventeen 'Changes' (i.e., revisions) to this AC were issued between when it was published and September 2012, when it was cancelled and AC 150/5300-13A (13A) was published. This AC consolidated all the previous changes, plus made several other significant changes to the design of airports. Recently, the FAA published a draft of AC 150/5300-13B (13B), the latest version of this foundational guidance. Once again, some of the changes are significant and will impact how we design airports.

This white paper is intended as a summary of what we believe are the most significant changes to the document. There are many more, but this document is limited to the "highlights". This paper is organized with a few general observations of the whole document, followed by highlights from each chapter and the appendices.

Please note that these are comments and a summary of a *draft* AC. Nothing mentioned here should be used to design anything until the AC is finalized and published. The FAA is taking comments on this document until September 19, 2020 at the following email address: advisorycircular13B@faa.gov.

General Observations

Where Did Everything Go?

If you could picture certain pages from 13A in your head without opening the PDF, you may be frustrated at first with 13B. The document is reorganized, significantly in some cases. Operational practices have been moved to the appendices while the body of the document focuses on standards and design recommendations. There are also several locations where the document references a website or third-party publication. To help navigate the differences between the two documents, the FAA has published a "crosswalk" document that provides a table comparing where paragraphs, tables, and figures from 13A can be found in the draft 13B.

Chapter 7 (Bridges and Tunnels) is gone. This content has been moved to Chapter 6.

There are five new appendices and all the Appendices have changed from numerical to alphabetical references.

Fill Up the Paper Tray

If you plan to print the document, make sure your printer is stocked with paper – 13B is quite a bit longer. 13A was 322 pages long, but 13B weighs in at 411 pages. There are several locations where information was moved from the main document to the appendices, but the page count for both the chapters and the appendices is higher than the previous version.

It seems this increased length is due in part to an effort to be more thorough. For those of us who have been in the airport design business for a while, there have always been some gray areas or situations that are regularly encountered in the design of airports that were not addressed clearly in the AC. It looks like an effort was made to remedy that situation, which is a welcome change. For example, there is a thorough discussion of the design of roads on airports. Almost every airport has a road of some kind, so it is helpful to see some specific guidance on how to safely design them.

Watch the Language

Another change throughout the document is in the language. The language is active, rather than passive. Standards and policies are presented in the positive, rather than negative. Though subtle, it changes the overall tone of the document.

One of the big changes is the use of language like “standards”, “recommended practice”, and “design consideration”. These terms are defined in Chapter 1 and are discussed further in the description of that Chapter below.

Cosmetic

There are other changes that are more cosmetic. Several of the graphics are revised and, in the FAA’s words, “modernized”. In most cases, this appears to include only adding some color, but some have been improved, as shown below:

