U.S. Helicopter Safety Team / Infrastructure Working Group, FAA Form-5010 Airport Master Record Ad Hoc Committee Reccomedations

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RE: **Recommendations for a Heliport/Vertiport Specific FAA Form-5010, Airport Master Record**

PURPOSE:
Create a temporary ad hoc committee under the USHST/IWG to include relevant lines of business from within the FAA as well as concerned parties from the helicopter industry.

SCOPE:
Provide recommendations for the efforts of designing a new FAA Airport Master Record Form-5010, that is "Heliport" and "Vertiport" specific.

REASON:
For the purposes of improving data integrity and the information capturing capability across multiple lines of business within the FAA as well as the aviation industry as it pertains to heliports and vertiports in the United States.

COMMITTEE MEMBERS:
A special thank you to all the committee members who contributed to this effort.

MEETINGS:
There were two online conference meetings for this project, the first of which was held on 5/24/2018 and the second on 6/7/2018. Each meeting was proceeded by and followed up by E-mail and phone discussions as well.

The following is a list of recommendations that were generated from the USHST/IWG committee meetings conducted by the ad hoc 5010 committee for purposes of creating a Heliport/Vertiport specific FAA form 5010.

ITEM	TOPIC	DESCRIPTION & DISCUSSION	JUSTIFICATION
1	**Approach/Departure Path(s) Headings and Sectors**	Current standard practice for completing and filing FAA Form-7480, notice for construction, alteration and deactivation of airports, Item E-2, Ingress/Egress (Degrees) allows for the listing of the clear 8:1 approach/departure path(s) for a heliport site. The current FAA Form-5010 does not allow for the annotation of the recommended approach/departure paths that are evaluated by FAA inspectors. Recommend the ingress/egress direction for each app/dep path be identified by a three-digit magnetic heading, example: 010/190, 090270, 185/005, 340/160… The form needs to be expanded so that it can capture up to three or four ingress/egress routes per FATO. It was also noted that on occasion some FAA inspectors have identified an approach/departure "Sector", e.g. a clear 8:1 ingress/egress area between two headings, i.e. between 045° deg and 120° deg, rather than a centerline flight path surface. Currently this procedure is not described or illustrated in the heliport design guide or spoken of in any of the regulations nor is it captured in a standardized format on the 7480 or the 5010. If an app/dep sector is achievable potentially a diagram similar to that used to illistrate a compass rose showing the recommended sector(s) in a shaded array would be beneficial. There is the potential to utilize the FAA's current "Heliport Dimensions Tool" to create the approach/departure paths in a KML file that is readable in google earth based on accurate 5010 information. The current coding may need to be modified to show a basic two-dimensional overlay that is usable and can be integrated via an electronic portal.	Approach/Departure paths are evaluated by inspectors during the airspace determination audit, however they are not captured such that pilots or UAS operators can determine what those paths are in the current 5010 data base. UAS pilots actively flying in proximity to a heliport have no way of determining what the recommended app/dep paths are at any specific location such that they may avoid or pay particular attention to those areas of airspace around a heliport or vertiport. Having a more accurate representation of a heliport or vertiports connecting airspace officially on record with the FAA will assist proponents in being better prepared to protect and defend their airspace in regard to other surrounding entities erecting buildings, towers, power lines… and dealing with local municipalities, communities and zoning ordinances. Identifying the preferred approach/departure paths will allow for a system that is more in tune to the goal of flying neighborly by identifying those flight paths that have the least impact on neighboring residents.

