TESTIMONY

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U.S. House of Representatives
Committee on Transportation and Infrastructure
Subcommittee on Aviation
Hearing: "Moving NextGen Forward: Leveraging the Assets of the FAA's William J. Hughes Technical Center"

March 11, 2014

Chairman LoBiondo, Ranking Member Larsen, Members of the Committee, thank you for the opportunity to speak to you today. I am speaking on behalf of the Association for Unmanned Vehicle Systems International (AUVSI), the world's largest non-profit organization devoted exclusively to advancing the unmanned systems and robotics community. AUVSI has been around for more than 40 years, and we currently have more than 7,000 members, including over 600 corporate members.

As you know, unmanned aircraft systems, or UAS, increase human potential, allowing us to execute dangerous or difficult tasks safely and efficiently. Whether it is helping first responders, advancing scientific research, or making business more efficient, UAS are capable of saving time, saving money, and most importantly, saving lives. However, the benefit of this technology does not stop there; this technology has incredible potential to create jobs and stimulate the U.S. economy as well.

Last year AUVSI released an economic impact study[1] finding that, within the first 10 years following UAS integration, the UAS industry will create approximately 100,000 jobs and have more than $82 billion in economic impact. Because of cost, small UAS, weighing less than 55 pounds, will comprise a majority of the developing commercial market. These small UAS have sufficient capabilities to meet the needs of remote sensing for a variety of commercial markets, including agriculture – which our economic report suggests will comprise 80% of the

[1] www.auvsi.org/econreport

commercial UAS market – inspection, real estate, and journalism. Most operations will be conducted below 500 feet with limited need to fly above 1,500 feet.

However, before these jobs and economic impact become a reality, the FAA must write the safety regulations to integrate these systems. The longer the FAA takes to write those regulations, the greater the risk to aviation safety.

The need for a regulatory framework became evident on March 6th, when a National Transportation Safety Board (NTSB) Administrative Law Judge ruled that FAA has no authority to regulate model aircraft or UAS[2] because the FAA has not yet adopted regulations through formal rulemaking. To date, everything the FAA has published on UAS has been guidance or policy, which is not binding on the public. Although the FAA has already indicated its plan to appeal the decision to the full NTSB[3], staying the decision until the full Board reviews it on appeal, the FAA may also implement emergency rulemaking.

The current pace of UAS integration, specifically with regard to small UAS, is unacceptable. The FAA has been working on rulemaking for small UAS since 2009 and the projected date for a final rule was in 2011. Unfortunately, the FAA does not anticipate releasing the notice of proposed rulemaking for small UAS until this fall, and it is unlikely the rule will be finalized until at least 2015. The longer regulations for small UAS operations are delayed, the more people will be flying in an unregulated manner. The FAA's surveillance and enforcement resources will be severely strained, which poses a threat to aviation safety. We are concerned that if unregulated operations proliferate, the likelihood that something could go wrong increases. If and when that happens, it could set back this revolutionary technology that is advancing faster than the regulatory framework around it.

An option may be for the FAA to use the authority granted to it by Congress in Section 333 of the FAA Modernization and Reform Act[4], which says, "the Secretary of Transportation shall determine if certain unmanned aircraft system may operate safely in the national airspace system before completion of the plan and rulemaking..." The FAA has delegation authority, and perhaps it could enter into agreements with the UAS test sites to do certification work for small UAS aircraft and operators before the small UAS notice of proposed rulemaking is released later this year.[5]

UAS Work at the William J. Hughes Technical Center

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[2] Michael Huerta v. Raphael Pirker, NTSB Docket CP-217
[3] http://www.faa.gov/news/press_releases/news_story.cfm?newsId=15894
[4] http://beta.congress.gov/112/plaws/publ95/PLAW-112publ95.pdf
[5] http://www.dot.gov/regulations/report-on-significant-rulemakings

The FAA's Technical Center can play an invaluable leadership role in collecting and analyzing UAS data to help the FAA write UAS rules; however, the UAS research department at the Technical Center is under-staffed, under-resourced, and its current research is not based on a strategic plan to integrate UAS into the national airspace system. In fact, last month, the Department of Transportation Inspector General found there is an inadequate framework for sharing and analyzing UAS data, and the FAA has no process to ensure that all incidents are reported. AUVSI would like to see a holistic approach to UAS research based on the FAA's roadmap and concept of operations.

