



BALLOON FEDERATION OF AMERICA

June 21, 2022

Ms. Eileen Lockhart, BVLOS ARC Co-Chair
Director of Emerging Markets
Air Methods

Mr. Sean Cassidy, BVLOS ARC Co-Chair
Director, Safety, Flight Ops and Regulatory Affairs
Amazon Prime Air

Re: Balloon Federation of America (BFA) Statement of Non-Concurrence to the BVLOS ARC Final Report

Dear Ms. Lockhart and Mr. Cassidy,

The Balloon Federation of America is a 501(c)(3) organization, chartered in 1960, to further the interest and participation of the general public in lighter than air aircraft activities in the United States. Recognized by and affiliated with the NAA and FAI, the BFA's mission is to not only promote the sport of ballooning, but to promote the safety of ballooning in all aspects. To that end, the BFA has worked tirelessly over the years with the Federal Aviation Administration in several areas, including providing input and advice to a number of FAA offices regarding balloon operations, continued safety recommendations, and providing documentation and materials regarding balloon flight training and pilot qualification, to name a few.

The BFA further has a history of working closely with AFS-800, assisting with rulemaking at several levels in current discussions on ADS-B equipage for LTA aircraft, as well as several years of effort toward the pending Second Class medical requirements for commercial LTA pilots. Many of the BFA's efforts are directed towards aviation safety and education; while our numbers are small, comparatively, our safety efforts have been noted thru our national renowned safety seminar programs. In representing the interests for some 4000 LTA pilots nationwide, both members and non-members, our organization is known to both the FAA and by most other aviation organizations.

Our membership was only very recently made aware of the Final Report of the Unmanned Aircraft Systems Beyond Visual Line of Sight Aviation Rulemaking Committee. There is no readily apparent reason that the lighter than air community, as represented by the BFA, should not have been a part of this risk assessment/mitigation effort. As stakeholders in the National Airspace System, the omission of the BFA membership in this process affects our pilots at a significantly higher level than ultralights, helicopters and the occasional paraglider. We were appalled to see, as a final recommendation, that the

LTA community will basically be required to relinquish the use of airspace below 400 feet AGL to the UAS community. As long-time users of the NAS, balloons spend a great deal of time below 500'. This recommendation, should it become regulatory guidance, will most certainly create a collision hazard between our aircraft and the more maneuverable, highly agile UAS. Abrogation of "see and avoid" is not a viable solution; the onus for that long-established practice will fall solely to the LTA operator, and visibility issues at low altitude are certainly a concern as cited in the Embry-Riddle study documentation contained within the Final Report's attached concur/non-concurrence statements.

Our perception is that most of the proposed UAS delivery operations will be conducted in urban and suburban areas, and in all likelihood probably not in areas completely conducive to ballooning activities. However, with regulatory codification, and the inevitable expansion of those delivery options, a hazard will certainly be created in the near future. It is not enough to say that "we'll fix that later", it must be addressed at the onset.

In perusing the Final Report, ARC membership list and associated concur/non-concur comments in the very limited amount of time available, there are several interesting points to be made, as well as concerns.

1. The BVLOS ARC committee consisted of representatives from 87 organizations, and appears to be heavily skewed towards UAS operators, manufacturers, and associations. Additionally, both "industry" co-chairs represent large UAS operations; it is not a stretch to believe there may have been some parochial interests being served.

A review of the concur/non-concur statements shows 71 responses by ARC members, and 16 non responses. Of that 71, 60 concurred with the ARC report (14 of which had additional comments generally supporting the Final Report), for an approval rate of 85%. Given the composition of the committee, this is not surprising. The "traditional" aviation organizations, to include AOPA, ALPA, GAMA and HAI, were universally opposed to several of the salient points in the report, if not the report itself. (specifically, a total of 17 non-concurs, or 20% of the committee membership). We find it difficult to resolve this obvious incongruity and wish to align ourselves with those organizations in opposition to the proposals contained in the Final Report.

2. Further review of the concur/non-concur statements provides some interesting commentary that supports the BFA's position, as well as illustrating some apparent concerns of several members of the committee. Specific comments include

- a. Non-concur comment from Mr. Andres Arrieta, director of Consumer Privacy Engineering, Electronic Frontier Foundation.

"Some industry representatives had little interest in discussing challenging questions. Consideration of the privacy risks of drones inherently means thinking about their potential downsides, yet the ARC was dominated by and structured for drone boosters, with much conversation over how to sell the technology to the public."

- b. Non-concur comment from Mr. Chris Cooper, Senior Director of Legislative Affairs, Aircraft Owners and Pilots Association (AOPA)

"These radical recommendations proposing to change the fundamental responsibility of avoiding other aircraft, and right-of-way rules based on maneuverability, fails to recognize the

reality of aircraft operations at lower altitudes, and the unsafe and unfeasible requirements it will place on crewed aircraft.”