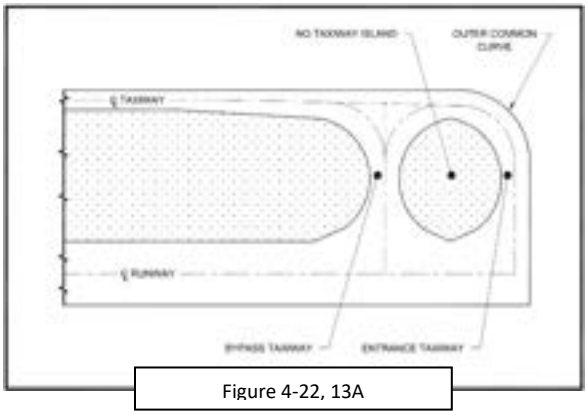


Figure 4-22, 13A

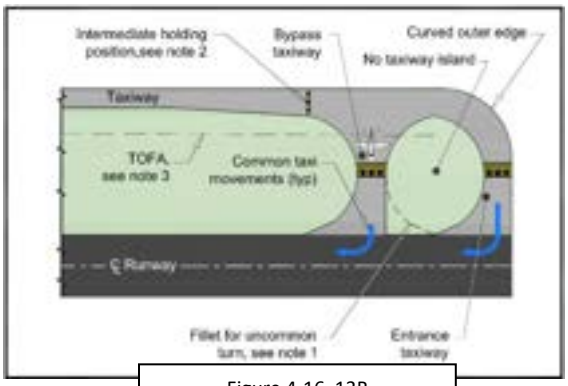


Figure 4-16, 13B

Another minor cosmetic/formatting change is the paragraph numbering has changed. In 13A, paragraphs and subparagraphs were numbered as follows: 101, 102, 102.a, 102.a(1), etc. In 13B, the format is 1.1, 1.2, 1.2.1, 1.2.1.1, etc.

Chapter 1 - Introduction

Considerable discussion of FAA policy and the federal regulations that dictate the FAA's purpose and mission. The following paragraphs stand out to us in our review of the document:

Standards, Recommended Practices and Requirements (1.2)

This section explains the basis for standards and recommendations, as well as some limitations on them.

Section 1.2.1 Defines the meaning of four terms used throughout the AC and, in our opinion, these clear definitions are a welcome addition. The four terms defined here: Standard, Recommended Practice, Requirement, and Design Consideration. These terms represent different levels of the applicability of design guidance. Requirements are obligations found in federal statutes or regulations. Standards are set in order to fulfill the FAA's statutory responsibilities. Recommended Practices are practices that further enhance safety, capacity, or efficiency but can be applied with discretion. Design Considerations are other elements to consider in the design.

Section 1.2.3 is particularly interesting. Those of us in the airport planning and design business have often been frustrated by the seemingly counterintuitive fact that operations that exceed the design standards for a given airport occur and there is little the airport sponsor can do about it. This section addresses that directly and even mentions that operational controls may be necessary and applicable in certain instances. We look forward to seeing how this is applied at airports.

Definitions (1.5)

This AC has always included a definition section. The latest version is expanded and includes several definitions of terms that are used often in the planning and design of airports but were never formally defined in this AC before, while other terms are defined more thoroughly. Some of the terms that we are glad to see included or more thoroughly defined are listed below:

- *Air Operations Area*. Defining this term for both Part 139 and non-Part 139 airports is very helpful.
- *Critical Aircraft.* One of the most common terms used in airport planning, it's good to see it formally defined here.
- *Non-Precision Approach.* This term was in 13A, but the definition has changed to now reflects the proliferation of GPS approaches. Now a non-precision approach is one which provides course information but no glidepath information.
- *Offset Approach.* This type of approach exists at many airports and must be considered, but the term was not defined in this AC.
- *Parallel Taxiway.* This term was included previously, but the definition is expanded. Of note is this language: "it is not necessary for all points along the centerline of a parallel taxiway to be equidistant from the runway centerline." At many airports, the parallel taxiway is not truly parallel, so this clarification is helpful.
- *Plans-on-File*. This is a new term to us. For obligated airports (i.e., those that receive FAA grants), this is defined as the Airport Layout Plan. For other airports, it is the FAA Form 7480-1 for the airport.

- *Precision Approach.* Just as the non-precision approach changed, a precision approach is now an approach that provides both course and glidepath information.
- *Public Use Airport*. This is another common term in the airport world but was not defined in this AC previously.
- *Regular Use*. As with *Critical Aircraft*, this is a term airport planners and designers use all the time and having a formal definition in this AC makes sense.
- *Taxiway Centerline*. It seems like something that doesn't need a definition but due to the peculiarities of taxiway intersection design, a clear definition will help design and analyze taxiways.

Taxiway Design Group (1.6.5)

Taxiway Design Groups (TDGs) are defined in this section. Of note here is the fact that TDG-7 no longer exists and TDG 2 has been split into 2A and 2B.

The remainder of Chapter 1 is mostly information included in 13A, reorganized and reformatted. One addition of note is Section 1.9, which discusses the AIP program and associated obligations.