Although the FAA's UAS research budget has grown in recent years, from approximately $4 million in 2013 to $8 million in 2014, and possibly $9 million in the President's 2015 budget, there are currently less than five full-time UAS researchers at the Technical Center, not including contractors. The rest of the researchers are on loan from other departments at the Technical Center. This staffing construct is referred to as a "matrix" team. Thus far, all UAS research has been tasked from the UAS Integration Office in FAA's headquarters. AUVSI would like to see the FAA expand its core UAS research team.

Currently, all UAS research at the Technical Center is funded through the FAA's research, engineering and development budget, which provides very little flexibility in how funds can be used. This is different from the FAA's NextGen or operations research budgets, which provide more flexibility in how funds are used. In this research budget, all of FAA's research programs compete against each other on a yearly basis and the final decisions on what program projects gets funded are made by the FAA's Technical Community Representative Group (TCRG); therefore, there is no guarantee of future UAS funding. AUVSI would like to see more UAS projects directly funded through the FAA's NextGen or operation research budgets, which have thus far funded relatively limited UAS research projects.

In 2014, six UAS research projects were initially approved by the TCRG[6], with a total budget of approximately $8 million. Interestingly, none of these projects were intended for UAS test site data management. However, now that the test sites have been selected, the FAA is in need of a location to store and analyze the data, as well as resources to pay for data analysis. Because there is no "new" money in the research budget, the FAA was forced to cancel one of its

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[6] The FAA's Technical Community Representative Group approved six UAS research projects for 2014, including:

1) UAS 14-01: SAA System-Certification Considerations for Reqts-Based Testing & Validation of Non-Deterministic Data Processing. This project was funded at approximately $1 million.
    a. NOTE: This project was cancelled and the funding was split and reallocated between two "pop up" projects, which were deemed immediate needs but not budgeted for, including UAS test site data management and the ACAS Ua research project.
2) UAS 14-02: SAA System Multi-Sensor Surveillance Data Fusion Strategies
3) UAS 14-03: SAA System Certification Obstacles
4) UAS 14-04 (C2) Evaluation of Comm Strategies in the Context of UAS Operations
5) UAS14-05: UAS Safety Criteria for Airborne & Ground
6) UAS 14-06: Simulating Oversight of UAS in NAS Operations

approved projects and use part of that amount – $500,000 – to initiate the test site data work. If the FAA is committed to using the test sites to collect and analyze data to help with widespread UAS integration (the goal of the test sites), a half-of-a-million dollars is likely going to be inadequate. In comparison, the FAA has budgeted approximately $1 million toward the stand-up of the yet-to-be-announced UAS Center of Excellence.

According to the FAA, because they were not given money to start up or manage the UAS test sites in the FAA Modernization and Reform Act, or in annual funding bills, they are unable to direct the research work at the test sites. This begs the questions: what type of data will the test sites collect, will everyone be speaking the same data language, where will the data go, how will propriety company information be protected, how will the data be used, and how will duplicative work be avoided?

The FAA hopes to iron out these details when it brings the six sites together at a meeting here at the Technical Center later this month. Hopefully, the sites, along with the FAA, will all agree on a data management plan and outline who will be doing what research. Of note, because the FAA will be funding the yet-to-be-announced Center of Excellence, the FAA will be able to direct specific research at this Center. How this Center of Excellence research and the test site research will harmonize has not yet been determined.

Lastly, AUVSI would like to request the Committee closely monitor the FAA's compliance with section 1087(b) of the 2014 National Defense Authorization Act[7], which requires a report to Congress on the resource requirements needed in order to meet the milestones for UAS integration described in the five-year roadmap. The FAA has until July to issue the report. Without that number, Congress and the UAS industry will not fully understand the resources needed by the FAA to write UAS regulations. If the FAA is unable to meet that deadline, we would suggest the Government Accountability Office be tasked with doing the budget estimate and folding it into one of its ongoing UAS reports.

UAS offer great promise, but before this industry can take off, we need to know the safety rules our members must abide by. For every day the FAA delays integration, the U.S. stands to lose $27 million in economic benefit[8], which is why it is in all of our best interests to help the FAA get the data they need and process it into meaningful regulations. The Technical Center, along with other industry, government, and academia partners are prepared to do to the work.

Thank you again for the opportunity to speak today. I look forward to answering any questions the committee might have.

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[7] http://beta.congress.gov/113/bills/hr3304/BILLS-113hr3304enr.pdf
[8] www.auvsi.org/econreport