Eyes in the Sky

Sam Chung Ross Bell

Photo from www.wired.com
Federal Drone Authorization

In 2012, the FAA Reauthorization Act was signed by President Obama to authorize drones to be integrated into the national airspace by 2015.

- FAA tasked with coming up with policies/rules/regulations for civilian and government drone-use

- The FAA is primarily focused on making sure drones don’t collide with planes (or other flying objects) and establishing criteria for commercial drones and training/certification requirements to operate certain types of drones.

- Over 30,000 drones predicted to fill the nation’s skies within the next decade.
The Future is Unmanned

Photo from www.pinterest.com
The Past...
Endless Possibilities

- Monitoring endangered species
- Deliveries – Amazon to Pizza Hut
- Delivering critical supplies into conflict zones or natural disaster areas.
- Real Estate
- Firefighting
- Law enforcement duties – search and rescue, hostage situations, searching for illegal vegetation.

Innovation vs. Privacy...
States tackling drone privacy

- Left to the states to establish their own tailored drone privacy laws.

- Last year, 43 states introduced drone privacy legislation: some banned drones entirely and others provided looser guidelines.

- In California, the first drone privacy bill introduced was AB 1327 in 2013. AB 1327 was a 2 year project tailored to the unique needs of California and was considered one of the most restrictive in the nation.
AB 1327 (2013) – first drone privacy bill in California

- Focus on Law Enforcement and all other Public Agencies

- 3 main components: (1) warrant requirement; (2) data sharing; (3) data retention.

- Negotiated with public agencies and departments throughout the state.
AB 1327 Endorsements

Los Angeles Times

THE SACRAMENTO BEE

San Jose Mercury News

VENTURA COUNTY STAR

Los Angeles Mayor Eric Garcetti

UC Irvine Founding Dean and Constitutional Scholar Erwin Chemerinksy
Highlights of AB 1327

Law Enforcement

Warrant Requirement for Law Enforcement: Except in exigent circumstances: imminent threat to life/great bodily harm (ex: search and rescue, hostage situations, hot pursuit, etc.)

Warrant also not required in the following circumstances: traffic accident investigations, inspecting wilderness areas for illegal vegetation, responding to fires, and responding to environmental emergency or disasters (oil spills).
Highlights of AB 1327

Public Agencies

Public agencies (non-law enforcement agencies) may use drones for the purpose of achieving the core mission of the agency.

A public agency that is not primarily a law enforcement agency, but employs peace officers, may use drones without obtaining a warrant provided that the purpose is unrelated to the gathering of criminal intelligence.
Highlights of AB 1327

Data Sharing

Drone data cannot be shared with other public agencies unless:
- Related to the core mission of the sending/receiving agencies.
- Evidence in any pending litigation.
- Statutory requirement to be made publicly available.

Data Retention

Drone data cannot be retained for more than 1 year unless:
- Part of an on-going investigation
- For training purpose
- For academic research purposes
- For land-use management and planning purposes by a public agency.
Highlights of AB 1327

Other Highlights:

Weaponization of drones prohibited.

Reasonable one-time public notice.

Authorizes local governments to adopt more restrictive drone policies.
Opposition

Law Enforcement Entities
- State Sheriffs Association
- California District Attorneys Association
- Police Chiefs Association

Anti-Drone Activists

Drones vs. Helicopters
Drones vs. Helicopters?

- Can be small
- Extremely quiet
- Very cheap to fly
- Hover for long periods of time
- Capture images from high altitudes

- Large
- Very loud
- Expensive to fly
- 2 hours of flight before refuel
- Easily seen in the sky
"There are undoubtedly circumstances where a warrant is appropriate. The bill's exemptions, however, appear to be too narrow and could impose requirements beyond what is required by either the 4th Amendment or the privacy provisions in the California Constitution."

- Governor Jerry Brown
Drone bills introduced in 2015

AB 54 (Quirk) – identical to AB 1327
AB 14 (Waldron) – establishes a task force to recommend drone regulations by 2018.
SB 142 (Jackson) – trespassing bill
SB 262 (Galgiani) – law enforcement-sponsored drone bill
DRONES IN OUR FUTURE: OPPORTUNITY AND PRIVACY CONSIDERATIONS
ASA is a nonpartisan organization of Lt. Governors, Governor appointed delegates, and associate members from aerospace organizations and academia. ASA represents states’ interests in federal aerospace and aviation policy development. ASA advocates on behalf of all 50 states for research and design funding, workforce training, economic development in aerospace and aviation, excellence in science, technology, engineering and math (STEM) education, and keeping states competitive in a global marketplace.

