

I urge the Connecticut government to develop a committee or hire an expert who works with the FAA regulations and is involved with the technology development and that fly's sUAS on a regular basis. This person or committee would advise the government on the technology advancements and new regulations. The most important factor is public safety. Additionally Connecticut is a prime location to expand the aerospace industry from small startup companies. Please see below for additional comments. I have a background in aviation in helicopters and fixed wing aircraft. Additionally I have been involved with fixed wing and multirotor sUAS since 2006. I have obtained multiple COAs in Connecticut and Massachusetts for experimentation and research using sUAS for structural inspection.

### Commercial Operator/ Operations

- Commercial operations can be performed provided the operator has received a FAA Section 333 Exemption and the location is approved by the FAA, there is a Certification of Authorization, COA for the location. Additional exemptions have been granted in the film and TV industry and for inspection and real estate.
- There are 295 applications for the FAA Section 333 Exemptions.

### Regulations

The sUAS should be broken into Category and Class of aircraft. Examples of categories are fixed wing, rotorcraft, lighter than air, glider, powered parachute. This is similar to manned aircraft. Fixed wing aircraft are the fastest and can fly the furthest. Rotorcraft will be used to fly in close proximity of structures. An example of class of aircraft would be multirotor in the rotorcraft category. Each category and class of aircraft will have unique capabilities and require special regulations. The regulations will evolve over time.

If the FAA does not do this then each state needs to do the above for public safety.

[http://www.camarilloflightinstruction.com/Flight\\_Training/FAA-aircraft-categories-and-classes.html](http://www.camarilloflightinstruction.com/Flight_Training/FAA-aircraft-categories-and-classes.html)

- Pilot, airman, requirements should depend on the categories and class or aircraft, maximum weight, level of autonomous flight capabilities, maximum altitude of flight and airspace being operated in.
- Airworthiness requirements should depend on the categories and class or aircraft, maximum weight, level of autonomous flight capabilities, maximum altitude of flight and airspace being operated in.
- The level of required components should depend on the categories and class or aircraft, maximum weight, level of autonomous flight capabilities, maximum altitude of flight and airspace being operated in.

Examples or the above:

- In class D, C, B airspace the aircraft should have a mode C transponder. The pilot should have a hand held radio to communicate with the airspace controlling authority.
- Fixed wing aircraft should have metal hinges, clevises and connecting rods. Plastic components are susceptible to UV embrittlement.
- If the aircraft weight is over 10 lbs, can fly over 30KTS and can fly autonomously the pilot must demonstrate pilot proficiency.

Why this is important: A 50 pound fixed wing sUAS will have the ability of flying for a long time at its cruise velocity in autonomous mode. If something were to go wrong and there was a flyaway situation the aircraft could fly for its remaining power life for example 100 miles and crash land. To protect against a fly away the aircraft weight, autonomous flight capability would be considered for the level or airworthiness requirements and the pilot requirements.

These comments will be provided to the FAA during the 60 day comment period.

## **Aerial surveillance**

Aerial surveillance can be performed from 0 to 500ft AGL

Whatever type of camera is available to the public, can be retrofitted to a sUAS and used. Currently a 16 MP camera with zoom capability can view cotter pins from 20 ft away at any altitude. Thermal imaging capability, price is reasonable costing 1500 and the weight is down to 150 grams lending it to be on a 4 to 8 Lb aircraft. In addition sUAS do not have to be flown to find a vantage point they can be landed at a vantage point or can have a robot arm and grab something and hang from it. This extends the video transmission time substantially since the power required to fly the aircraft can be used to power the video transmission system. This can be advantageous for monitoring public events.

## **Investment Recommendations**

Connecticut can designate an area as a test site and apply for a Certification of Authorization, COA for that location. The test location can be developed into a sUAS industrial park. The center of the park will be a flying area. This would provide quick access to flight testing and experimentation for the companies that reside in the park, which would accelerate the technology development in Connecticut. The size of the runways will be much smaller than for an uncontrolled airport like Meriden, MMK.

