07/24/13 Task Force Meeting: Minutes and Background Information

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Unmanned Aircraft Systems Legislative Task Force

July 24, 2013

10:00am – 11:00am

Teleconference Call-In Number 855-463-5009

A G E N D A

Task Force Members:

- Representative Shelley Hughes, Co-Chair
- Senator Donny Olson, Co-Chair
- Greg Walker, Director for the Center for Unmanned Aircraft Systems Integration UAF
    - Ro Bailey, Assistant Director (alternate for Greg Walker)
- Lieutenant Steve Adams, Commissioner Designee, Department of Public Safety
- McHugh Pierre, Deputy Commissioner, Department of Military and Veterans' Affairs
- Alaska Aviation Safety Board, Department of Transportation and Public Facilities
- Steve Colligan, Representative Member for the Academy of Model Aeronautics

Meeting Agenda:

I. Welcome and Introductions — Representative Shelley Hughes
   a. Task Force responsibilities per HCR6
   b. Aerospace States Association, August 14, Washington DC
   c. National Conference of State Legislatures, August 15, Atlanta GA

II. Brief Overview of UAS Work and Use in Alaska — Greg Walker

III. Brief Overview of FAA UAS Work and Timeline — Michaela Goertzen, on behalf of Lt. Governor Treadwell

IV. Task Force Member Input and Expectations (5minutes each):
   a. How is your organization using UAS now and how would you like to use UAS in the future to further your mission?
   b. What policy guidelines or recommendations are currently in place that impact your business practice and the general public?
   c. What policy should the State of Alaska consider in legislation regarding the use of UAS in Alaska, including related to commercial use of UAS and to privacy concerns?

V. Task Force Timeline and Next Meeting Date/Time

VI. Adjournment

Unmanned Aircraft Systems Legislative Task Force

Summarized Minutes of the July 24, 2013 Teleconference

Task Force Members in Attendance:

- Representative Shelley Hughes, Co-Chair
- Ginger Blaisdell, Staff to Rep. Hughes
- David Scott, Staff to Senator Donny Olson, Co-Chair
- Greg Walker, Director for the Center for Unmanned Aircraft Systems Integration UAF
- Ro Bailey, Assistant Director (alternate for Greg Walker)
- Lieutenant Steve Adams, Commissioner Designee, Department of Public Safety
- McHugh Pierre, Deputy Commissioner, Department of Military and Veterans' Affairs
- Mark Greby, Alaska Aerospace Corporation, Senior VP and Chief Operating Officer
- Wyatt Rehder, Alaska Aerospace Corporation, Aerospace Engineer
- Steve Colligan, Representative Member for the Academy of Model Aeronautics

Guest Attendee:

- Michaela Goertzen, Staff to Lt. Governor Mead Treadwell

- Not in attendance: Alaska Aviation Safety Board, DOT/PF

Meeting Summary:

I. Welcome and Introductions — Representative Shelley Hughes

Task Force responsibilities per HCR6

The duties of the task force shall include (1) reviewing regulations and guidance from the Federal Aviation Administration regarding unmanned aircraft systems; (2) providing written recommendations, together with suggested legislation, for a comprehensive state policy for unmanned aircraft that protects privacy and allows the use of unmanned aircraft systems for public and private applications; and (3) submitting, not later than January 15, 2014, an initial report to the legislature and, not later than July 1, 2014, submitting a final report to the legislature.

Upcoming national meetings

- **Aerospace States Association, August 14, Washington DC**

The ASA meeting was originally scheduled to be a round table discussion on the draft model legislation that will be made available to all states. At their last meeting, it was determined that the draft was nearly complete and ASA membership did not feel the need for an additional round table discussion on the topic. ASA is still discussing the possibility of a meeting for those who intended to attend the August 14 meeting. The meeting will be held in conjunction with the AUVSI Symposium, attached link:

Association for Unmanned Vehicle Systems International
http://www.auvsishow.org/auvsi13/public/enter.aspx

- **National Conference of State Legislatures, August 15, Atlanta GA**

Representative Hughes was invited to be part of a panel to discuss and answer questions from any of the fifty United States, about unmanned aircraft systems policy for states. She will be part of a panel of university professors, aerospace specialists, and other legislators who have been successful in passing bills in their respective states.

II. Brief Overview of UAS Work and Use in Alaska — Greg Walker

The AUVSI Symposium will have dedicated sessions regarding privacy considerations. Ro (Bailey) and Greg will be at the Symposium and will report back on what they learn.

UAS integration in Alaska began in the late 1990's when University of Colorado and Georgia Tech completed research missions. The Coast Guard used UAS for marine awareness. In 2001 University of Alaska Fairbanks (UAF) contracted to fly UAS for specific missions and research and in 2007 began to acquire its own equipment.

UAF uses unmanned aircraft for military, law enforcement, science and industry missions. The missions have ranged from wildfire monitoring, oil spill monitoring, NASA sea ice research, wildlife mapping, fisheries, measuring methane from decaying permafrost, geothermal activities, and many more.

The number one private industry use is by oil companies monitoring for oil leaks, infrastructure mapping and monitoring. The second prominent industry use is the growth of new companies developing new technology for UAS integration that can be used in Alaska as well as other states and worldwide. The leading technology development is working on sense and avoid and monitoring other aircraft in flight.

Alaska is a prime candidate to be selected as one of the FAA test sites because the application requires opening the Arctic Ocean for UAS missions. UAF has completed more bona fide missions than probably all of the other states combined.

III. Brief Overview of FAA UAS Work and Timeline — Michaela Goertzen, on behalf of Lt. Governor Treadwell

The Modernization and Reform Act of 2012 is a federal mandate that requires the FAA to establish six test sites by December 30, 2013, and incorporate UAS into American airspace with privacy concerns addressed nationwide by September 30, 2015.

In an April meeting, stakeholders did not think privacy policy should fall on the FAA but in a justice agency. House Appropriations Committee asked the FAA to collaborate with other federal agencies to sort out the privacy issue(s).

IV. Task Force Member Input and Expectations (5 minutes each):
   a. How is your organization using UAS now and how would you like to use UAS in the future to further your mission?
   b. What policy guidelines or recommendations are currently in place that impact your business practice and the general public?
   c. What policy should the State of Alaska consider in legislation regarding the use of UAS in Alaska, including related to commercial use of UAS and to privacy concerns?

Representative Hughes

- Some of the highlights noted in other states' bills and other publications include:
  - Definition of unmanned aircraft
  - Parameters for law enforcement use
  - Moratoriums for certain applications.

Steve Colligan, Representing Academy of Model Aeronautics

- Steve plans on using model aviation to enhance his business in mapping and satellite image capturing.
- Concerns with commercial UAS application and model aviation use
- Key role with University and developing industry
- How to use UAS responsibly in airspace

McHugh Pierre, DMVA, Mark Greby and Wyatt Rehder, AK Aerospace Corporation (AAC)

- DMVA and AAC are service providers primarily using high altitude long endurance aircraft such as global hawks and predators. They lease some aircraft from the Airforce and are looking to purchase their own and lease out for missions.
- To have UAF licenced (certified) as a test range would be good
- AAC sees themselves as a responder to flight needs. NASA/military has plans to bring large aircraft to Alaska but not for private or research use yet.
- When asked about the use of the large aircraft, Mark responded that the BLM used the global hawk for wildfire management.

Representative Shelley Hughes

- This issue was brought to her attention to address privacy concerns.
- She is generally interested in UAS but does not have the technical background in the technology.
- Most of her awareness comes through the news.

- She is interested in industry potential.

Lieutenant Steve Adams, Department of Public Safety (DPS)

Steve oversees Search and Rescue, Amber Alert/Silver Alert, and Emergency Management for the DPS.

DPS is creating a small UAS program; keeping equipment in line-of-sight, land-based search and rescue, Amber and Silver Alert searches, mapping road accidents, mapping outdoor crime scenes, use in hostage situations to move personnel safely, natural disasters, and in incidences involving hazardous materials.

DPS has a partnership with UAF for using UAS. They operate with a strict operations procedures manual, and the IACP and ACLU policy manuals. There are fewer than ten law enforcement agencies in the states using UAS for law enforcement.

Alaska is unique and the use of UAS is significantly beneficial to life safety.

DPS is identifying a training program for a certification with FAA (COA – certificate of authorization – is about a year away)

Policy concerns include:

- Operators flying without COA
- FAA is only regulatory, not an enforcement agency
- Some enforcement is necessary
- How to manage inadvertent images/data

Mark Greby, Alaska Aerospace Corporation

Their work would be primarily for the scientific or commercial market.

- With regard to the question of "What to do with the data that is collected as "inadvertent information" – some inadvertent data will be collected as part of their work.
- Policy needs to be crafted to address different kinds of missions

Greg Walker and Ro Bailey, UAF Center for Unmanned Aircraft Systems Integration

UAF's experience with FAA policy so far is that it implements a significant barrier for use.
Policy should reflect:

- Necessary restrictions and no more
- Need to keep industry attracted to Alaska for business
- Alaska's operating policy needs to be simple and clear for all potential users
- Existing privacy laws are on the books
- Policy for this technology might exploit gaps in existing laws (peeping tom laws...)
- Don't create a barrier for industry.

David Scott, Staff to Senator Donny Olson

Senator Olson's concerns include safety and privacy

- How will UAS be integrated into airspace safely, given how much aircraft there is in Alaska
- Privacy – UAS vs. Manned Aircraft – what is existing policy for manned aircraft

V. Task Force Timeline and Next Meeting Date/Time

Ginger will send out current documents regarding laws passed by other states, ASA model legislation and other information on unmanned aircraft system integration.

Ginger will ask Lt. Governor's office for an invitation to members of this task force to attend the AUVSI Symposium and possible ASA meeting in August.

Ginger will gather existing privacy laws for distribution to the task force.

All task force members with information to be distributed to the group can send the documents to Ginger and she will distribute to the group.

A second teleconference meeting of the task force will be during the 1st or 2nd week of September.

October 24th will be the next meeting of the task force. It will occur immediately following the Alaska UAS Interest Group Conference on October 22 and 23 in Anchorage. The afternoon of October 24th, the task force will take public comment.

Adjournment

Pending State-Level UAS Legislation

State	Bill	Sponsor	Status	Last Action	Introduced	Purpose
Alabama	SB 317	Sens. Sanford and Beason	Introduced	3/12/2013	3/12/2013	Warrant Required; Exceptions: Counter Terrorism, Exigent Circumstances
Alaska	HB 159	Rep. Kawasaki	Referred to House Committee on State Affairs	3/5/2013	2/5/2013	Warrant Required; Exceptions: Emergency Situations
Alaska	HCR 6	Reps. Hughes, Kawasaki, Isaacson, & Pruitt	Referred to Committee on Economic Development, Trade & Tourism	3/15/2013	3/15/2013	Recognizes Alaska Center for Unmanned Aerial Systems Integration and Expresses Support for FAA Test Site
~~Arizona~~	~~HB 2574~~	~~Rep. Seel, et al.~~	~~Held in Public Saftey, Military and Regulatory Affairs Committee Hearing~~	~~2/20/2013~~	~~2/11/2013~~	~~Warrant Required; Exceptions: Emergency Situations~~
Arizona	HB 2269	Rep. Forese	Passed by House; Referred to Senate Committee on Rules	3/12/2013	2/19/2013	Creates Interim Study Committee on Public Saftey Uses of UAS through 12/31/2013
Arizona	HCR 2009	Reps. Forese, Dial, Pierce & Thorpe	Voted Do-Pass by the Senate Commerce, Energy & Military Committee	3/13/2013	1/29/2013	Expresses Support for UAS FAA Testing Site
Arizona	HCR 2024	Rep. Forese	Adopted by Senate and House	3/26/2012	1/17/2012	Directs Leadership to Compete for UAS FAA Test Site
Arkansas	SB 1109	Sen. Rapert	Referred to Senate Committee on Judiciary	3/11/2013	3/11/2013	Prohibits Civilian Use of UAS Equipped with Video Recording Devices for the Purpose of Recording Another Person or Person's Property
Arkansas	HB 1904	Rep. Steel	Referred to House Committee on Public Transportation	3/11/2013	3/8/2013	Warrant Required; Exceptions: Emergency Situations, Conspiratorial Activities (Organized Crime, National Security), Consent
California	SB 15	Sen. Padilla	Referred to Committee on Rules	1/10/2013	12/3/2012	Demonstrates Intent to Legislate UAS Regulations
California	AB 737	As. Fox	Re-Referred to Committee on Jobs, Economic Development, and the Economy; Scheduled for Second Read with Amendments	3/4/2013	2/25/2013	Calls for the Drafting of a Proposal for One of the Six FAA UAS Test Site Designations
California	AB 1326	As. Gorrel & Bradford	Referred to Committee on Revenue and Taxation; Hearing Scheduled for 4/22	3/15/2013	2/22/2013	Creates Sales and Use Tax Exemptions for UAS Purchase and Manufacturing; Creates a 10-Year Income Tax Credit for People Involved in UAS Manufacturing
California	AB 1327	As. Gorrel & Bradford	Referred to Committees on Public Saftey and Local Government	3/14/2013	2/22/2013	Warrant Required; Exceptions: Emergency Situations, Imminent Threat, Geological Inspections; Requires Public Agency to Publically Disclose Intent to Start Using UAS Tech (once)
Florida	HB 119	Rep. Workman	Voted Favorably by House Judiciary Committee; Added to Second Reading Calendar	3/19/2013	1/9/2013	Prohibits Law Enforcement Use; Exceptions; Counter Terrorism
Florida	SB 92	Sen. Negron	Unanimous Favorable Vote by Senate Appropriations Committee	3/28/2013	12/5/2012	Warrant Required; Exceptions: Counter Terrorism, Exigent Circumstances
Georgia	SB 200	Sen. McKoon	Referred to Judiciary Non-Civil Committee	2/22/2013	2/21/2013	Warrant Required; Exceptions: Emergency Situations; Prohibits Arming UAV

Pending State-Level UAS Legislation

Hawaii	SB 783	Sen. Ruderman	Referred to Committees on Transportation and IR/ Public Saftey & Judiciary	1/22/2013	1/18/2013	Warrant Required; Execptions: Emergency Situations, Express Consent, Conspiratorial Activites (Re: National Security or Organized Crime)
Hawaii	SCR 137	Sen. Espero	Adopted	6/22/2012	3/14/2012	Calls for the Drafting of a Proposal for One of the Six FAA UAS Test Site Designations
Hawaii	HCR 140	Rep. McKelvey, et al.	Adopted	4/27/2012	3/12/2012	Calls for the Drafting of a Proposal for One of the Six FAA UAS Test Site Designations
Idaho	S 1051 / S 1067	Sen. Chuck Winder	Approved by Senate Transportation Committee	2/7/2013	2/1/2013	Warrant Required; Exceptions: Exigent Circumstances
Idaho	S 1134	Sen. Chuck Winder	Passed by Both Legislative Bodies; Transmitted to Governor	4/4/2013	3/4/2013	Warrant Required; Exceptions: Model Planes, Commercial Photography, Surveying Agriculture when Law Enforcement is Searching for Marijuana, Public Gatherings
Idaho	SCR 103	Transportation Committee	Passed by Senate; Scheduled for 3rd Reading in the House	3/22/2013	2/1/2013	Calls for the Drafting of a Proposal for One of the Six FAA UAS Test Site Designations
~~Illinois~~	~~SR 0792~~	~~Sen. Haine~~	~~Session Sine Die~~	~~1/8/2013~~	~~5/23/2012~~	~~Urges US Congress to Repeal Provisions of FAA Modernization and Reform Act that Call for UAS Integration~~
Illinois	SB 1587	Sen. Biss	Voted Favorably by Committee on Criminal Law; Second House Reading Scheduled for 3/12	3/7/2013	2/13/2013	Warrant Required; Exceptions: Counter Terrorism, Exigent Circumstances
~~Indiana~~	~~SB 20~~	~~Sen. Tomes & Waterman~~	~~Dead in Committee on Rules and Legislative Procedure~~	~~2/25/2013~~	~~1/7/2013~~	~~Prohibits: Law Enforcement Use, Purchase of UAS with Public Money, Info Gathered Not Permissible in Court; Allows Recreational Use~~
Indiana	SR 27	Sen. Tomes & Waltz	Adopted	2/25/2013	2/7/2013	Calls for the Creation of a Committee to Study the Use of UAS
Iowa	SF 276	Sen. Sorenson	Referred to Senate Judiciary Committee	2/27/2013	2/27/2013	2-Year Moratorium; Exceptions: Amber Alert, Disaster, Search and Rescue
Iowa	HF 410	Rep. Schultz	Referred to House Committee on Public Safety	3/5/2013	3/4/2013	2-Year Moratorium; Exceptions: Amber Alert, Disaster, Search and Rescue
Iowa	HF 427	Rep. Schultz	Referred to House Committee on Public Safety	3/6/2013	3/5/2013	Warrant Required; Exceptions: Counter Terrorism, Exigent Circumstances
Kansas	HB 2394	Committee On Federal and State Affairs	Referred to Committee on Corrections and Juvenile Justice	3/8/2013	3/7/2013	Prohibits Law Enforcement Use; Exceptions: Homeland Security / Counterterrorism
Kentucky	HB 454	Sen. Overly	Referred to House Committee On Judiciary	2/20/2013	2/19/2013	Warrant Required; Exceptions: Probably Cause, Counterterrorism
Maine	SP 72 / LD 236	Sen. Patrick	TABLED by Committee on Judiciary	3/7/2013	2/5/2013	Warrant Required; Prohibit Facial Recognition/Biometric Tech; Exceptions: Emergency, Consent, Probable Cause
Maryland	HB 1233	Dels. George, Dwyer and Miller	House Judiciary Hearing Scheduled For 3/19	2/13/2013	2/8/2013	Warrant Required; Exceptions: Counter Terrorism, Exigent Circumstances
Massachusetts	S 1664	Sen. Hedlund	Referred to the Senate Committee On Transportation	1/22/2013	1/22/2013	Warrant Required; Acquisition by Law Enforcement Requires Government Approval; Exeptions: Exigent Circumstances

Pending State-Level UAS Legislation

Massachusetts	H 1357	Rep. Garry	Referred to the Committee on Judiciary	1/22/2013	1/22/2013	Warrant Required; Acquisition by Law Enforcement Requires Government Approval; Exeptions: Exigent Circumstances
Michigan	SR 169	10+	Adopted	8/15/2012	8/15/2012	Expresses Support for UAS FAA Testing Site
Michigan	HB 4455	Rep. McMillin	Referred to Committee on Criminal Justice	3/14/2013	3/14/2013	Warrant Required; Exceptions: Imminent Danger
Minnesota	SF 485 / HF 612	Sen. Nienow	Referred to Senate Judiciary Committee; Author Added Limmer	2/25/2013	2/14/2013	Warrant Required; Exceptions: Counter Terrorism, Exigent Circumstances
Minnesota	HF 1620 / SF 1506	Rep. Wills, et al.	Referred to House Committee on Public Safety and Policy	3/18/2013	3/18/2013	Warrant Required; Exceptions: Counter Terrorism, Probable Cause, Emergency Situations
Missouri	HB 46	Rep. Guernsey	Passed by House and Transmitted to Senate	4/4/2013	12/5/2012	Warrant Required; Exceptions: Exigent Circumstances, Consent of Landowner
Montana	SB 150	Rep. Driscoll	Passed by Senate After 3rd Reading and Transmitted to House; House Judiciary Hearing Scheduled for 3/22	3/12/2013	1/16/2013	Prohibits UAS Equipped with Antipersonnel Device; Evidence Gathered Not Permissible in Courts
Montana	SB 196	Sen. Rosendale	Passed by Senate After 3rd Reading and Transmitted to House; House Judiciary Hearing Scheduled for 3/22	3/12/2013	1/24/2013	Requires Warrant; Exceptions: Border Patrol, Public Lands, Consent
Nebraska	LB 412	Sen. Schumacher	Judiciary Committee Hearing Scheduled for 2/14	2/4/2013	1/22/2013	Prohibits Law Enforcement Use; Exceptions; Counter Terrorism
~~New Hampshire~~	~~HB 619~~	~~Rep. Kurk~~	~~House Voted to Table~~	~~3/27/2013~~	~~1/3/2013~~	~~Warrant Requried; Prohibits: Use by Public Agencies and Private Citizens, Tracking Game, Projectile Weapons~~
New Jersey	A 3157	As. Schroeder & O'Scanlon	Referred to Assembly Homeland Security and State Preparedness Committee	6/25/2012	6/25/2012	Warrant Required; Acquisition by Law Enforcement Requires Public Disclosure
New Jersey	A 3929	As. Quijano & Handlin	Referred to Assembly Homeland Security and State Preparedness Committee	3/14/2013	3/14/2013	Prohibits Law Enforcement Use; Exceptions; Counter Terrorism, State of Emergency
New Mexico	SB 556	Sen. Ortiz y Pino	Voted Do-Pass by Senate Public Affairs Committee, Referred to Senate Judiciary Committee	3/7/2013	2/15/2013	Warrant Required; Exceptions: Counter Terrorism, Exigent Circumstances
New Mexico	HJM 6	Rep. Gonzales	Adopted	2/16/2012	1/18/2012	Requests FAA to Designate NM as "UAS Friendly State" and Select NMSU UAS Flight Test Center as one of the FAA UAS Test Sites
New York	A 6244	As. Sepulveda	Referred to Codes	3/25/2013	3/25/2013	(Applies to Evidence Gathering Only): Warrant Required; Exceptions: "Lawful Exceptions to Warrant Requirement"
New York	A 6370	As. Perry	Referred to Committee on Governmental Operations	3/26/2013	3/26/2013	Warrant Required; Exceptions: Exigent Circumstances, Border Patrol, Counterterrorism, Enforcing Article 220 of Penal Law, Civillian Uses: Recreation, Hobby
North Carolina	HB 312	Reps. Setzer, Moffit, Hall & Harrison	Referred to Committee on Rules, Calendar, and Operations of the House	3/18/2013	3/13/2013	Warrant Required; Exceptions: Emergency Situations

