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FAA's LAANC System:

Safety Through Situational Awareness

By Alan Frazier, Deputy Sheriff, Grand Forks (ND) County Sheriff's Office, Associate Professor, University of North Dakota's School of Aerospace Sciences

The Federal Aviation Administration's 14 CFR 107.41 states small unmanned aircraft may not operate in Class B, C, D or E surface area airspace associated with an airport without prior authorization from air traffic control.

The regulation indicates receiving authorization from the applicable ATC facility would permit operation of sUAS in the listed controlled airspace. However, FAA's UAS Integration Office has instructed local ATC facilities not to accept airspace use

requests directly from Part 107 Remote Pilots. Instead, ATC facilities have been told to direct the pilots to the administration's online airspace waiver and authorization request portal (www.faa.gov/uas).

The foremost problem with this is that FAA recently stated it has more than 6,000 Part 107 waivers awaiting review. Monitoring of the administration's link to approved Part 107 waiver requests site reveals FAA is processing approximately 100 requests monthly. At that rate, the current backlog of

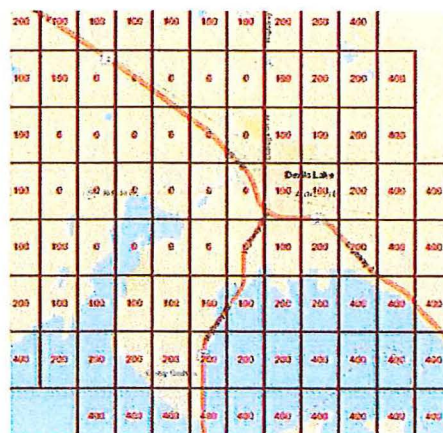
6,000 waiver requests will take more than 60 months to process.

The second problem is that UAS hobbyists operating pursuant to 14 CFR Part 101 are instructed by Advisory Circular 91-57A to contact the appropriate ATC facility when operating within five statute miles of an airport. Hobbyist contact is a courtesy notification. ATC cannot prohibit the pilot from operating in the controlled airspace. So a hobbyist can operate almost anywhere he or she pleases, while a public safety remote pilot must use the online portal to request controlled airspace access and potentially wait months for approval.

FAA is quick to point out that a public safety agency can request a special government interest (SGI) certificate of authorization or waiver (formerly known as an emergency COA). But the SGI application and approval process takes an hour or more to accomplish.

Enter LAANC

With all this in mind, FAA's prototype evaluation of the Low Altitude Airspace Authorization Notification Capability (LAANC) is welcomed and much needed. The administration states that "LAANC is an industry devel-



oped application with the goal of providing drone operators near real-time processing of airspace notifications and automatic approval of requests that are below approved altitudes in controlled airspace...LAANC meets the regulatory requirements of the 2016 Small UAS Rule and the Special Rule for Model Aircraft. The UAS Data Exchange facilitates LAANC by providing airspace data to industry so that they can create the tools needed to benefit the drone community. LAANC is the industry-developed application through which you may apply for an airspace authorization or notify the air traffic control tower of your intended flight plans. Airspace data is provided through the UAS facility maps. The maps show the maximum altitude around airports where the FAA may authorize operations under the small UAS rule. Industry will provide these operators the ability to interact with the maps and provide automatic notification and authorization requests to the FAA."

