

Summary Report of the 2020 FAA UAS Symposium (Part 2) and Pilot Program of Unmanned Aircraft

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1. Outline of the Symposium

The FAA UAS Symposium is an annual conference focused on unmanned aircraft cohosted since 2016 with the Association for Unmanned Vehicle Systems International (AUVSI).

This year's 5th Annual Symposium was held entirely online, with the first part held from July 8th to 9th and the second from August 18th to 19th (Please refer to my previously published Summary Report¹⁾ regarding the first part of the symposium).

In Part 2, keynote speeches and panel discussions were given themes on unmanned aircraft pilot programs and public safety. The following sections will outline past unmanned aircraft pilot programs and points given in each keynote speech.

2. Pilot Programs of Unmanned Aircraft (Integrated Pilot Program)

The unmanned aircraft related Integrated Pilot Program (IPP) was a trial program launched in 2017 where manufacturers and operators worked with states and local public sectors to perform examinations and evaluations in order to integrate private and public unmanned aircraft into the national airspace system. Furthermore, in these trial programs the four objectives were to formulate a way to balance local and national interests in operations of unmanned aircraft, improve communication between states

and local jurisdictions, solve security and privacy risks, and support new regulations that were being developed by the U.S. Department of Transportation and Federal Aviation Administration through speeding up the approval process of operations, which require special permissions.

The followings are 9 organizations who had joined IPP and their programs²⁾.

(1) The Choctaw Nation of Oklahoma

Conducting operations beyond visual lines-of-site and at night, the Choctaw Nation is focused on the use of unmanned aircraft in agriculture, public safety, and infrastructure inspection, and aim to develop ground-mounted, movable surveillance radar and leading meteorological infrastructure.

(2) San Diego, California

The city of San Diego operates unmanned aircraft to mainly monitor borders and deliver grocery packages, concentrate on international trading, automated mutual operations of aircraft, and surveillance, and utilize various communication technology, including 4GLTE and 5G.

(3) Virginia Innovation and Entrepreneurship Investment Authority

In order to promote package deliveries in both rural and urban areas, the Virginia Innovation and Entrepreneurship Investment Authority aim for technologies to be put to practical use, such as for detection and avoidance, recognition and tracking, radar systems, and in a mapping tool.

(4) Kansas Department of Transportation

For the sake of promoting precise operations in agriculture, via operations beyond visual lines-of-site in rural areas, the Kansas Department of Transportation's goal is to utilize the UAS Traffic Management (UTM) of unmanned aircraft at the state level using technologies of detection and avoidance, geofencing, satellite communications, and the Automatic Dependent Surveillance – Broadcast (ADS-B)..

(5) Airport Authority, Shelby County, Tennessee

Focused on automated operations supporting work at airports, such as inspecting FedEx aircraft, conducting security surveillance, and delivering packages, the Airport Authority activities will follow operation management for unmanned aircraft, which can coexist with manned aircraft traffic.

(6) North Carolina Department of Transportation

North Carolina's DOT will set up drone delivery stations in local communities. In order to perform package deliveries in certain places in the designated airspace, they will operate beyond visual lines-of-sight and at night, utilizing technologies of ADS-B, detection and avoidance, UTM and radar.

(7) North Dakota Department of Transportation

North Dakota's DOT will perform operations in various airspace, from rural to urban, and expand operations beyond visual lines-of-sight and at night focused on data for third party systems, aircraft system technology, training requirements, processes, and procedures.

(8) Reno, Nevada

In both urban and rural areas, Reno will focus on emergency deliveries of medical equipment, such as AEDs, and will aim to improve the number of rescues using unmanned aircraft.

(9) University of Alaska Fairbanks

Prioritizing pipeline inspections in remote areas and severe climate conditions, the University of Alaska Fairbanks will operate by utilizing technology such as detection and avoidance, ADS-B, differential GPS, satellite services, thermal imaging, and UTM.

As it was predetermined from the beginning that the pilot programs were to be implemented within 3 years, the FAA declared IPP completion on October 25th, 2020. However, the FAA launched the new "BEYOND" program on October 26th in order to solve the following remaining challenges. ³⁾

- Performing repeatable, expandable, and economically feasible operations flying beyond visual line-of-sight and specifically focused on infrastructure inspections, public operations, and parcel deliveries.

- Utilizing industrial operations to better analyze and quantify social and economic benefits of unmanned aircraft operations.

- Enticing community participation through collecting, analyzing, and resolving their concerns.

In this "BEYOND" program, except for (2) San Diego, California, 8 out of 9 organizations who participated in IPP will continue to do so.

3. Summary Report of the 2020 FAA UAS Symposium (Part 2)

As mentioned in the beginning of this report, during Part 2 of the Symposium, held from August 18th to 19th, keynote speeches and panel discussions were given the theme of unmanned aircraft pilot programs, as described in the previous section, and operations related to public safety.⁴⁾

The total number of participants at the symposium was about 1,600, which was over the number of those took part last year (about 1,200 guests). The next sections will detail the points given during each keynote speech.