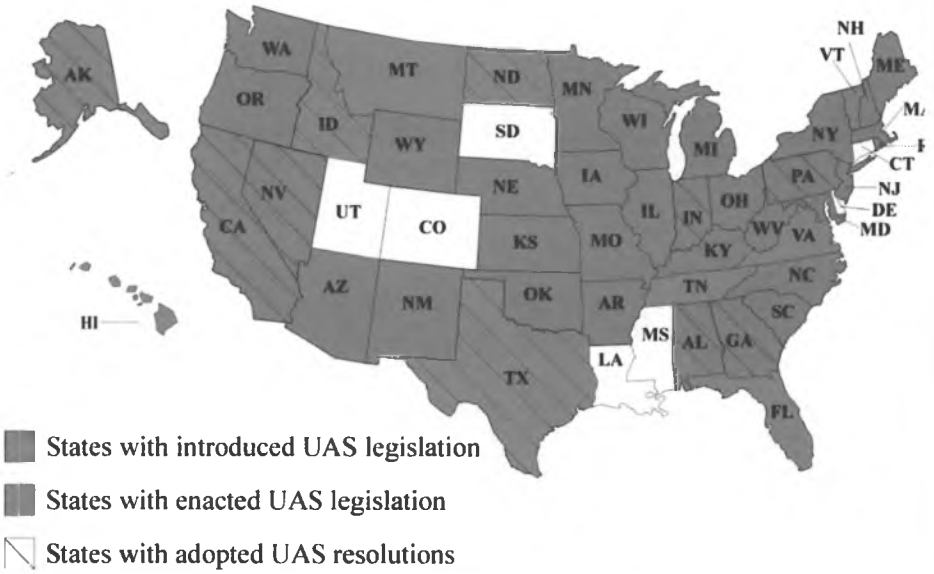
Pending State-Level UAS Legislation

~~North Dakota~~	~~HB 1373~~	~~Reps. Becker, Anderson, Beadle, Heilman, Hofstad, Monson, Rohr, Toman, Hanson~~	~~Senate Judiciary Committee Voted 6-1 Do Not Pass Recommendation~~	~~3/15/2013~~	~~1/21/2013~~	~~Warrant Required; Exceptions: Exigent Circumstances, Border Patrol, Natural Disasters~~
North Dakota	SB 2018	Appropriations Committee	Awaiting Hearing in Appropriations Committee	3/25/2013	1/8/2013	***Section 32*** appropriates $1,000,000 from the general fund for costs related to pursing a FAA UAS Test Site Designation
Ohio	SCR 19	Sen. Oelslager	Adopted	4/23/2012	Unknown	Expresses Support for UAS FAA Testing Site
Oklahoma	HB 1556	Rep. Wesselhoft	Passed by House Energy & Aerospace Committee	2/28/2013	2/4/2013	Warrant Required; Exceptions: Imminent Threat, Natural Disasters, Public Land
Oregon	HB 2710	Rep. Huffman	Heard by House Judiciary Committee	4/3/2013	2/5/2013	Warrant Required; Exceptions: Emergency Situations
Oregon	SB 71	Sen. Prozanski	Public Hearing Scheduled in Senate Judiciary Committee for 3/20; Public Hearing Scheduled for 3/20	2/28/2013	1/14/2013	Warrant Required; Ownership Requires License; Penalties; 'Aispace of Oregon' outside FAA jurisdiction
Pennsylvania	HB 961	Rep. Cruz	Referred to the House Judiciary Committee	3/12/2013	3/12/2013	Warrant Required; Does Not Include Provisions Regulating Civilian or Commercial Use
~~Rhode Island~~	~~SB 411~~	~~Sens. Kettle & Hodgson~~	~~Joint Committee Recommended Measure Be Held for Futher Study~~	~~3/14/2013~~	~~2/26/2013~~	~~Warrant Required; No Exceptions~~
Rhode Island	HB 5780	As. Tanzi, Cimini, Ajello, Valencia & Blazejewski	Hearing Scheduled in House Judiciary Committee for 3/27	2/28/2013	2/28/2013	Warrant Required (from Judge OR Attorney General); Exceptions: Imminent Threat
South Carolina	H 3514	Rep. Hamilton	Referred to House Committee On Judiciary	2/7/2013	2/7/2013	Warrant Required; Prohibits Mass Surveillance
Tennessee	SB 0796 / HB 0591	Sen. Beavers & Rep. Van Huss	Hearing Scheduled in the Civil Justice Committee for 3/27	3/20/2013	1/31/2013	Warrant Required; Exceptions: Counter Terrorism, Exingent Circumstances
Texas	HB 912	Rep. Gooden	Referred to Criminal Jurisprudence Committee	2/25/2013	2/1/2013	Authorization Required for Image Capture; Exceptions: Probable Cause, Imminent Threat, Real Estate
Texas	HR 866	Rep. Hunter	Filed	3/12/2013	3/12/2013	Expresses Support for UAS FAA Testing Site
~~Virginia~~	~~HB 1616~~	~~Del. Gilberts~~	~~Incorporated into HB 2012~~	~~2/1/2013~~	~~1/6/2013~~	~~Warrant Required~~
~~Virginia~~	~~SB 954~~	~~Sen. Ruff~~	~~Passed by indefinitely by Senate Committee for Courts of Justice~~	~~2/1/2013~~	~~1/7/2013~~	~~Impeding Hunting; Drones; Penalty~~
Virginia	HB 2012	Del. Cline	Adopted by House	2/22/2013	1/9/2013	2-Year Moratorium
Virginia	SB 1331	Sen. McEachin	Adopted by Senate	2/23/2013	1/18/2013	2-Year Moratorium
Washington	HB 1771	Rep. Taylor	Returned to Rules Committee for Second Reading	3/13/2013	2/8/2013	Warrant Required; Exceptions: Emergency Situations
Washington	SB 5782	Sen. Chase, et al.	Public Hearing in Senate Committee on Law & Justice	2/20/2013	2/14/2013	Warrant Required; Exceptions: Emergency Situations
West Virginia	HB 2732	Del. Nelson, et al.	Referred to Committee on the Judiciary	2/26/2013	2/26/2013	Warrant Required; Exceptions: Counter Terrorism, Exigent Circumstances
~~Wyoming~~	~~HB 0242~~	~~Reps. Loucks, Hunt, Jaggi, Koreker, Krone, Lubnau, Miller & Reeder~~	~~No report prior to CoW Cutoff; Postponed Indefinitely~~	~~2/4/2013~~	~~1/28/2013~~	~~Warrant Required; Exceptions: Counter Terrorism, Exigent Circumstances~~

National Conference of State Legislatures
The Forum for America's Ideas

2013 ENACTMENTS FOR UNMANNED AIRCRAFT SYSTEM, UNMANNED AERIAL VEHICLE AND DRONE LEGISLATION

Unmanned aircraft systems (UAS), also commonly called unmanned aerial vehicles (UAV) or drones, have many applications for law enforcement, land surveillance, wildlife tracking, search and rescue operations, disaster response, border patrol and photography. In 2013, 43 states considered 115 bills and resolutions that address this emerging technology, considering privacy issues, the benefits of their use and their economic impact. As of July 17th, ten bills have been enacted in eight states, and thirteen resolutions have been adopted in ten states.



Defining UAS, UAV and Drones State enactments addressing this new technology identify them as either Unmanned Aircraft Systems, Unmanned Aerial Vehicles or Drones: 13 measures identify them as UAS, 5 as UAV and 3 as drones. Four of the enactments provide a detailed definition - Idaho SB 1134 (UAS), Montana SB 196 (UAV), Florida SB 92 (Drone) and Tennessee SB 796 (Drone). Common elements in the definitions include that it; is a powered aerial vehicle, does not carry a human operator, can fly autonomously or be piloted remotely and can be expendable or recoverable. Idaho's law specifically excludes model airplanes and rockets from their UAS definition, while Montana's UAV and Tennessee's drone definitions exclude satellites. Idaho also excludes UAS used in mapping and resource management from their definition.

Federal Aviation Administration The Federal Aviation Administration's (FAA) primary mission is to ensure the safety and efficiency of the nation's entire airspace. The FAA's current and future rules regarding UAS apply to all public and private entities that fly them in American airspace. When the FAA Modernization and Reform Act of 2012 became law, it charged the FAA with developing a plan for the safe integration of UAS into American airspace by 2015. As part of this process, the FAA will establish 6 UAS test ranges to study and provide answers for UAS related safety questions. Twenty four states have submitted applications to be one of the 6 test sites and 9 states have introduced measures that address the UAS integration process. A North Dakota law (SB 2018) grants $1,000,000 from the state general fund to pursue designation as a FAA unmanned aircraft systems test site. If selected, the law would grant an additional $4,000,000 to operate the test site. Four other states Alaska (HCR 6), Alabama (HR 381), Idaho (SCR 103) and Nevada (SCR 7) adopted measures that encourage partnerships between the FAA and their state for UAS testing.

UAS/Drone use by Law Enforcement This year 41 states considered how UAS/drone technology can be used by law enforcement within the parameters of the 4th Amendment. Tennessee's new law (SB 796) states that the use of a UAS/drone by law enforcement to gather information must comply with the Constitutions of the United States and Tennessee. The law also qualifies drone use as a search under the 4th Amendment.

In addition, warrants are now required for UAS/drone use by law enforcement in 5 states Florida (SB 92), Idaho (SB 1134), Montana (SB 196), Tennessee and Texas (HB 912). These new laws also include exceptions to the warrant requirement. For example, Montana allows law enforcement to use drones pursuant to any judicially recognized exception to the warrant requirement. Laws in Florida and Tennessee allow for UAS/drones to be used to counter a high risk terrorist attack or if swift action is needed to prevent imminent danger or loss of life. Texas's law provides a number of exceptions for their UAS warrant requirement, including use for investigating the scene of a human fatality, searching for a missing person and for conducting a high-risk tactical operation that poses a threat to human life.

Virginia law (HB 2012 and SB 1331) bans the use of UAS by state agencies with jurisdiction over criminal law enforcement or regulatory violations until July 1, 2015, but allows their use for certain situations including Amber Alerts, Blue Alerts, National Guard operations, higher education research and search and rescue operations.

Texas and Virginia laws also require agencies in their state to develop protocols for their use by law enforcement. In Texas it is the Department of Public Safety and in Virginia it is the Department of Criminal Justice Services in coordination with the Office of the Attorney General.

Data Collection and Retention States are considering and implementing reporting requirements for how UAS/drones are used by government agencies and for what information they can collect and retain. Texas's law (HB 912, HCR 217) now requires law enforcement agencies in communities with a population greater than 150,000, to report on their use of UAS every two years. The report must be issued to the governor, the lieutenant governor, each member of the legislature, be retained for public viewing and be made available on the law enforcement agency's website if they have one. Among other requirements, the report must include; the number of times an unmanned aircraft was used, the types of incidents it was used for, the justification for its use, the number of criminal investigations aided by its use, the dates and locations of its operation and the total cost of acquiring, maintaining, repairing, and operating or otherwise using each unmanned aircraft.

The legislatures in Illinois and Oregon have passed bills with reporting requirements; they are currently with their respective Governors.

Prohibition of Evidence Laws in Florida (SB 92) and Tennessee (SB 796) would prevent evidence from being entered in a criminal case if the information was collected by a UAS/drone outside of the scope of its statutorily or court granted authority. Similarly, Montana's law (SB 196) prevents information obtained from the operation of a UAV from being used in an affidavit of probable cause to obtain a search warrant. Sixty-six measures introduced by states this year considered evidence restrictions.

UAS/Drone use by the General Public So far in 2013, two states, Idaho (SB 1134) and Texas (HB 912) have enacted laws that address UAS/drone use by private entities. Idaho's law now states that no person, entity or state agency shall use a UAS to photograph or otherwise record an individual without their written consent for the purpose of publishing or disseminating a photograph or recording. Similarly, Texas created two new offenses, the illegal use of unmanned aircraft to capture an image and the possession, disclosure, display, distribution or use of such an image.

Economic Impact The Association for Unmanned Aircraft Systems International (AUVSI) released a report stating that through 2025, the UAS industry will create over 100,000 jobs and have an economic impact of $82 billion. Six states adopted resolutions – Alaska (HCR 6), California (SCR 16), Georgia, Idaho (SCR 103), North Dakota (HCR 3012) and Nevada (SCR 7) – noting the potential benefits for a thriving UAS industry on their economy. Georgia, for example, adopted three resolutions (HR 80, HR 81, SR 172) recognizing the aerospace industry in their state and applauding the collaborative efforts of the aerospace industry, academia, and state and local government to make Georgia a leader in the rapidly expanding unmanned aerial vehicles market.

Study Committees Adopted resolutions in Alaska (HCR 6) and Indiana (SR 27) create study committees or task forces to evaluate UAS/drone issues in their state. The Alaska resolution creates a legislative task force charged with reviewing FAA regulations and creating written recommendations and legislation that protects privacy while allowing UAS use for public and private applications. Indiana's adopted senate resolution urges their legislative council to establish an interim committee to study the use of UAV's with similar parameters as provided in Alaska.

MEMORANDUM

State of Alaska
Department of Law

TO: Mead Treadwell
Lieutenant Governor
State of Alaska

FROM: Libby Bakalar
Assistant Attorney General
Transportation Section

CC: Jim Cantor
Deputy Attorney General
Department of Law

Margie Vandor
Chief Assistant Attorney General
Department of Law

Michaela Goertzen
Speechwriter
Office of the Lieutenant Governor

DATE: May 20, 2013

FILE NO.: JU2011200514

TEL. NO.: 907.465.3600 main
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SUBJECT: Legal issues related to unmanned aircraft systems

I. Introduction and background.

In your capacity as chair of the Aerospace States Association, you asked me to provide you with a brief description and analysis of the core legal issues related to the civilian use of Unmanned Aircraft Systems (UAS), also known as "drones." The context for your inquiry is the University of Alaska's pending application with the Federal Aviation Administration (FAA) to become one of a limited number of testing sites in the nation for UAS. Please note that this document is not legal opinion of the Office of the Attorney General, but rather simply a compendium of my research and a preliminary analysis.

UAS are unmanned aircraft designed to do tasks that are too difficult, dull, dangerous, or expensive for manned aviation, and are designed to carry a "system payload" such as a camera or sensor.[1] Traditionally, UAS have been used for military

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[1] Association for Unmanned Vehicle Systems International ("AUVSI"), UAS Privacy Issues Document.

purposes, but they are being increasingly deployed in domestic civilian contexts such as law enforcement, disaster relief, fire-fighting, agriculture, energy, industry, wildlife tracking, and others.[2] Commercial use of UAS is currently prohibited, but that is expected to change by 2014.[3] UAS can range in size from smaller than a cell phone to larger than a commercial jetliner.[4] Research sponsored by the Association for Unmanned Vehicle Systems International (AUVSI), a non-profit trade association that supports the civilian use of UAS, concluded that the integration of UAS into the national airspace has the potential to create more than 100,000 new jobs and $82 billion of economic impact by 2025.[5]

The legal issues surrounding the civilian use of UAS relate mainly to privacy and property interests, and are relatively untested in the courts because of the novelty of the technology involved and the regulatory vacuum in which that technology operates. Fortunately, there has been significant legal scholarship as well as congressional reporting[6] in in this area, all of which I rely upon heavily in this memorandum. I have also reviewed all the materials Charles Huettner emailed me after our April 5th teleconference. Some limited case law also exists on the privacy concerns raised by aerial surveillance and similar technologies. These cases telegraph how the Supreme Court might view the privacy implications of UAS. Following is the requested description, summary, and analysis of the issues that have arisen and been analyzed by legal scholars to date. I also discuss the Alaska-specific implications of these issues, which are not discussed in any of the law reviews, journals, or reports.

II. Core legal issues raised by the use of UAS/drones.

The FAA oversees all aircraft operations in the United States and makes and

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2 *See* Villasenor, John, *Observations from Above: Unmanned Aircraft Systems and Privacy*, 36 Harv. J.L. & Pub. Pol'y 458, 459 (2013).

3 *Id.* at 471.

4 *Id.* at 465.

5 "The Economic Impact of Unmanned Aircraft Systems Integration in the United States," AUVSI, March, 2013.

6 *See* Integration of Drones into Domestic Airspace: Selected Legal Issues, Congressional Research Service, CRS Report for Congress (April 4, 2013).

enforces rules to implement and interpret laws passed by Congress governing aviation.[7] Federal law enacted in February 2012 (The Federal Aviation Administration Modernization and Reform Act of 2012) requires the FAA to devise a comprehensive plan to integrate all civilian UAS into the national airspace system by September 30, 2015, appropriates billions of dollars in funding, and creates the six UAS test sites for which many states, including Alaska, are vying.[8]

The federal government is still struggling with the regulation of UAS, specifically, how to define these vehicles, how to clarify which—if any—existing regulations apply to them, how to craft future regulations to encompass vehicles not governed by existing regulations, and how to ensure that future regulations do not inadvertently regulate other industries such as model or hobby aircraft.[9] The FAA will need to identify technology (*e.g.* cameras and radar) that will obviate the need for regulations requiring pilots to "see and avoid" other aircraft, address appropriate training for UAS operators, devise proper procedures for when a UAS loses contact with an operator or is hacked, coordinate with other countries and agencies in adopting regulations, and ensure that there is sufficient wireless spectrum to accommodate the communication needs of these vehicles.[10] Presently, UAS operators engaged in both public aircraft operations and private operations are required to have special certifications from the FAA.[11]

There is no legislation yet governing UAS in Alaska, although there is model legislation that AUVSI is compiling, and according to news reports, at least one other state—Florida—has begun to legislate UAS. Two bills were introduced in Alaska last session that touch upon UAS: HB 159, "An Act relating to the admissibility of evidence acquired through the use of an unmanned aerial vehicle; establishing a crime for certain uses of unmanned aerial vehicles; and restricting the use of unmanned aerial vehicles for collection of information or investigation by peace officers and other government agents;" and HCR 6, "Recognizing the Alaska Center for Unmanned Aircraft Systems

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7 Villasenor, *supra* note 2, at 469.

8 P.L. No. 112-095 (Feb. 14, 2012).

9 *See* Kapnik, Benjamin, *Unmanned but Accelerating: Navigating the Regulatory and Privacy Challenges of Introducing Unmanned Aircraft into the National Airspace System*, 77 J. Air L. & Com. 439, 443 (2012).

10 *Id.* at 448-49.

11 Villasenor, *supra* note 2, at 471.

Integration at the University of Alaska Fairbanks as a national leader in unmanned aircraft research and development; and relating to a Task Force on Unmanned Aircraft Systems." Presumably, these bills could be revisited next session.

Any discussion of UAS legislation must also consider federal pre-emption and the interplay between state and federal law. Although aircraft safety, trade, and noise regulation is the established provenance of the federal government, states may still pass laws governing how aircraft are flown.[12] Both Alaska and federal law prohibit the reckless operation of aircraft, but Alaska could not enact privacy laws that would decrease or implicate in any way the safety of flight operations, such as laws governing aircraft speed or altitude.[13] From a pre-emption standpoint, the safest area for state legislation is in the realm of privacy laws aimed at non-government actors that address trespass, invasion of privacy, stalking, and harassment, because state power to legislate in this area is well-established.[14]

In short, there is both a mandate and pressing need to legislate and regulate UAS at both the state and federal level. However, the precise parameters and scope of that legislation and regulation remain nebulous at best.

III. Constitutional rights.

A. The Fourth Amendment.

Probably the biggest legal issue surrounding UAS is the implications of these devices for individual privacy rights. The Fourth Amendment to the United States Constitution guarantees to the people the right to be free from unreasonable search and seizure by the government.[15] The Alaska Constitution contains an analogous search and seizure provision, as well as an explicit clause guaranteeing to its citizens the right to privacy.[16] Because the FAA is primarily a regulating agency whose mandate is to ensure

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12 Villasenor, *supra* note 2, at 513.

13 *Id.*

14 *Id.*

15 *See* U.S. Const. amdt. IV.

16 Alaska Const. art. I, §§ 14 and 22. Note that these provisions bind only government actors—not private citizens.

the efficient and safe operation of U.S. airspace, questions have arisen whether this agency is really the appropriate entity to ensure that government actors using UAS are not violating these basic constitutional principles or whether constitutional privacy compliance should be spearheaded at the state or federal level by some other agency. It is clear, however, that no government actor may commit such violations.

The crucial inquiry for Fourth Amendment and state constitutional privacy purposes is whether a person has a reasonable expectation of privacy that society is prepared to recognize. One scholar notes that "[w]here a [UAS] captures images that could have been obtained from civilian aircraft traveling in a legally authorized manner, privacy claims are limited. Consumers lack a reasonable expectation of privacy with respect to areas already exposed to civilian over-flights."[17] However, novel imaging technologies such as thermal and infrared imaging could raise concerns. Indeed, as noted by another scholar who has examined the issue, "[t]he privacy issues raised by the potential ubiquity of [UAS] go beyond the current Fourth Amendment jurisprudence."[18] Indeed, "[t]here is no precedent that squarely addresses privacy implications of governmental use of a technology that allows essentially permanent, multi-dimensional, multi-sensory surveillance of citizens twenty-four hours a day."[19]

However, there has been some judicial guidance. *Katz v. U.S.*[20] was a landmark Fourth Amendment case in which the Supreme Court held for the first time that a Fourth Amendment violation could occur absent a physical intrusion—specifically, through a listening device the police had affixed to the outside of a public phone booth. This was the first "remote sensing" case, soon to be followed by a trilogy of key "aerial surveillance cases."

The "remote sensing" cases fall into two categories: "open fields" and "curtilage." Remote sensing in "open fields" does not implicate the Fourth Amendment because open

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17 Geoffrey Christopher Rapp, *Unmanned Aerial Exposure: Civil Liability Concerns Arising from Domestic Law Enforcement Employment of Unmanned Aerial Systems*, 85 N.D.L. Rev. 623, 641 (2009).

18 Joseph J. Vacek, *Big Brother Will Soon Be Watching—Or Will He?*, 85 N.D. L. Rev. 673, 674 (2009).

19 *Id.* at 675.

20 389 U.S. 347 (1967).

fields are areas of public and private property that "do not provide the setting for those intimate activities that the [Fourth] Amendment is intended to shelter from government surveillance or interference."[21] However, "curtilage" is a legal "penumbra" surrounding a home where the Fourth Amendment may be implicated.[22] Whether a given area constitutes "curtilage" depends on the proximity of the area to the home, whether the area is enclosed, the nature of the use to which the area is put, and the steps taken by the resident to protect the area from observation.[23] Although a person may have reasonable expectations of privacy in curtilage, remote sensing of curtilage "does not require law enforcement officers to shield their eyes when passing by a home on public thoroughfares."[24] The bottom line is that remote sensing will not implicate the Fourth Amendment "if it is done from a public vantage point where law enforcement officers can make open observations."[25]

The Supreme Court's "aerial surveillance" trilogy consists of *California v. Ciraolo*,[26] *Florida v. Riley*,[27] and *Dow Chemical Company v. U.S.*[28] All three cases were decided in the 1980s. Together, they stand for the proposition that aerial surveillance of any kind over private or commercial property from aircraft that are lawfully in navigable airspace is not a Fourth Amendment search, because there is no reasonable expectation of privacy in an area that is openly visible from above, regardless whether the area is curtilage or an open field.[29]

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21 *Oliver v. U.S.*, 466 U.S. 170, 179 (1984).

22 *U.S. v. Dunn*, 480 U.S. 294, 300 (1987).

23 *Id.* at 301.

24 *California v. Ciraolo*, 476 U.S. 207, 213 (1986).

25 Vacek, *supra* note 18, at 680.

26 476 U.S. 207 (1986).

27 488 U.S. 445 (1989).

28 476 U.S. 227 (1986).

29 Vacek, *supra* note 18, at 682.

In *Ciraolo*, police flew a fixed-wing aircraft 1,000 feet over a defendant's backyard, the minimum safe altitude required by FAA regulations, and observed marijuana plants with the naked eye. The backyard was not visible due to an extensive fencing system, so the aerial search provided the basis for a search warrant and marijuana plants were found after a physical search. The Court held that a ground fence does not create an expectation of privacy to be free from aerial searches because routine flights exposed the backyard to public view.[30]

Riley reached the same holding when officers flew a helicopter 400 feet overhead to peer through openings in a greenhouse and determined marijuana was growing inside the defendant's fenced-in home. Again, the Court found that there was no reasonable expectation of privacy because helicopter flight in navigable airspace was a routine, expected occurrence.[31]

And in *Dow Chemical*, the Environmental Protection Agency, acting without a warrant, hired a private commercial pilot to fly over Dow's property to take aerial photos of suspected regulatory violations. The Court upheld this conduct because "such an industrial complex is more comparable to an open field and as such it is open to the view and observation of persons in aircraft lawfully in the public airspace."[32]

However, decades later in 2001, in *Kyllo v. United States*,[33] the Supreme Court reminded us that the Fourth Amendment protects people—not just places—from unreasonable searches and seizures. *Kyllo* involved law enforcement's warrantless use of thermal imaging to detect unusual amounts of heat radiating from the defendant's home, indicating the presence of marijuana. *Kyllo* held that this surveillance violated the Fourth Amendment because the technology was not in widespread use. Currently, *Kyllo* limits the ability of law enforcement to rely on infrared/thermal imaging technology, but because the Court's decision was directly linked to the prevalence of the technology, it's an open question whether the Court's limitation would persist if these technologies went into more "widespread use." As one scholar put it, "the test seems to turn on whether

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30 476 U.S. at 215.

31 488 U.S. at 450-51.

32 476 U.S. at 239.

33 553 U.S. 27 (2001).

Wal-Mart sells it or not."[34] Such a question would most likely be tested in a criminal context, where the prosecution seeks to admit evidence obtained through the use of these technologies.

Finally, just last year, in *United States v. Jones*,[35] the Supreme Court held that the installation of a GPS tracking device on a suspect's car for eight days constituted a search under the Fourth Amendment. Although *Jones* did not deal with aerial surveillance, the Court held that the placement of the device was a physical intrusion onto private property for the purposes of obtaining information, as well as the extended monitoring of a person in a public space, both of which constituted a Fourth Amendment "search." Some scholars have predicted that one potential result of *Jones* is that extended UAS surveillance could constitute a search within the meaning of the Fourth Amendment.[36]

It is clear from a review of the scholarship and the limited case law that the rate of advancement of these technologies often outpaces the ability of courts to rule upon the validity of their use under the Fourth Amendment. The overall conclusion so far is that aerial surveillance by any method, at a legal altitude, is constitutional if the technology is in general public use and does not trespass upon private property for extended periods of time. Still, the legal landscape has been characterized as "an aeronautical Wild West," and the current regulatory scheme as "inadequate to deal with the novel issues raised" by the use of UAS, particularly by law enforcement.[37]

In Alaska, we must consider an additional important factor: Article I, section 22 of the Alaska Constitution guarantees an explicit individual right to privacy. There is no state case law interpreting this clause (or any part of the state constitution) in the context of UAS. However, it is highly possible that the Alaska Supreme Court would interpret the right in favor of the individual asserting it as opposed to deferring to the government. For example, our Supreme Court has interpreted the privacy clause to create a constitutional right to privacy in garbage placed for collection, which contrasts with both state and

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34 Vacek, *supra* note 18, at 683.

35 132 S. Ct. 945 (2012).