2	**Add Last Updated Block**	The current 5010 form has a block labeled "Last Info Req", ITEM #113, i.e. the last calendar date that information was requested from the heliport owner. This however has been shown to indicate a date that in many cases is several years old and does not indicate that any of the sites information was actually updated or corrected at that time. In some cases, 5010 forms have been found to have dates in item 113 that are several years old and upon closer examination the information on the form was found to be upwards of 20 and even 30 years out of date.	Adding a block that indicates the date when a heliport or vertiport owner actually submitted updated information and/or indicated that the current information is accurate would greatly help in creating a much higher level of data integrity and accuracy. Data base integrity could then be evaluated on a sliding calendar scale, i.e. if the information has been updated within the preceding 12 months integrity is high, if between 1 and 3 years old it would be medium and if greater than 3 years the data would have a low integrity rating. This then could also be used in pilot risk analysis programs for flight planning purposes. This would greatly assist in keeping the heliport manager's contact information current and up to date as well which has now become a critical factor in meeting a regulatory requirement for notification by UAS and Drone operators when operating in the vicinity of an airport, heliport or vertiport site.
3	**Add VTOL & UAS Categories to Based Aircraft Section**	With the advancement of the Vertical Takeoff and Lift (VTOL) industry combined with the continued growth of the UAS industry coupled with the ever-increasing size of these aircraft, we will begin to see more and more of these types of aircraft utilizing airports, heliports and vertiports throughout the United States and around the world in the very near future. The current FAA Form-7480 captures this data from the proponent in section (F) and the current Form-5010 then indicates this information in Items 90-96, and while it captures a number of different classification of aircraft it does not capture VTOL or UAS aircraft.	By adding VTOL and UAS aircraft types to the current airport master record we will then be able to better capture accurate data for these types of aircraft and operations. This will assist the FAA in better allocating resources and funding based on use models.

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4	**Add Vertiport, Vertistop & Droneport terminology**	With the new technology coming online for VTOL aircraft as well as the advancement of UAS and Drones there will be the addition of supporting infrastructure for these types of operations. In some cases, there will be a definite differentiation as to what an airport can support compared to a heliport, what a heliport can support when compared to a vertiport and what a droneport can support when compared to a heliport, vertiport or airport.	Defining and adding the terminology Vertiport, Vertistop and Droneport will assist in differentiating facility capabilities for the FAA and state DOT's in their role of oversite as well as for pilots regarding operational limitations and standards.
5	**Add Heliport/Vertiport Primary Surface Dimensions**	The primary surfaces for a heliport and now soon to be vertiport and potentially droneport, i.e. the Touchdown and Liftoff (TLOF) area, Final Approach and Takeoff (FATO) area and the Safety area, as defined in FAR Part-77.23 and further delineated in FAA heliport design guide, advisory circular AC 150/5390-2C are not captured in the current Form-5010 to the fullest extent possible and necessary. While the TLOF and FATO are required fields to be entered in FAA Form-7480 there is no truly identified block on Form 5010, other than Item-31 "Length" and Item-32 "Width" in the Runway Data section, that captures this data. FAA AC-150/5200-35-A, Submitting the Airport Master Record in Order to Activate a New Airport, does not use or define the terminology TLOF, FATO or Safety, rather it only describes items 31 and 32, referring to runway width and length. Neither the 7480 or the 5010 form captures the critical dimension of the safety area.	Allowing for the identification of the TLOF, FATO and Safety Area dimensions, which are directly based on the largest aircraft, "Design Helicopter" that is meant to operate at a particular location would assist in notifying operators and pilots to any potential size limitations of a site location. Hence this information could then be used in preflight planning and also for the purposes of instituting limitations at a site that may be undersized for a particular aircraft. This information could also be incorporated into an operator's risk analysis program. This was shown to be a critical limitation during government response operations to natural disasters such as hurricane Katrina. Larger military helicopters cannot currently determine the size limitations of a location prior to conducting operations.
6	**Include Max Gross Weight**	The maximum gross weight that a heliport or vertiport can support is a critical factor for assuring that safe operations can be accomplished especially when operating at a rooftop facility. Currently neither the FAA Form 7480 or the 5010 have a block identified for collecting what the max gross weight limitation is for a specific location. While FAA Form 5010 sections 35, 36, 37 and 38 speak to weight limitations they are not required information for civil private-use airports.	Allowing for the capture of the maximum gross weight of a heliport/vertiport, especially rooftop facilities, would enhance preflight planning and safety immensely. This was shown to be a critical limitation during government response operations to natural disasters such as hurricane Katrina. Larger military helicopters cannot currently