The California Chapter of ASA is Co-Chaired by Senator Jean Fuller, Chair of the Senate Select Committee on Aerospace and Defense and Assembly Member Patrick O’Donnell, Chair of the Assembly Select Committee on Aerospace.
AWESOME!
FLYING ROBOTS!!

• DUMB
• DIRTY
• DANGEROUS
AWESOME!
FLYING ROBOTS!!

• Search and Rescue
• Firefighting
• Search
• Damage Assessment
• Medicine Delivery
AWESOME!
FLYING ROBOTS!!

Entertainment:

- Seven companies have requested COA to operate: Aerial MOB, Asraeus, Flying-Cam, HeliVideo Productions, Pictorvision, Snaproll Media and Vortex
- Hovercam wins an Oscar
- Gold Rush on Discovery
- Olympics, etc.
- Media/News/Traffic
AWESOME!
FLYING ROBOTS!!

Agriculture
• Crop conditions
• Crop Dusting
AWESOME!
FLYING ROBOTS!!

Police
• Observation
• Search and rescue
AWESOME!
FLYING ROBOTS!!

Environment:
• Weather conditions
• Counting and monitoring of endangered species
• Vegetation patterns
• Ocean monitoring and sensing
• Policing Harvests
AWESOME!
FLYING ROBOTS!!

- 57 countries and 270 companies are currently manufacturing 960 UAS designs, which translates to a 20% increase in the number of manufacturing companies, a 30% increase in the number of countries with manufactures, and 40% increase in systems since 2011- AIAA ‘s publication Aerospace America, March 2013
The Association of Unmanned Vehicle Systems International’s (AUVSI) report, “The Economic Impact of Unmanned Aircraft Systems Integration in the United States” states that by 2025 the use of UAS could boost the U.S. economy by $82 billion, $14.4 billion for California, and should add more than 100,000 new jobs, 18,000 for California.
• 73% of Respondents want Regulations
• 42% oppose private ownership, 30% support, 28% unsure
• 68% support police using UAS to solve crimes, 62% support police using to deter crime
• 46% do not want the media to use UAS, and 41% support
• 49% agree that parents should be able to use drones to monitor children while 38% oppose.
December 30, 2013 - FAA Announced the six selected UAV Test Sites with the research goals of System Safety & Data Gathering, Aircraft Certification, Command & Control Link Issues, Control Station Layout & Certification, Ground & Airborne Sense & Avoid, and Environmental Impacts.
FAA Test Sites

[Map of the United States showing test sites in various states.]

- University of Alaska
- ND Department of Commerce
- NY Griffiss International Airport
- State of Nevada
- Texas A&M University Corpus Christi
- Virginia Polytechnic Institute and State University

Site 1
Site 2
Site 3
Site 4
Site 5
Site 6

* Denotes test site operator

NCSL
• **North Dakota** is the only site to offer a test range in the temperate continental climate zone and will develop airworthiness data and validate reliable link technology. In addition, the state legislative assembly has appropriated $5 million to support the test site. The site became operational in April with flights of the Draganflyer X4ES starting in May.
Alaska, through a partnership with Oregon and Hawaii, will offer 13 test ranges as part of the Pan-Pacific UAS Test Range Complex. The sites will cover geographic diversity, overwater operations, remote flights and develop UAS safety standards. The site became operational in May with flights of the Aeryon Scout UAS for animal surveys in Fairbanks.
Alaska, under the FAA Modernization and Reform Act of 2012. UAS flights in the Arctic for “research and commercial purposes and Search and Rescue (SAR) operations.” Currently, ConocoPhillips is using the Insitu’s Scan Eagle for marine mammal and ice surveys and BP has recently started using AeroVironment’s Puma AE to “survey its pipelines, roads, and equipment at Prudhoe Bay, AK
Nevada, will operate three test ranges across four test sites focusing on unmanned aircraft systems standards and operations. The site became operational in June with flights of the Insitu’s ScanEagle assisting in observations in mock emergency events.
New York, the site will focus on sense and avoid systems and will assist in “researching the complexities of integrating (unmanned aircraft systems) into the congested Northeast airspace.” The site became operational in August 7, with flights of the PrecisionHawk Lancaster Platform UAS for “detection of insects, weeds, diseases, crop characteristics, crop biomass and background soil characteristics in two farm fields “
Texas, Texas A&M heads the 11 test ranges that are part of its site, with plans to develop system safety requirements for vehicles and operators. In June, the site became active with the COA for the AAAI RS-16 UAS whose objectives include “preservation and restoration of the ocean and ocean wetlands along the Padre Island National Seashore; research in advance of approaching tropical depressions; support to law enforcement in the Padre Island National Seashore.”
Virginia, is to conduct unmanned aircraft systems’ failure mode testing, with test site range locations in Virginia, New Jersey, and recently added Maryland. Virginia will award more than $2.6 million over three years to Virginia Tech for the test site work. The Virginia Test Site went operational August 13, 2014.
FAA Proposed Rules