The FAA has proposed new regulations and is soliciting comments from the public. See below for a summary.

<https://www.faa.gov/news/updates/?newsId=81446>



Overview of Small UAS Notice of Proposed Rulemaking

Summary of Major Provisions of Proposed Part 107	
The following provisions are being proposed in the FAA's Small UAS NPRM.	
<b>Operational Limitations</b>	<ul style="list-style-type: none"> <li>• Unmanned aircraft must weigh less than 55 lbs. (25 kg).</li> <li>• Visual line-of-sight (VLOS) only; the unmanned aircraft must remain within VLOS of the operator or visual observer.</li> <li>• At all times the small unmanned aircraft must remain close enough to the operator for the operator to be capable of seeing the aircraft with vision unaided by any device other than corrective lenses.</li> <li>• Small unmanned aircraft may not operate over any persons not directly involved in the operation.</li> <li>• Daylight-only operations (official sunrise to official sunset, local time).</li> <li>• Must yield right-of-way to other aircraft, manned or unmanned.</li> <li>• May use visual observer (VO) but not required.</li> <li>• First-person view camera cannot satisfy "see-and-avoid" requirement but can be used as long as requirement is satisfied in other ways.</li> <li>• Maximum airspeed of 100 mph (87 knots).</li> <li>• Maximum altitude of 500 feet above ground level.</li> <li>• Minimum weather visibility of 3 miles from control station.</li> <li>• No operations are allowed in Class A (18,000 feet &amp; above) airspace.</li> <li>• Operations in Class B, C, D and E airspace are allowed with the required ATC permission.</li> <li>• Operations in Class G airspace are allowed without ATC permission.</li> <li>• No person may act as an operator or VO for more than one unmanned aircraft operation at one time.</li> <li>• No careless or reckless operations.</li> <li>• Requires preflight inspection by the operator.</li> <li>• A person may not operate a small unmanned aircraft if he or she knows or has reason to know of any physical or mental condition that would interfere with the safe operation of a small UAS.</li> <li>• Proposes a microUAS option that would allow operations in Class G airspace, over people not involved in the operation, provided the operator certifies he or she has the requisite aeronautical knowledge to perform the operation.</li> </ul>
<b>Operator Certification and Responsibilities</b>	<ul style="list-style-type: none"> <li>• Pilots of a small UAS would be considered "operators".</li> <li>• Operators would be required to:                             <ul style="list-style-type: none"> <li>○ Pass an initial aeronautical knowledge test at an FAA-approved knowledge testing center.</li> <li>○ Be vetted by the Transportation Security Administration.</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ Obtain an unmanned aircraft operator certificate with a small UAS rating (like existing pilot airman certificates, never expires).</li> <li>○ Pass a recurrent aeronautical knowledge test every 24 months.</li> <li>○ Be at least 17 years old.</li> <li>○ Make available to the FAA, upon request, the small UAS for inspection or testing, and any associated documents/records required to be kept under the proposed rule.</li> <li>○ Report an accident to the FAA within 10 days of any operation that results in injury or property damage.</li> <li>○ Conduct a preflight inspection, to include specific aircraft and control station systems checks, to ensure the small UAS is safe for operation.</li> </ul>
<b>Aircraft Requirements</b>	<ul style="list-style-type: none"> <li>• FAA airworthiness certification not required. However, operator must maintain a small UAS in condition for safe operation and prior to flight must inspect the UAS to ensure that it is in a condition for safe operation. Aircraft Registration required (same requirements that apply to all other aircraft).</li> <li>• Aircraft markings required (same requirements that apply to all other aircraft). If aircraft is too small to display markings in standard size, then the aircraft simply needs to display markings in the largest practicable manner.</li> </ul>
<b>Model Aircraft</b>	<ul style="list-style-type: none"> <li>• Proposed rule would not apply to model aircraft that satisfy all of the criteria specified in Section 336 of Public Law 112-95.</li> <li>• The proposed rule would codify the FAA's enforcement authority in part 101 by prohibiting model aircraft operators from endangering the safety of the NAS.</li> </ul>