		With the increase in size and weight of aircraft over the past several years numerous older heliports, whose design was based on smaller aircraft weighing less than 10,000 pounds, are now incapable of supporting some of the larger aircraft currently being fielded. An example of this is when the Maryland State Police and the New Jersey State police upgraded to the AW-139 who's max gross weight is just under 15,000 pounds.	determine the weight limitation of a location prior to conducting operations.
7	Include Nearest Weather Reporting Facility	Recommend expanding the 5010 Facilities Block to include the nearest Automated Airport Weather Stations (AWOS) to include its direction and distance from the site plus radio frequency and phone number options. Also, include other weather sensors such as weather cameras and/or other weather reporting aids along with their pertinent phone and/or internet interface capabilities.	One of the number one factors in fatal helicopter accidents identified through research is unintentional VFR flight into IFR conditions. Allowing for an additional layer of pertinent weather information that pilots can ascertain more easily and quickly could assist in lowering this statistic. The capability of Helicopter Air Ambulance (HAA) operations being able to conduct IFR operations at sites with designated Instrument Procedures is contingent on accurate weather reporting being within a specified distance of the landing facility. Capturing this data more accurately would be a benefit to expanding safer IFR operations for HAA operations.
8	Location Accuracy	Currently there is no validation criteria or process for the estimated Latitude and Longitude of a landing facility. Neither FAA Form-7480, FAA Form-5010 or FAA AC 150/5390-2C provide any accuracy parameters for the Latitude and Longitude of a site. In FSIMS 8900.1, Vol-8, Ch-3, Sec-3, Evaluation and Surveillance of Heliports, there is a cursory mention of an accuracy parameter in section 8-215 5(a) as to a large discrepancy being more than 250 feet.	In recent research it has been shown that the latitude and longitude of numerous heliport sites around the U.S. have been found to be off as much as 5 to 10 miles and in some case upwards of as much as 50 miles. This is a critical piece of safety information for deconflicting airspace, specifically between Drone and UAS operators legally operating near a heliport who are now depending on the FAA B4UFLY application to identify airspace in their operational vicinity. The B4UFLY

		Recommend including language that indicates what the acceptable accuracy is for an estimated Latitude and Longitude of both a VFR and IFR site to include some form of validation process for this information.	application draws its data directly from the FAA 5010 airport master record data base. A higher accuracy of location information will also provide the FAA with better notification capabilities when evaluating new 7460 applications for obstructions. This in turn will assist proponents in better protecting their airspace.
9	**Electrical Charging Services**	With the recent across the board advancements in electrically powered aircraft we are now beginning to see fixed wing, rotary wing and now VTOL and UAS aircraft that are fully electric. This advancement in technology will soon require sites to have recharging facilities at airports, heliports, vertiports and droneports to accommodate their needs. Recommend adding electrical charging stations to induce type, number and charging capabilities (TBD) in the "Services" section of the 5010.	This will allow for the capturing of pertinent data for preflight planning purposes when flying an electrically powered aircraft that required battery charging. This will also assist the FAA in conducting cost analysis research due to the significant impact that these charging stations will have on electrical grid expansion requirements to support this need.
10	**Include Parking Positions, Numbers and Sizes**	While many current single FATO heliports do not have auxiliary parking, there are however several larger heliports that do have and offer parking positions for transient aircraft. This information is currently not being captured and cannot be calculated except by going onsite. Also, based on current concepts circulating for the VTOL industry, many potential providers are intending to rely very heavily on parking positions at facilities for the loading and unloading of passengers as well as a location for rapid recharging of electrically power aircraft. VTOL ratios currently being studied and evaluated are Parking to FATO ratios of 3:1 and 5:1 with upwards of four and six FATOs at a single location, constituting a potential of upwards of 30 parking positions.	Parking is not captured in the current 7480 or 5010 forms. With the VTOL industry looking to leverage parking positions as loading and unloading points as well as potential electrical charging points their number and dimensions become a critical element of operations, capacity, volume and preflight planning.