Chapter 2 – Design Principles

The first change here is the title of the chapter. In 13A, it was *Design Process*, now it is *Design Principles*.

This chapter has been revised extensively. It is a little shorter, primarily because three of the larger tables in the 13A version have been moved to Appendix L. A few highlights of new content in the chapter are described in the following paragraphs.

Wrong Surface Events (2.5.2)

A wrong surface event is when an aircraft lands or departs on the wrong runway or a taxiway. The most notable example of these events in our region are landings on the internal parallel taxiway at SeaTac. There are many other examples, some of them tragic, and this section addresses this problem from a design perspective.

Parachute Operations (2.8.4)

Parachute operations occur at airports and are allowable under FAA rules, but there was little guidance on planning and designing for these operations in 13A.

Aircraft Operations in the Unpaved Runway Safety Area (RSA) (2.8.5)

At many of our clients' airports, some aircraft operators prefer to land or take off from the RSA. These are typically operators of "back-country" aircraft with tires and equipment designed for landing and taking off on dirt. This equipment makes landing on pavement more challenging and less safe, therefore they prefer to land in the dirt or grass next to the runway. This practice has been allowed for years, but this section of the AC addresses it directly and describes how to plan and design for it.

Gliders (2.8.7)

Several of our clients see glider operations and we have been asked to plan and design for these aircraft. With wide and low wings and the obvious limitations of non-powered flight, the design challenges are unique. This section addresses those challenges directly.

Chapter 3 – Runway Design

This chapter has been reorganized with several items moved to the Appendices. Of notes, the paragraph about Declared Distances (322 in 13A) is now its own appendix (H), as are Approach and Departure Reference Codes (323, now Appendix K).

Generally, this chapter is much more thorough with much discussion of Standards, Recommended Practices and Design Considerations in some sections.

In terms of design and planning, there are several new and different elements of note:

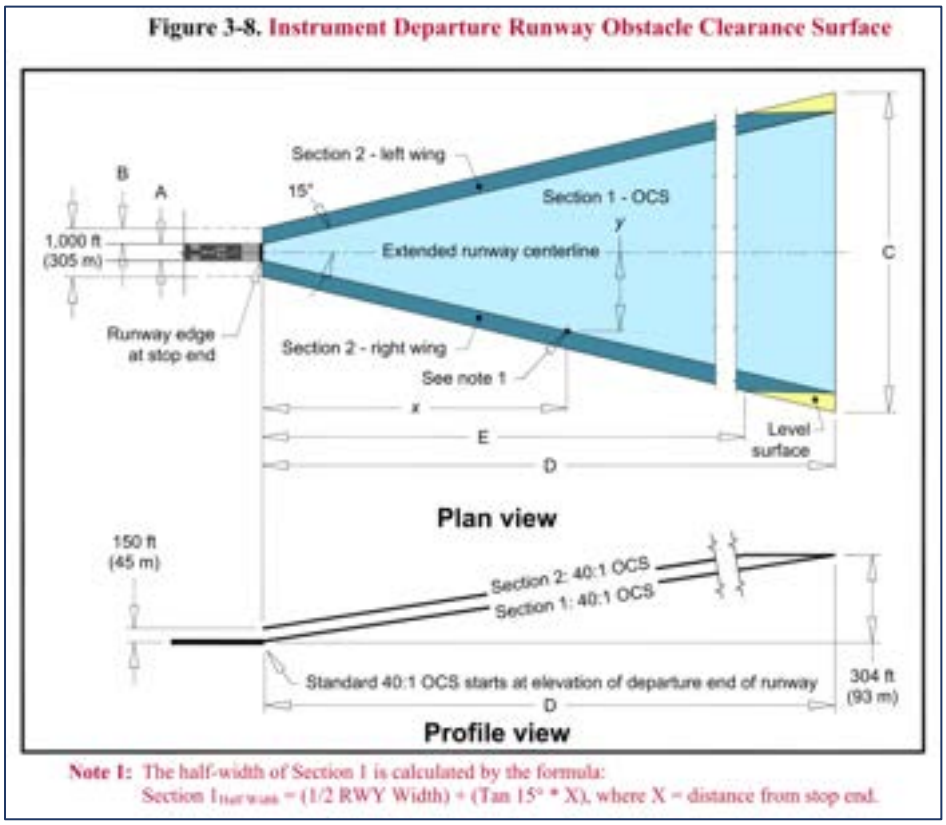
Approach and Departure Surfaces (3.5)

