

Droneports as Aviation Infrastructure

A Roadmap to a Safer Tomorrow

The following is a discussion brief in response to Department of Transportation Docket No. FAA-2024-0189 Request for Comments on Unmanned Aircraft System (UAS) Integration at Airports and Necessary Planning, Design, and Physical Infrastructure Need.

Date

April 1, 2024

Prepared by:

Rex J. Alexander
President & Executive Director
Five-Alpha LLC
12308 Redding Drive
Fort Wayne, Indiana 46814

Introduction

Given the proliferation and acceptance of Drone, sUAS, and UAS flight operations, both globally as well as in the United States, it should be deemed prudent from the standpoint of public safety and air traffic integration that these new types of aircraft, and their supporting infrastructure, be fully and properly accounted for and integrated into the National Airspace System (NAS). Given the recent advancements in and expected adoption of Beyond Visual Line of Site (BVLOS) operations, where unmanned aircraft will be expected to conduct unmanned flight operations upwards of 30 plus miles from their point of origin, this becomes especially critical from a safety of flight perspective.

While many of these aircraft fall into the category of sUAS (Small Unmanned Aerial Systems) i.e., aircraft weighing less than 55 lbs., numerous operators are in the planning stages of operating much larger UAS (Unmanned Aerial Systems) utilizing aircraft weighing hundreds and even thousands of pounds. In numerous business plans published to date, both sUAS and UAS platforms are being considered for the delivery of goods from fixed locations. These business cases involve both Business to Business (B2B) scenarios as well as Direct to Consumer (D2C).

Healthcare systems have been testing these types of aircraft for the purposes of organ, blood product, medication, and lab sample transference within their respected regions for the past few years. As of 2022, according to the American Hospital Association, there are 6,093 hospitals in operation in the U.S. Each of these sites has the potential to have its own landing and takeoff area for these type of aircraft in support of the aforementioned operations. As such, healthcare systems are an excellent example of not only the positive impact for defining what Droneports are, but also speaks to the underlying negative impact for not defining what Droneports are. Given limited real-estate, airspace, and limited funds healthcare facilities contend with for Helicopter Air Ambulance operations today they do not have the luxury of installing multiple types of infrastructure to support helicopters, eVTOL, sUAS, and UAS aircraft to meet tomorrow's needs. From a cost benefit analysis standpoint, hospitals would greatly benefit, as would their patients, from the integration of infrastructure capable of supporting all modes and type of aviation modality.

Current advancements intended to foster the development of an ecosystem designed to allow for the delivery of goods directly to customers using these type of aircraft come with the expectation that large delivery hubs, capable of conducting thousands of flight operations weekly, will soon become a reality and common place. While there are hundreds of organizations striving to achieve this goal, two of the larger companies currently building this supporting ecosystem are Amazon and Walmart.

As of January 20, 2022, according to logistics consulting firm MWPVL International Inc. Amazon is said to operate 1,137 fulfillment (distribution) centers of various types throughout the U.S., with plans to open 331 more. As of July 31, 2022, Walmart is estimated to have a total of 4,735 stores throughout the U.S.

These locations, when added to the current healthcare systems in the U.S., along with the hundreds of the other companies looking to benefit from this new technology and transportation system, add up to the potential for tens of thousands of new aviation delivery hubs being established in the National Airspace System (NAS) in the coming years.

U.S. Code 49 speaks to Unmanned Aircraft Systems in chapter 448, section §44801, and uses the term “permanent areas”, e.g., areas on land or water that provide for launch, recovery, and operation of small, unmanned aircraft. However, the unintended consequence of this law is a lack of clarity towards droneports which consequently promotes the idea that UAS (of any size) do not belong at or are capable of operating at airports, heliports or vertiports.

Part of the issue stems from a preconceived notion of an airport, heliport or vertiport that does not reflect the different types of aircraft and operations that make up Drone, sUAS, and UAS. Title 14 CFR Part 157.2 defines an airport in the following way for the purposes of notification of construction which includes all current infrastructure types except Droneports.

“Airport means any airport, heliport, helistop, vertiport, gliderport, seaplane base, ultralight flightpark, manned balloon launching facility, or other aircraft landing or takeoff area.”

To properly foster the development of this new transportation ecosystem current regulations need to be revised and new standards need to be developed and adopted that speak to the use-case, type(s), design,

performance requirements, accountability, and charting of this supporting infrastructure. To this end, all permanent, and in some cases temporary sites, which will be utilized for the commercial distribution of goods need to be properly and accurately accounted for.

Droneport Needs Statement

To accomplish this effort the following will need to occur:

- Properly define the term “Droneport”.
- Develop physical design standards for Droneports.
- Develop airspace standards for Droneports.
- Determine minimum performance standards for aircraft.
- Add Droneports to the FAA Airport Master Record Database.
- Develop and implement processes for establishing Droneports.
- Develop forms for the development and installation of a Droneport.
- Develop standards for the charting of Droneports.
- Provide the FAA with regulatory authority over Droneports.
- Develop and provide education for FAA, DOT and NTSB officials on Droneports.

Clarifying and Defining the Operational Use-Case

Currently there are only two use-case classifications defined in the Code of Federal Regulations, those being ‘Public-Use’ and ‘Private-Use’. These two use cases do not adequately address all of the potential operational situations that may occur at an aviation infrastructure site. Many states include two additional use cases which allow for added clarification, flexibility, and the appropriate level of oversight to be afforded. These two additional use cases are ‘Personal-Use’ (also referred to as ‘Restricted-Use’ by some states) and ‘Commercial-Use’. For those operations being conducted exclusively on private property by the owner of the property, who is not conducting commercial operations or operating outside the boundaries of their property ‘Personal-Use’ would apply. This allows operations to be conducted with less restrictions and would require limited Federal oversight. For those individuals and organizations

conducting commercial, for-profit operations, whether they be at a Public-Use, or a Private-Use facility 'Commercial-Use' criteria and requirements would then apply. These types of operations could then be provided with a higher level of oversight by the Federal Aviation Administration than currently afforded under the private-use classification.