- Proposed in February 2015
- No Vehicle above 55 lbs.
- Cannot be flown out of site and more than 3 miles from operator
- Can only be used in Class G airspace without approval
- Cannot be flown over people other than operator
- Maximum height is 500 feet and speed is 100mph
- Operator must have pass an FAA aeronautical test
- Markings must be visible
State Legislation

• Since 2013 roughly 19 states have passed legislation regarding UAS use and privacy by public and private citizens. Iowa has banned police from using to enforce traffic laws. North Carolina outlines that UAS cannot be used to assist in hunting or fishing nor can they be used to harass those that are hunting and fishing.

• Almost every state in the Union has had legislation introduced to address UAS use in the civilian airspace in the past three years.
Aerospace States Association, in partnership with the Council of State Governments and the National Conference of State Legislatures, have developed six points that states should consider if they should choose to initiate privacy legislation:
1. **Warrants**: States may consider requiring a warrant for government surveillance of an individual or their property where the individual is specifically targeted for surveillance in advance without their permission. All other observation activities should not require a warrant, to the extent allowed under Supreme Court rulings. Additionally, if there is not a specific person identified for surveillance in advance, it is generally not possible to obtain a warrant. Requiring one would eliminate UAS benefits, but can be addressed per recommendation number two, below.
2. Data Concerns: Some are worried about government use of data derived from warrantless observations. States may consider addressing this by prohibiting the repurposing of data collected from Government use of UAS in warrantless observation unless a warrant allows the repurposing.
3. States may consider prohibiting commercial UAS and model aircraft flights from tracking specific, identifiable individuals without their consent.

4. States can consider prohibiting weapons to be carried by any UAS in commercial airspace.
5. States may consider endorsing the International Association of Chiefs of Police Aviation Committee (IACP) “Recommended Guidelines for the use of Unmanned Aircraft.” These guidelines define UAS and provide guidance for community engagement, system requirements, operational procedures, and image retention for UAS operations by law enforcement organizations.
6. States may consider emphasizing that the FAA regulates commercial UAS, and that they and model aircraft operations should be operated in a manner not to present a nuisance to people or property.
Saving Lives/Taking Action

- Australia: https://www.youtube.com/watch?t=102&v=3liCrziMjbQ
- Detroit: https://www.youtube.com/watch?v=qoCqchlxrXg
- Canada: https://www.youtube.com/watch?t=30&v=apEnf-0Rzb4
- Israel: https://www.youtube.com/watch?v=ayVvWPSoguA

REMEMBER THE INTERNET! WAS FEARED NOW VITAL
California UAS Chapter Activities

• Sponsored the California UAS Summit in San Diego this past June
• UAS in California Economic Study in conjunction with LAEDC and SDEDC
• Coordinating discussion of California’s submission for the FAA UAS Center of Excellence (COE). The “COE will be a geographically disbursed consortium of the FAA, university partners and their affiliates selected by the FAA Administrator to conduct UAS related research, education and training while working jointly on issues of mutual interest and concern.”
Thank You

Ross B. Garelick Bell
Director, California Chapter
Aerospace States Association
(703) 402-6384
GarelickBell@aerostates.org
@CAAerospace @AerospaceStates