36 Kapnik, *supra* note 9, at 495.

37 Vacek, *supra* note 18, at 675-77.

federal case law on the Fourth Amendment.[38] The take-away point here is that government conduct that complies with the Fourth Amendment under either the state or federal constitution could *nonetheless* violate the state constitutional right to privacy. And in 2002, at least one member of the Alaska Court of Appeals, albeit in a concurring and unreported opinion, expressed constitutional skepticism at law enforcement's surreptitious use of infrared helicopter technology of the type prohibited under *Kyllo* the year before.[39]

B. The First Amendment & individual privacy.

In addition to the Fourth Amendment implications of government-operated UAS, these vehicles may also implicate the First Amendment rights of private citizens to collect and gather information. One scholar has recently addressed this issue, noting that for private entities and persons not bound by the Fourth Amendment, the key constitutional question is the extent of these persons' First Amendment right to access information.[40] The Supreme Court long ago held that the First Amendment protects the act of seeking out news, otherwise "freedom of the press could be eviscerated."[41] And at least one circuit court of appeals has recently held that the First Amendment permits a private citizen to record the actions of people in a public space.[42] Congress could potentially enact laws to protect individuals from intrusive UAS surveillance by private actors, which would be considered in a First Amendment context of the right to gather and receive information.[43] Such bills have been introduced, but none have yet been enacted.[44] Because the civilian use of UAS is nascent, and there is no controlling Supreme Court

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38 *Cf. Beltz v. State*, 221 P.3d 328 (Alaska 2009) and *California v. Greenwood*, 486 U.S. 35 (1988).

39 *See Johnston v. State*, 2002 WL 563609 (April 17, 2002) (Mannheimer, J., concurring) (unpublished opinion).

40 Villasenor, *supra* note 2, at 498.

41 *Branzburg v. Hayes*, 408 U.S. 665, 681 (1972).

42 *Glik v. Cunniffe*, 655 F.3d 78, 82 (1st Cir. 2011).

43 *See* Integration of Drones into Domestic Airspace: Selected Legal Issues, Congressional Research Service, CRS Report for Congress (April 4, 2013).

44 *Id.*

case law, it remains to be seen how far First Amendment protections will extend in this area.

The privacy rights of individuals and businesses exist in perpetual tension with the First Amendment rights of non-government actors to gather information, and that tension could give rise to actionable claims for privacy violations. Common law invasions of privacy could occur if UAS use "intrudes upon seclusion" in the home or results in the "publication of private facts," which are the two main categories of invasion of privacy claims. Intrusion upon seclusion occurs where the intrusion was intentional and would be highly offensive to a reasonable person.[45] A publication of private facts claim could arise where a UAS takes images of private individuals involuntarily caught up in newsworthy events, and those images conveyed facts not previously known to the public.[46] Similarly, the use of UAS could potentially give rise to criminal liability under both federal and state anti-stalking and harassment laws.[47] Finally, UAS could be used by private citizens to investigate or monitor potential health and safety violations by businesses, or engage in corporate espionage. Such conduct raises complex and unanswered questions about a private citizen's right to do under the First Amendment what the government could not do under the Fourth.

In short, the above concepts are nothing new to the First Amendment and privacy arena, but they must and will be revisited in light of UAS enhanced imaging capabilities, ease of use, and ever-increasing availability. As discussed in detail above, the strong privacy protections of the Alaska Constitution make it highly likely that individual privacy rights implicated by UAS will be more zealously legislated and enforced in Alaska than in other jurisdictions.

C. Property rights, & tort liability; nuisance, trespass, & ground damage.

Property owners could potentially file tort claims for nuisance and/or trespass against operators of UAS. According to a preeminent torts treatise, a trespass claim against an aircraft operator is viable only when the aircraft "enters into the immediate reaches of the air space next to the land" and "interferes substantially with . . . the use and

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45 Restatement (Second) of Torts § 625B (1977).

46 Villasenor, *supra* note 2, at 503.

47 *Id.* at 505.

enjoyment" of the property by the landowner."[48] The navigable airspace regulated by the FAA is considered a public highway, but it appears that anywhere between 50 to 150 feet above the property owner could be considered impermissible interference with private property.[49] Accordingly, UAS that operate within this window of airspace could potentially raise trespass claims, and UAS that generate noise, light, pollution, or vibration could lead to viable nuisance claims by homeowners.[50] Additional tort claims could arise if a UAS caused ground damage to personal or real property.

Title 2 of the Alaska Statutes is devoted entirely to the regulation and operation of aircraft ("Aeronautics"). Alaska Statute 02.30.030 provides that "A person may not operate an aircraft in the air or on the ground or water in a careless or reckless manner so as to endanger the property of another." This statute directs the court, when evaluating such claims, to consider "the standards for safe operation of aircraft prescribed by federal statutes or regulations governing aeronautics." The phrase "operate aircraft" is defined in AS 02.30.050 as "to use, navigate, pilot, or taxi an aircraft in the airspace over this state, or upon the land or water inside the state." This chapter does not contain a definition of "aircraft." However, "aircraft" is defined in the general provisions of Title 2 (Alaska Aeronautics Act of 1949) as "a contrivance used or designed for navigation of flight in the air,"[51] which could be read to include UAS, although this definition was enacted prior to the burgeoning use of civilian UAS. Accordingly, I am uncertain whether UAS would fit into the current statutory definition of "aircraft," and therefore I think it's an open question whether a court would find that the foregoing provisions regarding liability for aircraft operation would automatically apply to operation of UAS or whether additional statutory language would be necessary to expand that definition. My instinct is that UAS should be specifically legislated in this manner.

If Alaska chooses to enter this arena by passing laws or regulations, it is advisable for the legislature to also enact a statutory immunity provision. That way, the state may

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48 American Law Institute, Restatement (Second) of Torts § 159 (2009) cmt. i.

49 Rapp, *supra* note 17, at 645 (citing *id.*). See also *United States v. Causby*, 328 U.S. 256 (1946) (rejecting the common law concept that a homeowner owns all the airspace above his property up to the heavens, but rather owns "at least that much space above the ground as he can occupy or use in connection with the land.").

50 *Id.*

51 AS 02.15.260(2).

avoid liability for damages in tort when two private UAS collide and fragments cause damage to people or property. Such immunity clauses are common and can deflect an argument that the state is liable simply because it has chosen to legislate in a particular topic area.[52]

D. Environmental concerns.

Scholars have observed the potential of UAS to generate environmental concerns, which could be starker in Alaska than elsewhere. Alaska is already a hotbed of environmental litigation. Many UAS contain batteries, circuitry, and chemicals that could leach into the ground, and the flight of UAS and the noise they cause could disrupt birds and other wildlife habitats.[53] Environmental groups and private citizens could potentially raise federal claims regarding the operation of UAS under the National Environmental Policy Act, the Endangered Species Act, or the Noise Control Act.[54]

In Alaska, to the extent UAS and the execution of implementing statutes interfere with state fish, wildlife, and waters, the government could be found in violation of the "common use" and "sustained yield" provisions of the Alaska Constitution, which provide, respectively, that the state, fish, wildlife and waters of the state are reserved to the people for their common use and that replenishable resources belonging to the state must be utilized, developed, and maintained according to the sustained yield principle.[55]

E. Communications interference.

UAS also have the potential to interfere with existing civilian communications systems used to operate cell phones, satellite TV signals, and other wireless and telecommunications technology.[56] Further, signal loss between UAS and its ground

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52 *See, e.g.*, AS 09.65.215 (Immunity of peace officer for use of body wire eavesdropping device); AS 09.65.235 (Immunity for negotiated regulation making committee and its members); AS 09.65.250 (Immunity for certain actions related to child support); AS 09.65.330 (Immunity: Use of defensive force).

53 Rapp, *supra* note 17, at 632.

54 *Id.*

55 Alaska Const. art. VIII, §§3, 4.

56 Rapp, *supra* note 17, at 640-41.

control operations could result in a mid-air collision or ground damage.[57] This problem could be somewhat mitigated by the assignation of UAS to specific frequencies once UAS are fully integrated into the national airspace, but the potential for interference still remains.[58]

Under state law, the Department of Transportation and Public Facilities is responsible for supervising, developing, and promoting "aeronautics and communications inside the state . . ."[59] The Department could be held responsible for ensuring, through properly adopted regulations and in conjunction with the federal government, that UAS do not unduly interfere with existing civilian communications systems in the state.

F. Mid-air collisions.

Finally, mid-air collisions of UAS with other aircraft and with each other are always a possibility. Most UAS lack the sophisticated collision avoidance systems required of many manned aircraft, and the absence of an on-board pilot who can physically observe other aircraft exacerbates the risk of a mid-air collision.[60] Furthermore, the "small size and radar profile of [UAS] create significant risk that such craft would damage civilian aircraft, causing both property loss and human casualties."[61]

As described above, individual citizens could file tort claims under state law for damages against operators of UAS or the government associated with such accidents. Collisions and near-collisions have already resulted from the use of UAS at the military level, and the scholarship predicts that "[i]t is hard to imagine widespread integration of [UAS] into populated airspace without some level of air-to-air accidents rising."[62]

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57 *Id.*

58 *Id.*

59 AS 02.10.010(a)-(b).

60 Rapp, *supra* note 17, at 629; 640-41.

61 *Id.*

62 *Id.*

IV. Conclusion.

There are many more questions than answers surrounding the increased civilian use and operation of UAS, because there is no case law that definitively resolves any of the issues discussed above, and there is a regulatory vacuum. Indeed, "[t]he only certain aspect of the debate about unmanned aircraft and privacy is that it will be contentious."[63] However, identifying and analyzing these issues at the executive level is the first step to crafting legislation that attempts to address them. Only when those laws are tested in the courts will we fully come to understand the interplay between the technological advantages offered by UAS, the reach of constitutional protections, and the scope of actionable legal claims.

EMB/tjd

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63 Villasenor, *supra* note 2, at 516.

Federal Legislation in 2013 http://thomas.loc.gov

1. H.R.972 : Preserving Freedom from Unwarranted Surveillance Act of 2013
Sponsor: Rep Scott, Austin [GA-8] (introduced 3/5/2013) **Cosponsors** (None)
Committees: House Judiciary
Latest Major Action: 3/5/2013 Referred to House committee. Status: Referred to the House Committee on the Judiciary.

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2. H.R.637 : Preserving American Privacy Act of 2013
Sponsor: Rep Poe, Ted [TX-2] (introduced 2/13/2013) Cosponsors (11)
Committees: House Judiciary
Latest Major Action: 2/13/2013 Referred to House committee. Status: Referred to the House Committee on the Judiciary.

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3. H.R.1083 : NADA Act of 2013
Sponsor: Rep Burgess, Michael C. [TX-26] (introduced 3/12/2013) Cosponsors (1)
Committees: House Transportation and Infrastructure
Latest Major Action: 3/12/2013 Referred to House committee. Status: Referred to the House Committee on Transportation and Infrastructure.

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4. H.R.1242 : To prohibit the use of drones to kill citizens of the United States within the United States.
Sponsor: Rep Ribble, Reid J. [WI-8] (introduced 3/18/2013) Cosponsors (2)
Committees: House Intelligence (Permanent Select); House Judiciary; House Armed Services
Latest Major Action: 3/18/2013 Referred to House committee. Status: Referred to the Committee on Intelligence (Permanent Select), and in addition to the Committees on the Judiciary, and Armed Services, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned.

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5. S.505 : A bill to prohibit the use of drones to kill citizens of the United States within the United States.
Sponsor: Sen Cruz, Ted [TX] (introduced 3/7/2013) Cosponsors (3)
Latest Major Action: 3/11/2013 Read the second time. Placed on Senate Legislative Calendar under General Orders. Calendar No. 22.

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6. H.R.1262 : To amend the FAA Modernization and Reform Act of 2012 to provide guidance and limitations regarding the integration of unmanned aircraft systems into United States airspace, and for other purposes.
Sponsor: Rep Markey, Edward J. [MA-5] (introduced 3/19/2013) **Cosponsors** (None)
Committees: House Transportation and Infrastructure; House Energy and Commerce
Latest Major Action: 3/19/2013 Referred to House committee. Status: Referred to the Committee on Transportation and Infrastructure, and in addition to the Committee on Energy and Commerce, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned.

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7. H.R.2183 : To direct the Director of the CIA to cease lethal drone operations, and for other purposes.
Sponsor: Rep Lee, Barbara [CA-13] (introduced 5/23/2013) **Cosponsors** (None)
Committees: House Armed Services; House Intelligence (Permanent Select); House Judiciary
Latest Major Action: 5/23/2013 Referred to House committee. Status: Referred to the Committee on Armed Services, and in addition to the Committees on Intelligence (Permanent Select), and the Judiciary, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned.

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8. S.1016 : A bill to protect individual privacy against unwarranted governmental intrusion through the use of the unmanned aerial vehicles commonly called drones, and for other purposes.
Sponsor: Sen Paul, Rand [KY] (introduced 5/22/2013) Cosponsors (1)
Committees: Senate Judiciary
Latest Major Action: 5/22/2013 Referred to Senate committee. Status: Read twice and referred to the Committee on the Judiciary.

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9. S.1057 : A bill to prohibit the use of unmanned aircraft systems by private persons to conduct surveillance of other private persons, and for other purposes.
Sponsor: Sen Udall, Mark [CO] (introduced 5/23/2013) **Cosponsors** (None)
Committees: Senate Judiciary
Latest Major Action: 5/23/2013 Referred to Senate committee. Status: Read twice and referred to the Committee on the Judiciary.

Integration of Drones into Domestic Airspace: Selected Legal Issues

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Summary

Under the FAA Modernization and Reform Act of 2012, P.L. 112-95, Congress has tasked the Federal Aviation Administration (FAA) with integrating unmanned aircraft systems (UASs), sometimes referred to as unmanned aerial vehicles (UAVs) or drones, into the national airspace system by September 2015. Although the text of this act places safety as a predominant concern, it fails to address significant, and up to this point, largely unanswered legal questions.

For instance, several legal interests are implicated by drone flight over or near private property. Might such a flight constitute a trespass? A nuisance? If conducted by the government, a constitutional taking? In the past, the Latin maxim *cujus est solum ejus est usque ad coelum* (for whoever owns the soil owns to the heavens) was sufficient to resolve many of these types of questions, but the proliferation of air flight in the 20th century has made this proposition untenable. Instead, modern jurisprudence concerning air travel is significantly more nuanced, and often more confusing. Some courts have relied on the federal definition of "navigable airspace" to determine which flights could constitute a trespass. Others employ a nuisance theory to ask whether an overhead flight causes a substantial impairment of the use and enjoyment of one's property. Additionally, courts have struggled to determine when a government-operated overhead flight constitutes a taking under the Fifth and Fourteenth Amendments.

With the ability to house surveillance sensors such as high-powered cameras and thermal-imaging devices, some argue that drone surveillance poses a significant threat to the privacy of American citizens. Because the Fourth Amendment's prohibition against unreasonable searches and seizures applies only to acts by government officials, surveillance by private actors such as the paparazzi, a commercial enterprise, or one's neighbor is instead regulated, if at all, by state and federal statutes and judicial decisions. Yet, however strong this interest in privacy may be, there are instances where the public's First Amendment rights to *gather* and *receive* news might outweigh an individual's interest in being let alone.

Additionally, there are a host of related legal issues that may arise with this introduction of drones in U.S. skies. These include whether a property owner may protect his property from a trespassing drone; how stalking, harassment, and other criminal laws should be applied to acts committed with the use of drones; and to what extent federal aviation law could preempt future state law.

Because drone use will occur largely in federal airspace, Congress has the authority or can permit various federal agencies to set federal policy on drone use in American skies. This may include the appropriate level of individual privacy protection, the balancing of property interests with the economic needs of private entities, and the appropriate safety standards required.

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Introduction

The integration of drones into U.S. skies is expected by many to yield significant commercial and societal benefits.[1] Drones could be employed to inspect pipelines, survey crops, and monitor the weather.[2] One newspaper has already used a drone to survey storm damage,[3] and real estate agents have used them to survey property.[4] In short, the extent of their potential domestic application is bound only by human ingenuity.

In an effort to accelerate this introduction, in the FAA Modernization and Reform Act of 2012, Congress tasked the Federal Aviation Administration (FAA) with safely integrating drones into the national airspace system by September 2015.[5] Likewise, sensing the opportunities that unmanned flight portend, lobbying groups and drone manufacturers have joined the chorus of those seeking a more rapid expansion of drones in the domestic market.[6]

Yet, the full-scale introduction of drones into U.S. skies will inevitably generate a host of legal issues. This report will explore some of those issues. To begin, this report will describe the regulatory framework for permitting the use of unmanned vehicles and the potential rulemaking that will occur over the next few years. Next, it will discuss theories of takings and property torts as they relate to drone flights over or near private property. It will then discuss the privacy interests implicated by drone surveillance conducted by private actors and the potential countervailing First Amendment rights to gather and receive news. Finally, this report will explore possible congressional responses to these privacy concerns, discuss how the FAA has approached these concerns, and identify additional potential legal issues.

Development of Aviation Law and Regulations

The predominant theory of airspace rights applied before the advent of aviation derived from the Roman Law maxim *cujus est solum ejus est usque ad coelum*, meaning whoever owns the land

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[1] A "drone" is simply an aircraft that can fly without a human operator. They are sometimes referred to as unmanned aerial vehicles (UAV), and the whole system—including the aircraft, the operator on the ground, and the digital network required to fly the aircraft—is referred to as an unmanned aircraft system (UAS). *See generally* CRS Report R42718, *Pilotless Drones: Background and Considerations for Congress Regarding Unmanned Aircraft Operations in the National Airspace System*, by Bart Elias.

[2] *See* GOV'T ACCOUNTABILITY OFFICE, UNMANNED AIRCRAFT SYSTEMS: MEASURING PROGRESS AND ADDRESSING POTENTIAL PRIVACY CONCERNS WOULD FACILITATE INTEGRATION INTO THE NATIONAL AIRSPACE SYSTEM (2012).

[3] It is reported that News Corp. has used a small drone to monitor storm damage in Alabama and flooding in North Dakota. Kashmir Hill, *FAA Looks Into News Corp's Daily Drone, Raising Questions About Who Gets to Fly Drones in the U.S.*, FORBES, (August 2, 2011 3:52 P.M.), http://www.forbes.com/sites/kashmirhill/2011/08/02/faa-looks-into-news-corps-daily-drone-raising-questions-about-who-gets-to-fly-drones-in-the-u-s/.

[4] Nick Wingfield & Somini Sengupta, *Drones Set Sights on U.S. Skies*, N.Y. TIMES (February 17, 2012), *available at* http://www.nytimes.com/2012/02/18/technology/drones-with-an-eye-on-the-public-cleared-to-fly.html?pagewanted=all&_r=0.

[5] FAA Modernization and Reform Act of 2012, P.L. 112-95, 126 Stat. 11.

[6] Groups such as the Association for Unmanned Vehicle Systems International, which boasts 7,200 members, including defense contractors, educational institutions, and government agencies, have been formed to advance the interests of the UAV community. Association for Unmanned Vehicle Systems International; http://www.auvsi.org/Home.

possesses all the space above the land extending upwards into the heavens.[7] This maxim was adopted into English common law and eventually made its way into American common law.[8] At the advent of commercial aviation, Congress enacted the Air Commerce Act of 1926[9] and later the 1938 Civil Aeronautics Act.[10] These laws included provisions stating that "to the exclusion of all foreign nations, [the United States has] complete sovereignty of the airspace" over the country.[11] Additionally, Congress declared a "public right of freedom of transit in air commerce through the navigable airspace of the United States."[12] This right to travel in navigable airspace came into conflict with the common law idea that each landowner owned the airspace above the surface in perpetuity. If the common law idea was to be followed faithfully, there could be no right to travel in navigable airspace without constantly trespassing in private property owners' airspace. This conflict was directly addressed by the Supreme Court in *United States v. Causby*, discussed extensively below.

With the passage of the Federal Aviation Act in 1958,[13] the administrator of the FAA was given "full responsibility and authority for the advancement and promulgation of civil aeronautics generally.... "[14] This centralization of responsibility and creation of a uniform set of rules recognized that "aviation is unique among transportation industries in its relation to the federal government—it is the only one whose operations are conducted almost wholly within federal jurisdiction.... "[15] The FAA continues to set uniform rules for the operation of aircraft in the national airspace. In the FAA Modernization and Reform Act of 2012 (FMRA), Congress instructed the FAA to "develop a comprehensive plan to safely accelerate the integration of civil unmanned aircraft systems into the national airspace system."[16] These regulations must provide for this integration "as soon as practicable, but not later than September 30, 2015."[17]

Current FAA Regulations of Navigable Airspace

Fixed-Wing Aircraft

FAA regulations define the minimum safe operating altitudes for different kinds of aircraft. Generally, outside of takeoff and landing, fixed-wing aircraft must be operated at an altitude that allows the aircraft to conduct an emergency landing "without undue hazard to persons or property on the surface."[18] In a congested area, the aircraft must operate at least "1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft."[19] The minimum safe

[7] Colin Cahoon, *Low Altitude Airspace: A Property Rights No-Man's Land*, 56 J. AIR L. & COM. 157, 161 (1990).

[8] *Id*; *see also* R. WRIGHT, THE LAW OF AIRSPACE 11-65 (1968).

[9] Air Commerce Act of 1926, P.L. 69-254, 44 Stat. 568.

[10] Civil Aeronautics Act of 1938, P.L. 75-706, 52 Stat. 973.

[11] Codified as amended at 49 U.S.C. § 40103 (2012).

[12] Codified as amended at 49 U.S.C. § 40101 (2012).

[13] P.L. 85-726; 72 Stat. 737 (1958).

[14] H. Rept. 2360, 85th Cong., 2d Sess. (1958).

[15] S. Rept. 1811, 85th Cong., 2d Sess. (1958).

[16] P.L. 112-95, §332(a)(1).

[17] *Id.* at §332(a)(3).

[18] 14 C.F.R. §91.119(a).

[19] *Id.* at §91.119(b).

operating altitude over non-congested areas is "500 feet above the surface."[20] Over open water or sparsely populated areas, aircraft "may not be operated closer than 500 feet to any person, vessel, vehicle, or structure."[21] Navigable airspace is defined in statute as the airspace above the minimum safe operating altitudes, including airspace needed for safe takeoff and landing.[22]

Helicopters

While a fixed-wing aircraft is subject to specific minimum safe operating altitudes based on where it is flying, regulation of helicopter minimum altitudes is less rigid. According to FAA regulations, a helicopter may fly below the minimum safe altitudes prescribed for fixed-wing aircraft if it is operated "without hazard to person or property on the surface."[23] Therefore, arguably a helicopter may be lawfully operated outside the zone defined in statute as navigable airspace.[24]

Drones

The FAA does not currently regulate safe minimum operating altitudes for drones as it does for other kinds of aircraft. Defining navigable airspace for drone operation may be one way that the FAA responds to Congress's instruction, in FMRA, to write rules integrating civil drones into the national airspace, which is discussed in more detail below.[25] One possibility is for the FAA to create different classes of drones based on their size and capabilities. Larger drones that physically resemble fixed-wing aircraft could be subject to similar safe minimum operating altitude requirements whereas smaller drones could be regulated similar to helicopters.

Current FAA Regulation of Drones

In 2007, the FAA issued a policy notice stating that "no person may operate a UAS in the National Airspace without specific authority."[26] Therefore, currently all drone operators who do not fall within the recreational use exemption discussed below must apply directly to the FAA for permission to fly.[27]

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[20] *Id.* at § 91.119(c).

[21] *Id.*

[22] 49 U.S.C. § 40102(32).

[23] 14 C.F.R. § 91.119(d).

[24] *See* People v. Sabo, 185 Cal. App. 3d 845, 852 (1986) ("While helicopters may be operated at less than minimum altitudes so long as no hazard results, it does not follow that such operation is conducted within navigable airspace. The plain meaning of the statutes defining navigable airspace as that airspace above specified altitudes compels the conclusion that helicopters operated below the minimum are not in navigable airspace. The helicopter hovering above the surface of the land in such fashion as not to constitute a hazard to persons or property is, however, lawfully operated.").

[25] *See id.* at § 332(b).

[26] FAA, "Unmanned Aircraft Operations in the National Airspace System," 72 Fed. Reg. 6689 (Feb. 13, 2007).

[27] *See id.*

Public and Civil Operators

Drones operated by federal, state, or local agencies must obtain a certificate of authorization or waiver (COA) from the FAA.[28] After receiving COA applications, the FAA conducts a comprehensive operational and technical review of the drone and can place limits on its operation in order to ensure its safe use in airspace.[29] In response to a directive in FMRA, the FAA recently streamlined the process for obtaining COAs, making it easier to apply on their website.[30] It also employs expedited procedures allowing grants for temporary COAs if needed for time-sensitive missions.[31]

Civil operators, or private commercial operators, must receive a special airworthiness certificate in the experimental category in order to operate.[32] These certificates have been issued on a limited basis for flight tests, demonstrations, and training. Presently, there is no other method of obtaining FAA approval to fly drones for commercial purposes. It appears these restrictions will be loosened in the coming years, since the FAA has been instructed to issue a rulemaking that will lead to the phased-in integration of civilian unmanned aircraft into national airspace.[33]

Recreational Users

The FAA encourages recreational users of model aircraft, which certain types of drones could fall under, to follow a 1981 advisory circular.[34] Under the circular, users are instructed to fly a sufficient distance from populated areas and away from noise-sensitive areas like parks, schools, hospitals, or churches. Additionally, users should not fly in the vicinity of full-scale aircraft or more than 400 feet above the surface. When flying within three miles of an airport, users should notify the air traffic control tower, airport operator, or flight service station. Compliance with these guidelines is voluntary.