There is a need for additional regulatory improvements. The National Plan of Integrated Airport Systems 2015-2019 discussed a forecast of 7,500 UAS within five years, and only summarized UAS activity over two pages. Airports are categorized by the number of passenger boarding's or by tonnage of cargo, this metric does not work with the current limitations of sUAS and UAS operation. These aircraft platforms do not count towards the number of based aircraft at an airport, heliport or vertiport and there are no acceptable standards for traffic patterns for any size UAS.

The most effective way for a community to realize the benefits of unmanned aircraft services is by developing or permitting the development of places where unmanned aircraft can land and takeoff. While droneports can be large and elaborate, most are not. In many situations, a windsock on a grass area with clear approach departure areas may be sufficient to provide an effective and safe droneport operational area.

This minimal facility may be adequate as a private-use/commercial droneport, and may even suffice as the initial phase in the development of a public-use droneport capable of serving the general aviation segment of the unmanned aircraft community. Once the daily activity exceeds 10 operations per day, exceeds thirty days in duration or occurs more than three days in a week, Title 14 CFR Part 157 requires a minimum of 90 days notice for the construction of an airport.

Proposed Definition

For those locations that support sUAS and UAS aerial platforms only:

Droneport: *An airport whose physical design characteristics, visual aids, navigation aids, weather reports and infrastructure are created to support safe and effective unmanned aircraft systems operations in and out of densely populated urban areas as well as to and from rural areas.*

For those locations that support a mix of helicopter, eVTOL, VTOL, sUAS and UAS aerial platforms:

Multiport: An airport whose physical design characteristics, visual aids, navigation aids, weather reports and infrastructure are created to support safe and effective helicopter, eVTOL, VTOL and Unmanned Aircraft Systems operations in and out of densely populated urban areas as well as to and from rural areas.

The FAA should categorize any facility as a droneport if it would meet the requirements of 14 CFR Part 157.1 if the operator was using crewed aircraft. This would serve to educate the traditional operators.

This would apply to several existing facilities currently “approved” by the FAA (including the Pea Ridge example shown in Figure 1 which includes the service area currently NOTAMed by the FAA shown in Figure 2).



Figure-1

Newly installed drone flight deck at Walmart's Pea Ridge, Arkansas store where the first Walmart drone deliveries will start shortly.

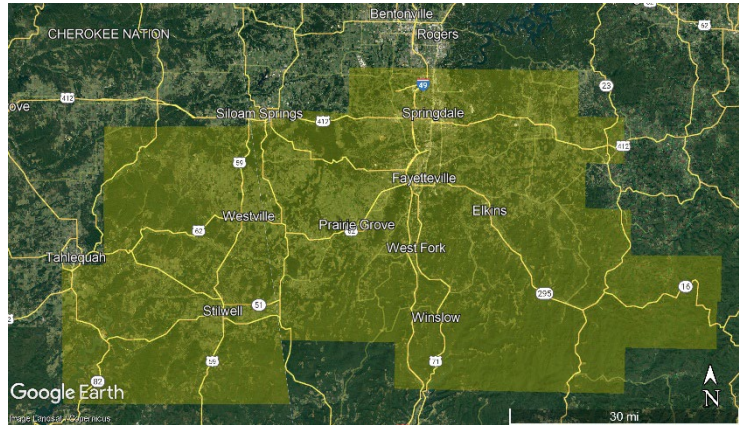


Figure-2

2,760 square mile Walmart UAS service area illustrated in yellow as identified in FAA Notice To Airman (NOTAM).

Aeronautical Charting Recommendations

For un-towered airports without crewed aircraft operations (droneports)

1. Update charts with the existing and accepted Unverified Airport symbol, representing a landing area available but warranting more than ordinary precaution due to (1) lack of current

information on field conditions, and/or (2) available information indicates peculiar operating limitations.

2. Update charts with UA symbol for Miscellaneous Activity Areas from the Aeronautical Chart Users' Guide (Recommendation to include the MULTICOM frequency

For UAS areas without a droneport and FAA-Recognized Identification Areas (FRIAs)

1. Update charts with UA symbol for Miscellaneous Activity Areas from the Aeronautical Chart Users' Guide (Recommendation to include the MULTICOM frequency in a manner similar to the policy currently in place for parachute jumping areas).
2. For temporary facilities (such as drone races), the NOTAM should include authorization for use of MULTICOM by a dedicated air boss during the event (example with highlighted text added)

Example:

JBR 07/295 RZC AIRSPACE UAS WI AN AREA DEFINED AS 2NM RADIUS OF RZC358012 SFC-400FT AGL 2107290001-2206302359. CONTACT UAS AIR BOSS ON 122.9 FOR ADVISORIES.

For un-towered airports with crewed operations

1. Update charts with UA symbol for Miscellaneous Activity Areas from the Aeronautical Chart Users' Guide
2. Add Caution box describing UA Operations and the general location (i.e, between certain checkpoints, within 5nm of Airport Reference Point, etc; See figure below

Current online guidance regarding Package Delivery by Drone (Part 135) from the Federal Aviation Administration.

Reference FAA Website: https://www.faa.gov/uas/advanced_operations/package_delivery_drone

The FAA issued the first Part 135 Single pilot air carrier certificate for drone operations to Wing Aviation, LLC in April 2019. The FAA later issued Wing a Standard Part 135 air carrier certificate to

operate a drone aircraft in October 2019. Wing Aviation is part of the Integration Pilot Program (IPP), delivering food and over-the-counter pharmaceuticals directly to homes in Christiansburg, VA.