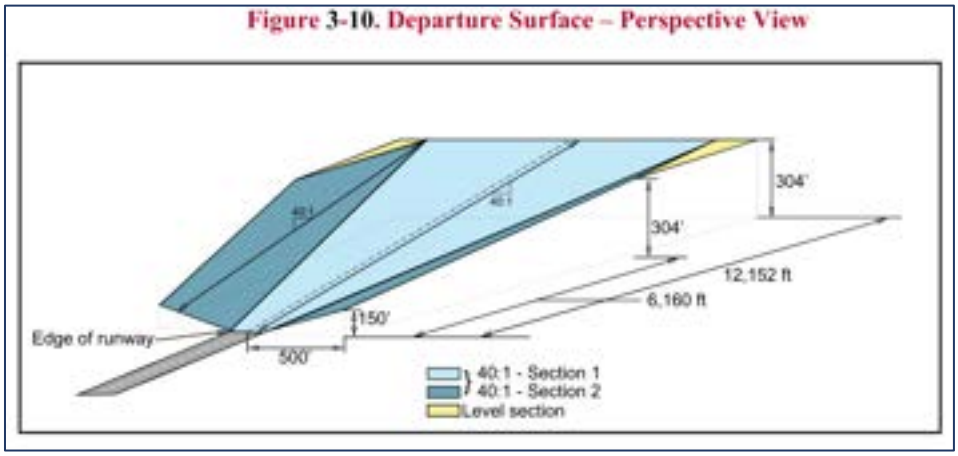
There are some significant changes in this section of the document.

For approach surfaces, Table 3-2 from 13A has been split into three tables to improve readability and the associated figures have been updated. The approach surfaces have been changed as well, to align with U.S. Standard for Terminal Instrument Procedures (TERPS).

A significant (and welcome) change to the instrument departure surface was released in Engineering Brief 99A and is included in this change. Under 13A, the departure surface made for some very challenging planning, due to its width and relatively flat slope, especially at smaller GA airports. The surface was 1,000 feet wide at the end of the runway or clearway and went out at 15-degree angles for 10,200 feet from the runway end. The surface started at the runway end elevation and went up at a 40:1 slope.

In 13B, the departure surface is divided into two sections. Section 1 starts at the runway end and goes up at a 40:1 slope. The surface is the width of the runway at the end and goes out at 15-degree angles for 12,152 feet from the runway end. Section 2 consists of two “wings” on either side of Section 1. These wings are wide but start at an elevation 150 feet above the runway end and go up at the same 40:1 slope for 6,152 feet. The result is obstructions close to the runway end will have a lower impact on planning. This is difficult to describe in words, so Figures 3-8 and 3-10 from 13B are included here.





Overlapping Runway Safety Areas (3.6.5)

The FAA has emphasized eliminating intersecting collocated runway ends for some time, due to safety hazards. There are runways where the ends do not intersect but are in close proximity. Previously, when the RSAs of two runways overlapped, the FAA considered these to be intersecting runways. This section clarifies the guidance on this condition.

Runway Design Standards Table (Table 3-7, Page 3-71)

One of the big changes was the interactive Table 3-5 in 13A. This table allowed you to enter an Aircraft Approach Category and Airplane Design Group and it would return all the runway design criteria. This table is gone in 13B. According to the FAA, there were too many technical issues with the interactive table. Instead, Table 3-7 links to several tables in Appendix G of the document. Alternatively, the interactive tool will be available online.

