Bettman Symposium

Taking Flight with Drones:
Uses in Planning and Issues of Regulation

Sunday May 7, 2017
7:45 a.m. – 9:15 a.m.
Hall 1A23/24 (JCC)
Alfred Bettman (1873-1945)

- A.B. (1894) and the A.M. and LL.B. (1898) from Harvard
- The Cincinnati Plan (1925)
- A Standard State Zoning Enabling Act (1924)
- A Standard City Planning Enabling Act (1928)
- *Euclid v. Ambler* (1926)
- First President of the American Society of Planning Officials (1934-38)
Our Fabulous Panel of Experts
Technology and Overview of the Law

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Applications in Planning

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Elements of Local Regulation

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Technology and Overview of the Law “Taking Flight with Drones”

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$127 billion

economic impact of drone industry over the next several years
new drones are registered with the FAA every day

2,000

UNMANNED AIRCRAFT REGISTRATION

more unmanned aircraft are registered with the FAA than manned aircraft

2x
13,000+

people signed up to take the Part 107 knowledge test
THE FAA EXPECTS:

1.3 million licensed Part 107 drone pilots by 2020
CITIES ARE ALREADY PUTTING DRONES TO WORK

MODESTO, CA

JOSHUA, TX

TAMPA, FL

SOMERVILLE, MA

ACROSS MINNESOTA

NEW YORK CITY
DRONES FOR PLANNERS

- AERIAL MAPPING
- BUILDING INSPECTIONS
- DISASTER MANAGEMENT
- CODE ENFORCEMENT
What do planners need to know about drone regulation?
TYPES OF DRONE OPERATORS

1. MODEL AIRCRAFT (SECTION 336/PART 101)

2. SECTION 333 EXEMPTIONS

3. PUBLIC OPERATORS

4. PART 107 OPERATORS
Part 107 is not the “commercial” rule. It is the visual line of sight rule. Recreational operators may fly under part 107, and they likely will because it gives them more privileges.

Distinctions between recreational and commercial are vestiges of our old rules.

Part 107 is the new normal and is the future.

- Earl Lawrence, FAA UAS Integration Office, 2016
Milestones to watch for in 2017
ON THE HORIZON

REMOTE IDENTIFICATION

CRITICAL INFRASTRUCTURE

LOW ALTITUDE AUTHORIZATION AND NOTIFICATION CAPABILITY

FLIGHT OVER PEOPLE
Lessons Learned

• Drones will impact practically every sector of our economy, generating billions in economic impact
• Unmanned aircraft will fundamentally change how governments and planners do business
• Part 107 opened the skies for drones - but this is just the beginning of the evolution of drone regulation
Applications in Planning

Jordan Peterson
EARLY APPLICATIONS OF AERIAL IMAGERY
FIRST AERIAL PHOTOGRAPH – BOSTON, 1860 FROM HOT AIR BALLOON

SOURCE: THE SMITHSONIAN, JAMES WALLACE BLACK
EARLY APPLICATIONS OF AERIAL IMAGERY
1906 POST-EARTHQUAKE SAN FRANCISCO FROM A 50-LB CAMERA ELEVATED BY 9 KITES

GEORGE R. LAWRENCE PHOTO ARCHIVE
EARLY APPLICATIONS OF AERIAL IMAGERY

BAVARIAN PIGEON CORPS (1903) SPY PHOTOGRAPHY

SOURCE: FRANKFURT PHOTO ARCHIVE
EARLY APPLICATIONS OF AERIAL IMAGERY
LAND DEVELOPMENT PATTERNS, LEVITTOWN 1957 FROM FIXED-WING AIRCRAFT

SOURCE: STATE MUSEUM OF PENNSYLVANIA
MODERN UAVs

X-47 MILITARY DRONE

eBee RTK MAPPING / SURVEYING DRONE

DJI INNOVATIONS, INSPIRE 2 PROFESSIONAL

BLACK HORNET PD-100 MICRODRONE
CONSTRUCTION DOCUMENTATION + ADMINISTRATION
AERIAL PACKAGE DELIVERY

SOURCE: AMAZON.COM
HUMAN TRANSPORTATION
EHANG 184 UAV PERSONAL TRANSPORT, DUBAI

SOURCE: WASHINGTON POST
MASS MEDIA + JOURNALISM
DOCUMENTATION OF WAR-TORN NEIGHBORHOODS IN HOMS, SYRIA
Lessons Learned

• The accessibility of current UAS technology has enabled a new powerful mass communication tool to engage the public and clients in ways we have never seen before.

• The broad range and capabilities of UAS applications have the potential to disrupt and transform the way we plan, design, and interact with the built environment in the very near future.

• In order to utilize UAS applications in a safe and impactful way, the planning profession and allied professions must be proactive in navigating regulatory frameworks, understanding current technological advances, and collaborating with multi-disciplinary teams.
Eyes in the Sky: Drones and the Constitution Collide

David McGuire
A drone is any remote-controlled or pre-programmed unmanned aircraft, but in its most ubiquitous form a drone is essentially a small, flying camera—inexpensive, highly maneuverable and capable of unprecedented invasions of personal privacy.
The Sky is the Limit: Drones are where personal computers were in the early 1980’s

- **Current uses include:**
  - Investigating and deterring criminal or regulatory violations
  - Search and rescue
  - Health and safety inspections
  - Environment protection
  - Surveying

- **Future uses:**
  - Limitless
Domestic Drone Use Raises Issues Concerning:

- Expectation of privacy in the digital age
- Government surveillance
- Regulation of private drone use
- The role of state government in crafting reasonable regulations
Drones Implicate the First Amendment and the Fourth Amendment

• First Amendment protects free speech, freedom of association and free press.