Future FAA Regulation of Drones

FMRA instructs the FAA to integrate civil unmanned aircraft systems into the national airspace by the end of FY2015 and implement new standards for public drone operators. This law included provisions describing the comprehensive plan and rulemaking the agency must create to address different aspects of integrating civil drones, restricting the FAA's ability to regulate "model aircraft," and requiring the creation of drone test sites.

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[28] *Id.*

[29] *See generally* FAA "Unmanned Aircraft Systems," *available at* http://www.faa.gov/about/initiatives/uas/cert/.

[30] *See* P.L. 112-95, § 334(a) (instructing the issuance of "guidance regarding the operation of public unmanned aircraft systems to ... expedite the issuance of a certificate of authorization process ... "); *see also* "Certificates of Authorization or Waiver (COA)," *available at* http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/systemops/aaim/organizations/uas/coa/.

[31] "FAA makes progress with UAS integration," *available at* http://www.faa.gov/news/updates/?newsId=68004.

[32] 72 Fed. Reg. 6689; *see* 14 C.F.R. §§ 21.191, 21.193 (experimental certificates generally); 14 C.F.R. § 91.319 (operating limitations on experimental certificate aircraft).

[33] P.L. 112-95, § 332(2).

[34] *See* 72 Fed. Reg. 6689; Advisory Circular 91-57, "Model Aircraft Operating Standards" (June 1981), *available at* http://www.faa.gov/documentLibrary/media/Advisory_Circular/91-57.pdf.

Civil Operators

The statute instructs the FAA to create a "comprehensive plan to safely accelerate the integration of civil unmanned aircraft systems into the national airspace"[35] and submit the plan to Congress within one year of enactment.[36] The statute contains a non-exhaustive list of elements that the plan must address, including predictions on how future rulemaking will address the certification process for drones; drone sense and avoid capabilities; and establishing operator or pilot standards, including a licensing and registration system.[37] The plan must also include a timeline for a phased-in approach to integration and ways to ensure the safe operation of civil drones with publicly operated drones in the airspace.[38] The FAA has not yet submitted this comprehensive plan to Congress.

FMRA also directs the FAA to promulgate a series of rules, including rules governing the civil operation of small drones in the national airspace and rules implementing the comprehensive plan described above.[39] Additionally, the FAA must update its 2007 policy statement that established the current scheme of drone authorizations.[40]

Public Operators

As noted above, the FAA has already implemented a streamlined process for public operators to obtain COAs.[41] In addition to this streamlining, FMRA instructs the FAA to "develop and implement operations and certification requirements for the operation of public unmanned aircraft systems in the national airspace."[42] Similar to the provisions governing civil users, these standards must be in place by the end of 2015.

Recreational Users

In FMRA, the FAA was prohibited from promulgating rules regarding certain kinds of model aircraft flown for hobby or recreational use.[43] This prohibition applies if the model aircraft is less than 55 pounds, does not interfere with any manned aircraft, and is flown in accordance with a community-based set of safety guidelines.[44] Additionally, the aircraft must be flown within the line of sight of the operator and be used solely for hobby or recreational purposes.[45] If flown within five miles of an airport, the operator of the model aircraft must notify both the airport operator and air traffic control tower.[46] While the FAA is prohibited from writing rules or

[35] P.L. 112-95, § 332(a)(1).

[36] *Id.* at § 332(a)(4).

[37] *Id.* at § 332(a)(2).

[38] *Id.*

[39] *Id.* at § 332(b).

[40] *Id.* at § 332(b)(3).

[41] P.L. 112-95, § 334(a), (c).

[42] *Id.* at § 334(b).

[43] *Id.* at § 336.

[44] *Id.* at § 336(a).

[45] *Id.* at § 336(c).

[46] *Id. at* § 336(a)(5).

regulations governing these aircraft, it is not prohibited from pursuing enforcement actions "against persons operating model aircraft who endanger the safety of the national airspace system."[47]

Test Ranges

As part of its efforts to integrate drones into the national airspace, FMRA also directed the FAA to establish six test ranges that will serve as integration pilot projects.[48] As part of the test range program, the FAA must designate airspace for the operation of both manned and unmanned flights, develop certification and air traffic standards for drones at the test ranges, and coordinate with both NASA and the Department of Defense during development. The test ranges should address both civil and public drone operations.[49]

In February 2013, the FAA published a notice in the Federal Register announcing the process for selection of the sites.[50] In its words, "The overall purpose of this test site program is to develop a body of data and operational experiences to inform integration and the safe operation of these aircraft in the National Airspace System."[51] As directed in the statute, factors for site selection include geographic and climactic diversity and a consideration of the location of the ground infrastructure needed to support the sites.[52] Additionally, in the notice the FAA announced privacy requirements that will be applicable to operations at test sites. These provisions are discussed in more detail below.[53]

The FAA received 50 applications spread across 37 states and is in the process of making its test range site selections.[54]

Airspace and Property Rights

Since the popularization of aviation, courts have had to balance the need for unobstructed air travel and commerce with the rights of private property owners. The foundational case in explaining airspace ownership rights is *United States v. Causby*.[55]

United States v. Causby

In *United States v. Causby*, the Supreme Court directly confronted the question of who owns the airspace above private property.[56] The plaintiffs filed suit against the U.S. government arguing

[47] *Id.* at § 336(b).

[48] *Id.* at § 332(c).

[49] *Id.* at § 332(c)(2).

[50] Unmanned Aircraft System Test Site Program, 78 Fed. Reg. 12259 (Feb. 22, 2013).

[51] *Id.*

[52] *Id.*; *see* P.L. 112-95, § 332(c)(3).

[53] *See infra* "FAA Regulation of Privacy".

[54] FAA, "UAS Test Site Map," *available at* http://www.faa.gov/about/initiatives/uas/media/UAS_testsite_map.pdf.

[55] United States v. Causby, 328 U.S. 256 (1946).

[56] *Id.*

that flights of military planes over their property constituted a violation of the Fifth Amendment Takings Clause, which states that private property shall not "be taken for public use, without just compensation." Generally, takings suits can only be filed against the government when a government actor, as opposed to a private party, causes the alleged harm.[57]

Causby owned a chicken farm outside of Greensboro, North Carolina, that was located near an airport regularly used by the military. The proximity of the airport and the configuration of the farm's structures led the military planes to pass over the property at 83 feet above the surface, which was only 67 feet above the house, 63 feet above the barn, and 18 feet above the tallest tree.[58] While this take-off and landing pattern was conducted according to the Civil Aeronautics Authority guidelines, the planes caused "startling" noises and bright glare at night.

As the Court explained, "as a result of the noise, respondents had to give up their chicken business. As many as six to ten of their chickens were killed in one day by flying into the walls from fright. The total chickens lost in this manner was about 150.... The result was the destruction of the use of the property as a commercial chicken farm."[59] The Court had to determine whether this loss of property constituted a taking without just compensation.

At the outset, the Court directly rejected the common law conception of airspace ownership: "It is ancient doctrine that at common law ownership of the land extended to the periphery of the universe—*Cujus solum ejus est usque ad coelum.* But that doctrine has no place in the modern world."[60] The Court noted that Congress had previously declared a public right of transit in air commerce in navigable airspace and national sovereignty in the airspace.[61] These statutes could not be reconciled with the common law doctrine without subjecting aircraft operators to countless trespass suits. In the Court's words, "common sense revolts at the idea."[62]

Even though it rejected the idea that the Causbys held complete ownership of the air up to the heavens, the Court still had to determine if they owned any portion of the space in which the planes flew such that a takings could occur. The government argued that flights within navigable airspace that do not physically invade the surface cannot lead to a taking. It also argued that the landowner does not own any airspace adjacent to the surface "which he has not subjected to possession by the erection of structures or other occupancy."[63]

The Court did not adopt this reasoning, finding instead that "the landowner owns at least as much space above the ground as he can occupy or use in connection with the land. The fact that he does not occupy it in a physical sense—by the erection of building and the like—is not material."[64] Therefore, it found that the landowner owns the airspace in the immediate reaches of the surface necessary to use and enjoy the land and invasions of this space "are in the same category as

[57] Takings claims filed against state government actors would not be filed under the Fifth Amendment. Rather, they would arise as state constitutional claims. For more information on takings, *see* CRS Report RS20741, *The Constitutional Law of Property Rights "Takings": An Introduction*, by Robert Meltz.

[58] *Causby*, 328 U.S. at 258.

[59] *Id.* at 259.

[60] *Id.* at 260-61.

[61] *Id.* at 260 (citing statutes then codified at 49 U.S.C. §§ 176(a), 403).

[62] *Id.*

[63] *Id.*

[64] *Id.* at 264 (citing Hinman v. Pacific Air Transport, 84 F.2d 755 (9th Cir. 1936)).

invasions of the surface."[65] Above these immediate reaches, the airspace is part of the public domain, but the Court declined to draw a clear line. The Court also noted that the government's argument regarding the impossibility of a taking based on flights in navigable airspace was inapplicable in this case because the flights over Causby's land were not within navigable airspace.[66] At the time, federal law defined navigable airspace as the space above the minimum safe flying altitudes for specific areas, but did not include the space needed to take off and land. Even though these flights were not within navigable airspace, the Court seemed to suggest that if they were, the inquiry would not immediately end. Instead, the Court would then have to determine if the regulation itself, defining the navigable airspace, was valid.[67]

Ultimately, in the context of a taking claim, the Court concluded that "flights over private land are not a taking, unless they are so low and so frequent to be a direct and immediate interference with the enjoyment and use of the land."[68] With regard to the Causbys' chicken farm, the Court concluded that the military flights had imposed a servitude upon the land, similar to an easement, based on the interference with the use and enjoyment of their property. Although the land did not lose all its economic value, the lower court's findings clearly established the flights led directly to a diminution in the value of the property, since it could no longer be used for its primary purpose as a chicken farm.

Post-*Causby* Theories of Airspace Ownership

Causby clearly abandoned the ancient idea that private landowners each owned their vertical slice of the airspace above the surface in perpetuity as incompatible with modern life. The case set up three factors to examine in a takings claim that courts still utilize today: (1) whether the planes flew directly over the plaintiff's land; (2) the altitude and frequency of the flights; and (3) whether the flights directly and immediately interfered with the plaintiff's use and enjoyment of the surface land.[69]

However, it left many questions unanswered. Where is the dividing line between the "immediate reaches" of the surface and public domain airspace? Can navigable airspace intersect with the "immediate reaches" belonging to the private property? Can aircraft flying wholly within navigable airspace, as defined by federal law, ever lead to a successful takings claim? How does one assess claims based on lawfully operated aircraft, such as helicopters, flying below navigable airspace?

Subsequent cases have been brought using many different legal claims, including trespass and nuisance, as discussed below, and various ways of describing the resulting injury. Claims could include an "inverse condemnation," another way of describing a taking, or the establishment of an avigation, air, or flying easement. While these legal claims may have different names, it appears

[65] *Id.* at 265.

[66] *Id.* at 264.

[67] *Id.* at 263.

[68] *Id.* at 266.

[69] *See e.g.*, Andrews v. United States, 2012 U.S. Claims LEXIS 1644, *10 (explaining that the "The United States Court of Appeals for the Federal Circuit (Federal Circuit) has derived from Causby three factors for consideration 'in determining whether noise and other effects from overflights ... constitute a taking.... '"). *But see* Argent v. United States, 124 F.3d 1277, 1284 (Fed. Cir. 1997) (finding a taking claim may be based on "a peculiarly burdensome pattern of activity, including both intrusive and non-intrusive flights").

that courts use *Causby* as the starting point for analyzing all property-based challenges to intrusions upon airspace. Several different interpretations of *Causby* have emerged in the attempt to articulate an airspace ownership standard, a few of which are described here.

Following *Causby*, several lower courts employed a fixed-height theory and interpreted the decision as creating two distinct categories of airspace. On the one hand, the stratum of airspace that was defined in federal law as "navigable airspace" was always a part of the public domain. Therefore, flights in this navigable airspace could not lead to a successful property-right based action like a takings or trespass claim because the property owner never owned the airspace in the public domain. On the other hand, the airspace below what is defined as navigable airspace could be "owned" by the surface owner and, therefore, intrusions upon it could lead to a successful takings or property tort claim. Since this fixed-height theory of airspace ownership relies heavily on the definition of navigable airspace, the expansion of the federal definition of "navigable airspace" to include the airspace needed to take-off and land[70] greatly impacts what airspace a property owner could claim.

This strict separation between navigable airspace and the airspace a landowner can claim seems to have been disavowed by the Supreme Court. First, in dicta in *Braniff Airways v. Nebraska State Board of Equalization & Assessment*,[71] a case primarily dealing with the question of federal preemption of state airline regulations, the Court left open the possibility of a taking based on flights occurring in navigable airspace. It summarized *Causby* as holding "that the owner of land might recover for a taking by national use of navigable air space resulting in destruction in whole or in part of the usefulness of the land property."[72] Next, in *Griggs v. Allegheny County* the Supreme Court found that the low flight of planes over the plaintiff's property, taking off from and landing at a nearby airport's newly constructed runway, constituted a taking that had to be compensated under the Fifth Amendment.[73] The noise and fear of a plane crash caused by the low overhead flights made the property "'undesirable and unbearable'" for residential use, making it impossible for people in the house to converse or sleep.[74] The Court reached this conclusion that a taking occurred based on this injury, despite the fact that the flights were operated properly under federal regulations and never flew outside of navigable airspace.[75] Despite this holding, some lower courts have continued to lend credence to a fixed-height ownership theory as a reasonable interpretation of *Causby*.[76]

Another interpretation of *Causby* essentially creates a presumption of a non-taking when overhead flights occur in navigable airspace. This presumption would recognize the importance of unimpeded travel of air commerce and that Congress placed navigable airspace in the public domain. However, the presumption could be rebutted by evidence that the flights, while in navigable airspace, interfered with the owner's use and enjoyment of the surface enough to justify compensation. As one court reasoned, "as the height of the overflight increases... the Government's interest in maintaining sovereignty becomes weightier while the landowner's

[70] 49 U.S.C. §40102(32) (2012).

[71] 347 U.S. 590 (1954).

[72] *Id.* at 596.

[73] Griggs v. Allegheny County, 369 U.S. 84, 90 (1962).

[74] *Id.* at 87.

[75] *Id.* at 86-89.

[76] *See, e.g.*, Aaron v. United States, 311 F.2d 798 (Ct. Cl. 1963); Powell v. United States, 1 Cl. Ct. 669 (1983).

interest diminishes, so that the damage showing required increases in a continuum toward showing absolute destruction of all uses of the property."[77]

Finally, some courts have concluded that the altitude of the overhead flight has no determinative impact on whether a taking has occurred. One federal court noted that the government's liability for a taking is not impacted "merely because the flights of Government aircraft are in what Congress has declared to be navigable airspace and subject to its regulation."[78] Under this approach, "although the navigable airspace has been declared to be in the public domain, 'regardless of any congressional limitations, the land owner, as an incident to his ownership, has a claim to the superjacent airspace to the extent that a reasonable use of his land involves such space.'"[79] Under this theory, the court would only need to examine the effect of the overhead flights on the use and enjoyment of the land, and would not need to determine if the flight occurred in navigable airspace.

While the definition of navigable airspace impacts each theory differently, it is clear that under each interpretation a showing of interference with the use and enjoyment of property is required. Cases have clearly established that overhead flights leading to impairment of the owner's livelihood or that cause physical damage qualify as an interference with use and enjoyment of property.[80] Additionally, flights that cause the surface to become impractical for its intended use by the current owner also satisfy the use and enjoyment requirement.[81] For example, in *Griggs*, the noise, vibration, and fear of damage caused by overhead flights made it impossible for the plaintiffs to converse with others or sleep within their house, leading to their retreat from the property, which had become "undesirable and unbearable for their residential use."[82] Some courts have recognized a reduction in the potential resale value of the property as an interference with its use and enjoyment, even if the property continues to be suitable for the purposes for which it is currently used.[83] One court explained: "Enjoyment of property at common law contemplated the entire bundle of rights and privileges that attached to the ownership of land.... Owners of fee simple estates ... clearly enjoy not only the right to put their land to a particular present use, but also to hold the land for investment and appreciation.... "[84] However, other courts have rejected the idea that restrictions on uses by future inhabitants, without showing loss of property value, are relevant to a determination of the owner's own use and enjoyment of the property.[85]

Trespass and Nuisance Claims Against Private Actors

Although *Causby* arose from a Fifth Amendment takings claim, its articulation of airspace ownership standards is also often used in determining state law tort claims such as trespass and nuisance. These state law tort claims could be used to establish liability for overhead flights

[77] Stephens v. United States, 11 Cl. Ct. 352, 362 (1986).

[78] Branning v. United States, 654 F.2d 88, 99 (1981).

[79] *Id.* at 98-99 (citing Palisades Citizens Association, Inc. v. C.A.B, 420 F.2d 188, 192 (D.C. Cir. 1969)).

[80] *See, e.g.*, *Causby*, 328 U.S. 256.

[81] *See, e.g., Griggs*, 369 U.S. 84; Pueblo of Sandia v. Smith, 497 F.2d 1043 (10th Cir. 1974) ("appellant failed to show interference with actual, as distinguished from potential, use of its land.").

[82] *Griggs*, 369 U.S. at 87.

[83] *See, e.g.*, Brown v. United States, 73 F.3d 1100 (1996); *Branning*, 654 F.2d 88.

[84] *Brown*, 73 F.3d 1100.

[85] Stephens v. United States, 11 Cl. Ct. 352 (1986).

operated by private actors, where a lack of government involvement precludes a takings claim. Generally, the tort of trespass is any physical intrusion upon property owned by another. However, unlike with surface trespass claims, simply proving that an object or person was physically present in the airspace vertically above the landowner's property is generally not enough to establish a trespass in airspace. Since *Causby* struck down the common law idea of *ad coelum*, landowners generally do not have an absolute possessory right to the airspace above the surface into perpetuity. Instead, airspace trespass claims are often assessed using the same requirements laid out in the *Causby* takings claim. Arguably, these standards are used in property tort claims because there can be no trespass in airspace unless the property owner has some possessory right to the airspace, which was the same question at issue in *Causby*.

To allege an actionable trespass to airspace, the property owner must not only prove that the interference occurred within the immediate reaches of the land, or the airspace that the owner can possess under *Causby*, but also that its presence interferes with the actual use of his land. As one court explained, "a property owner owns only as much air space above his property as he can practicable use. And to constitute an actionable trespass, an intrusion has to be such as to subtract from the owner's use of the property."[86] This standard for airspace trespass was also adopted by the Restatement (Second) of Torts.[87]

Nuisance is a state law tort claim that is not based on possessory rights to property, like trespass, but is rooted in the right to use and enjoy land.[88] Trespass and nuisance claims arising from airspace use are quite similar, since trespass to airspace claims generally require a showing that the object in airspace interfered with use and enjoyment of land. However, unlike trespass, nuisance claims do not require a showing that the interference actually occupied the owner's airspace. Instead, a nuisance claim can succeed even if the interference flew over adjoining lands and never directly over the plaintiff's land, as long as the flight constitutes a substantial and unreasonable interference with the use and enjoyment of the land.

Potential Liability Arising from Civilian Drone Use

The integration of drones into domestic airspace will raise novel questions of how to apply existing airspace ownership law to this new technology. How courts may apply the various interpretations of *Causby*, discussed above, to drones will likely be greatly impacted by the FAA's definition of navigable airspace for drones.

The potential for successful takings, trespass, or nuisance claims from drone use will also be impacted by the physical characteristics of the drone, especially given that current case law heavily emphasizes the impact of the flight on use and enjoyment of the surface property. Several characteristics of drones may make their operation in airspace less likely to lead to liability for drone operators than for aircraft operators. First, the noise attributed to drone use may be significantly less than noise created by helicopters or planes powered by jet engines. Second, drones commonly used for civilian purposes could be much smaller than common aircraft used today. This decreased size is likely to lead to fewer physical impacts upon surface land such as

[86] Geller v. Brownstone Condominium, 82 Ill. App. 3d 334, 336-37 (1980).

[87] RESTATEMENT (SECOND) OF TORTS §159(2) (1965) (stating that "Flights by aircraft in the airspace above the land of another is a trespass if, but only if, (a) it enters into the immediate reaches of the airspace next to the land, and (b) it interferes substantially with the other's use and enjoyment of the land.").

[88] RESTATEMENT (SECOND) OF TORTS §821D (1979); 2 DAN B DOBBS ET AL., THE LAW OF TORTS §398 (2d ed. 2011).

vibration and dust, which are common complaints arising from overhead aircraft and helicopter flights. Finally, it is unknown at this time how most drones will be deployed into flight. Will drone "airports" be used to launch the aircraft or will they take off and land primarily from individual property? If drone use remains decentralized and is not organized around an "airport," then drones are less likely to fly repeatedly over the same piece of property, creating fewer potential takings, trespass, or nuisance claims. Additionally, the majority of drones are more likely to operate like helicopters, taking off and landing vertically, than like traditional fixed-wing aircraft. This method of takeoff reduces the amount of surface the aircraft would have to fly over before reaching its desired flying altitude, minimizing the potential number of property owners alleging physical invasion of the immediate reaches of their surface property.

Alternatively, the potential ability for drones to fly safely at much lower altitudes than fixed-wing aircraft or helicopters could lead to a larger number of property-based claims. Low-flying drones are more likely to invade the immediate reaches of the surface property, thus satisfying part of the requirement for a takings or trespass claim.

Privacy

Perhaps the most contentious issue concerning the introduction of drones into U.S. airspace is the threat that this technology will be used to spy on American citizens. With the ability to house high-powered cameras, infrared sensors, facial recognition technology, and license plate readers, some argue that drones present a substantial privacy risk.[89] Undoubtedly, the government's use of drones for domestic surveillance operations implicates the Fourth Amendment and other applicable laws.[90] In like manner, privacy advocates have warned that private actors might use drones in a way that could infringe upon fundamental privacy rights.[91] This section will focus on the privacy issues associated with the use of drones by private, non-governmental actors. It will provide a general history of privacy law in the United States and survey the various privacy torts, including intrusion upon seclusion, the privacy tort most applicable to drone surveillance. It will then explore the First Amendment right to gather news. Application of these theories to drone surveillance will be discussed in the section titled "Congressional Response."

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[89] *See* Jennifer Lynch, *Are Drones Watching You?*, ELECTRONIC FRONTIER FOUNDATION (January 10, 2012), https://www.eff.org/deeplinks/2012/01/drones-are-watching-you; M. Ryan Calo, *The Drone as Privacy Catalyst*, 64 STAN. L. REV. ONLINE 29 (December 12, 2011), http://www.stanfordlawreview.org/sites/default/files/online/articles/64-SLRO-29_1.pdf.

[90] For an analysis of the Fourth Amendment implications of government drone surveillance, see CRS Report R42701, *Drones in Domestic Surveillance Operations: Fourth Amendment Implications and Legislative Responses*, by Richard M. Thompson II.

[91] *See* Press Release, Rep. Ed Markey, Markey Releases Discussion Draft of Drone Privacy and Transparency Legislation (August 1, 2012), *available at* http://markey.house.gov/press-release/markey-releases-discussion-draft-drone-privacy-and-transparency-legislation.

> Drones are already flying in U.S. airspace – with thousands more to come – but with no privacy protections or transparency measures in place. We are entering a brave new world, and just because a company soon will be able to register a drone license shouldn't mean that company can turn it into a cash register by selling consumer information. Currently, there are no privacy protections or guidelines and no way for the public to know who is flying drones, where, and why. The time to implement privacy protections is now.

Id.