UPS Flight Forward, Inc., another participant in the IPP, was the first company to receive a Standard Part 135 air carrier certificate to operate a drone aircraft. On September 27, 2019, UPS Flight Forward conducted its first package delivery by drone with its part 135 certification when it flew medical supplies at WakeMed hospital campus in Raleigh, NC.

Amazon, a PSP participant, is the first company to operate a drone larger than 55lbs under a standard Part 135 air carrier certificate. Amazon began commercial operations in August 2020. They currently deliver Amazon products in Oregon and Northern California, with further expansion planned for this year.

On June 17, 2022, Zipline became the fourth drone operator to receive a part 135 certificate to be authorized to operate as an air carrier and conduct common carriage operations. This is the first part 135 certificate issued to an operator under the BEYOND program and the first fixed wing part 135 UAS operator to be certified.

The FAA is currently working on additional part 135 air carrier certificate applications that have been submitted by IPP operators and one 135 application that was submitted by an FAA Partnership for Safety Plan (PSP) participant.

UAS BVLOS and Droneport Integration

The following statements are in regard to the UAS BVLOS ARC [FR Doc. 2022-14128 Filed 6-30-22; 8:45 am] and the impact this language would have on the safe integration of Droneports in the United States.

Item No. 1: Aviation Operations Below 500 Feet

On March 10th of 2022, the Federal Aviation Administration (FAA) published their 381-page Unmanned Aircraft Systems (UAS) Beyond-Visual-Line-Of-Sight (BVLOS) Operations Aviation Rule Making Committee (ARC) final report. One overarching and rather myopic assumption made by this committee is that there is little if any discernable aviation operations that occur below 500 feet AGL. While the report calls out aviation agriculture operations it does not consider many of the other types of aviation operations that occur at or below an altitude of 500 feet AGL.

Flight operations routinely conducted at or below 500 feet AGL include but are not limited to:

- a) Law enforcement
- b) Power line patrol
- c) Search and rescue
- d) Helicopter air ambulance operations
- e) traffic watch
- f) electronic news gathering
- g) balloon operations
- h) glider operations
- i) Non BVLOS drone operations
- j) Paraglider operations
- k) Ultralight operations

Each of the aforementioned flight operations spends a significant amount of time below 500 feet during normal operations and the airspace associated with the supporting infrastructure for each exists in abundance below 500 feet. Of additional importance is that the ARC's assumption does not consider the future of electric Vertical Takeoff and Landing (eVTOL) as it pertains to Advanced Air Mobility (AAM) and Urban Air Mobility (UAM). The impact of UAS BVLOS on these operations has not been adequately addressed in this ARC.

Recommendation No. 1: Conduct a more thorough review and properly assess the type, amount, and geographical dispersion of air traffic which occurs below 500 feet AGL and collaborate with those

organizations that represent these operations to better understand how to integrate Droneports in the NAS.

Item No. 2: UAS Avoidance Distance for Heliports & Vertiports

The ARC draft makes the statement “UAS BVLOS operations may not be conducted within 1/2nm of a published heliport without the prior coordination with the airport or heliport manager/operator”. This statement raises the following questions and concerns.

1. What is the 1/2nm distance based on and where did it come from,
2. What constitutes a “Published Heliport”,
3. What happens when it’s not published, and
4. What defines prior coordination.

The ARC draft stipulates that the distance a UAS conducting BVLOS is to remain away from a heliport, and one can assume vertiport, is one half (½) nautical mile (3,028.06 feet). One can only assume that this number was plucked out of thin air since it makes no sense from either an aviation safety or airspace deconfliction standpoint.

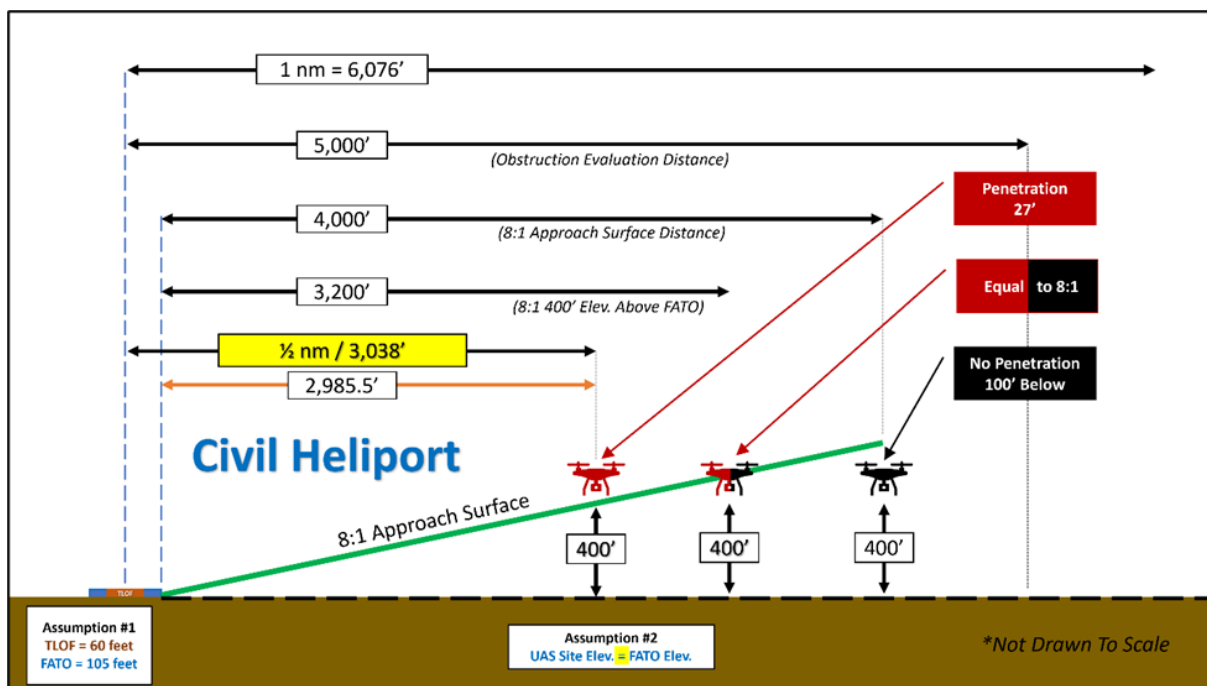


Figure 1: Penetration of the heliport 8:1 imaginary surface by UAS under current guidance at equal ground elevations.