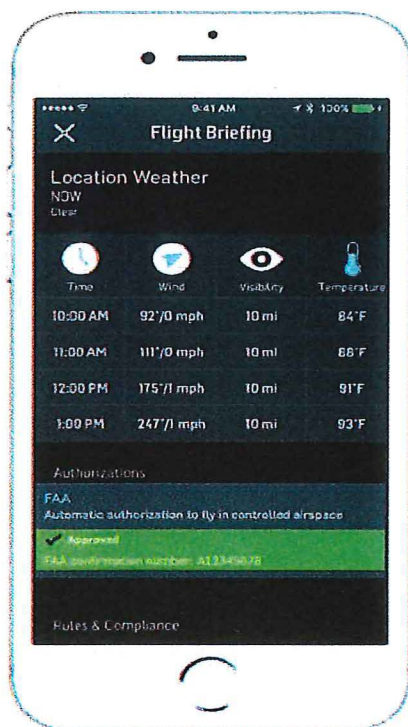
In other words, LAANC is a web-based application system for gaining near real-time FAA authorization to operate sUAS in controlled airspace. In setting up LAANC, FAA is soliciting sUAS airspace access input from ATC facilities throughout the country. Local ATC facilities overlay a series of approximately 1 nautical mile squares over the airspace surrounding airports in their area of responsibility. Each square is assigned a maximum above-ground-level altitude below which ATC believes sUAS operations can be conducted with little or no impact on the facility and manned aircraft.

Collectively, the 1 nautical mile squares create a grid around the airport. The airspace directly over the airport routinely bears a "0" altitude, indicating automated airspace authorization is not available. This does not mean sUAS flights cannot occur in the area. It simply means LAANC is not able to provide immediate airspace authorization and further ATC coordination through the online portal or the SGI application process is required. Further out from the airport, the blocks are labeled 100-, 200- and 400-feet indicating sUAS remote pilot requests to fly in the blocks below the stated altitudes will likely be automatically approved.

Building the Network

To date, FAA has added 482 airports to the LAANC UAS Facility Maps network (19 in Class B airspace, 41 in C, 85 in D and the remainder in E). FAA estimates a total of 900 airports will be added by April 2018. Additional airports are added every 56 days on the instrument approach procedure chart revision schedule.

The FAA prototype evaluation of the



LAANC system involves 49 airports, including three Class B airspace facilities, four Class C facilities, two Class D facilities and 40 Class E airports. FAA intends to conduct a full beta test to include additional airports in early 2018. This bodes well for public safety sUAS users exercising Part 107 as it promises to provide rapid access to controlled airspace.

As of December 2017, three vendors have been authorized by FAA as LAANC service providers: Air Map, Skyward and Project Wing. Browsing the three vendor websites reveals Air Map and Skyward have active LAANC prototype evaluation interfaces.

Air Map offers a free application that permits the user to interface with LAANC. Skyward advertises both a free pilot application and a fee-based (\$2,999 annually) organization account. Since the LAANC service providers are commercial entities, it is likely access to LAANC after the Beta test will be fee-based.

While the Skyward application is far from user-friendly, the Air Map application was more intuitive. It leverages your smartphone's GPS to identify your location, and the user can build an airspace use-request in the application with a combination of previously stored information and/or real-time GPS position information. The Air Map application uses MapBox imagery, which is easy to navigate and allows exact location identification.

The application compares the user's sUAS operational area and requested alti-

tude with the FAA's UAS Facility Maps. Assuming the requested altitude is below the maximum altitude indicated on the map, the remote pilot can reportedly expect an airspace authorization within seconds of submitting the request.

I personally tested LAANC using the Air Map Application around the Devils Lake, ND, airport and achieved mixed results. On two occasions, I seemed to receive authorization to operate in the Class E surface area. I never received the "authorized" message the Air Map tutorial promised, but other indications in the application confirmed authorization. On two other occasions, I received non-specific error messages with no instructions on what to do to correct the problems.

The FAA's UAS Facility Map and a downloadable list of the facilities gridded on the map or facilities participating in the prototype evaluation can be accessed at www.faa.gov/uas/request_waiver/uas_facility_maps/.

While LAANC can potentially be of great assistance to sUAS users in gaining access to controlled airspace in a timely manner, additional development of the interface between FAA and authorized vendors, as well as software refinement, is needed. Hopefully, during the prototype evaluation and beta tests, most of the bugs will be identified and remedied, resulting in a user-friendly tool for expediting safe access to controlled airspace by sUAS users. ▾