Chapter 4 – Taxiway Design

This chapter starts with a new and helpful comparison of taxiways and taxilanes in Section 4.1.1. There are several significant changes to the chapter. Highlights of the changes are described below. There are several changes that result in less pavement when designing taxiways. This makes sense in terms of project costs, but also for safety. Wide expanses of pavement are less safe in the taxiway environment.

Three-Path Concept (4.3.3)

The phrase “three-node concept” for taxiway intersection design is gone, replaced with this phrase. The concept remains the same: design taxiway intersections so that the pilot has no more than three paths to choose from at an intersection: left, right, or straight ahead.

Design Standards Based on Airplane Design Group (Table 4-1)

This table is changed significantly, in nearly all cases with the standard dimensions smaller in 13B than they were in 13A. In some cases, the differences are striking. For example, the taxiway wingtip clearance for ADG V is reduced from 53 feet to 36 feet. The standards that changed are highlighted below (green means the standard is lower; cyan, higher).

Table 4-1. Design Standards Based on Airplane Design Group (ADG)

Item	ADG					
	I	II	III	IV	V	VI
Taxiway and Taxilane Protection						
TSA	49 ft (15 m)	79 ft (24 m)	118 ft (36 m)	171 ft (52 m)	214 ft (65 m)	262 ft (80 m)
Taxiway OFA [2]	89 ft (27 m)	124 ft (38 m)	171 ft (52 m)	243 ft (74 m)	285 ft (87 m)	335 ft (102 m)
Taxilane OFA [2]	79 ft (24 m)	110 ft (34 m)	158 ft (48 m)	224 ft (68 m)	270 ft (82 m)	322 ft (98 m)
Taxiway and Taxilane Separation						
Taxiway centerline to parallel taxiway centerline [1]	70 ft (21.5 m)	105 ft (32 m)	144 ft (44 m)	207 ft (63 m)	249 ft (76 m)	298 ft (91 m)
Taxiway centerline to fixed or movable object [2]	45 ft (14 m)	62 ft (19 m)	86 ft (26 m)	121 ft (37 m)	142 ft (43.5 m)	168 ft (51 m)
Taxilane centerline to parallel taxilane centerline [1]	64 ft (20 m)	94 ft (29 m)	138 ft (42 m)	198 ft (60 m)	242 ft (74 m)	292 ft (89 m)
Taxilane centerline to fixed or movable object [2]	40 ft (12 m)	55 ft (17 m)	79 ft (24 m)	112 ft (34 m)	135 ft (41 m)	161 ft (49 m)
Wingtip Clearance						
Taxiway wingtip clearance	20 ft (6 m)	23 ft (7 m)	27 ft (8 m)	36 ft (11 m)	36 ft (11 m)	36 ft (11 m)
Taxilane wingtip clearance	15 ft (4.5 m)	16 ft (5 m)	20 ft (6 m)	27 ft (8 m)	28 ft (8.5 m)	30 ft (9 m)

Design Standards Based on Taxiway Design Group (Table 4-2)

There are some changes to this table as well, though not nearly as significant in Table 4-1. The Taxiway Edge Safety Margin for TDGs 5 and 6 is reduced from 15 feet to 14 feet, plus there is a new column for TDG 2B.

Parallel Taxiways (4.6)

There is additional information in this section intended to prevent wrong surface events. This includes eliminating radii for uncommon turns (see Figure 4.10) and offsetting a portion of the parallel taxiway toward the end, so that it does not look like a runway on approach.

Taxiway Fillet Design (4.7)

The main change here is that most of the guidance for design of this geometry has been moved to Appendix J.

Runway/Taxiway Intersections (4.8)

There are a variety of changes in this section, compared with 13A, including changes to simplify the geometry at runway edges (see Figure 4-15).