At an altitude of 400 feet above ground level, a UAS would need to be, at a minimum, 3,200 feet the edge of a heliport's Final Approach and Takeoff (FATO) so to be even with a heliport's 8:1 approach surface. This imaginary surface is spelled out by Title 14 CFR Part-77.23 which can be found in Title 14 CFR Part 77 – Safe, Efficient Use, and Preservation of the Navigable Airspace.

Of course, this only holds true if the heliport and the site where the UAS is being operated are at equal elevations. If, however, the UAS is operating at a site elevation that is higher than the heliport, the UAS will in fact penetrate the 8:1 imaginary surface by whatever the difference in elevation constitutes.

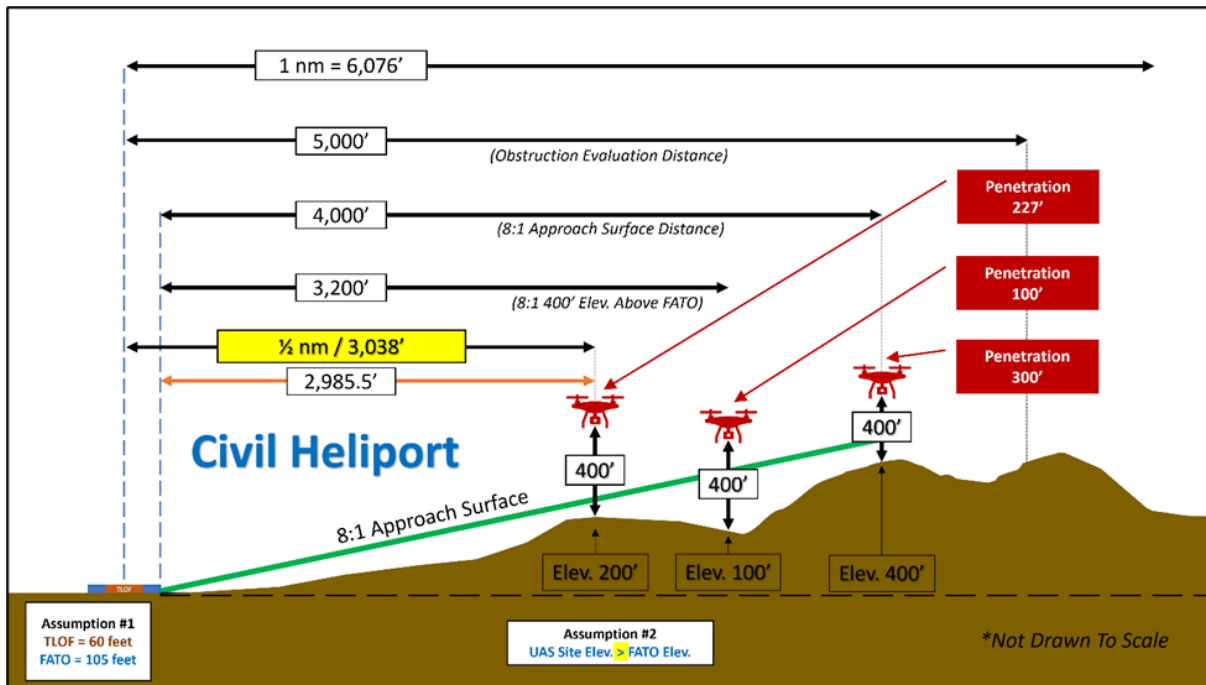


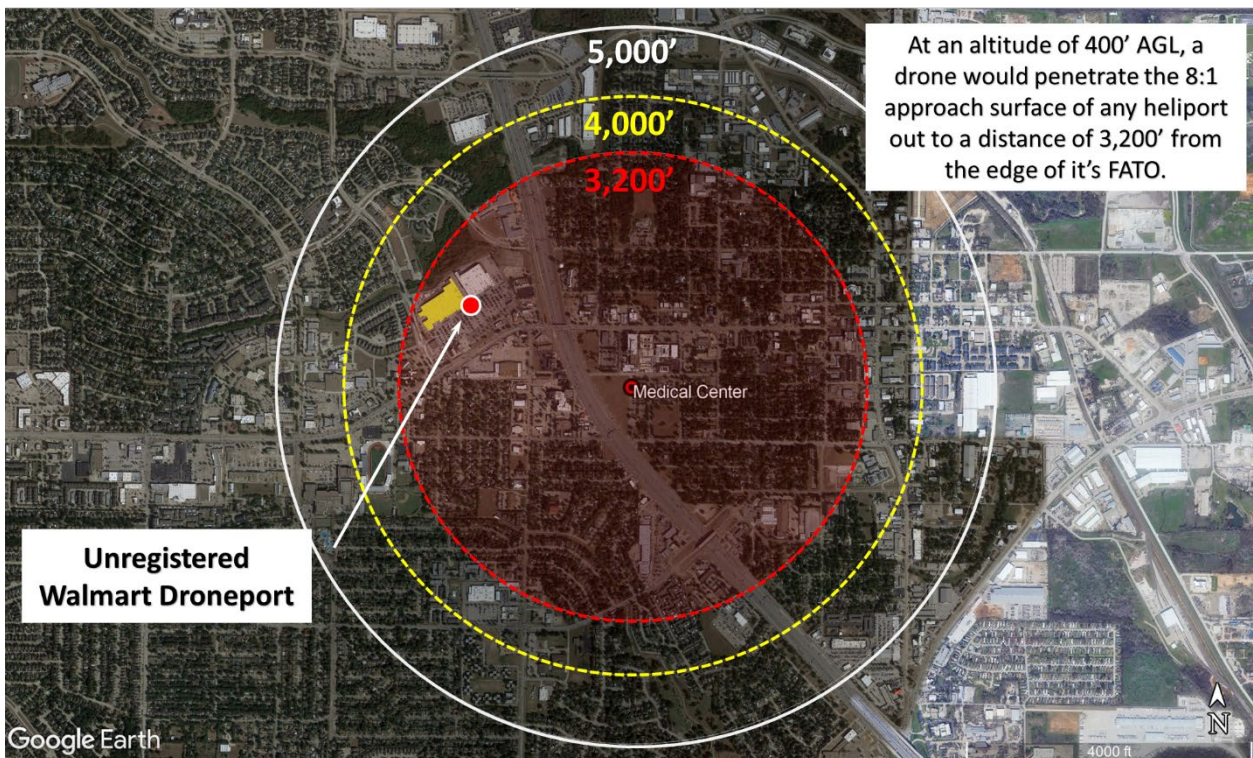
Figure 2: Penetration of heliport 8:1 imaginary surface by UAS under current guidance at unequal ground elevations

Even at a distance of 4,000 feet from the edge of a heliport's designated FATO, a UAS aircraft, under ideal ground elevation conditions, would only be 100 feet below the imaginary surface of the 8:1 approach surface. It is within this airspace that the FAA highly recommends in their heliport design advisory circular [AC 150/5390-2D](#) the marking and lighting of difficult-to-see objects. Section 217 of this AC stipulates the following:

"It is difficult for a pilot to see unmarked wires, antennas, poles, cell towers, and similar objects, even in the best daylight weather, in time to take evasive action. While pilots can avoid such objects during en route operations by flying well above them, approaches and departures require operations near the ground where obstacles may be a factor."

The following is an example of an active Droneport established in the parking lot at a Lewisville, Texas Walmart without the benefit of visibility in the NAS negatively impacting the airspace and safety of a nearby Hospital Heliport.





Given that the FAA has never seen fit to record the approach/departure paths of any of the 6,000 plus heliports in the FAA Airport Master Record Database or on FAA Form-5010, it is impossible for any UAS operator to know where a heliports approach departure path is actually located so as to avoid them. Therefore, there is no way that a UAS BVLOS aircraft can safely achieve airspace deconfliction with helicopter traffic landing or taking off from a heliport under this current guidance.