“In fact, the FAA recognized the realities of aircraft operations at lower altitudes in a recent DronePro Update:

“The risk of midair collisions between drones and traditional aircraft is greatest when they both share the same airspace. The belief that traditional aircraft only operate at altitudes above 500 feet is a common misconception among drone pilots. The regulation that establishes the minimum flying altitude for traditional aircraft is published in 14 CFR 91.119. Except for takeoff and landing, most fixed-wing aircraft typically operate above 500 feet. However, this is not the case with helicopters. Helicopters often fly below 400 feet and routinely share the same airspace as their drone counterparts.” (March 1, 2022)

Mr. Cooper went on to say, later in his non-concurrence statement:

“It is unfortunate the BVLOS ARC leadership failed to recognize the reality of shared aircraft operations at lower altitudes, but we hope the FAA will carefully take this important reality into consideration during its BVLOS rulemaking.

“Finally, reliance on electronic conspicuity to alter see (detect) and avoid and right-of-way rules completely eviscerates the safety considerations for basing right-of-way rules on maneuverability. Would a less maneuverable drone be required to give way to a highly maneuverable crewed aircraft with ADS-B? Would a balloon without an ADS-B or TABS device be expected to give way to a drone (emphasis added)

If right-of-way rules becomes a function of conspicuity rather than maneuverability (or the fundamental principle to avoid another aircraft), then arguably a transport category aircraft with ADS-B would have right-of-way over a balloon without ADS-B or TABS. AOPA does not believe this is an outcome the FAA nor the aviation industry should adopt for the interest of safety or the public benefit.

c. From Mr. Christopher Kucera, OneSky, a concur with comments statement:

The safety issues come from lack of basic notification and authorization capability, provisions for non-TSO'd portable transponder devices and the lack of support for UAS Traffic Management (UTM) concepts that have been adopted worldwide.

In the BVLOS ARC report summary, we state that a main objective of this ARC is to consider the... “*Safety objectives of the UA operation and the risk it presents to other aircraft and people and property on the ground.*” Furthermore, the ARC recommends on Page 20, under “*Air & Ground Risk*” that “*The ARC should develop a Risk Framework to oversee the operation and integration of UA in the NAS.*”. And the ARC uses the table on Page 23 to define a very comprehensive evaluation of risk in different BVLOS operations levels. However, the table ignores two major gaps, #1., methods for avoiding uncrewed aircraft and #2., methods for equipping crewed aircraft under 400 feet.

Addressing #2. When we consider a right of way for uncrewed aircraft, we need to be able to

provide reasonable means of equipage for crewed aircraft to make their position known to uncrewed aircraft. The ARC makes a recommendation that ADS-B and TABS could be used as methods to share position information. However, these devices simply can't be used by some low altitude aviators. We'd like you to consider those pilots that fly hang gliders, powered parachutes, ultralights, gliders or light certified aircraft without electrical systems. We think too much emphasis is put on "certified" transponders to share position information. The reality is that most of the aircraft that fly at those low altitudes are using uncertified, but forced to have certified safety devices. At the very least, the cost is relatively high to equip if not completely impossible due to the need for electronic systems to support these transponder devices.

With respect to the above comment from Mr. Kucera, this points out another difficulty the balloon community has been diligently working to resolve with appropriate offices of the FAA. Lighter than air aircraft do not have an engine driven electrical system, and therefore have been exempt from the requirement of § 91.215, regarding transponder use, for several years. However, § 91.225 was implemented apparently without forethought to this exemption, and because of recent events, there are ongoing discussions to determine how, or even if, ADS-B/TABS usage will be necessary for balloons in certain airspace.

d. Non-concur from Mr. James Viola, Helicopter Association International (HAI):

If the ARC recommendations are implemented as provided by the Report, we would realize an ecosystem within the NAS that would allow unmanned aircraft in excess of 1,000 lbs to operate without the capability to detect and avoid existing NAS users that the unmanned systems will reasonably expect to encounter. This puts several aviation communities at increased risk. The recommendations in the Report attempt to "mitigate" this safety issue by amending FAR § 91.113 (Right-of-way rules) to give the unmanned systems "right of way" over existing airspace users that the UAS cannot detect. This is a very imbalanced approach, as the Report fails to adequately address the issues associated with manned aircraft detecting the smaller airframes associated with UAS, particularly at low altitudes. What the recommendations in the Report attempt to do is relieve unmanned system operators of the foundational responsibility for detecting and avoiding other aircraft

Operations below 500' AGL. HAI absolutely opposes the Report recommendations that any aircraft operating below 500' AGL, that are not equipped with ADS-B or TABS, must yield the right of way to BVLOS UAS. As previously stated, attempting to distort the foundational safety elements embedded in FAR § 91.113 is not, nor should ever be, a means to enable the operation of UAS in the NAS that lack adequate detection capability for the aircraft that are reasonably expected to be encountered. The inconvenient truth is that there are aircraft operating at/below 500' AGL that do not, or cannot, have these additional systems aboard. They have been safely operating for decades and are compliant with FAR §91.113. Putting these operators at increased risk due to an inadequate technical level of maturity of new entrant systems is not in the best interest of safety.