Table 4-12 from 13A [Dimensions for runway entrance/exit taxiways (where the two 90-degree turns are nonstandard)] is now two tables, 4-3 and 4-4, and most all of the dimensions in the table have been changed to smaller dimensions. This should reduce the amount of pavement required for this type of taxiway.

Taxiway Turnarounds (4.10)

13A included guidance for turnarounds at the ends of runways without parallel taxiways. This configuration was rounded (see Figure 4-29 in 13A). The resulting taxiways are affectionately called "teacups" because they look like the handle of a teacup. In 13B, the teacups are gone, replaced with a short portion of parallel taxiway configured for a future holding bay and parallel taxiway (Figure 4-26). There is no word on what nickname we will use for this configuration, at this time.

Chapter 5 – Aprons

This section is much more detailed in 13B than it was in 13A – the chapter went from six pages to 24. This additional length is from detailed discussion about the different types of aprons (terminal, remote, cargo, deicing, hangar, etc.) and much more detailed design guidance on each of them.

There is a detailed section on runway access from aprons, with the associated runway safety implications. This has been a point of emphasis from the FAA for quite some time.

There are a number of references to third-party documents throughout the chapter, including NFPA 415 and ACI's *Apron Markings and Signs.*

There are no specific highlights from this Chapter, other than these changes. The additional detail will be very helpful in designing aprons, which is a welcome change.

Chapter 6 – Airfield Systems and Facilities

This chapter was entitled *Navigation Aids (NAVAIDs) and On-airport Air Traffic Control Facilities (ATC-F).* Despite having a title that is less of a mouthful, the new chapter is a significant change and improvement. NAVAIDs and Air Traffic Control Facilities are still discussed in the chapter, but new content has been added. Some of that content is entirely new and other topics were addressed elsewhere in 13A. These "miscellaneous" topics, such as security, are all consolidated into this chapter.

Bridges and Tunnels (6.2)

This subject was covered in Chapter 7 in 13A. Chapter 7 is now gone, and the content is included here in Chapter 6.

Airfield Roadways (6.5)

Nearly every airport has roadways of some kind, yet there was no guidance in the design AC for these facilities. This section provides design guidance for a variety of roads, including Vehicle Service Roads, ARFF Access, Perimeter Security and NAVAIDs Access.

Buildings Within AOA (6.7)

This section addresses topics related to buildings on the airport, including the concept of the Building Restriction Line (BRL). The BRL was discussed in Chapter 2 in 13A but has been moved to this chapter.

Compass Calibration Pad (6.9)

This topic was covered in Appendix 7 of 13A but has been moved into the main document in 13B. Additional design detail is provided in the new document, as well.

Appendices

As discussed previously, the appendices are expanded and reformatted. The following table summarizes the appendices and differences with 13A.

13A	13B	Title	Notes
1	A	Aircraft Characteristics	Updated
2	B	Wind Analysis	Updated
3	C	Effects and Treatment of Jet Blast	Updated
4	D	End-Around Taxiway (EAT) Screens	Updated
5	E	General Aviation Facilities	Updated
6	F	Compass Calibration Pad Survey	Survey requirements only – design of pads included in Chapter 6.
7	G	Runway Design Standards Tables	Matrix in 13A.
-	H	Declared Distances	New Appendix

-	I	Runway Additional Information	New Appendix
8	J	Taxiway Additional Information	“Fillet Design” in 13A
	K	Approach and Departure Reference Codes	New Appendix
	L	Differences in Airport Design Standards and Relationship of Aircraft Characteristics to Design Components	New Appendix
9	M	Acronyms	Updated
10	N	Index	Updated
Record of Changes	-		Not included in draft 13B
-	Feedback Form		New

Conclusion

This draft 13B represents a significant change from the previous version of this foundational AC for the design of airports. It may take some time to track information down in the new document and it is definitely much longer than it used to be, but many holes from the previous document have been filled and the document is organized better and more readable, in our opinion. Overall, we feel this is a significant improvement. We look forward to the final document being published so we can put it to work planning and designing airports.