The criteria spelled out in Title 14 CFR Part 77, which defines what constitutes an “Obstruction” to a heliport includes a 25:1 slope from the center of a heliport out to a horizontal distance of 5,000 feet. By its very definition, a UAS constitutes an obstruction to navigation based on the FAA criteria in Part-77.17, Obstruction Standards, which includes “mobile objects”.

In Part-77.9 the FAA goes out of its way to identify an altitude of 200 feet AGL as the cut off point for any object, regardless of location or geographical position, having a mandatory obligation to file with the FAA. Part-77.15 goes as far as calling objects located in these areas as “Hazards to Air Navigation”. Additional guidance on what constitutes a hazard to flight can be found in FAA Job Order 7400.2, Procedures for Handling Airspace Matters, Section 3. Identifying/Evaluating Aeronautical Effect:

6-3-3. Determining Adverse Effect

A structure is considered to have an adverse aeronautical effect if it first exceeds the obstruction standards of part 77, and/or is found to have physical or electromagnetic radiation effect on the operation of air navigation facilities. A proposed or existing structure, if not amended, altered, or removed, has an adverse effect if it would:

- a. Require a change to an existing or planned IFR minimum flight altitude, a published or special instrument procedure, or an IFR departure procedure for a public-use airport.*
- b. Require a VFR operation, to change its regular flight course or altitude. This does not apply to VFR military training route (VR) operations conducted under part 137, or operations conducted under a waiver or exemption to the CFR.*
- c. Restrict the clear view of runways, helipads, taxiways, or traffic patterns from the airport traffic control tower cab.*
- d. Derogate airport capacity/efficiency.*
- e. Affect future VFR and/or IFR operations as indicated by plans on file.*
- f. Affect the usable length of an existing or planned runway.*

Recommendation No. 2:

Increasing the standoff distance for all UAS aircraft to any heliport or vertiport from a half (½) a nautical mile to 1 nautical mile. This would take into account any variations in site elevation surrounding a heliport or vertiport as well as address the FAA’s own definition and criteria as to what constitutes an obstruction

and a hazard to flight. Require all approach/departure paths for heliports and vertiports to be accurately recorded and referenced by magnetic heading within the FAA airport master record and to be visible on the FAA Form-5010.