Finally, throughout the months-long process, ARC leadership consistently failed or refused to recognize the level of flight operations currently on-going in the airspace at/below 500' AGL.....More importantly, *an underlying theme from many on the ARC that these recommendations are acceptable because "there's nobody operating down there anyway" was an ever-present hinderance to open discussion.* (emphasis added)

HAI recognizes and applauds the diversity of the ARC membership. However, we also recognize that it did not reflect a balanced representation between manned and unmanned users/operators. (emphasis added)

- e. Non-concur from Mr. Jay Stanley, American Civil Liberties Union:

Industry representatives led the ARC, set its agenda, and dominated in numbers. Reflecting past practice, ARC leaders and participants and FAA staff consistently spoke of the ARC as a process by which “industry” provided feedback to the FAA. Some industry representatives had little interest in discussing challenging questions.

- f. Concur with comments from Mr. Jon Damush, IRIS Automation:

Iris Automation does NOT concur with this recommendation, and feels that all users of the NAS have a responsibility to avoid collisions, and that a crewed aircraft is severely disadvantaged to see and avoid a small UAS with the human eye, and therefore will be unable to ‘give way’. Iris supports right of way rules that are based on maneuverability of aircraft in the NAS and that ALL users of the NAS have a collision avoidance responsibility.

- g. Concur with comments from Mr. Philip Kenul, ASTM International

The one recommendation that I cannot endorse at this time is the one that generated the most discussion during deliberations is the following change to the right of way rule: “The ARC recommends that UA operations in Non-Shielded Low Altitude Areas (i.e., below 400’) have right of way over crewed aircraft that are not equipped with an ADS-B out system as specified in 14 CFR § 91.225”

Transferring responsibility for see and avoid to only manned aircraft under these circumstances is a risk which may not be in the best interest of the industry.

- h. Non-concur from Mr. Scott Campbell, Airbus:

Recommendation FR 2.3. Non-Shielded Low Altitude UAS BVLOS – UA Have Right of Way. Airbus does not concur that UA should have right of way over non-equipped crewed aircraft. In any air-to-air encounter between crewed and uncrewed aircraft, the majority of the risk resides with the people in the air. Airbus therefore recommends that additional work is required to further consider solutions to enable the safe co-existence of aircraft in the same low altitude airspace. In particular, technology-based solutions that enable uncrewed and crewed aircraft to detect and avoid one another. More information is provided in paragraph 3 below.

Recommendation FR 2.4 – UA Has Right of Way for Shielded Operations

In any air-to-air encounter between crewed and uncrewed aircraft, the majority of the risk resides with the people in the air. Therefore, Airbus does not concur that UA should have priority over all aircraft in a shielded environment. Helicopters routinely operate close to structures and should retain their right of way priority to help ensure the safety of aircraft occupants.

i. Non-concur from Mr. Vaslav Patterson, Air Line Pilots Association (ALPA):

ALPA has concerns and opposes the proposed changes to Part 91.113 to enable operational safety case(s) to transfer the responsibility of “*see and avoid*” to manned aircraft under certain conditions.

It is readily apparent that the common thread here is the “land grab” of the airspace below 500 feet AGL. The UAS community, thru their representation on a purportedly non-partisan committee, is attempting to hijack the right of way, in clear breach (contravention) of an established and long-standing practice and transfer all responsibility for collision avoidance to the manned aircraft operators. This cannot stand. Doing so would also be a hazard to the public at large.

3. The BFA is assuming that there will be “corridors” established for transit of the UAS, from points of origin to delivery and return. However, we cannot find that reference in the Final Report. How will these be noted – NOTAM issuance? A depiction on the relevant sectional chart? Initially, we were of the understanding that most of the UAS operations would be in major urban/suburban areas, which generally so not support LTA operations. However, we have recently been made aware that testing will begin later this year for delivery operations in northern California, as well as the I-4 corridor between Tampa and Orlando, FL. The I-4 corridor supports a number of passenger ride operations, and our members deserve the opportunity to plan on relocating their operations, should that become a reality. Please advise.

The Balloon Federation of America wishes to voice opposition to the current recommendation of the BVLOS ARC with respect to the relinquishing of right of way (rights?) to a visually impaired UAS. At best, once we detect a UAS in conflict with an LTA aircraft, it will be several seconds before the balloon could be made to respond to move out of the way, provided we were in a position to do so. By then, it will be too late. We further recommend, in the strongest terms possible, that reconsideration be given to this recommendation, and that the BFA be allowed a seat at the table, as representatives of the other group who commonly uses that airspace.

A question for further consideration by the supporters of the right of way change - can anyone in this ARC please tell us how the pilot of a marginally steerable aircraft can take evasive maneuvers to avoid an incoming UAS? What will be the probable cause decision when we see the first midair collision – failure of the balloon to yield right of way?

On behalf of the membership, I await your response.

Respectfully submitted,

Patrick Cannon
President, Balloon Federation of America