Early Privacy Jurisprudence

Although early Anglo-Saxon law lacked express privacy protections, property law and trespass theories served as proxy for the protection of individual privacy. Lord Coke pronounced in 1605 that "the house of everyone is to him as his castle and fortress, as well for his defence against injury and violence, as for his respose[.]"[92] This proposition that individuals are entitled to privacy while in their homes crossed the Atlantic with the colonists and appeared prominently in early revolutionary thinking.[93] In one early American common law decision, the court noted that "[t]he law is clearly settled, that an officer cannot justify the breaking open an outward door or window, in order to execute process in a civil suit; if he doth, he is a trespasser."[94] In cases lacking physical trespass, prosecutors relied on an eavesdropping theory, which protected the privacy of individuals' conversations while in their home.[95]

These century-old theories of trespass and eavesdropping, however, failed to keep up with a rapidly changing society fueled by advancing technologies. As with today's celebrity-obsessed society, late-19th century society experienced the birth and spread of "yellow journalism," a new media aimed at emphasizing the "curious, dramatic, and unusual, providing readers a 'palliative of sin, sex, and violence.'"[96] Faster presses and instantaneous photography enabled journalists to exploit and spread gossip.[97] Louis D. Brandeis (then a private attorney) and Samuel Warren were bothered with the press's constant intrusions into the private affairs of prominent Bostonians.[98] In 1890, they published a seminal law review article formulating a new legal theory—the right to be let alone.[99] Brandeis and Warren understood that existing tort doctrines such as trespass and libel were insufficient to protect privacy rights, as "only a part of the pain, pleasure, and profit of life lay in physical things."[100] They noted that this new right to privacy derived not from "the principle of private property, but that of an inviolate personality."[101] The authors observed that "instantaneous photographs and newspaper enterprise have invaded the sacred precincts of private and domestic life; and numerous mechanical devices threaten to make good the prediction that 'what is whispered in the closet shall be proclaimed from the house-tops.'"[102] Although this new theory had its detractors,[103] it found its way into the common law of several states.[104]

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[92] Semayne's Case, 5 Co. Rep. 91 (K. B. 1604).

[93] In contesting the use of general warrants by officials of the British Crown, known then as writs of assistance, James Otis argued that "one of the most essential branches of English liberty, is the freedom of one's house. A man's house is his castle; and while he is quiet, he is as well guarded as a prince in his castle." II LEGAL PAPERS OF JOHN ADAMS 142.

[94] *See* State v. Armfield, 9 N.C. 246, 247 (1822).

[95] Note, *The Right to Privacy in Nineteenth Century America*, 94 HARV. L. REV. 1892, 1896 (1981). In an early case from Pennsylvania, in recognizing eavesdropping as an indictable offense, the court noted: "Every man's home is his castle, where no man has a right to intrude for any purpose whatever. No man has a right to pry into your secrecy in your own house." Commonwealth v. Lovett, 4 Pa. L.J. Rpts. (Clark) 226, 226 (Pa. 1831); *see also* State v. Williams, 2 Tenn. 108, 108 (1808) (recognizing eavesdropping as an indictable offense).

[96] Ken Gromley, *One Hundred Years of Privacy*, 1992 WIS. L. REV. 1335, 1351 (1992) (quoting EDWIN EMERY & MICHAEL C. EMERY, THE PRESS AND AMERICA: AN INTERPRETATIVE HISTORY OF THE MASS MEDIA 349-50 (3d ed. 1972).

[97] *Id.* at 1350-51.

[98] William M. Prosser, *Privacy*, 48 Cal. L. Rev. 383, 383 (1960).

[99] Louis D. Brandeis & Samuel D. Warren, *The Right to Privacy*, 4 HARV. L. REV. 193, 205 (1890).

[100] *Id.* at 195.

[101] *Id.* at 205.

[102] *Id.* at 195.

[103] Herbert Spencer Hadley, *Right to Privacy*, 3 N.W. L. REV. 1, 3-4 (1894) ("The writer believes that the right to (continued...)

Privacy Torts

In 1939, the First Restatement of Torts (a set of model rules intended for adoption by the states) created a general tort for invasion of privacy.[105] By 1940, a minority of states had adopted some right of privacy either by statute or judicial decision, and six states had expressly refused to adopt such a right.[106] Twenty years later, Dean William Prosser surveyed the case law surrounding this right and concluded that the right to privacy entailed four distinct (yet, sometimes overlapping) rights: (1) intrusion upon seclusion; (2) public disclosure of private facts; (3) publicity which puts the target in a false light; and (4) appropriation of one's likeness.[107] These four categories were incorporated into the Restatement (Second) of Torts.[108]

Section 652B of the Restatement (Second) of Torts creates a cause of action for intrusion upon seclusion,[109] the privacy tort most likely to apply to drone surveillance.[110] It has been adopted either by common law or statute in an overwhelming majority of the states.[111] Section 652B provides: "One who intentionally intrudes, physically or otherwise, upon the solitude or seclusion of another or his private affairs or concerns, is subject to liability to the other for invasion of his privacy, if the intrusion would be highly offensive to a reasonable person."[112] Courts have developed a set of rules for applying Section 652B. First, it requires an objective person standard, testing whether a person of "ordinary sensibilities" would be offended by the alleged invasion.[113] Thus, someone with an idiosyncratic sensitivity—say, an aversion to cameras—could not satisfy this standard by simply having his photograph taken. Likewise, the intrusion must not only be offensive, but "*highly* offensive,"[114] or as one court put it, "outrageously unreasonable conduct."[115] Generally, a single incident will not suffice; instead, the intrusion must be "repeated with such persistence and frequency as to amount to a course of hounding" and "becomes a burden to his existence.... "[116] However, in a few cases a single intrusion was adequate.[117] The

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privacy does not exist; that the arguments in its favor are based on a mistaken understanding of the authorities cited in its support[.]").

[104] *Compare* Roberson v. Rochester Folding Box Co., 171 N.E. 538, 542 (N.Y. 1902) (declining to adopt right of privacy), *with* Pavesich v. New England Life Ins. Co., 50 S.E. 68 (Ga. 1905) (recognizing a right to privacy).

[105] RESTATEMENT (FIRST) OF TORTS §867 (1939).

[106] *See* Louis Nizer, *Right of Privacy – A Half Century's Development*, 39 MICH. L. REV. 526, 529-30 (1940).

[107] Prosser, *supra* note 98, at 385.

[108] RESTATEMENT (SECOND) OF TORTS §§652B (intrusion upon seclusion), 652C (appropriation of name or likeness), 652D (publicity given to private fact), 652E (publicity placing person in false light).

[109] *Id.* at §652B.

[110] Because the use of drones for surveillance primarily concerns the collection, and not necessarily the dissemination, of information, this section will focus on the tort of intrusion upon seclusion, which has no publication requirement for recovery. *Id.* cmt. a.

[111] North Dakota and Wyoming are the only states not to adopt the privacy tort of intrusion upon seclusion. *See* Tigran Palyan, *Common Law Privacy in a Not So Common World: Prospects for the Tort of Intrusion Upon Seclusion in Virtual Worlds*, 38 SW. L. REV. 167, 180 n.106 (2008).

[112] *Id.*

[113] Shorter v. Retail Credit Co., 251 F. Supp. 329, 322 (D.S.C. 1966).

[114] RESTATEMENT (SECOND) OF TORTS §652B (emphasis added).

[115] N.O.C., Inc. v. Schaefer, 484 A.2d 729, 733 (N.J. Super. Ct. Law Div. 1984).

[116] RESTATEMENT (SECOND) OF TORTS §652B cmt. d.

[117] *See, e.g.*, Miller v. National Broadcasting Co., 187 Cal. App. 3d 1463 (Cal. Ct. App. 1986) (videotaping man in his (continued...)

invasion of privacy must been intentional, meaning the defendant must desire that the intrusion would occur, or as with other torts,[118] knew with a substantial certainty that such an invasion would result from his actions.[119] An accidental intrusion is not actionable. Finally, in some states, the intrusion must cause mental suffering, shame, or humiliation to permit recovery.[120]

A review of the case law demonstrates that the location of the target of the surveillance is, in many cases, determinative of whether someone has a viable claim for intrusion upon seclusion. For the most part, conducting surveillance of a person while within the confines of his home will constitute an intrusion upon seclusion.[121] The illustrations to Section 652B offer an example of a private detective who photographs an individual while in his home with a telescopic camera as a viable claim.[122] Likewise, as one court observed, "when a picture is taken of a plaintiff while he is in the privacy of his home, ... the taking of the picture may be considered an intrusion into the plaintiff's privacy just as eavesdropping or looking into his upstairs windows with binoculars are considered an invasion of his privacy."[123]

The likelihood of a successful claim is diminished if the surveillance is conducted in a public place. The comments to Section 652B explain that there is generally no liability for photographing or observing a person while in public "since he is not then in seclusion, and his appearance is public and open to the public eye."[124] Likewise, Prosser observed:

> On the public street, or in any other public place, the plaintiff has no right to be alone, and it is no invasion of his privacy to do no more than follow him about. Neither is it such an invasion to take a photograph in such a place, since this amounts to nothing more than making a record, not differing essentially from a full written description, of a public sight which anyone present would be free to see.[125]

The case law also supports this proposition. The Alabama Supreme Court dismissed a claim of wrongful intrusion against operators of a race track who photographed the plaintiffs while they were in the "winner's circle" at the track.[126] Similarly, a federal district court dismissed a claim by a husband and wife who had been photographed by Forbes Magazine while waiting in line at the Miami International Airport as it was taken in "a place open to the general public."[127] Likewise, a Vietnam veteran lost a claim for invasion of privacy based on photographs that depicted him and

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home while being resuscitated after having suffered a heart seizure); Nader v. General Motors Corp., 25 N.Y.2d 560, 570 (1970) (surveilling plaintiff in bank in an "overzealous" manner).

[118] RESTATEMENT (SECOND) OF TORTS §652B.

[119] *See* DOBBS ET AL., *supra* note 88, at §29.

[120] DeAngelo v. Fortney, 515 A.2d 594, 596 (Pa. Sup. 1986); Burns v. Masterbrand Cabinets, Inc., 369 Ill. App. 3d 1006, 1012 (Ill. App. Ct. 2007).

[121] *See, e.g.*, Wolfson v. Lewis, 924 F. Supp. 1413 (E.D. Penn. 1996).

[122] RESTATEMENT (SECOND) OF TORTS §652B cmt. b, illus. 2.

[123] Lovgren v. Citizens First Nat. Bank of Princeton, 534 N.E.2d 987 (Ill. 1989); *see also* Souder v. Pendleton Detectives, 88 So.2d 716, 718 (La. Ct. App. 1956) (peeping into plaintiff's windows); Egan v. Schmock, 93 F. Supp. 2d 1090, 1094-95 (N.D. Cal. 2000) (filming plaintiff and family while in their home).

[124] RESTATEMENT (SECOND) OF TORTS §652B cmt. c.

[125] Prosser, *supra* note 98, at 392.

[126] Schifano v. Green County, 624 So. 2d 178 (Ala. 1993).

[127] Fogel v. Forbes, 500 F. Supp. 1081, 1084, 1087 (E.D. Pa. 1980).

other soldiers during a combat mission in Vietnam—again, a public setting.[128] Other examples include the recording of license plate numbers of cars parked in a public parking lot[129] and photographing a person while walking on a public sidewalk.[130]

Indeed, even plaintiffs who were videotaped or photographed while on their own property have generally been unsuccessful in their privacy claims so long as they could be viewed from a public vantage point. Rejecting one plaintiff's claim for intrusion upon seclusion, the Supreme Court of Oregon held that even though the investigators trespassed on the plaintiff's property to film him, the investigation did not "constitute an unreasonable surveillance 'highly offensive to a reasonable man[,]'"[131] as the plaintiff could have been viewed from the road by his neighbors or passersby.[132] In another case, the wife of a prominent Puerto Rican politician sought damages from a newspaper for invasion of privacy allegedly committed when an agent of the newspaper photographed her house as part of a news story about her husband.[133] The court dismissed her claim as the photographers were not "unreasonably intrusive," and the photographs depicted only the outside of the home and no persons were photographed.[134] Similarly, in one case a couple sued a cell phone company for intrusion upon seclusion when the company's workers looked onto their property each time they serviced a nearby cell tower.[135] The court rejected their claim, holding that "[t]he mere fact that maintenance workers come to an adjoining property as part of their work and look over into the adjoining yard is legally insufficient evidence of highly offensive conduct."[136] There are many other examples.[137]

However, there have been some successful claims for intrusion upon seclusion involving surveillance conducted in public.[138] The comments to Section 652B explain: "Even in a public place, however, there may be some matters about the plaintiff, such as his underwear or lack of it, that are not exhibited to the public gaze, and there may still be invasion of privacy when there is intrusion upon these matters."[139] One of the most famous cases concerning this "public gaze" theory involved a suit for invasion of privacy against a newspaper when it published a picture of

[128] Tellado v. Time-Life, 643 F. Supp. 904, 907 (D.N.J. 1986).

[129] *See* International Union v. Garner, 601 F. Supp. 187, 191-92 (M.D. 1985); Tedeschi v. Reardon v. 5 F. Supp. 2d 40, 46 (D. Mass. 1998).

[130] Jackson v. Playboy Enterprises, Inc., 574 F. Supp. 10, 13 (S.D. Ohio 1983).

[131] McClain v. Boise Cascade Corp., 271 OR 549, 556 (1975). It should be noted that the court also relied on previous case law which held that one who seeks damages for alleged injuries "waives his right to privacy to the extent of a reasonable investigation." *Id.* at 554-555.

[132] *Id.* at 556.

[133] Mojica Escobar v. Roca, 926 F. Supp. 30, 32-33 (D.P.R. 1996).

[134] *Id.* at 35 (citing Dopp v. Fairfax Consultants, Ltd., 771 F. Supp. 494, 497 (D.P.R. 1990)).

[135] GTE Mobilnet of South Texas, LTD. Partnership v. Pascouet, 61 S.W. 3d 599, 605 (Tex. App. 2001).

[136] *Id.* at 618.

[137] *See, e.g.*, Aisenson v. American Broadcasting Co, 220 Cal. App. 3d 146, 162-63 (1990) (holding that broadcast of plaintiff while in his driveway and car was not an intrusion upon seclusion); Wehling v. Columbia Broadcasting System, 721 F.2d 506, 509 (5th Cir. 1983) (holding that broadcast of the outside of plaintiff's home taken from public street was not an invasion of privacy); Munson v. Milwaukee Bd. of School Directors, 969 F.2d 266, 271 (7th Cir. 1992) (same).

[138] *See* Kramer v. Downey, 684 S.W. 2d 524, 525 (Tex. Ct. App. 1984) ("[W]e now hold that the right to privacy is broad enough to include the right to be free of those willful intrusions into one's personal life at home and at work which occurred in this case.").

[139] RESTATEMENT (SECOND) OF TORTS §652B cmt. c.

the plaintiff with her dress blown up as she was leaving a fun house at a county fair.[140] In upholding the plaintiff's claim, the court observed: "To hold that one who is involuntarily and instantaneously enmeshed in an embarrassing pose forfeits her right of privacy merely because she happened at the moment to be part of a public scene would be illogical, wrong, and unjust."[141] In *Huskey v. National Broadcasting Co. Inc.*, a prisoner sued NBC, a television broadcasting company, alleging that by filming him without consent while he was working out in the exercise yard at the prison, NBC invaded his privacy.[142] NBC countered that depictions of persons in a "publicly visible area" could not support the claim for invasion of seclusion.[143] Ultimately, the court permitted the prisoner's claim to go forward, observing that "[o]f course [the prisoner] could be seen by guards, prison personnel and inmates, and obviously he was in fact seen by NBC's camera operator. But the mere fact a person can be seen by others does not mean that person cannot legally be 'secluded.'"[144] Although relief is available for certain cases of public surveillance, recovery seems to be the exception rather than the norm.[145]

First Amendment and Newsgathering Activities

Based on the foregoing discussion, safeguarding privacy from intrusive drone surveillance is clearly an important societal interest. However, this interest must be weighed against the public's countervailing concern in securing the free flow of information that inevitably feeds the "free trade of ideas."[146] Unmanned aircraft can improve the press and the public's ability to gather news: they can operate in dangerous areas without putting a human operator at risk of danger; can carry sophisticated surveillance technology; can fly in areas not currently accessible by traditional aircraft; and can stay in flight for long durations. However, challenges arise in attempting to find an appropriate balance between this interest in newsgathering and the competing privacy interests at stake.

The First Amendment to the United States Constitution provides that "Congress shall make no law ... abridging the freedom of speech, or of the press.... "[147] The Court has construed this phrase to cover not only traditional forms of speech, such as political speeches or polemical articles, but also conduct that is "necessary for, or integrally tied to, acts of expression,"[148] such as distribution of political literature[149] or door-to-door solicitation.[150] Additionally, the Court has pulled within

[140] Daily Times Democrat v. Graham, 276 Ala. 380, 381 (1964).

[141] *Id.* at 383.

[142] Huskey v. National Broadcasting Co., Inc., 632 F. Supp. 1282, 1285 (1986).

[143] *Id.* at 1286.

[144] *Id.* at 1287-88 (emphasis in original).

[145] Jennifer R. Scharf, *Shooting for the Stars: A Call for Federal Legislation to Protect Celebrities' Privacy Rights*, 3 BUFF. INTELL. PROP. L.J. 164, 183 (2006) ("Modifying intrusion to apply in public places would be necessary in order to provide any relief.").

[146] Abrams v. United States, 250 U.S. 616, 630 (1919) (Holmes, J., dissenting). Justice Stevens described this as a "conflict between interests of the highest order—on the one hand, the interest in the full and free dissemination of information concerning public issues, and, on the other hand, the interest in individual privacy and, more specifically, in fostering private speech." Bartnicki v. Vopper, 532 U.S. 514, 518 (2001).

[147] U.S. CONST. amend. I.

[148] Barry P. McDonald, *The First Amendment and the Free Flow of Information: Towards a Realistic Right to Gather Information in the Information Age*, 65 OHIO ST. L. J. 249, 260 (2004).

[149] Lovell v. City of Griffin, 3030 U.S. 444, 452 (1938).

[150] Watchtower Bible and Tract Soc'y of New York , Inc. v. Vill. of Stratton 536 U.S. 150, 168-69 (2002).

the First Amendment's protection other conduct that is not expressive in itself, but is "necessary to accord full meaning and substance to those guarantees."[151] For example, the Court has said that the public is entitled to a "right to receive news" as a correlative of the right to free expression.[152]

Like this right to receive news, the Court has intimated in a series of cases beginning in the 1960s that the public and the press may be entitled to *a right to gather news* under the First Amendment. Initially, in *Zemel v. Rusk*, the Court observed that the right "to speak and publish does not carry with it the unrestrained right to gather information."[153] The Court's reluctance to extend this right may have signaled its concern that an unconditional newsgathering right could subsume almost any government regulation that places a slight restriction on the ability to gather news.[154] However, several years later the Court indicated in *Branzburg v. Hayes* that although laws of general applicability apply equally to the press as to the general public, that "[n]ews gathering is not without its First Amendment protections,"[155] and that "without some protection for seeking out the news, freedom of the press could be eviscerated."[156] The Court, however, failed to clearly delineate the parameters of such a protection. In the Court's most recent case, *Cohen v. Cowles Media Co.*, the Court adhered to the "well-established line of decisions holding that generally applicable laws do not offend the First Amendment simply because their enforcement against the press has incidental effects on its ability to gather and report the news."[157] The Court noted that it is "beyond dispute 'that the publisher of a newspaper has no special immunity from the application of general laws. He has no special privilege to invade the rights of others.'"[158]

The lower federal courts have explored this right to gather news in the context of photographing or video recording. In *Dietemann v. Time, Inc.* the Ninth Circuit Court of Appeals explored the extent to which reporters could use surreptitious means to carry out their newsgathering.[159] There, defendants Time Life sent undercover reporters to a man's house where he claimed to use minerals and other materials to heal the sick. The reporters used a hidden camera to take pictures of the man, and a hidden microphone to transmit the conversation to other operatives. The defendants claimed that the First Amendment's right to freedom of the press shielded its newsgathering activities. In rejecting this claim, the court observed that although an individual accepts the risk when inviting a person into his home that the visitor may repeat the conversation to a third party, "he does not and should not be required to take the risk that what is heard and seen will be transmitted by photograph or recording, or in our modern world, in full living color and hi-fi to the public at large or to any segment of it that the visitor may select."[160] The court held that "hidden mechanical contrivances" are not indispensable tools of investigative reporting, and that the "First Amendment has never been construed to accord newsman immunity from torts

[151] McDonald, *supra* note 148, at 260.

[152] Kleindienst v. Mandel, 408 U.S. 753, 762–63 (1972).

[153] Zemel v. Rusk, 381 U.S. 1, 17 (1965).

[154] *Id.* at 16-17 ("There are few restrictions on action which could not be clothed by ingenious argument in the garb of decreased data flow. For example, the prohibition of unauthorized entry into the White House diminishes the citizen's opportunities to gather information he might find relevant to his opinion of the way the country is being run, but that does not make entry into the White House a First Amendment right.").

[155] Branzburg v. Hayes, 408 U.S. 665, 707 (1972).

[156] *Id.* at 681.

[157] *Id.* at 669.

[158] Cohen v. Cowles Media Co., 501 U.S. 663, 666 (1991).

[159] Dietemann v. Time, Inc., 449 F.2d 245 (9th Cir. 1971).

[160] *Id.* at 249.

or crimes committed during the course of newsgathering."[161] In *Galella v. Onassis*, Galella, a self-proclaimed "paparazzo," constantly followed around, harassed, and photographed Jacqueline Kennedy Onassis and her children.[162] As part of an ongoing lawsuit, Onassis sued Galella for, *inter alia*, invasion of her and her family's privacy. Galella argued that he was entitled to the absolute "wall of immunity" that protects newsmen under the First Amendment. The Second Circuit Court of Appeals quickly rejected this absolutist position: "There is no such scope to the First Amendment right. Crimes and torts committed in news gathering are not protected. There is no threat to a free press in requiring its agents to act within the law."[163] By contrast, the Seventh Circuit in *Desnick v. American Broadcast Companies, Inc.* held that surreptitious recording was not a privacy invasion because the target of the surveillance was a party to the conversation, thereby vitiating any claim to privacy in those conversations.[164]

Congressional Response

If Congress chooses to act, it could create privacy protections to protect individuals from intrusive drone surveillance conducted by private actors.[165] Such proposals would be considered in the context of the First Amendment rights to gather and receive news. Several bills have been introduced in the 113th Congress that would regulate the private use of drones. Additionally, there are other measures Congress could adopt.

Drone Aircraft Privacy and Transparency Act of 2013 (H.R. 1262)

In the 113th Congress, Representative Ed Markey introduced the Drone Aircraft Privacy and Transparency Act of 2013 (H.R. 1262).[166] This bill would amend FMRA to create a comprehensive scheme to regulate the private use of drones, including data collection requirements and enforcement mechanisms. First, this bill would require the Secretary of Transportation, with input from the Secretary of Commerce, the Chairman of the Federal Trade Commission, and the Chief Privacy Officer of the Department of Homeland Security, to study any potential threats to privacy protections posed by the introduction of drones in the national airspace. Next, the bill would prohibit the FAA from issuing a license to operate a drone unless the application for such use included a "data collection statement." This statement would require the following items: a list of individuals who would have the authority to operate the drone; the location in which the drone will be used; the maximum period it will be used; and whether the drone would be collecting information about individuals. If the drone will be used to collect personal information, the statement must include the circumstances in which such information will be used; the kinds of information collected and the conclusions drawn from it; the type of data minimization procedures to be employed; whether the information will be sold, and if so, under what circumstances; how long the information would be stored; and procedures for destroying irrelevant data. The statement must also include information about the possible impact on privacy protections posed by the operation under that license and steps to be taken to mitigate

[161] *Id.*

[162] Galella v. Onassis, 487 F.2d 986, 991-92 (2d Cir. 1973).

[163] *Id.* at 996-97 (internal citations omitted).

[164] Desnick v. American Broadcast Corporation, 44 F.3d 1345, 1353 (7th Cir. 1995).

[165] For legislation that would regulate public actors, see Thompson, *supra* note 90.

[166] H.R. 1262, 113th Cong. 1st Sess. (1st Sess. 2013).

this impact. Additionally, the statement must include the contact information of the drone operator; a process for determining what information has been collected about an individual; and a process for challenging the accuracy of such data. Finally, the FAA would be required to post the data collection statement on the Internet.

H.R. 1262 includes several enforcement mechanisms. First, the FAA may revoke any license of a user that does not comply with these requirements. The Federal Trade Commission would have the primary authority to enforce the data collection requirements just stated. Additionally, the Attorney General of each state, or an official or agency of a state, is empowered to file a civil suit if there is reason to believe that the privacy interests of residents of that state have been threatened or adversely affected. H.R. 1262 would also create a private right of action for a person injured by a violation of this legislation.

Preserving American Privacy Act of 2013 (H.R. 637)

Representative Poe introduced the Preserving American Act of 2013 (H.R. 637) which would prohibit the use of drones to capture images in a manner highly offensive to a reasonable person where the person is engaging in a personal or familial activity under circumstances in which the individual has a reasonable expectation of privacy, regardless of whether there is a physical trespass.[167]

Other Proposals

Additionally, Congress could create a cause of action for surveillance conducted by drones similar to the intrusion upon seclusion tort provided under Restatement Section 652B.[168] How would a court assess whether drone surveillance violated this type of tort? First, generally speaking, the location of the search would be determinative of whether a person is entitled to an expectation of privacy. Although courts have posited that the common law, like the Fourth Amendment, is intended to "protect people, not places[,]"[169] the *location* of an alleged intrusion factors heavily in a privacy analysis. The greatest chance for liability occurs when a person photographs or videotapes another while in the seclusion of his home. While technology has increasingly shrunk other spheres of privacy in the digital age, the home is still accorded significant legal protection. Using a drone to peer inside the home of another—whether looking through a window or utilizing extra-sensory technology such as thermal imaging—would likely constitute an intrusion upon seclusion. Moving from the home to a public space, or even a space on private property where one can be seen from a public vantage point, significantly reduces the chance of tort liability. However, certain instances of highly offensive surveillance in public may be actionable.