Item No. 3: Accountability of “Published” Heliports, Vertiports, and Droneports

U.S. Heliport Statistics

As of May 26, 2022, according to the FAA online Airport Data and Information Portal (ADIP)

Reference: <https://adip.faa.gov>

Total Number of Heliports in the U.S.	6,074
Public Owned	636
Private Owned	5,344
Coast Guard Owned	4
Airforce Owned	5
Navy Owned	14
Army Owned	71
Public Use	55
Private Use	6,019
Private Use / Non-Military	5,925
Medical-Use	2,709

Table 1: U.S. FAA Heliport Statistics

The FAA’s airport master record database currently accounts for 2,709 “Medical-Use” heliports in the U.S. However, due to poor taxonomy of terminology this number does not represent the total number of “Hospital Heliports” which exist in the U.S. In many cases “Medical-Use” heliports represent heliport locations that are collocated at Fire Stations, Police Posts, EMS Bases, and other sites such as federal and state parks which are not connected with a healthcare facility. In 2022 the American Hospital Association reported a total of 6,093 hospitals in operation in the U.S., of which 5,139 were categorized as Community Hospitals and 207 as Federal Government Hospitals.

Number of Hospitals in the U.S.

As of 2022 according to the American Hospital Association

Reference: <https://www.aha.org/statistics/fast-facts-us-hospitals>

Total Number of All U.S. Hospitals	6,093
Number of Community Hospitals	5,139
Number of Federal Government Hospitals	207
Number of Nonfederal Psychiatric Hospitals	635
Other Hospitals	112

Table 2: Number of Hospitals in the U.S.

On January 31, 2019, a NASA Aviation Safety Report (NASA ASRS No. 1599969) estimated an underreporting of hospital heliport of upwards of 2,000 exists in the FAA's airport master record database system.

1/31/2019	FOR YOUR INFORMATION	2019-3/9-1 1599969
To: FAA (AFS-80, AJV-13)		
Info: FAA (AVP-1, AVP-200, AFS-280, AJV-11, AFS-200, Director of Air Traffic Operations - WSA, CSA, ESA (North and South)), A4A, ALPA, AOPA, ASAP, ATSAP, ATSG, HAI, IATA, ICAO, ICASS, NAFI, NATCA, NBAA, NTSB		
From: Becky L. Hooey, Director NASA Aviation Safety Reporting System		
Re: Hospital Heliports Not Identified in B4UFLY Drone/UAS/UAV Database		



Aviation Safety Reporting System
 P.O. Box 189 | Moffett Field, CA | 94035-0189



Figure 3: NASA ASRS Under reporting of Hospital Heliports in the U.S.

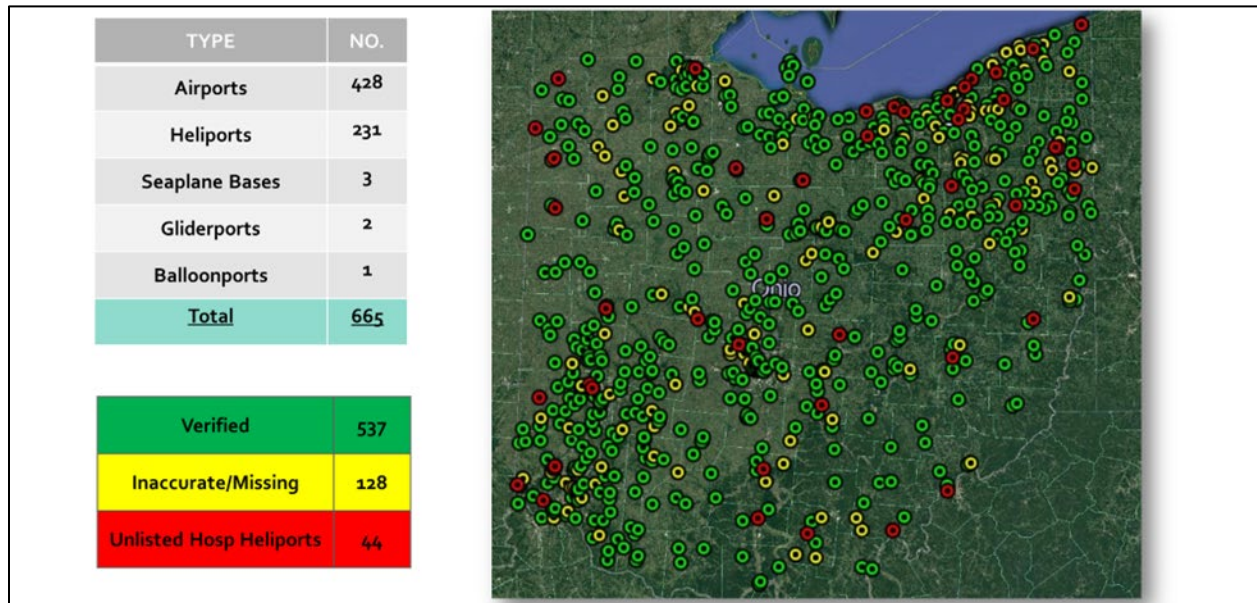


Figure 4: 2019 USHST Database Accuracy Study for the Ohio

The FAA has published their UAS/Drone FAA B4UFLY App as a tool to assist UAS operators in identifying aviation infrastructure in the U.S. However, if the information is not accounted for in the FAA airport master record database it will not be found in this safety applications.