11	**IFR Procedures**	While the FAA Form-7480 does ask one question regarding IFR in section F4, i.e. "Are IFR Procedures for the Airport Anticipated? That information is not transferred to the 5010 data base in any way. Recommend adding a block to the 5010 that better captures a sites IFR capabilities so as to better determine whether the heliport in question supports any IFR procedures to the heliport or a Point in Space procedure.	One key reason that this is very important is that there may be a different level of protection afforded depending on the type of procedures that are associated with a specific site.
12	**Surface Type and Heating**	Recommended including the terminology "Concrete Pavers" as a descriptive element in Item-33, abbreviation example CONP. Also add an additional quantifier to surface type and condition for whether or not the surface is heated or not, example. This could be included in item #34 "Surface Treatment"	Several heliport constructions are currently integrating concrete pavers as the TLOF surface in place of a concrete slab. Many heliports in the northern latitudes are now using integral heating systems in the pad structure for snow and ice melt purposes.
13	**Site Location**	While FAA Form-7480 has a way of comparing the Ground Elevation, item D9, with the Site Elevation (AMSL) item E2, this information is not reflected on the FAA Form-5010. Recommend expanding this in both the 5010 and 7480 to capture what the ground elevation at the heliport site is to include what the FATO elevation of the heliport itself is and then further defining the sites location, e.g. Ground Based, Elevated, or Rooftop. There also needs to be a criterion established which dictates what the maximum separation would need to be between to separate FATOs before a second heliport ID is then required, hence requiring an additional airspace study to be conducted for the other site. In a case where there are multiple FATOs, each having its own supporting approach/departure paths those approach/departure paths also need to be captured for each FATO accordingly in FAA documentation.	There is no current information captured within the 5010 that reflects whether or not a heliport is ground based or rooftop based or as to what if any the difference in elevation is between the FATO and the surrounding ground elevation. This becomes very important when interpreting the prevailing ceiling at a location, which is generally provided by a ground based AWOS. Knowing the dimensions and potential limitations of a multi FATO site at a single location is highly beneficial for preflight planning and risk analysis.

		While the current adopted process is to identify multiple FATOs by using the nomenclature H1, H2, H3… this does not provide for an accurate representation as to which FATO is which when a pilot arrives on site. Recommend adding directional reference, e.g. N, NW, S, SE… and/ or descriptions for each individual FATO to better identify which one is which to pilots.	
14	**Maximum Rotor Diameter**	Adding the maximum rotor diameter for a heliport or vertiport will allow pilots to better understand a sites limitation in regard to aircraft size. While the TLOF of a site is predicated on the maximum rotor dimension no where is the word TLOF explained to pilots other than in the heliport design AC which pilots generally never read.	Knowing the maximum rotor diameter of a site will allow pilots to make better decisions as to whether a site is capable of supporting a particular aircraft size.
15	**Heliport Lighting LED & IR**	The 5010 should list what lights are available at a heliport and how they are operated. This would include beacons, wind cones, perimeter lighting, TLOF and/or FATO along with radio frequency for pilot-controlled lighting to include with any phone number(s) required for the activation of lighting. At the present time there is no way of identifying whether or not a lighting system is using older incandescent lights or newer LED lighting, which has been an FAA push for the past few years. In conjunction with the newer LED lighting now on the market there is also lighting that incorporates Infrared (IR) lighting to better support Night Vision Goggle (NVG) operations. Recommend capturing whether or not the lighting system is LED or Incandescent and whether or not IR/NVG lighting is provided.	Identifying sites that have LED lighting will provide the FAA with better overall data on lighting trends. Identifying the fact that a site has LED lighting and IR capabilities for enhanced NVG operations will provide pilots with additional information for their preflight planning and risk assessment evaluations.