This leads to the second factor that will inform a reviewing court's analysis: the degree of offensiveness of the surveillance. The Ninth Circuit Court of Appeals, applying California law,

[167] H.R. 637, 113th Cong (1st Sess. 2013).

[168] As with the enactment of any federal statute, Congress must act within one of its constitutionally delegated powers when creating a federal privacy tort or a crime based on intrusion of privacy. It would appear that Congress could regulate this area under its Commerce Clause power, U.S. Const. art. I, §8, cl. 3, which it acts under when regulating similar federal airspace issues. *See* Braniff Airways v. Nebraska Bd. of Equalization and Assessment, 347 U.S. 590 (1954); United States v. Helsley, 615 F.2d 784 (9th Cir. 1979).

[169] Pearson v. Dodd, 410 F.2d 701, 704 (D.C. Cir. 1969) (quoting Katz v. United States, 389 U.S. 347, 351 (1967)).

observed that, in determining offensiveness, "common law courts consider, among other things: 'the degree of intrusion, the context, conduct and circumstances surrounding the intrusion as well as the intruder's motives and objectives, the setting into which he intrudes, and the expectations of those whose privacy is invaded.'" Several of these factors—especially, the context of the intrusion and the motive of the intruder—are fact intensive and require application in a particular case to fully understand. However, some generalizations can be made. The cases discussed above that did find an intrusion upon seclusion in a public place required highly offensive activity, such as closely following another person for an extended period or photographing another in a highly embarrassing shot. Likewise, a court might recognize liability if one were to use a drone to follow another for an extended period of time, particularly at a close distance. It is not clear, however, whether knowledge of being surveilled makes the monitoring more or less offensive. For example, one court seemed to rely on the fact that the defendant was unaware that her house was being photographed to hold that she did not have a viable privacy claim.[170] A drone flying at several thousand feet may not significantly disturb the target of the surveillance and could fall within this rationale. Nevertheless, filming someone in a compromising or embarrassing situation without his knowledge can be equally offensive. Here, the facts of the particular case would determine liability.

Congress could also create a privacy statute tailored to drone use similar to the anti-voyeurism statutes, or "Peeping Tom" laws, enacted in many states.[171] These laws prohibit persons from surreptitiously filming others in various circumstances and places.[172] Some states prohibit surreptitious surveillance of a person while on private property, usually a private residence.[173] Nevada employs this model, prohibiting a person from entering the property of another with the intent to peep through a window of the building.[174] Likewise, New Jersey prohibits a person from peering into the window of the dwelling of another "under circumstances in which a reasonable person in the dwelling would not expect to be observed."[175] Other states require a prurient intent when conducting the surveillance. Under Washington State's statute, a person commits the crime of voyeurism if, for the purpose of arousing or gratifying his sexual desire, he films or photographs (1) a person in a place where he or she would expect privacy; or (2) the intimate areas of another person, whether he or she is in a public or private place.[176]

Similarly, Congress could adopt an "anti-paparazzi" statute, like that enacted in California, to prevent intrusive drone surveillance.[177] In fact, Congress considered a similar measure in the 105th

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[170] Mojica Escobar v. Roca, 926 F. Supp. 30, 35 (D.P.R. 1996).

[171] Federal law does prohibit certain acts of voyeurism on federal property. Section 1801, Title 18 provides: "Whoever, in the special maritime and territorial jurisdiction of the United States, has the intent to capture an image of a private area of an individual without their consent, and knowingly does so under circumstances in which the individual has a reasonable expectation of privacy, shall be fined under this title or imprisoned not more than one year, or both." 18 U.S.C. §1801(a). As discussed in note 168, *supra*, it appears Congress would have the authority to extend this section to voyeurism committed not only on federal property but that committed from federal airspace.

[172] Timothy J. Hortstmann, *Protecting Traditional Privacy Rights in Brave New Digital World: The Threat Posed by Cellular Phone-Cameras and What States Should Do to Stop It*, 111 PENN. ST. L. REV. 739, 742 (2007).

[173] *See, e.g*, GA. CODE ANN. §16-11-61; MONT. CODE ANN. §45-5-223.

[174] NEV. REV. STAT. §200.603.

[175] N.J. STAT. ANN. §2C:18-3c.

[176] WASH. REV. CODE §9A.44.115; *see also* CAL. PENAL CODE §647; R.I. GEN. LAWS §11-64-2.

[177] California Civil Code §1708.8 provides:

> A person is liable for constructive invasion of privacy when the defendant attempts to capture, in a manner that is offensive to a reasonable person, any type of visual image, sound recording, or other

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Congress. The Privacy Protection Act of 1998 and the Personal Intrusion Act of 1998 would have made it unlawful to persistently follow or chase another person for the purpose of obtaining a visual image of that person if the plaintiff met the following elements: (1) the image was transferred in interstate commerce or the person taking the photograph traveled in interstate commerce; (2) the person had a reasonable expectation of privacy from such intrusion; (3) the person feared death or bodily injury from being chased; and (4) the taking of the image was for commercial purposes.[178] Also, these bills would have created a civil remedy for an individual whose privacy was intruded upon. Congress could use this model to make it unlawful to persistently monitor another person using drone surveillance.

FAA Regulation of Privacy

Some observers have questioned whether the FAA has the legal authority to create privacy protections as it begins to integrate drones in the national airspace.[179] This section will explore the FAA's legal authority to establish privacy protections when it engages in rulemaking and establishes the six drone test ranges as required under FMRA.

It is well settled that agencies do not wield inherent powers, and that any authority they do have must be delegated by Congress.[180] Thus, when engaging in rulemaking or any other administrative action, the agency must be able to identify a specific statutory source of authority. In *Chevron v. Natural Resources Defense Council*, the Supreme Court established a two-part test (now known as the *Chevron* two step) that assesses whether a federal agency should be accorded deference in interpreting and implementing its authorizing statute or a statute it administers.[181] First, this test asks "whether Congress has directly spoken to the precise question at issue."[182] If so, the analysis ends there and the court and the agency "must give effect to the unambiguously expressed intent of Congress."[183] If, however, "the statute is silent or ambiguous" the court must

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> physical impression of the plaintiff engaging in a personal or familial activity under circumstances in which the plaintiff had a reasonable expectation of privacy, through the use of a visual or auditory enhancing device, regardless of whether there is a physical trespass, if this image, sound recording, or other physical impression could not have been achieved without a trespass unless the visual or auditory enhancing device was used.

[178] H.R. 3224, H.R. 2448, 105th Cong., 2d sess. (1998).

[179] *See, e.g.*, Press Release, Association for Unmanned Vehicle Systems International, AUVSI to FAA: Focus on your Mission, Proceed with UAS Integration (Nov. 28, 2012) ("As an industry, we support a continued, civil dialogue on privacy, but any such conversations should take place concurrent with the integration. The selection process for the six test sites are a separate issue and should be treated as such. Meanwhile, the FAA should adhere to its mission and do what it does best – focus on the safety of the U.S. airspace – while other, more appropriate institutions consider privacy issues."), *available at* http://www.auvsi.org/AUVSINews/AssociationNews.

[180] *See* Louisiana Pub. Serv. Comm'n v. FCC, 476 U.S. 355, 374 (1986).

[181] Chevron v. Natural Resources Defense Council, 467 U.S. 837 (1984). It should be noted that there is a disagreement among the circuit courts as to whether *Chevron* deference should be accorded to an agency's interpretation of its own jurisdictional statute. *Compare* Hydro Res., Inc. v. EPA, 608 F.3d 1131, 1445-46 (10th Cir. 2010) (en banc) (applying *Chevron* deference) *with* N. Ill. Steel Supply Co. v. Sec'y of Labor, 294 F.3d 844, 846-47 (7th Cir. 2002) (applying de novo standard). The Supreme Court has granted a petition for writ of certiorari in *City of Arlington v. FCC*, 133 S. Ct. 524 (2012) and may potentially resolve this circuit split. *See* CRS Report WSLG373, *Can an Agency Determine the Scope of its Jurisdiction? Supreme Court Hears Argument Regarding Chevron Deference*, by Daniel T. Shedd.

[182] *Chevron*, 467 U.S. at 842.

[183] *Id.* at 843.

then determine if the agency's interpretation is a "permissible construction of the statute."[184] This type of *Chevron* analysis may be applied by a reviewing court if the FAA promulgated rules governing privacy, as part of the FMRA directed rulemaking and those rules were challenged.

Rulemaking Required by FMRA

FMRA directs the FAA to engage in two sets of rulemaking. The first rulemaking requires that by August 14, 2014, the FAA issue a final rule on integrating "small unmanned aircraft systems" into the national airspace system.[185] The second rulemaking requires the FAA to develop a "comprehensive plan to safely accelerate the integration of civil unmanned aircraft systems into the national airspace system[;]"[186] provide notice on proposed rulemaking to implement this comprehensive plan not later than August 14, 2014; and publish a final rule by December 14, 2015.[187]

As to the small drone rulemaking, FMRA provides little guidance on what factors should inform the agency's rulemaking. The act merely requires that the FAA issue a final rule "on small unmanned aircraft systems that will allow for civil operation of such systems in the national airspace system.... "[188] Applying the first step of *Chevron*, it is clear that Congress did not address the precise issue at question—that is, Congress did not expressly provide FAA authority to regulate privacy. Accordingly, a reviewing court would then have to assess under step two whether addressing privacy as part of rulemaking would be a reasonable interpretation of FMRA. There are plausible arguments on both sides of this question.

The Court asserted in *Chevron* that "the power of an administrative agency to administer a congressionally created ... program necessarily requires the formulation of policy and the making of rules to fill any gap left, implicitly or explicitly, by Congress."[189] Given that privacy has been a paramount concern of both the public and various Members of Congress, it would seem odd if Congress delegated the FAA rulemaking authority to integrate drones into the national airspace, but withheld the authority to regulate one of the most prominent and controversial issues surrounding this integration. Rather, one could argue that Congress would have inferred that the FAA would fill in these gaps with reasonable regulations, including those regulating privacy and data collection issues. Conversely, those who contend that the FAA has neither the legal authority nor the expertise to regulate privacy issues concerning drone use may point to the FAA's organic statute. This law provides the FAA authority to ensure the safety and efficiency of air travel,[190]

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[184] *Id.*

[185] § 332 (b)(1).

[186] § 332(a)(1).

[187] § 332(b)(2).

[188] § 332(b)(1).

[189] *Chevron*, 467 U.S. at 843 (quoting Morton v. Ruiz, 415 U.S. 199, 231 (1974)).

[190] The policy section to FAA's authorizing statue provides that when implementing agency regulations, the FAA shall consider, among other things, the following:

> (1) assigning, maintaining, and enhancing safety and security as the highest priorities in air commerce.
>
> (2) regulating air commerce in a way that best promotes safety and fulfills national defense requirements.
>
> (3) encouraging and developing civil aeronautics, including new aviation technology.
>
> (4) controlling the use of the navigable airspace and regulating civil and military operations in that

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but appears to contain no *express* authority to regulate privacy. They may further argue that the FAA has not historically regulated privacy as it pertains to persons or things on the ground in relation to traditional air flight, and currently does not have the technical expertise to undertake such regulations. These arguments could support the theory that Congress intentionally omitted privacy regulation from the FAA's purview when conducting this required rulemaking.

Next, as to the comprehensive plan rulemaking, Congress has provided some guidance as to the factors the FAA should take into consideration, but none of the factors discuss privacy concerns.[191] Thus, like the rulemaking for small drones, under the *Chevron* first step, Congress has not spoken directly to the issue in question. Moving to the second step, would it be reasonable for the FAA to include privacy regulations in its rulemaking implementing this comprehensive plan? First, the use of the term "at a minimum" as a preface to the list of factors to be considered in this comprehensive plan and rulemaking make it illustrative, not exhaustive. This phrasing

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> airspace in the interest of the safety and efficiency of both of those operations.
>
> (5) consolidating research and development for air navigation facilities and the installation and operation of those facilities.
>
> (6) developing and operating a common system of air traffic control and navigation for military and civil aircraft.
>
> (7) providing assistance to law enforcement agencies in the enforcement of laws related to regulation of controlled substances, to the extent consistent with aviation safety.

49 U.S.C. § 40101(d).

[191] The "comprehensive plan" must contain, "at a minimum," recommendations on:

> (A) the rulemaking to be conducted under subsection (b), with specific recommendations on how the rulemaking will—
>
> (i) define the acceptable standards for operation and certification of civil unmanned aircraft systems;
>
> (ii) ensure that any civil unmanned aircraft system includes a sense and avoid capability; and
>
> (iii) establish standards and requirements for the operator and pilot of a civil unmanned aircraft system, including standards and requirements for registration
>
> and licensing;
>
> (B) the best methods to enhance the technologies and subsystems necessary to achieve the safe and routine operation of civil unmanned aircraft systems in the national
>
> airspace system;
>
> (C) a phased-in approach to the integration of civil unmanned aircraft systems into the national airspace system;
>
> (D) a timeline for the phased-in approach described under subparagraph (C);
>
> (E) creation of a safe
>
> (F) airspace designation for cooperative manned and unmanned flight operations in the national airspace
>
> system;
>
> (G) establishment of a process to develop certification,
>
> flight standards, and air traffic requirements for civil unmanned aircraft systems at test ranges where such systems are subject to testing;
>
> (H) the best methods to ensure the safe operation of civil unmanned aircraft systems and public unmanned aircraft systems simultaneously in the national airspace system; and
>
> (I) incorporation of the plan into the annual NextGen Implementation Plan document (or any successor document) of the Federal Aviation Administration.

§ 332(a).

arguably suggests that Congress understood that the FAA might address other factors, perhaps including privacy, beyond those enumerated in section 332. Second, section 332 provides that the FAA must "define the acceptable standards for operation and certification of civil unmanned aircraft systems."[192] Viewing this language in light of *Chevron* deference, a court could find that regulating requirements that protect privacy fall within the "acceptable standards for operation" of drones in the national airspace.

In sum, it appears that the open-ended nature of Congress's instructions to the FAA, coupled with the prominence of privacy concerns, would likely persuade a court that the FAA's potential regulation of privacy as part of formal rulemaking is a reasonable interpretation of FMRA that should be accorded deference under a *Chevron* analysis.

Test Ranges and Privacy

In addition to the rulemaking described above, section 332(c) of FMRA requires the FAA Administrator to "establish a program to integrate unmanned aircraft systems into the national airspace system at 6 test ranges."[193] On February 22, 2013, the FAA issued a request for comment on the privacy rules that will apply to test range operators.[194] In its request for comment, the FAA proposed several requirements that might apply to the operation of these test ranges.[195] Once the

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[192] § 332(a)(2).

[193] P.L. 112-95, § 332(c)(1), 126 Stat. 11, 74.

[194] Unmanned Aircraft System Test Site Program, 78 Fed. Reg. 12259 (Feb. 22, 2013).

[195] The FAA has proposed that the OTA include the following privacy requirements:

> (1) The Site Operator must ensure that there are privacy policies governing all activities conducted under the OTA, including the operation and relevant activities of the UASs authorized by the Site Operator. Such privacy policies must be available publically, and the Site Operator must have a mechanism to receive and consider comments on its privacy policies. In addition, these policies should be informed by Fair Information Practice Principles. The privacy policies should be updated as necessary to remain operationally current and effective. The Site Operator must ensure the requirements of this paragraph are applied to all operations conducted under the OTA.
>
> (2) The Site Operator and its team members are required to operate in accordance with Federal, state, and other laws regarding the protection of an individual's right to privacy. Should criminal or civil charges be filed by the U.S. Department of Justice or a state's law enforcement authority over a potential violation of such laws, the FAA may take appropriate action, including suspending or modifying the relevant operational authority (e.g., Certificate of Operation, or OTA), until the proceedings are completed. If the proceedings demonstrate the operation was in violation of the law, the FAA may terminate the relevant operational authority.
>
> (3) If over the lifetime of this Agreement, any legislation or regulation, which may have an impact on UAS or to the privacy interests of entities affected by any operation of any UAS operating at the Test Site, is enacted or otherwise effectuated, such legislation or regulation will be applicable to the OTA and the FAA may update or amend the OTA to reflect these changes.
>
> (4) Transmission of data from the Site Operator to the FAA or its designee must only include those data listed in Appendix B to the OTA.

78 Fed. Reg. 12260. Appendix B to the OTA is available at https://faaco.faa.gov/index.cfm/attachment/download/29581.

The FAA notes that these rules are not permanent but are intended to:

> help inform the dialogue among policymakers, privacy advocates, and the industry regarding broader questions concerning the use of UAS technologies. The privacy requirements proposed here are not intended to pre-determine the long-term policy and regulatory framework under which commercial UASs would operate. Rather, they aim to assure maximum transparency of privacy policies associated with UAS test site operations in order to engage stakeholders in discussion

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FAA selects the site operators, each must enter into an Other Transaction Agreement (OTA) with the FAA—a legally binding agreement setting out the terms and conditions under which the site will be operated. This request for comment is intended to provide the public the ability to comment on "potential privacy considerations, associated reporting requirements, and how the FAA can help ensure privacy considerations are addressed through mechanisms put in place as a result of the OTA."[196]

This FAA announcement raises another legal question: does the FAA have the authority to regulate privacy via OTA agreements entered into with the test range operators? As a threshold issue, it is not clear what level of deference a court would apply to this administrative action. In certain instances, agency actions that do not amount to formal rulemaking have not been accorded *Chevron* deference. In *Christensen v. Harris County*, the Supreme Court held that a Department of Labor opinion letter interpreting the Family Medical Leave Act was not entitled to deference under *Chevron*.[197] The Court observed that "[i]nterpretations such as those in opinion letters—like interpretations contained in policy statements, agency manuals, and enforcement guidelines, all of which lack the force of law—do not warrant *Chevron*-style deference."[198] Instead, interpretations contained in administrative pronouncements such as opinion letters are entitled to some deference under the rule pronounced in *Skidmore v. Swift & Co.*,[199] "but only to the extent that those interpretations have the 'power to persuade.'"[200] In *United States v. Mead*, the Court again ruled that *Skidmore*, not *Chevron*, deference applied to a United States Custom Service opinion letter setting tariff levels on certain imports.[201]

A reviewing court could apply the *Christensen-Mead* line of cases to hold that the lower level deference accorded under *Skidmore* should apply to the FAA's use of the OTAs in establishing the test ranges. As in those cases, the OTAs would not have the force of law and would not be the product of formal agency adjudication or rulemaking. These factors weigh against applying *Chevron*'s deferential approach.

However, *Mead* suggested that *Chevron* deference may be due when the agency conducts notice and comment procedures as part of its interpretive process, which were not utilized in either

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> about which privacy issues are raised by UAS operations and how law, public policy, and the industry practices should respond to those issues in the long run.

78 Fed. Reg. 12260.

[196] 78 Fed. Reg. 12260.

[197] Christensen v. Harris County, 529 U.S. 576, 587 (2000).

[198] *Id.*

[199] Skidmore v. Swift & Co., 323 U.S. 134 (1944). In *Skidmore*, the Court was required to determine what level of deference should be accorded the Department of Labor in its issuance of bulletins interpreting a wage provision in the Fair Labor Standard Act. *Id.* at 138. The Court ruled:

> We consider that the rulings, interpretations and opinions of the Administrator under this Act, while not controlling upon the courts by reason of their authority, do constitute a body of experience and informed judgment to which courts and litigants may properly resort for guidance. The weight of such a judgment in a particular case will depend upon the thoroughness evident in its consideration, the validity of its reasoning, its consistency with earlier and later pronouncements, and all those factors which give it power to persuade, if lacking power to control.

Id. at 140.

[200] *Christensen*, 529 U.S. at 588 (citing *Skidmore*, 323 U.S. at 140).

[201] United States v. Mead, 533 U.S. 218 (2001).

Christensen or *Mead*.[202] Here, the FAA has issued a notice for comment on the proposed privacy regulations that will be included in the OTAs. This fact might persuade a court into applying the more deferential *Chevron* test.

Under either level of scrutiny, it is not at all clear whether the FAA would have the authority to regulate privacy as part of the OTAs. Congress did not speak to this issue in FMRA.[203] Thus, a reviewing court would have to determine if the agency's regulation of privacy is either a reasonable interpretation of the statute under *Chevron* or has the "power to persuade" under *Skidmore*. Some of the same factors that arguably support the inclusion of privacy in the formal rulemaking could apply equally to the test ranges. The idea that Congress left it to the FAA to fill in the gaps in establishing the test ranges, and that privacy is one of the primary concerns surrounding the integration of drones into U.S. airspace, could be offered as an argument to uphold the FAA's regulation of privacy. On the other side of the ledger, the act's enumerated list of factors to be addressed at these test ranges is primarily focused on safety issues and does not expressly permit the FAA to regulate privacy. One could argue that this formulation evinces Congress's intent for the FAA to focus on safety, the FAA's stock and trade, rather than privacy, an area in which the FAA appears to have little experience.

Related Legal Issues

In addition to the legal issues described above, there are a host of other issues that may arise when introducing drones into the U.S. national airspace system.

Preemption of State and Local Regulations. The increased presence of drones in domestic airspace raises the question of potential federal preemption of state or local efforts to regulate different aspects of drone use. The doctrine of preemption derives from the Supremacy Clause of the Constitution, which states that federal law, treaties, and the Constitution are the "supreme

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[202] *Mead*, 533 U.S. at 230 ("The overwhelming number of our cases applying Chevron deference have reviewed the fruits of notice-and-comment rulemaking or formal adjudication."); *Christensen*, 529 U.S. at 587 ("Here, however, we confront an interpretation contained in an opinion letter, not one arrived at after, for example, a formal adjudication or notice-and-comment rulemaking.") *See also Mead*, 533 U.S. at 231 ("The authorization for classification rulings, and Custom's practice in making them, present a case far removed ... from notice-and-comment process.... ").

[203] The FAA Reform Act provides that in setting up the test sites, the Administrator shall:

> (A) safely designate airspace for integrated manned and unmanned flight operations in the national airspace system;
>
> (B) develop certification standards and air traffic requirements for unmanned flight operations at test ranges;
>
> (C) coordinate with and leverage the resources of the National Aeronautics and Space Administration and the Department of Defense;
>
> (D) address both civil and public unmanned aircraft systems;
>
> (E) ensure that the program is coordinated with the Next Generation Air Transportation System; and
>
> (F) provide verification of the safety of unmanned aircraft systems and related navigation procedures before integration into the national airspace system.[203]The second is FAA's mandate to come up with a comprehensive plan to integrate drones in the national airspace and subsequent rule-making based on this plan.

§ 332(c)(1).

Law of the Land."[204] A federal law may preempt state or local action in one of three ways: if the statute expressly states its intent to preempt state or local action (express preemption); if a court concludes that Congress intended to occupy the regulatory field, implicitly preventing state or local action in that area (field preemption); or if the state or local action directly conflicts with or frustrates the purpose of the federal provisions (conflict preemption).[205]

With regard to traditional aviation laws, generally, state regulations of aviation safety, airspace management, and aviation noise are preempted by federal laws and regulations.[206] Congress vested sole responsibility for the aviation industry and domestic airspace with the federal government in the Federal Aviation Act of 1958.[207] According to the legislative history, the FAA was to have "full responsibility and authority for the advancement and promulgation of civil aeronautics generally, including promulgation and enforcement of safety regulations."[208] In *City of Burbank v. Lockheed Air Terminal, Inc.*, the Supreme Court struck down a local city ordinance that prohibited planes from taking off during certain hours of the day as preempted by the federal regulatory scheme.[209] Expressing its fear regarding local control of airspace, the Court stated, "If we were to uphold the Burbank ordinance and a significant number of municipalities followed suit, it is obvious that fractionalized control of the timing of takeoffs and landings would severely limit the flexibility of the FAA in controlling air traffic flow."[210] The Supreme Court has, however, upheld state regulations imposing taxes on aircraft equipment located within the state.[211]

State proposals seeking to regulate the use of drones are currently pending in many state legislatures throughout the country.[212] The Virginia General Assembly has passed a two-year moratorium on the use of drones by state and local law enforcement.[213] The bill prohibits the use of drones by agencies with jurisdiction over criminal law enforcement or regulatory violations, but includes exceptions for emergency situations. Following passage of the bill, the Governor neither signed nor vetoed the bill, but rather sent it back to the General Assembly with amendments, where it now awaits further action. Several other states have introduced bills similarly targeting the use of drones for surveillance.[214] Other states, like Texas, have introduced

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[204] U.S. CONST. art. VI, cl 2.

