UNMANNED AIRCRAFT SYSTEMS

2014 has shown significant growth in Unmanned Aircraft Systems (UAS). Six UAS Test Sites were selected in late 2013 and are operational, the FAA is evaluating submissions for a UAS Center of Excellence (COE), and a Notice of Proposed Rulemaking (NPRM) for small UAS is being coordinated. All of these efforts help the FAA develop regulations and operational procedures to achieve the end goal of safe integration of public, commercial and civil UAS in the National Airspace System (NAS).

UAS Test Sites

The FAA Modernization and Reform Act of 2012 (FMRA) directed the FAA to establish a Test Site program to further the integration of UAS into the NAS. The agency solicited proposals from public entities, including state and local governments and eligible universities, interested in operating the Test Sites. During 2014, all six Tests Sites became operational. The six Test Sites have affiliate states where they plan to conduct operations, shown below.

The Test Sites will provide valuable safety data along with operational expertise to enable the safe operation of aircraft in the NAS.

UAS Center of Excellence
This year, the FAA will establish a Center of Excellence (COE) for UAS. The COE will be a geographically dispersed consortium of university partners and their affiliates. Specific projects will be defined and funded through grants. The goal is to create a cost-sharing relationship between academia, industry, and government that will focus on research areas of primary interest to the FAA and the UAS community. The FAA expects the COE to perform short- and long-term basic and applied research through a variety of analyses, simulations, and prototyping activities.

Section 333 Exemptions

Section 333 of the FMRA grants the Secretary of Transportation the authority to determine whether an airworthiness certification is required for certain UAS to operate safely in the NAS. This determination is based on the size, weight, speed and operational capabilities of the aircraft. After the Secretary makes this determination, a petition for exemption undergoes a safety evaluation by the FAA to determine what additional conditions and limitations are required for the proposed UAS operation.

In 2014, the Department of Transportation and FAA made progress in furthering integration of UAS under the authority of Section 333 of the FMRA. As of January 30, 2015, there have been 24 approvals for commercial UAS operations in the United States granted under Section 333 authority. These approvals cover a wide range of operations including motion picture, flare stack inspection, crop survey and construction use.

Certificates of Waiver or Authorization (COAs)

Since unmanned aircraft have no pilot on board, the ability to “see and avoid” other aircraft is accomplished by an “Alternate Means of Compliance (AMOC)” with the applicable Chapter of FAA Order 8900.1, Flight Standards Information Management System, Volume 16, Unmanned Aircraft Systems. The Certificate of Waiver or Authorization (COA) is the mechanism used to provide that alternate means. COAs are issued to agencies wishing to operate unmanned aircraft for purposes other than hobby or recreation. A COA is not required for operations in restricted areas, warning or prohibited areas. Public operators normally belong to government or state agencies and routinely conduct unmanned aircraft operations for strictly governmental purposes. These agencies include but are not limited to the Department of Defense, Department of Homeland Security, state and local law enforcement agencies, and public universities.

In the 2012 FMRA Section 333, Congress provided guidelines that allowed civil UAS to operate in the NAS for commercial purposes. In late 2014, the first COAs for commercial purposes were issued to applicants in the film and movie making industry. Since that time the FAA has issued more than sixty-three (63) COAs to various companies in a variety of industries to operate unmanned aircraft in the NAS. The COA provides specific operating areas and specific mitigations that help to ensure the safety of the NAS. The FAA predicts the number of COAs issued for commercial purposes will soon outpace the number of COAs approved for public operators.
UAS in the Arctic

The first commercial beyond line of sight operations in the United States were authorized in the Arctic in 2013. The FAA is continuing to work with industry partners to evolve the maturity of beyond line of sight operations in remote operating areas.

UAS Forecast

FAA uses the Teal Group’s 2014 World Unmanned Aerial Vehicle Market Profile and Forecast as the basis for our forecast. Teal points out that the current market for unmanned aircraft outside the military is extremely small but will be one of the fastest growing segments in aviation over the next ten (10) years. There is the start of a non-military UAS market, but the size of the market will directly relate to regulations that are adopted. Once enabled, UAS weighing less than 55 pounds will become commercially viable.

The FAA is working to enable a new thriving industry to flourish while maintaining the safety of the NAS. Once small UAS are routinely authorized to operate in commercial markets, there will be a surge in the commercial applications of UAS. Potential markets will include aerial photography, precision agriculture and law enforcement.

UAS Small Commercial Forecast

Today, unmanned aircraft are flying in the NAS under very controlled conditions, and operations range from ground level to above 50,000 feet, depending on the specific type of aircraft. UAS are authorized to operate only on a case-by-case basis in Class B airspace, which exists over major urban areas and contains the highest density of manned aircraft in the National Airspace System.

Once the regulatory structure is developed and industry standards have been established, the FAA expects a commercial UAS market to mature rapidly. Relatively inexpensive UAS systems weighing less than 55 pounds are economically viable from a commercial standpoint, and the expectation is that market demand for UAS will occur within the constraints of the regulatory requirements. The number of small UAS forecasted is highly uncertain and is dependent on the regulatory structure finally adopted.