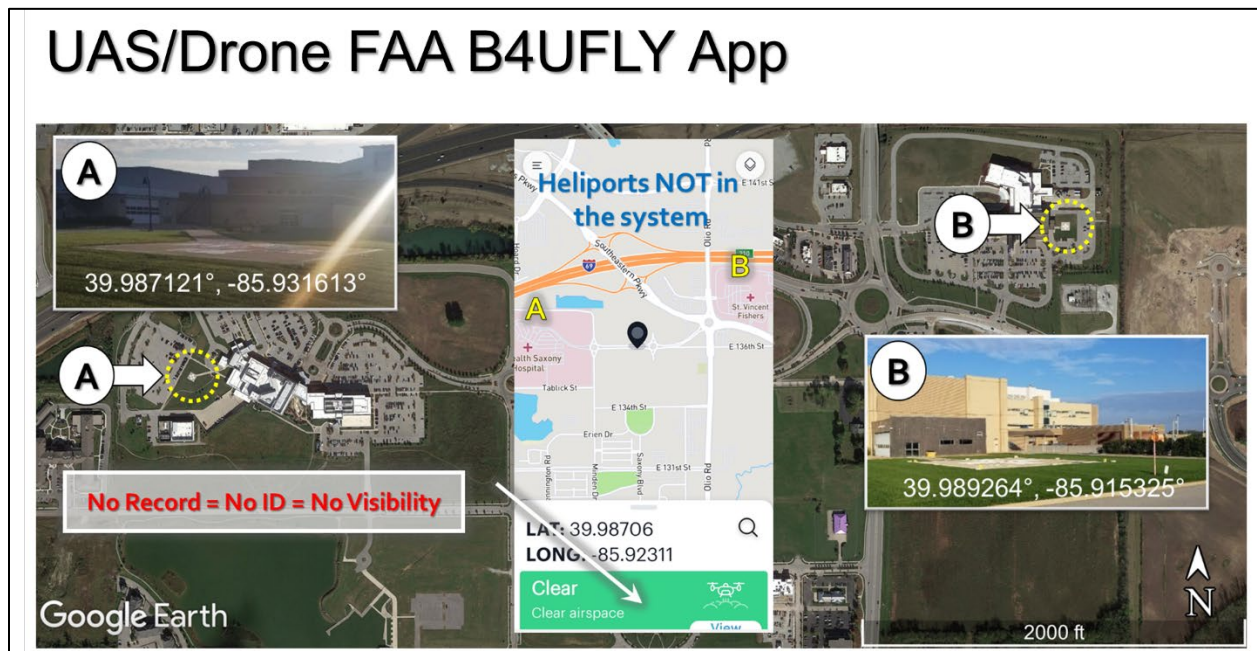


Figure 5: Example of two Indiana hospital heliports unaccounted for in the FAA B4UFLY app

Predesignated Emergency Landing Areas or PELA for short are not a Heliports, Helistops, or an Emergency Helicopter Landing Facilities (EHLF) as defined by FAA regulations or the FAA heliport advisory circulars. While at its core, a PELA is operated much like a scene in setup and implementation, it is, in theory, a location that has been previously agreed upon by a Helicopter Air Ambulance (HAA) provider and first responders as a predesignated rendezvous point in a specific geographical area for emergency operations on an as needed basis. In some locations this means these areas can see more traffic than some designated heliports.

A PELA is designed as a proactive risk mitigation strategy for Helicopter Air Ambulance (HAA) providers and first responders. In theory, this reduces, but does not fully eliminate, the need for a medical emergency landing site (scene) to be set up at a moment's notice in response to an emergency incident at a specified location. Originally recognized as a "Pre-Existing Landing Area" in the mid 1980's the term has come to be known as a "Predesignated Emergency Landing Area" by those that use it today.

While everyone understands that helicopters routinely operate from airports and heliports, and EMS flight crews are oftentimes called on to operate from accident sites, off airport 'Scenes', few in the FAA and D.O.T. understand or track the over 8,000 plus PELA sites that exist in the U.S. today.

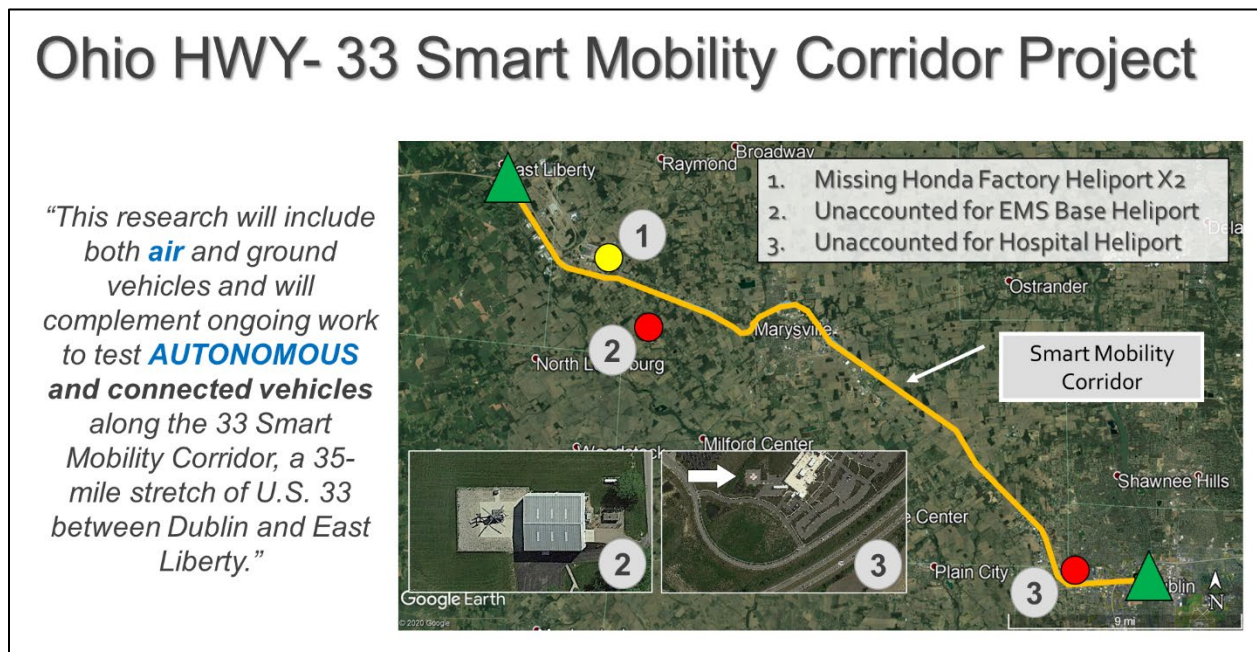


Figure 6: Example the impact of missing heliport data will have on the Ohio HWY-33 Smart Mobility Corridor Project

These facts point to several important areas which require immediate attention to prevent hazardous and unsafe operations from occurring, not the least of which are:

1. Hospitals need to be strongly persuaded to take ownership of getting their heliport information in the FAA airport master record system.
2. The FAA needs to revise their airport master record and ADIP system to specifically account for hospital heliports and to make the distinction of between hospital heliports and medical-use heliports.
3. The ARC needs to do a better job of evaluating the impact UAS BVLOS will have on the national healthcare system and its infrastructure.
4. The term Predesignated Emergency Landing Areas (PELA) needs to be formally codified and adopted by the U.S. D.O.T. and FAA.