[205] *See, e.g.*, Crosby v. Nat'l Foreign Trade Council, 530 U.S. 363, 373 (2000); English v. Gen. Elec. Co., 496 U.S. 72, 78-79 (1990); Schneidewind v. ANR Pipeline Co., 485 U.S. 293, 300 (1988).

[206] *See, e.g.*, City of Burbank v. Lockheed Air Terminal, Inc., 411 U.S. 624 (1973); Abdullah v. American Airlines, Inc., 181 F.3d 363 (3d Cir. 1999); San Diego Unified Port Dist. v. Gianturco, 651 F.2d 1306, 1316 (9th Cir. 1981); Price v. Charter Township, 909 F. Supp. 498 (E.D. Mich. 1995).

[207] P.L. 85-726; 72 Stat. 737 (1958).

[208] H.R. Rept. No. 2360, 85th Cong. (1958).

[209] *City of Burbank*, 411 U.S. at 639.

[210] *Id.*

[211] Braniff Airways v. Nebraska Board, 347 U.S. 590 (1954). Additionally, several courts have determined that state law tort claims based on injuries caused by aircraft are not federally preempted. *See, e.g.*, Bieneman v. City of Chicago, 864 F.2d 463 (7th Cir. 1988) (overturning Luedtke v. County of Milwaukee, 521 F.2d 387 (7th Cir. 1975), which ruled that *City of Burbank* preempted application of state tort laws, such as negligence and nuisance, to flights that complied with federal laws and regulations); Greater Westchester Homeowners Association v. City of Los Angeles, 603 P.2d 1329 (Sup. Ct. Cali. 1979).

[212] *See* CRS Report WSLG447, *Congress and the States Grapple with Drones in U.S. Skies*, by Alissa M. Dolan.

[213] "An Act to place a moratorium on the use of unmanned aircraft systems," HB2012, Virginia General Assembly, *available at* http://lis.virginia.gov/cgi-bin/legp604.exe?131+ful+HB2012ER+pdf.

[214] *See, e.g.*, S. 395, South Carolina General Assembly, 120th Session; S. 524, 77th Oregon Legislative Assembly, 2013 Regular Session; SB 92, Florida Legislature, 2013 Regular Session.

bills attempting to address privacy concerns related to widespread drone use. The Texas proposal would create a new state misdemeanor when a person uses a drone to capture an image without the consent of the landowner who owns the property captured in the image.[215]

If these proposals were implemented, questions about federal preemption may be raised. It appears that field preemption or conflict preemption would be the most likely grounds for finding preemption of such state regulations based on current federal law, if at all, since FMRA does not contain an express preemption clause. The extent to which the state can regulate drone use without being preempted by federal law may depend on the scope of the forthcoming federal regulations, the nature of the state regulations, and a reviewing court's analysis of whether Congress intended to "occupy the field" of regulation on that issue. The Court has determined that field preemption can be inferred when "the pervasiveness of the federal regulation precludes supplementation by the States, where the federal interest in the field is sufficiently dominant, or where the object sought to be obtained by the federal law and the character of obligations imposed by it reveal the same purpose."[216]

Right to Protect Property from Trespassing Drones. There may be instances where a landowner is entitled to protect his property from intrusion by a drone. Under Restatement (Second) of Torts Section 260, "one is privileged to commit an act which would otherwise be a trespass to a chattel or a conversion if the act is, or is reasonably believed to be, necessary to protect the actor's land or chattels or his possession of them, and the harm inflicted is not unreasonable as compared with the harm threatened."[217] What this means is, in certain instances, a landowner would not be liable to the owner of a drone for damage necessarily or accidentally resulting from removing it from his property. However, there appear to be no cases where a landowner was permitted to use force to prevent or remove an aircraft from his property. Additionally, as discussed above, determining whether a drone in flight is trespassing upon one's property may be unusually challenging.

Stalking, Harassment, and Other Crimes. Traditional crimes such as stalking, harassment, voyeurism, and wiretapping may all be committed through the operation of a drone. As drones are further introduced into the national airspace, courts will have to work this new form of technology into their jurisprudence, and legislatures might amend these various statutes to expressly include crimes committed with a drone.

Wiretap Laws. Under the federal wiretap statute, it is unlawful to intentionally intercept an "oral communication"[218] by a person "exhibiting an expectation that such communication is not subject to interception under circumstances justifying such expectation.... "[219] Currently, commercial microphones can record sounds upwards of 300 feet.[220] Use of such a microphone on a drone to record private conversations could implicate the federal wiretap statute.

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[215] H.B. 912, Texas Legislature, 83rd Session, *available at* http://www.capitol.state.tx.us/BillLookup/History.aspx?LegSess=83R&Bill=HB912.

[216] *Schneidewind*, 485 U.S. at 300.

[217] RESTATEMENT (SECOND) OF TORTS §260.

[218] 18 U.S.C. §2511(1)(a).

[219] 18 U.S.C. §2510(2).

[220] *See, e.g.*, Electromax International, Inc., http://www.electromax.com/penmics.html.

Conclusion

The legal issues discussed in this report will likely remain unresolved until the civilian use of drones becomes more widespread. To that end, the FAA has been tasked with developing "a comprehensive plan to safely accelerate the integration" of drones into the national airspace, which focuses on the safety of the drone technology and operator certification. While the deadline for development of the plan has already elapsed, the FAA has until the end of FY2015 to implement such a plan.[221] Additionally, the FAA must identify six test ranges where it will integrate drones into the national airspace. This deadline, 180 days after enactment of the act, has also elapsed without FAA compliance. Once these regulations are tested and promulgated, the unique legal challenges that could arise based on the operational differences between drones and already ubiquitous fixed-wing aircraft and helicopters may come into sharper focus.

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[221] *See* P.L. 112-95, §332(a) (requiring development of a plan within 270 days of enactment of the act, falling in November 2012).

Drones in Domestic Surveillance Operations: Fourth Amendment Implications and Legislative Responses

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Summary

The prospect of drone use inside the United States raises far-reaching issues concerning the extent of government surveillance authority, the value of privacy in the digital age, and the role of Congress in reconciling these issues.

Drones, or unmanned aerial vehicles (UAVs), are aircraft that can fly without an onboard human operator. An unmanned aircraft system (UAS) is the entire system, including the aircraft, digital network, and personnel on the ground. Drones can fly either by remote control or on a predetermined flight path; can be as small as an insect and as large as a traditional jet; can be produced more cheaply than traditional aircraft; and can keep operators out of harm's way. These unmanned aircraft are most commonly known for their operations overseas in tracking down and killing suspected members of Al Qaeda and related organizations. In addition to these missions abroad, drones are being considered for use in domestic surveillance operations to protect the homeland, assist in crime fighting, disaster relief, immigration control, and environmental monitoring.

Although relatively few drones are currently flown over U.S. soil, the Federal Aviation Administration (FAA) predicts that 30,000 drones will fill the nation's skies in less than 20 years. Congress has played a large role in this expansion. In February 2012, Congress enacted the FAA Modernization and Reform Act (P.L. 112-95), which calls for the FAA to accelerate the integration of unmanned aircraft into the national airspace system by 2015. However, some Members of Congress and the public fear there are insufficient safeguards in place to ensure that drones are not used to spy on American citizens and unduly infringe upon their fundamental privacy. These observers caution that the FAA is primarily charged with ensuring air traffic safety, and is not adequately prepared to handle the issues of privacy and civil liberties raised by drone use.

This report assesses the use of drones under the Fourth Amendment right to be free from unreasonable searches and seizures. The touchstone of the Fourth Amendment is reasonableness. A reviewing court's determination of the reasonableness of a drone search would likely be informed by location of the search, the sophistication of the technology used, and society's conception of privacy in an age of rapid technological advancement. While individuals can expect substantial protections against warrantless government intrusions into their homes, the Fourth Amendment offers less robust restrictions upon government surveillance occurring in public places including areas immediately outside the home, such as in driveways or backyards. Concomitantly, as technology advances, the contours of what is reasonable under the Fourth Amendment may adjust as people's expectations of privacy evolve.

In the 113th Congress, several measures have been introduced that would restrict the use of drones at home. Several of the bills would require law enforcement to obtain a warrant before using drones for domestic surveillance, subject to several exceptions. Others would establish a regime under which the drone user must file a data collection statement stating when, where, how the drone will be used and how the user will minimize the collection of information protected by the legislation.

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Introduction

The prospect of drone use in domestic surveillance operations has engendered considerable debate among Americans of various political ideologies.[1] Opponents of drone surveillance have complained that the use of unmanned aircraft on American soil infringes upon fundamental privacy interests and the ability to freely associate with others.[2] Some are specifically concerned about the possibility of turning military technology inward to surveil American citizens.[3] Proponents have responded by emphasizing their potential benefits, which may include protecting public safety, patrolling our nation's borders, and investigating and enforcing environmental and criminal law violations.[4]

The tension between security and privacy interests is not new, but has been heightened by the explosion of surveillance technology in recent decades.

The tension between security and privacy interests is not new, but has been heightened by the explosion of surveillance technology in recent decades. Police officers who were once relegated to naked eye observations may soon have, or in some cases already possess, the capability to see through walls or track an individual's movements from the sky.[5] One might question, then: What is the proper balance between the necessity of the government to keep people safe and the privacy needs of individuals? As some polls suggest, while the public supports drone usage in certain circumstances, they are less enthusiastic about using them as part of routine law enforcement activity.[6]

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[1] The term "domestic drone surveillance" as used in this report is designed to cover a wide range of government uses including, but not limited to, investigating and deterring criminal or regulatory violations; conducting health and safety inspections; performing search and rescue missions; patrolling the national borders; and conducting environmental investigations.

[2] Letter from Representatives Edward J. Markey and Joe Barton, Co-Chairmen of the Congressional Bi-Partisan Privacy Caucus, to Michael P. Huerta, Acting Administrator of the Federal Aviation Administration (April 19, 2012) ("[I]n addition to benefits, there is also the potential for drone technology to enable invasive and pervasive surveillance without adequate privacy protections."), *available at* http://markey.house.gov/sites/markey.house.gov/files/documents/4-19-12.Letter%20FAA%20Drones%20.pdf; AMERICAN CIVIL LIBERTIES UNION, PROTECTING PRIVACY FROM AERIAL SURVEILLANCE: RECOMMENDATIONS FOR GOVERNMENT USE OF DRONE AIRCRAFT 1 (2011), *available at* https://www.aclu.org/files/assets/protectingprivacyfromaerialsurveillance.pdf.

[3] Mark Brunswick, *Spies in the sky signal new age of surveillance*, STARTRIBUNE (July 22, 2012, 6:26 a.m.), *available at* http://www.startribune.com/local/163304886.html?refer=y.

[4] Some state and local officials have expressed interest in employment of drones for public safety and law enforcement purposes. *See, e.g.*, Brianne Carter, *Gov. Bob McDonnell supports drones policing Virginia*, ABC NEWS (May 30, 2012), *available at* http://www.wjla.com/articles/2012/05/gov-bob-mcdonnell-supports-drones-policing-virginia-76464.html; *Unmanned Aircraft Systems Within the Homeland: Security Game Changer? Hearing Before the Subcomm. on Oversight, Investigations, and Management of the H. Comm. on Homeland Sec.*, 112th Cong. 3 (2012) (statement of William R. McDaniel, Chief Deputy, Montgomery County Sheriff's Office, Conroe, TX) ("UAV systems for public safety agencies are extremely viable, effective, and economical means to enhance the public safety response to critical incidents.").

[5] The Supreme Court remarked in *Kyllo v. United States*, 533 U.S. 27, 37 (2001):

> The ability to 'see' through walls and other opaque barriers is a clear, and scientifically feasible, goal of law enforcement research and development. The National Law Enforcement and Corrections Technology Center, a program within the United States Department of Justice, features on its Internet Website projects that include a 'Radar-Based Through-the-Wall Surveillance System,' 'Handheld Ultrasound Through the Wall Surveillance,' and a 'Radar Flashlight' that 'will enable law officers to detect individuals through interior building walls.'

[6] *U.S. Supports Some Domestic Drone Use, But Public Registers Concern About Own Privacy* 1, Monmouth University Polling Institute (June 12, 2012), *available at* http://www.monmouth.edu.

The Fourth Amendment to the United States Constitution safeguards Americans' privacy and prevents excessive government intrusion by prohibiting "unreasonable searches and seizures."[7] Courts have long grappled with how to apply the text of this 18th century provision to 20th century technologies. Although the Supreme Court has the final say in the interpretation of the Fourth Amendment and other constitutional safeguards,[8] Congress and, in many cases, the President are free to institute more stringent restrictions upon government surveillance operations.[9]

This report first explores the potential uses of drones in the domestic sphere by federal, state, and local governments. It then surveys current Fourth Amendment jurisprudence, including cases surrounding privacy in the home, privacy in public spaces, location tracking, manned aerial surveillance, and those involving the national border. Next, it considers how existing jurisprudence may inform current and proposed drone uses. It then describes the various legislative measures introduced in the 113th Congress to address the legal and policy issues surrounding drones. Finally, it briefly identifies several alternative approaches that may constrain the potential scope of drone surveillance.

Background, Uses, and Drone Technology

Drones, also known as unmanned aerial vehicles (UAVs), are aircraft that do not carry a human operator and are capable of flight under remote control or autonomous programming.[10] An unmanned aircraft system (UAS) is the entire system, including the aircraft, digital network, and personnel on the ground.[11] Drones can range from the size of an insect—sometimes called nano drones or micro UAVs—to the size of a traditional jet.[12]

Drones are perhaps most commonly recognized from their missions abroad, including to target and kill suspected members of Al Qaeda and related groups, but they might be used for a variety of other purposes, including for both commercial and law enforcement activities within the United States. In fact, the FAA predicted that 30,000 unmanned aircraft could be flying in U.S. skies in less than 20 years.[13] One reason for this expansion has been a push by Congress for a

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[7] U.S. CONST. amend IV.

[8] Cooper v. Aaron, 358 U.S. 1, 18 (1958) ("[Marbury v. Madison] declared the basic principle that the federal judiciary is supreme in the exposition of the law of the Constitution, and that principle has ever since been respected by this Court and the Country as a permanent and indispensable feature of our constitutional system.").

[9] In reaction to the Supreme Court's ruling in *United States v. Miller*, 425 U.S. 435 (1976), that the privacy of an individual's bank records were generally not protected by the Fourth Amendment, Congress enacted the Right to Financial Privacy Act, P.L. 95-630, 92 Stat. 3697 (codified at 12 U.S.C. §3401-3422), creating a statutory protection for such records.

[10] DEP'T OF DEFENSE, DICTIONARY OF MILITARY AND ASSOCIATED TERMS 331 (2012). Unless expressly mentioned, the terms "unmanned aerial vehicle," "UAV," "unmanned aircraft system," "UAS," and "drone" are used interchangeably in this report.

[11] *Id.*

[12] See CRS Report R42136, *U.S. Unmanned Aerial Systems*, by Jeremiah Gertler, for a description of the various types of drones currently operated in the United States.

[13] FEDERAL AVIATION ADMINISTRATION, FAA AEROSPACE FORECAST: FISCAL YEARS 2010-2030, at 48 (2010), *available at* http://www.faa.gov/data_research/aviation/aerospace_forecasts/2010-2030/media/2010%20Forecast%20Doc.pdf. The FAA has noted that "Federal agencies are planning to increase their use of UAS's. State and local governments envision using UAS's to aid in law enforcement and firefighting. Potential commercial uses are also possible, for example, in real estate photography or pipeline inspection. UAS's could perform some manned aircraft missions with less noise and fewer emissions." *Id.*

faster integration of UAVs into U.S. airspace.[14] Most recently, as part of the FAA Modernization and Reform Act of 2012, Congress mandated that the Federal Aviation Administration (FAA) "develop a comprehensive plan to safely accelerate the integration of civil unmanned aircraft systems into the national airspace system."[15] This plan shall provide for integration of UAVs by September 2015.

Drones have been employed domestically by federal, state, and local governments in a range of circumstances. The Department of Homeland Security (DHS) uses them to police the nation's borders to deter unlawful border crossings by unauthorized aliens, criminals, and terrorists, and to detect and interdict the smuggling of weapons, drugs, and other contraband into the country.[16] Within DHS, Customs and Border Protection's (CBP's) Office of Air and Marine (OAM) has flown missions to support federal and state agencies such as the Federal Bureau of Investigation (FBI), the Department of Defense (DOD), Immigration and Customs Enforcement (ICE), the U.S. Secret Service, and the Texas Rangers.[17] According to a recent disclosure by the FAA, several local police departments, state and private colleges, and small cities and towns have also received FAA Certificates of Authorization (COAs) to fly unmanned aircraft domestically.[18] Recently, a police force in North Dakota conducted the nation's first drone-assisted arrest.[19] DHS, in conjunction with local law enforcement agencies, has been testing drone capabilities in a host of other situations including detecting radiation, monitoring a hostage situation, tracking a gun tossed by a fleeing suspect, firefighting, and finding missing persons.[20]

Currently, drones can be outfitted with high-powered cameras,[21] thermal imaging devices,[22] license plate readers,[23] and laser radar (LADAR).[24] In the near future, law enforcement

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[14] *See, e.g.*, Intelligence Reform and Terrorism Prevention Act of 2004, P.L. 108-458, §5102, 118 Stat. 3638, 3732 (requesting that DHS test the feasibility of using unmanned aircraft to patrol the northern border of the United States).

[15] FAA Modernization and Reform Act of 2012, P.L. 112-95, §332, 126 Stat. 11, 73.

[16] *See* CRS Report RS21698, *Homeland Security: Unmanned Aerial Vehicles and Border Surveillance*, by Chad C. Haddal and Jeremiah Gertler.

[17] The OAM mission is to "protect the American people and the Nation's critical infrastructure through the coordinated use of integrated air and marine forces." DEP'T OF HOMELAND SECURITY, OFFICE OF INSPECTOR GENERAL, CBP'S USE OF UNMANNED AIRCRAFT SYSTEMS IN THE NATION'S BORDER SECURITY 2 (2012). These forces are used to "detect, interdict, and prevent acts of terrorism and the unlawful movement of people, illegal drugs, and other contraband toward or across U.S. borders." *Id.*

[18] There are over 300 total, including those issued to the following entities: City of Herrington, KS; Cornell University; Department of Energy Idaho National Laboratory; Eastern Gateway College Community College—Steubenville, OH; Miami-Dade Police Department; Mississippi Department of Marine Resources; North Little Rock Police Department, AR; Ogden Police Department, UT; Ohio University; Seattle Police Department; Texas A&M—Texas Engineering Experiment Station; Texas Department of Public Safety; Texas State University; University of Connecticut; University of Florida; U.S. Department of Agriculture Agricultural Research Service; Utah State University; Virginia Tech. *See* Unmanned Aircraft Systems, Federal Aviation Administration, http://www.faa.gov/about/initiatives/uas/.

[19] *New age of surveillance*, *supra* note 3.

[20] Brian Bennett, *Drones Tested as Tools for Police and Firefighters*, LOS ANGELES TIMES (August 5, 2012 5:00 A.M.), http://www.latimes.com/news/nationworld/nation/la-na-drones-testing-20120805,0,6483617.story.

[21] The U.S. Army recently acquired a 1.8 gigapixel camera for use on its drones. This camera offers 900 times the pixels of a 2 megapixel camera found in some cell phones. It can track objects on the ground 65 miles away from an altitude of 20,000 feet. *US Army unveils 1.8 gigapixel camera helicopter drone*, BBC NEWS (December 29, 2011 6:11 p.m.), http://www.bbc.com/news/technology-16358851.

[22] Infrared cameras, also known as thermal imaging, can see objects through walls based on the relative levels of heat produced by the objects. *See* Draganflyer X6, Thermal Infrared Camera, http://www.draganfly.com/uav-helicopter/draganflyer-x6/features/flir-camera.php.

[23] This sensor can recognize and permit drones to track vehicles based on license plate numbers. Customs and Border (continued...)

organizations might seek to outfit drones with facial recognition or soft biometric recognition, which can recognize and track individuals based on attributes such as height, age, gender, and skin color.[25] As explained below, the relative sophistication of drones contrasted with traditional surveillance technology may influence a court's decision whether domestic drone use is lawful under the Fourth Amendment.

Fourth Amendment "Search" Jurisprudence

The Fourth Amendment's story is one of continuity and change. Core values such as privacy and protection from excessive and arbitrary government intrusion are always within its sweep. A continuing question, though, is how the demands of its protection apply to an ever-changing society in which new and pervasive forms of technology are increasingly common. Although there are numerous rules and exceptions throughout the Supreme Court's Fourth Amendment jurisprudence, this section will explore those most pertinent to domestic drone use.

In short, the Fourth Amendment regulates when, where, and how the government may conduct searches and seizures. The Amendment provides, in relevant part: "The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated[.]"[26] The Fourth Amendment does not apply to all government acts, but only to those that constitute a search. So when does government monitoring constitute a Fourth Amendment "search" for which a warrant is generally required? Initially, courts' assessment focused on the specific area being investigated. Consider the 1928 case *Olmstead v. United States*.[27] There, the Supreme Court held that police wiretaps of the defendant's home telephone did not constitute a Fourth Amendment search because the police did not trespass onto Olmstead's property to intercept his conversation.[28] The Court's thinking at the time was that if the person's home, tangible property, or papers were not physically invaded, then no search in the constitutional sense occurred. Almost 40 years later, the Court shifted focus from property to privacy interests.[29] In *Katz v. United States*, decided in 1967, the Court held that an FBI agent's use of a bug to listen to the private conversations of Mr. Katz while in a telephone booth violated his Fourth Amendment rights.[30] Although he was in a public telephone booth and there was no physical invasion, the Court noted that what a person "seeks to preserve private, even in an area accessible to the public, may be constitutionally protected."[31] One of the modern Fourth

(...continued)

Protection Today, Unmanned Aerial Vehicles Support Border Security (July 2004), http://www.cbp.gov/xp/CustomsToday/2004/Aug/other/aerial_vehicles.xml.

[24] This sensor produces three-dimensional images, and has the capability to see through trees and foliage. U.S. ARMY, UAS CENTER FOR EXCELLENCE, "EYES OF THE ARMY" US ARMY ROADMAP FOR UNMANNED AIRCRAFT SYSTEMS 2010-2035, at 83 (2010).

[25] *See* Clay Dillow, *Army Developing Drones that Can Recognize Your Face from a Distance*, POPSCI (September 28, 2011), 5:01 p.m.), *available at* http://www.popsci.com/technology/article/2011-09/army-wants-drones-can-recognize-your-face-and-read-your-mind.

[26] U.S. CONST. amend IV.

[27] Olmstead v. United States, 277 U.S. 438, 466 (1928).

[28] *Id.*

[29] Katz v. United States, 389 U.S. 347, 351 (1967).

[30] *Id.* at 359.

[31] *Id.* at 351.

Amendment tests relied upon by courts in assessing whether government monitoring constitutes a "search" derives from Justice Harlan's concurrence in *Katz*. It considers whether the person has a subjective expectation of privacy in the area to be searched and whether society is prepared to deem that expectation reasonable.[32]

Although the Court said in *Katz* that the Fourth Amendment "protects people not places,"[33] Justice Harlan noted that determining what "protection it affords people ... requires reference to a '*place*.'"[34] And as Justice Scalia observed when writing for a majority of the Court in *United States v. Jones*, a Fourth Amendment search occurs, "at a minimum," where "the Government obtains information by physically intruding on a constitutionally protected area."[35] The majority in *Jones* indicated that the reasonable expectation of privacy test was never intended to replace the property-based approach used in earlier cases, but merely augment it.[36] So where do individuals enjoy the most Fourth Amendment protection? The least? Why does the location dictate the level of protection? And how does technology affect society's expectation of privacy?

When analyzing domestic drone use under the Fourth Amendment, a reviewing court may be informed by cases surrounding privacy in the home, privacy in public spaces, location tracking, manned aerial surveillance, those involving the national border, and warrantless searches under the special needs doctrine.

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[32] *Id.* at 361 (Harlan, J., concurring).

[33] *Id.* at 351.

[34] *Id.* at 361 (Harlan, J., concurring); *see also* Oliver v. United States, 466 U.S. 170 (1984).

> We have frequently acknowledged that privacy interests are not coterminous with property rights. E. g., United States v. Salvucci, 448 U.S. 83, 91 (1980). However, because "property rights reflect society's explicit recognition of a person's authority to act as he wishes in certain areas, [they] should be considered in determining whether an individual's expectations of privacy are reasonable." Rakas v. Illinois, 439 U.S. 128, 153 (1978) (Powell, J., concurring). Indeed, the Court has suggested that, insofar as "[one] of the main rights attaching to property is the right to exclude others, ... one who owns or lawfully possesses or controls property will in all likelihood have a legitimate expectation of privacy by virtue of this right to exclude." *Id.*, at 144, n. 12.