		Need to also add heliport/vertiport approach lighting systems to item 49, such as a HAPI (PLASI) Pulse Light Approach Slope Indicator.	
16	**Obstruction Hazards and Marking and Lighting**	While the FAA AC 150/5200-35A does outline obstructions in item 52 and marking and lighting of obstructions in item 53 the guidance it is extremely airport centric. Recommend incorporating heliport terminology, e.g. TLOF, FATO, Safety Area, approach/departure surfaces, transitional surfaces into the descriptive language of items 52 and 53 for heliports and vertiports. Reference to an obstructions location could be indicated by the direction (magnetic heading) and distance in feet from the center of the heliport to the obstruction and include the height of the obstruction above the FATO in feet.	This would allow a better capturing of obstructions around heliports/vertiports along with whether they are lighted and/or marked.
17	**VFR/IFR, DAY/Nt, VMC/IMC Limitations**	This is a perfect time to add this information for point in space operations. It is very important because this information is currently contained in the comments section which is not a searchable section for electronic data bases. If this information were to be included in the system, it could automatically be fed into the FAA NOTAM system because we would then have a field that would discriminate the information.	Improved flight planning from the standpoint that this information could then be added to the NOTAM system with the potential inclusion of private facilities to the system.
18	**NOTAM**	Recommend that all heliports, both public and private be included in the FAA NOTAM system. Many current locations are dealing with obstructions such as cranes, antennas, towers and buildings and have no way of alerting anyone to the these hazards in an accurate and timely manner.	Adding NOTAM services to all of the heliports in the U.S. would be a large benefit to operational safety. Given that the FAA's current 5010 data base indicates that there is a total of 5,842 heliports in the U.S. and its territories with 5,082 being privately owned (87%) with 5,782 being

		Maintaining the currency of this type of information is going to be the biggest challenge for the current third party 5010 system utilized by the FAA. An alternative system may be one of the wiki systems currently in place which allow the operators to report issues rather than the heliport owner. The questions then becomes, who will have oversite and maintain this data?	private use (99%) and 60 being public use (1%) with a total number of 94 heliports in the inventory showing that they have NOTAM services, this only accounts for 1.6% of all heliports in the U.S. and its territories as having NOTAM services. In the case of Medical Use Heliports, which according to the FAA 5010 data base account for 2,525 heliports (43%) of all heliports, almost half, there are for currently profit Part-135 operations being conducted for compensation for passenger transport, in this case patients, in similar fashion to Part-121 operations, without the benefit of a standardized NOTAMS system being in place for any of these locations.
19	**Light Activation Phone #**	As detailed earlier in this list of recommendations, see item number 15, many heliports do not have pilot-controlled lighting but rather are activated by onsite personnel upon receiving a request to turn on the lights via a phone call from the pilot or their operations. Currently there is no place to add a phone number for this purpose.	Improved night operations and flight planning.
19	**PPR Block**	While item 18 "Airport Use" does capture Public and Private use it only references PPR Prior Permission Required and only in the remarks section which is not a searchable data block. It would be beneficial if a block were included for PPR which references the heliport managers information.	Many heliports that are private are PPR but that is not reflected clearly in the 5010. Adding this field would also make this a searchable field.
20	**Increase Owner and Manager Contact Information**	There are a number of heliports that while they have a phone number associated with them the phone number is to an offsite office or phone operator that may not be monitored 24/7.	The inclusion of additional contact methods would help to reduce unannounced and potentially unauthorized operations that some facilities have experienced in the past. This in turn will help decreasing the risk exposure of unknown arriving flights.

		Many heliport managers utilize a cell phone for the coordination of flight operations as well as email for advanced notification purposes. Recommend increasing the contact information for managers by incorporating a field to capture a cell phone number and another field to capture an E-mail address.	
21	**Other Radio Frequencies**	Many private use heliports in operation today use radio frequencies other than those located in the aviation frequency band for air to ground communications. This is especially true of Hospital Heliports who use Emergency Room radio frequencies and several corporate heliports that use their own internal security department radio frequency. To provide adequate communication channels for safe operations the 5010 should have the capability to capture this data. This should include Emergency Room radios frequencies, also known as the Hospital Emergency Room Network or HERN which in many cases use a Privacy Tone Code on either the transmit frequency, receive frequency or both in either a digital format or analog format. Some locations also use the older DTMF Duel-Tone Multi-Frequency codes to activate a radio system, e.g. the sound each digit on your phone produces when pressed.	This would allow operators and heliport owners to better capture and disseminate this important communications information.
22	**Building Clean Air Intake Activation Indicator**	Some heliports, both ground and rooftop, are located in close proximity of the fresh air intakes of some buildings. To mitigate the ingestion of exhaust fumes at these locations many heliport owners have incorporated bypass systems that are activated during helicopter landing and takeoff operations. These systems often times have a visual indicator as to whether they are in bypass or not. Many of these systems are activated directly from the heliports pilot-controlled lighting system or are activated onsite by personnel via a radio or phone call.	Provides improved customer service to heliport owners that suffer from this issue.

| 23 | **Aircraft Relocation Procedures** | At locations with one heliport that have limited or no ancillary parking available, where multiple helicopters may need to land and takeoff in short order, there is a need for capturing information regarding how pilots need to communicate with the heliport operations once they are on the ground and the aircraft has been shut down. This is very important when there are other inbound aircraft or in the event of an emergency situations.