3.1 Opening Remarks

Just as they had in Part 1, Jay Merkle, Executive Director of the FAA's Office of UAS Integration, and Brian Wynne, President of AUVSI, gave opening remarks.

Firstly, they both spoke on the success of Part 1 of the Symposium, which had been held in July and welcomed many participants, despite it having been held entirely online for the first time. Merkle pointed out the high affinity for the UAS's industry and digital world as the reason for its success.

Furthermore, he commented that in regards to IPP, which was one of the themes of Part 2, much knowledge had been gained through past activities and that it had contributed to rulemaking. In addition, he introduced that drones have been used to inspect a few thousand miles of power grids for partnerships outside of IPP.

Wynne mentioned trial uses of drones for surveillance of airport restricted areas and development of a drone detection system.

3.2 Keynote Speech by the FAA Administrator

Steve Dickson, FAA Administrator, first talked about the various possibilities of drones, but emphasized that successes must be balance with safety, which is the FAA's role.

The following achievements of IPP were explained:

North Carolina's IPP has dramatically reduced the delivery time of medical samples, Wing (Virginia's IPP) and UPS (North Carolina's IPP) have been granted commercial operational permits under Federal Aviation Regulations Part 135, Virginia's IPP was used to investigate hurricane damage, Oklahoma's IPP was used to investigate crops which contributed to double yields, the IPP in California reduced the initial response time for police calls from 6 minutes to 2 minutes, and the IPP in Tennessee reduced the time required to inspect aircraft from 3 hours to 20 minutes.

Furthermore, as a response to COVID-19, it was introduced that drones were used for a type of contactless delivery and distribution of medical supplies.

Regarding Advanced Air Mobility (AAM), the FAA confer with industries to work on 5 areas, including aircraft, airspace, operations, infrastructure, and community.

Dickson also presented that by partnering with electric power companies, the use of drones to inspect over 2,000 miles of transmission lines have made these operations more efficient, more frequent, and less risky.

Regarding public safety, 2,000 guidebooks have been dispersed to law enforcement organizations to deal with illegal unmanned aircraft operations. Liaison officers are deployed at the FAA to support public safety efforts.

Since 25 million people in the U.S. do not speak English according to the national census, the websites are translated into Spanish for people who fly drones as a hobby.

Lastly, Dickson emphasized that the key for the future is for people to recognize that flying drones is a safe activity, and that symposiums such as this one are important to continue the work for safety.

3.3 Keynote Speech about Crashes Involving Manned and Unmanned Aircraft

Bill English, UAS Program Lead of The National Transportation Safety Board (NTSB), described instances of crashes involving manned and unmanned aircraft.

While NTSB has collected crash reports from manned aircraft pilots and through information gathered from the media, in the past 10 years, only 3 cases have been confirmed as crashes occurring between a manned and an unmanned aircraft.

In addition, within crash cases that are suspected to be with unmanned aircrafts, some are determined to be due to bird strikes and poor maintenance. Although it cannot be said with certainty that there is a high possibility of collisions with unmanned aircraft, there are 4 cases that have this explanation.

3.4 Keynote Speech by the Chief of the Chula Vista Police Station

Roxana Kennedy, Chief of the Chula Vista Police Station talked about their use of drones for police tasks since October 2018.

According to her, real time images obtained from drones enabled them to make plans before arriving at dispatch destinations, which resulted in better achievements. Addressing concerns about privacy, operations are conducted transparently.

Kennedy also emphasized that cooperation with the FAA and other agencies who participate IPP is necessary to have such achievements.

3.5 Keynote Speech by the Secretary of Transportation

Elaine Chao, Secretary of Transportation, introduced the uses of drones for deliveries of medical supplies, public safety missions, investigations on damages after disasters, and distribution of medical supplies and commodities as a response to COVID-19, through the IPP.

Although the IPP was completed in October, establishing a new program for more complex and day to day drone usage has been under discussion.

4. Conclusion

Regarding the pilot programs for unmanned aircraft, the FAA had been indicating that they would launch a newly developed and expanded pilot program after the IPP had ended. They've now begun their new program, called "BEYOND," with many of the same participants who had engaged in IPP, showing the FAA's strong intentions for participants of "BEYOND" to serve as a model case to grow unmanned aircraft usage. As mentioned in section 3.2, among the participants of IPP, a commercial operation permit provided under Federal Aviation Regulations Part 135 has been awarded to Wing (Virginia's IPP) and UPS (North Carolina's IPP).

I would like to continue to pay attention to future developments of the "BEYOND" program.

References

1) Yoshihiro Fujimaki, Regulation Trends for Unmanned Aircraft and a Summary Report of the 2020 FAA UAS Symposium (Part 1)

<https://www.jittri.or.jp/document/2020/fujimaki03.pdf>

2) FAA, UAS Integration Program Lead Participants

https://www.faa.gov/uas/programs_partnerships/integration_pilot_program/lead_participants/

3) FAA, BEYOND

https://www.faa.gov/uas/programs_partnerships/beyond/

4) FAA, 2020 FAA UAS Symposium

https://www.faa.gov/uas/resources/events_calendar/2020_uas_symposium/