• Fourth Amendment safeguards Americans’ privacy and prevents excessive government intrusion by prohibiting “unreasonable searches and seizures.”
Drone Laws Cannot Infringe First Amendment Rights

• Constitution protects citizens from the government, not the other way around.

• Private drone regulations must be well-reasoned, thoughtful and narrowly drawn in response to specific harms that private use would cause.

• Regulations must protect the constitutional right of the public to photograph anything visible from a public vantage point.

• If regulations target certain speakers or viewpoints, it will be subject to the highest level of constitutional scrutiny and will likely be deemed unconstitutional under the First Amendment.
Drones Erase “natural limits” on Aerial Surveillance

Manned aircraft

• Expensive
• Requires pilot’s license and training
• Require licensed
• Other costs include maintenance, storage etc.
• High expenses ensures the government only uses air surveillance when necessary

Drones

• Affordable
• Easy to operate
• No training requirements
• No storage costs
• Low costs and great capabilities will lead to mass adoption and regular use
The 4th Amendment

The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.

Fourth Amendment

Safeguards Americans’ privacy and prevents excessive government intrusion by prohibiting “unreasonable searches and seizures.”
Drones Make New Forms of Privacy Invasion Possible

• Drones can be silent enabling surveillance without notice.
• Drones can maneuver into intrusive places helicopter can’t
  – Hover outside a third story window
  – Fly into a garage
• Drones can be equipped with many technologies
  – Facial recognition
  – License plate scanners
  – Radio frequency ID reader
Fourth Amendment Jurisprudence

• We are likely years away from US Supreme Court case law on drones.

• California v. Ciraolo, 476 U.S. 207 (1986) – Held that warrantless aerial observation of a person's backyard did not violate the Fourth Amendment to the United States Constitution.
  – Police may claim the right to operate drones for individual surveillance without a warrant, based on U.S. Supreme Court rulings in the 1980s that permitted manned aerial surveillance from airplanes and a helicopter without a warrant.

• Kyllo v. United States, the Supreme Court held the warrantless search of a home conducted from outside the home using thermal imaging violated the Fourth Amendment. The Court held that, “in the sanctity of the home, all details are intimate details”—it didn’t matter that the officers did not need to “enter” the home to “see” them.
The US Supreme Court has signaled that the rapid evolution of technology has changed the playing field.

In *United States v. Jones*, the Court found that police conducted an unlawful search and seizure in violation of the Fourth Amendment when they deployed a GPS device to track a suspect’s vehicle without a warrant.
Where Will Courts Land on Drone Surveillance?

• The large and evolving body of Fourth Amendment law governing surveillance gives us hints about where courts will land on drones.

• The traditional Fourth Amendment framework will likely be applied but there are many moving parts for a court to review in determining the reasonableness of a drone search:
  – Location of the search (home, backyard, public etc.)
  – Surveillance equipment (high-resolution video cameras, microphones, night vision cameras and infrared or heat-sensing devices)
  – Society’s expectation of privacy in the digital age
Enough of Me Droning on...

• Sources to dig deeper:
  – ACLU Privacy and Technology Project
    • https://www.aclu.org/issues/privacy-technology/surveillance-technologies
  – Electronic Frontier Foundation
    • https://www.eff.org/
  – Congressional Research Service report on drones
    • https://fas.org/sgp/crs/natsec/R42701.pdf
  – Federal Aviation Administration
    • http://www.faa.gov/uas/
Lessons Learned

• Courts are just beginning to grapple with drones and it will be years before we have a body of law on drones and the First Amendment and Fourth Amendment.

• It is important for planners to follow local, state and federal drones legislation. There is a lot of activity and legislative bodies need to hear from professionals who will be impacted by regulatory schemes.
Elements of Local Regulation

Ann Gergen
Elements of Local Regulation

- All public use is regulated by FAA
- State laws may also apply
- Local regulations and ordinances
  - Land use
  - Trespass
  - Public safety
  - Records retention
  - Hunting

"Right now, I'm basically flying as an enthusiast with an emergency scanner"
Elements of Local Regulation

• Regulatory review is never complete
• Influences on public use and policies
  – Novelty (short-term)
  – Coverage availability (long-term)
• Key questions about what is or isn’t likely to be covered
  – Is it aircraft? Is it cyber?
  – What about privacy considerations?
Lessons Learned

• Regulation of public use based upon purpose, not method

• Local regulatory questions will become more complex with growing use and familiarity
What are the risks of loss, will they be covered by insurers, and how will Courts view drone use (more or less risky than alternatives)?

As recreational drone use becomes more prevalent, will local governments pass nuisance laws that might also impact public uses?
Questions and, we hope, some answers...