A heliport owner who experiences this situation on a regular basis should have a written protocol for how they intend on handling multiple helicopters operations which may include the identification of alternate landing areas which may need to be captured on the 5010. | Safety of flight issues have been observed when too many helicopters have attempted to utilize a heliport that was only designed for one aircraft at a time. |
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Information specific to IFR operations to be considered for inclusion in the Form-5010

Some of the following items may be a repeat of those captured in the preceding recommendations but the committee felt it prudent to identify and reiterate them for the purposes of enhanced IFR capabilities for heliports and vertiport in the future.

Data or more specifically the lack of data or inaccurate data is a major roadblock to current efforts towards modernization. Currently there is no standard or attempt to input heliport or obstacle data. Today, data is obtained from many unofficial sources and placed in the database as generic information. It does not identify the source information which can be used by the developer. In several cases there has been erroneous data identified which then has to be validated all at a significant expense.

Currently third-party procedure developers exceed the FAA' capability in obtaining data. However, this data is not retained in a formal process. Additionally, all the data obtained is not imported into any database available to the FAA. Attempts have been made to have the data input into the system, but no standard exists for information that comes from outside FAA sources.

Additionally, the flow from the initiation of a request for heliports to input data is very lacking in the information that is used to initiate the heliport identification process and has been shown to be very inefficient. Routinely, there is no standard or source which ensures correct information and specific information is provided. Currently, data is generic and incorrect causing extensive delays in getting data input into to the National Air Space Resource (NASR) and Air Navigation (AirNav) FAA databases. A heliport Form-5010 needs to be developed that will provide actual helicopter required fields to support the IFR processes.

Following are the recommended data fields that need to be implemented to support IFR heliport operations.

1. Heliport ID, Name, State, Magnetic/Variation, Altimeter Source, Associations – Standard requirements for the heliport. If multiple landing areas are located at a specific geographical area each should be listed as a heliport and tabs included to reflect the different landing area's locations, dimensions and approach/departure paths as needed.

2. Heliport Location – Accurate center coordinates, if multiple landing locations, listed as a heliport and coordinates determined by central location of pads.

3. FATO location – FATO and TLOF aren't always the same location. If different, the FATO center coordinates need to be provided. For IFR operations the FATO is the key element for where a procedures starts and/or ends.

4. Heliport TLOF dimensions – Width x Width

5. Heliport FATO dimensions – Width x Width

6. Heliport lighting and operational requirements – Pad lights type, perimeter lights, method of operation (i.e. contact phone number, frequency, sunset to sunrise photocell, etc.).

7. Windsock – Location (Yes/No), lights, type, etc. and multiples with azimuth, distance and height to indicate location.

8. Type of Pad – IFR or VFR, which is a discriminator for the NOTAM system as well as to what standards will be applied. Procedure segments for ingress/egress.

9. Type of Operation – General, Hospital, or Transport as defined by AC150/5390-2C

10. Ingress / Egress desired routes. This should include the magnetic center line of the 8:1 approach/departure surfaces that are evaluated during the FAA airspace study along with any required maneuver or offset, e.g. dogleg operations required by the pilot.

11. Heliport Certification Point of Contact information, specifically for an IFR heliport. This is the person who certified the heliport for IFR operations.

12. Owner – Private or Public, to include contact information. This may need to include a Point of Contact from the helicopter service provider given that some heliport owners are not involved with these operational parameters, rather leave the decision making and oversite for this up to the certificate holder who uses their heliport and supports their operations. Issues have been encountered in the field where a proponent wants an instrument approach procedure but there is no actual "owner" to work through.

NOTHING ELSE FOLLOWS