Recommendation No. 3:

Prior to any UAS BVLOS operations being conducted, the FAA needs to immediately inventory every hospital in the U.S. to determine if a heliport exists on the hospital's property. If a heliport does exist, steps need to be taken to validate the accuracy of the information accounted for in the database and if the heliport is not accounted for steps need to be taken to include each unaccounted-for heliport in the FAA airport master record. At a minimum this information needs to be updated on an annual basis. Furthermore, the FAA needs to formally define the term Predesignated Emergency Landing Area (PELA) as it has been adopted by the Helicopter Air Ambulance industry and first responders of the U.S. FAA forms 7480 and 5010 need to be reconfigured to more accurately and better account for heliport and vertiport data in the National Airspace System.

Item No. 4: Prior coordination with the Airport, Heliport, Vertiport or Droneport manager/operator

While coordination between a UAS operator and an airport, vertiport or heliport operator is encouraged, the path identified is highly flawed. As of May 2022, according to the FAA's Airport Data and Information Portal (ADIP) out of the 6,074 heliports reported in the ADIP system only 92 heliports are identified as having Notice To Airman (NOTAM) services. The majority of those identified are listed as either public-use,

55, or military use, 31. Out of the 5,925 private-use nonmilitary heliports on record only 6 are shown to have NOTAM services. None of which are associated with any of the U.S. healthcare systems.

Heliport NOTAM Coverage	
As of May 26, 2022: (FAA Airport Data and Information Portal (ADIP) https://adip.faa.gov)	
Total Number of Heliports in the U.S.	6,074
Total Number of Heliports With NOTAMS Services	92
Public-Ownership	32
Private-Ownership	29
Airforce	1
Army	30
Public-Use	55
Private-Use (*31 military)	37
Private-Ownership / Private-Use	6

Table 3: U.S. Heliports Covered by the FAA
Notice to Airman (NOTAM) system

Additionally, private-use heliports, which account for every hospital heliport in the U.S., are not required to be evaluated by the FAA for accuracy of data in the airport master record. Updating of information for private-use heliports is left to the discretion of the owner and as such numerous errors exist not the least of which is who the heliport manager is and what their contact information should be. To that end there is no clear-cut path for UAS operators to follow when attempting to contact many of the heliport owners and operators for the purposes of conducting flight operations in the vicinity of their facilities.

Recommendation No. 4:

The FAA needs to either incorporate all U.S. private-use heliports, vertiports and droneports into the existing NOTAM system or create an alert system that works in the same way that the current NOTAM system does for the specific purpose of altering helicopter, eVTOL, VTOL, and UAS operations within two (2) nautical miles of the respective infrastructure.

Item No. 5: Definition of UAS Site Origination & Destination Infrastructure

At no point within the UAS BVLOS ARC draft has anyone outlined or defined what the locations where UAS aircraft will be operated to and from is to be classified as. While helicopters operate from both airports and heliports and in the future eVTOL aircraft will undoubtedly operate from airports, heliports and vertiports what does the FAA intend to call those specialized locations where UAS aircraft are to operate at?

Formally codifying what the classification and definition of this type of infrastructure, which is specifically designed to support sUAS and UAS hubs will be critical to assuring safe operations can be carried out in the National Airspace System and for the purposes of full accountability and transparency it is imperative that this occurs.

At the very least, and by definition, given the significant amount of traffic that these sites are projected to accommodate, upwards of 50,000 to 75,000 annual operations by some accounts, if not more, they fall squarely within the “**Special Use Airspace**” category defined as an “**Alert Area**” in the FAA Aeronautical Information Manual Pilot/Controller Glossary.

Alert Area- Airspace which may contain a high volume of pilot training activities or an unusual type of aerial activity, neither of which is hazardous to aircraft. Alert Areas are depicted on aeronautical charts for the information of nonparticipating pilots. All activities within an Alert Area are conducted in accordance with Federal Aviation Regulations, and pilots of participating aircraft as well as pilots transiting the area are equally responsible for collision avoidance.

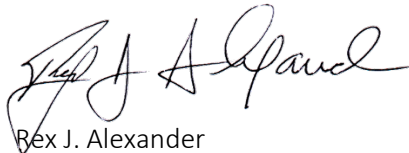
Recommendation No. 5:

The FAA must define what “Droneports” are and develop standards for droneports for other federal, state, and local agencies to reference and adopt. Droneports need to be accounted for in the National Airspace System (NAS), appropriately annotated on all maps and navigational publications, and be provided a safety standard that they must meet for commercial operations to be conducted.

Thank you very much for the opportunity to provide public comment to these very important subject matters. If you or your team have any comments or questions regarding what I have provided, please do not hesitate to contact me.

NOTHING ELSE FOLLOWS

Respectfully Submitted

A handwritten signature in black ink, appearing to read 'Rex J. Alexander', written in a cursive style.

Rex J. Alexander
President & Executive Director
Five-Alpha LLC
Email: rex@five-alpha.com
Phone: (260) 494-0891