Oliver, 466 U.S. at 189-90.

[35] United States v. Jones, 132 S. Ct. 945, 950 n.3 (2012).

[36] *Id.*

Privacy in the Home

The home has always held a central place in American life, and remains the area accorded the greatest Fourth Amendment protection.[37] The Fourth Amendment protects this zone of privacy by ensuring that "the right of the people to be secure in their ... houses ... against unreasonable search and seizure, shall not be violated[.]"[38] In most instances, the Supreme Court has rigorously adhered to this safeguard.[39] For instance, although police officers may make a warrantless arrest of an individual for a felony offense committed in public,[40] they may not step inside his home without a warrant, barring any recognized exception.[41]

> "The right of the people to be secure in their ... houses ... against unreasonable search and seizure, shall not be violated[.]" U.S. CONST. amend IV.

In addition to a physical entry and search of the home, police are likewise prohibited from using certain technology to pierce this zone of privacy. In *Kyllo v. United States*, government agents used a thermal-imaging device to determine heat patterns inside the home of Danny Kyllo.[42] The Court began with the presumption that a warrantless search of a home is unreasonable.[43] Ultimately, the Court protected this "realm of guaranteed privacy" by holding that obtaining information about the inside of a home that could not otherwise be obtained except by entering the home, through the use of technology not in "general public use," is a "search" covered by the Fourth Amendment.[44]

The home, however, does not provide an absolute shield against government surveillance. As Justice Harlan emphasized in *Katz*, "[A] man's home is, for most purposes, a place where he expects privacy, but objects, activities, or statements that he exposes to the plain view of outsiders are not 'protected' because no intention to keep them to himself has been exhibited." Indeed, in certain instances, police may use their natural senses to conduct warrantless searches of the inside of a home.[45] To fall under this exception—known as the "plain view" doctrine—the police must be in a lawful vantage point when they conduct the surveillance, and the incriminating nature of the evidence must be readily apparent.[46]

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[37] DANIEL SOLOVE, UNDERSTANDING PRIVACY 59 (2008).

[38] U.S. CONST. amend IV.

[39] Silverman v. United States, 365 U.S. 505, 512 (1961) ("At the very core stands the right of a man to retreat into his own home and be free from unreasonable government intrusion.").

[40] United States v. Watson, 423 U.S. 411 (1976).

[41] Payton v. New York, 445 U.S. 573, 603 (1980). This protection not only covers traditional houses, but apartments, Clinton v. Virginia, 377 U.S 158 (1963), and motel rooms, Stoner v. California, 376 U.S. 483 (1964).

[42] Kyllo v. United States, 533 U.S. 27, 29-30 (2001).

[43] *Id.* at 31.

[44] *Id.* at 34.

[45] In one case, police observation of marijuana plants through a crack in the house's siding did not constitute an unlawful search. *United States v. Hammett*, 236 F.3d 1054, 1061 (9th Cir. 2001). In another, the court held that the police officer's observation of contraband through the front dining room window was not unlawful. *United States v. Taylor*, 90 F.3d 903, 909 (4th Cir. 1996).

[46] Coolidge v. New Hampshire, 403 U.S. 443, 466 (1971).

Curtilage and Open Fields

Once an individual moves from the confines of the home, he is entitled to different Fourth Amendment considerations. Depending on a host of varying factors, areas outside of the home may be considered "curtilage" or "open fields."[47] The curtilage is the area immediately surrounding the home—an area the Court has granted similar protections as the inside of the home.[48] To determine if an area is curtilage, a court will look at how close the area is to the home; whether the area is within a fence surrounding the home; how the area is used; and whether the area is protected from observation by passersby.[49] Although an area may be deemed curtilage—as with the home—it is not veiled with unconditional constitutional protection. As the Court noted in one aerial surveillance case:

> The Fourth Amendment protection of the home has never been extended to require law enforcement officers to shield their eyes when passing by a home on public thoroughfares. Nor does the mere fact that an individual has taken measures to restrict some views of his activities preclude an officer's observations from a public vantage point where he has a right to be and which renders the activities clearly visible.[50]

On the other hand, the area outside the curtilage is sometimes considered "open fields," which "do not provide the setting for those intimate activities that the Amendment is intended to shelter from governmental interference or surveillance,"[51] and thus are not given similar Fourth Amendment protections. Differentiating between the two is no easy task. In one case, for example, the Ninth Circuit Court of Appeals determined that the defendant's driveway was not curtilage as he had taken no affirmative steps to block it from observation by passers-by.[52] Furthermore, in the fly-over cases discussed *infra*, the Supreme Court has permitted similar searches in both open fields and the curtilage, to some extent eliminating any constitutional difference between the two.

Manned Aerial Surveillance

In a series of cases that provide the closest analogy to UAVs, the Supreme Court addressed the use of *manned* aircraft to conduct domestic surveillance over residential and industrial areas. In each, the Court held that the fly-over at issue was not a search prohibited by the Fourth Amendment, as the areas surveilled were open to public view.

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[47] United States v. Hester, 365 U.S 57 (1924) (distinguishing between the doctrines of curtilage and open fields).

[48] The Court has defined curtilage as "the area to which extends the intimate activity associated with the 'sanctity of a man's home and the privacies of life.'" Oliver v. United States, 466 U.S. 170, 180 (1984) (quoting Boyd v. United States, 116 U.S. 616, 630 (1886)).

[49] United States v. Dunn, 480 U.S. 294, 301 (1987).

[50] California v. Ciraolo, 476 U.S. 207, 213 (1986).

[51] Dow Chemical Co. v. United States, 476 U.S. 227, 234-35 (1986) (quoting *Oliver*, 466 U.S. at 179).

[52] Maisano v. Welcher, 940 F.2d 499 (9th Cir. 1991).

In *California v. Ciraolo*, police received a tip that an individual was growing marijuana in his backyard next to his suburban home.[54] Because two fences blocked their view of the yard, officers flew a fixed-wing aircraft at an altitude of 1,000 feet over the property to conduct a visual inspection. From this vantage point, the officers readily identified with the naked eye marijuana plants growing in the defendant's yard. The Court held that the defendant's expectation of privacy in the area immediately surrounding his home was not reasonable, since "what a person knowingly exposes to the public ... is not a subject of Fourth Amendment protection."[55] "Any member of the public flying in this airspace who glanced down could have seen everything these officers observed," the Court remarked.[56] Much weight was placed on the fact that the plane was at all times in navigable airspace as defined by federal statute.[57]

> "What a person knowingly exposes to the public ... is not a subject of Fourth Amendment protection."[53]

Similarly, in *Florida v. Riley*, local police received a tip that an individual was growing marijuana in a greenhouse located 10 to 20 feet away from his mobile home.[58] The officers could not see the contents of the greenhouse from the ground, so they flew a helicopter over the defendant's backyard at an altitude of 400 feet. While overhead, an officer saw marijuana plants through a crack in the greenhouse roof. Because the helicopter, like the plane in *Ciraolo*, was in navigable airspace—where any member of the public could have flown—the Court did not consider this a search for which a warrant was required.[59]

In the final case of the series, *Dow Chemical v. United States*, the Court was asked whether a theory of "industrial curtilage" would prevent a government agency from conducting aerial surveillance over a 2,000-acre commercial plant.[60] There, after Dow Chemical Co. refused access to the Environmental Protection Agency (EPA), the EPA hired a commercial aerial photographer to take photos of the facility using a precision aerial mapping camera. Having ruled out the argument that the areas surrounding an industrial complex are entitled to the same protection as similar areas surrounding a home, the Court concluded that photographing the plant from navigable airspace was not a search.[61]

Government Tracking

Like the aerial surveillance cases, individuals have reduced—and in some contexts no—Fourth Amendment protection from government tracking of their travel in public places. This has permitted the government to conduct warrantless tracking of a vehicle's movements while traveling on public streets. However, once people enter a private residence, the tracking must

[53] *Ciraolo*, 476 U.S. at 213.

[54] *Id.* at 207.

[55] *Id.* at 213.

[56] *Id.* at 213-214. It should be noted that although the police did take photographs with a 35-millimeter camera, the warrant relied on naked-eye observations and not the photographs. Thus, the holding was based on the naked-eye observations, unaided by the camera.

[57] *Id.* at 213 (citing 49 U.S.C. §1304).

[58] Florida v. Riley, 488 U.S. 445, 448 (1989).

[59] *Id.*

[60] *Dow Chemical Co.*, 476 U.S. 227.

[61] *Id.* at 239

cease. Also, using technology to perform pervasive tracking might not meet Fourth Amendment muster.

Consider, for example, these two government tracking cases, *United States v. Knotts* and *United States v. Karo*.[62] In both cases, the government hid a location monitoring device in an item that was then given to the suspects. In *Knotts*, the police tracked the suspect's movements solely while traveling on public roadways.[63] The Court held that people have no reasonable expectation of privacy in their movements on public streets. As such, no Fourth Amendment search occurred, thus no warrant was required. By contrast, in *Karo*, the police tracked a beeper device on public streets *and* while the beeper was in a private residence—a "location not open to visual surveillance."[64] "Indiscriminate monitoring of property that has been withdrawn from public view," the Court declared, "would present far too serious a threat to privacy interests in the home to escape entirely some sort of Fourth Amendment oversight."[65] The Court held the search unlawful.

Although surveillance in public is generally not considered a search, pervasive tracking may cross the line. Take, for instance, the Supreme Court's recent decision in the GPS tracking case *United States v. Jones*.[66] In that case, the Court held that the attachment and monthlong tracking of a GPS device on an individual's vehicle constituted a trespass, and hence a Fourth Amendment search.[67] The Court grounded its decision in the property-based approach to assessing what constitutes a "search" under the Fourth Amendment, which had been more prevalent in the late 19th and early 20th century cases involving relatively unsophisticated technology.

The Court's focus on whether the attachment of a tracking device constitutes a trespass triggering Fourth Amendment protections is not necessarily applicable to drone surveillance. However, in two separate concurring opinions that together made up five members of the Court, an alternative framework was proposed that may have more far-reaching implications for the domestic use of UAVs.

Justice Alito, concurring in the Court's judgment, and joined by Justices Ginsburg, Breyer, and Kagan, would have held that "the use of longer term GPS monitoring in investigations of most offenses impinges on expectations of privacy. For such offenses, society's expectation has been that law enforcement agents and others would not—and indeed, in the main, simply could not—secretly monitor and catalogue every single movement of an individual's car for a very long period." Justice Sotomayor, joining the controlling opinion in *Jones*, but also concurring separately, noted that although following people for a short period of time conveys little information about them, tracking an

> Tracking an individual for an extended period "reflects a wealth of detail about her familial, political, professional, religious, and sexual associations."[68]

[62] United States v. Knotts, 460 U.S. 276 (1983); United States v. Karo, 468 U.S. 705 (1984).

[63] *Knotts*, 460 U.S. at 279. The Court reiterated that its analysis was based on the fact that the beeper was tracked within the vicinity of a home, not actually in the home. *Id*

[64] *Karo*, 468 U.S. at 714.

[65] *Id.* at 715.

[66] United States v. Jones, 132 S. Ct. 945 (2012).

[67] *Id.* at 949. *See generally* CRS Report R42511, *United States v. Jones: GPS Monitoring, Property, and Privacy*, by Richard M. Thompson II.

[68] *Jones*, 132 S. Ct. at 955 (Sotomayor, J., concurring).

individual for an extended period "reflects a wealth of detail about her familial, political, professional, religious, and sexual associations."[69] Thus, the length of time an individual is kept under surveillance and the breadth of data collected through such surveillance may inform a reviewing court whether a particular surveillance practice constitutes a Fourth Amendment search.[70]

Border Searches

Even more so than surveillance of public places generally, law enforcement agencies are granted significant deference to conduct surveillance at or near American borders. The federal government has a significant interest in protecting American borders from crossings by persons attempting to enter unlawfully, drug trafficking, and, perhaps most importantly, the transit of weapons and persons seeking to do harm to American people and infrastructure.

Congress has granted federal law enforcement agencies significant search powers at the border. Section 287 of the Immigration and Nationality Act (INA), codified at 8 U.S.C. Section 1357, authorizes immigration officers to conduct warrantless searches of any vessel within a reasonable distance from the United States border and any vehicle within 25 miles from a border for the "purpose of patrolling the border to prevent the illegal entry of aliens into the United States."[71] Similarly, 19 U.S.C. Section 482 authorizes customs officers to search vehicles and persons on which or whom they have reasonable cause to believe are carrying goods unlawfully into the United States.[72]

The Supreme Court has likewise acknowledged this federal interest in the borders, observing that "[t]he Government's interest in preventing the entry of unwanted persons and effects is at its zenith at the international border."[73] Again, the touchstone in every Fourth Amendment case is whether the search is *reasonable*.[74] The Court observed in *United States v. Montoya De Hernandez* that "the Fourth Amendment balance of reasonableness is qualitatively different at the international border."[75] "Routine searches," the Court continued, "are not subject to any requirement of reasonable suspicion, probable cause, or warrant."[76] "Routine" searches have included pat downs for weapons or contraband,[77] the use of drug sniffing dogs,[78] and the

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[69] *Id.*

[70] Although the two concurring opinions in *Jones* arguably do not constitute binding precedent, lower courts have combined them as a possible alternative holding. *See* United States v. Hanna, No. 11-20678-CR, 2012 WL 279435, at *3 (S.D. Fla. Jan. 3, 2012) (analyzing the issue of Fourth Amendment standing to contest GPS surveillance under both the trespass theory and *Katz*'s privacy test); State v. Zahn, No. 25584, 2012 WL 862707 (S.D. Mar. 14, 2012) (holding that both the trespass approach and the mosaic theory can apply to GPS tracking); *but see* United States v. Bradshaw, No. 1:11-CR-257, 2012 WL 774964 (N.D. Ohio Mar. 8, 2012) (noting that the *Jones* majority did not adopt the mosaic theory).

[71] 8 U.S.C. 1357.

[72] 19 U.S.C. §482. In the 112th Congress, the House of Representatives introduced H.R. 1505, which would enlarge CBP's authority to secure U.S. borders on federal land. H.R. 1505; *see also* John S. Adams, *Border bill would expand Homeland Security powers*, USA TODAY (September 26, 2011).

[73] United States v. Flores-Montano, 541 U.S. 149, 152 (2004).

[74] Cady v. Dombrowski, 413 U.S. 433, 439 (1973).

[75] United States v. Montoya De Hernandez, 473 U.S. 531, 538 (1985).

[76] *Id.*

[77] United States v. Beras, 183 F.3d 22, 24 (1st Cir. 1999) (ruling that pat down of defendant's legs was routine search).

[78] United States v. Kelly, 302 F.3d 291, 294-95 (5th Cir. 2002).

inspection of luggage.[79] By contrast, "non-routine" searches are those that go beyond a limited intrusion, and require the government official to have (at a minimum) "reasonable suspicion" of wrongdoing.[80] Prolonged detentions,[81] strip searches,[82] and body cavity searches[83] have all been considered non-routine searches.

Unlike searches directly at the border, the Court has shown more reticence in granting law enforcement unfettered discretion to conduct searches near, but not directly at, the border. In *Almeida-Sanchez v. United States*, the defendant's vehicle was stopped and searched by U.S. Border Patrol agents 25 miles north of the U.S.-Mexico border.[84] The agents had neither a warrant nor probable cause, nor even reasonable suspicion, to conduct the search. The government argued that the search was permissible under Section 287 of the Immigration and Nationality Act. A federal statute, the Court noted, cannot trump the Constitution. The Court refused to permit this suspicionless search, as it was conducted neither at the border nor at its "functional equivalent."[85]

Warrants, Suspicionless Searches, and Special Needs

The baseline rule in Fourth Amendment cases is that police must obtain a warrant to search an individual or their property in all but a few limited instances.[86] This rule ensures that an independent judicial officer, rather than a police officer in the field, is determining whether there is probable cause to conduct a search or seizure.[87] Over time, however, the Court has loosened this warrant requirement in instances where a strict showing of individualized suspicion of probable cause would hinder the government from addressing health and safety concerns.[88] In two lines of overlapping cases—administrative searches and "special needs" cases—the Court has balanced the individual's privacy interest against the government's interest to determine if a

[79] United States v. Okafor, 285 F.3d 842 (9th Cir. 2002).

[80] *Montoya De Hernandez*, 473 U.S. at 541.

[81] *Id.*

[82] United States v. Asbury, 586 F.2d 973, 975 (1978).

[83] United States v. Ogberaha, 771 F.2d 655, 657 (2d Cir. 1985).

[84] Almeida-Sanchez v. United States, 413 U.S. 266, 267-68 (1973).

[85] *Id.* at 272-73 ("For example, searches at an established station near the border, at a point marking the confluence of two or more roads that extend from the border, might be functional equivalents from border searches. For another example, a search of the passengers and cargo of an airplane arriving at a St. Louis airport after a nonstop flight from Mexico would clearly be the functional equivalent of a border search."). Like *Almeida-Sanchez*, Border Patrol agents in *United States v. Brignoni-Ponce* stopped an individual's vehicle as part of a roving patrol solely because the occupants appeared to be of Mexican descent, with no proof of illegal activity. *United States v. Brignoni-Ponce*, 422 U.S. 873, 874-75 (1975). Again, the Court struck down this practice of suspicionless stops, remarking that "[i]n the context of border area stops, the reasonableness requirement of the Fourth Amendment demands something more than the broad and unlimited discretion sought by the Government. Roads near the border carry not only aliens seeking to enter the country illegally, but a large volume of legitimate traffic as well." *Id.* at 882.

[86] Mincey v. Arizona, 437 U.S. 385, 390 (1978) (citation omitted).

[87] Johnson v. Untied States, 333 U.S. 10, 14 (1948) ("The right of officers to thrust themselves into a home is also a grave concern, not only to the individual but to a society which chooses to dwell in reasonable security and freedom from surveillance. When the right of privacy must reasonably yield to the right of search is, as a rule, to be decided by a judicial officer, not by a policeman or government enforcement agent."). Probable cause is found when, looking at the "totality-of-the-circumstances" there "is a fair probability that contraband or evidence of a crime will be found in a particular place." Illinois v. Gates, 462 U.S. 213, 238 (1983).

[88] Eve Brensike Primus, *Disentangling Administrative Searches*, 111 COLUM. L. REV. 254, 256 (2011).

warrant or any individualized suspicion is required.[89] These two theories permit law enforcement to conduct dragnet searches in certain instances.

Suspicionless general searches are ones "in which the government searches or seizes every person, place, or thing in a specific location or involved in a specific activity based only on a showing of a generalized government interest."[90] Suspicionless searches have been conducted at the national border,[91] private businesses,[92] and police roadblocks.[93] In the roadblock cases, the Court has balanced the government's interest against the individual's privacy interest to determine whether police may stop and question drivers without a warrant or any suspicion of criminal wrongdoing. In *Michigan Dep't of State Police v. Sitz*, the Court upheld the suspicionless stopping and examination of drivers for intoxication at sobriety checkpoints.[94] The Court reasoned that the high incidence of drunk driving balanced against the minimal intrusion on drivers permitted suspicionless checkpoints. In *City of Indianapolis v. Edmund*, however, law enforcement was not permitted to set up a drug interdiction checkpoint.[95] The Court held that searches such as this violated the Fourth Amendment when their "primary purpose" is "to uncover evidence of ordinary criminal wrongdoing."[96] Justice O'Connor observed that if this type of roadblock were allowed "the Fourth Amendment would do little to prevent such intrusions from becoming a routine part of American life."[97]

Application of Fourth Amendment to Drone Surveillance

As evidenced by the foregoing, the constitutionality of domestic drone surveillance may depend upon the context in which such surveillance takes place. Whether a targeted individual is at home, in his backyard, in the public square, or near a national border will play a large role in determining whether he is entitled to privacy. Equally important is the sophistication of the technology used by law enforcement and the duration of the surveillance. Both of these factors will likely inform a reviewing court's reasoning as to whether the government's surveillance constitutes an unreasonable search in violation of the Fourth Amendment.

[89] Nat'l Treasury Employees Union v. Von Raab, 489 U.S. 656, 665-66 (1989).

[90] Primus, *supra* note 88, at 263.

[91] United States v. Martinez-Fuerte, 428 U.S. 543, 566 (1976).

[92] United States v. Biswell, 406 U.S 311, 317 (inspection of gun dealer's storeroom) ("We have little difficulty in concluding that where, as here, regulatory inspections further urgent federal interest, and the possibilities of abuse and the threat to privacy are not of impressive dimensions, the inspection may proceed without a warrant where specifically authorized by statute.").

[93] Mich. Dep't of State Police v. Sitz, 496 U.S. 444, 455 (1990).

[94] *Id.* at 455.

[95] City of Indianapolis v. Edmund, 531 U.S. 32 (2000).

[96] *Id.* at 42.

[97] *Id.*

Location of Search

Based on existing case law, it is reasonable to assume that surveillance of an individual while in his home—an area accorded the greatest Fourth Amendment protection—using technology not in general public use would be an unlawful search absent a search warrant. The Supreme Court in *Kyllo* was particularly concerned about law enforcement's use of powerful equipment to peer inside an individual's home. Currently, UAVs carry high-megapixel cameras and thermal imaging, and will soon have the capacity to see through walls and ceilings.[98] These technologies are not generally available to the public, and under current jurisprudence, their use by law enforcement would probably constitute a search covered by the Fourth Amendment. However, the use of low-powered cameras or other unsophisticated technology to view people and objects in plain view while in their home might not trigger Fourth Amendment protections. The rationale for this notion is that officers are not required to avert their eyes when they see illegal activity in plain view, especially when the subject of the search has taken no affirmative efforts to hide their activity from public view.

Moving beyond the home, it is unclear whether circumstances exist in which the area immediately surrounding the home—for instance, a backyard, a swimming pool, a deck, or a porch—would receive similar protections as the interior of the home if surveilled by drones or other aerial vehicles.[99] Although the Supreme Court has recited on many occasions that a person located in a home's curtilage is accorded similar privacy protections as when inside the home, the aerial surveillance cases arguably constitute an exception to this general principle. In the two aerial cases, *Riley* and *Ciraolo*, the area surveilled was within close proximity of the home, yet the police surveillance at altitudes of 400 and 1,000 feet were not considered a search.

Based on the aerial surveillance cases, it may be reasonable to presume a warrant would *not* be required (nor, perhaps, any suspicion, for that matter) to conduct drone surveillance of most public places for a relatively short period of time. The Supreme Court remarked in *Ciraolo* that the "Fourth Amendment simply does not require the police traveling in the public airways at [1,000 feet] to obtain a warrant to observe what is visible to the naked eye."[100] However, the rarity of drone flights may distinguish their use from surveillance by the piloted aircraft used in the three aerial cases decided by the Court. All three of these cases were premised on the fact that each aircraft was flying in navigable airspace, and that these flights were not "sufficiently rare" to provide a reasonable expectation of privacy in the area to be searched. To this point, Justice White remarked in *Riley* that "there is nothing in the record or before us to suggest that helicopters flying at 400 feet are sufficiently rare in this country to lend substance to respondent's claim that he reasonably anticipated that his greenhouse would not be subject to observation from that altitude."[101] Presently, use of UAVs in U.S. airspace is considerably less common. The FAA has issued only approximately 300 licenses for drone use in U.S. airspace.[102] The general public

[98] EYES OF THE ARMY, *supra* note 24.

[99] *See generally,* Paul McBride, *Beyond Orwell: The Application of Unmanned Aircraft Systems in Domestic Surveillance Operations*, 74 J. Air. L. & Com. 627, 655-56 ("This implies that although the curtilage does not benefit from the absolute protection afforded to the interior of the home, there is a close relationship between the two, and that technology directed at the home and its curtilage will be subjected to a more skeptical analysis than would be applied in a case involving open fields or industrial areas.").

[100] California v. Ciraolo, 476 U.S. 207, 215 (1986).

[101] Florida v. Riley, 488 U.S. 445, 451-52 (1989).

[102] Federal Aviation Administration, *supra* note 18.

would likely find it exceedingly unusual for a drone to fly over their homes taking surveillance photographs. This rarity might factor into a reviewing court's determination of whether individuals have a legitimate expectation of privacy from various forms of drone surveillance while in a public place.[103]

The federal government's authority to use unmanned aircraft is undoubtedly at its maximum near U.S. borders. One of the federal government's only affirmative duties is to protect citizens from external harm.[104] This includes securing the borders. The Court has hesitated from interfering with the performance of this duty, and it would in all likelihood demonstrate the same deference when it comes to the use of UAVs. Moreover, the Supreme Court's rulings in border cases have all involved active searches—either a physical search of a vehicle or stopping and questioning a vehicle's passenger. Surveillance by UAVs, on the other hand, may be considered more passive and therefore may be even less likely to run afoul of Fourth Amendment requirements. Drone surveillance does not require any physical manipulation of a person or his things. UAVs also do not require the seizure of a person for any period of time (though drone surveillance may lead to law enforcement physically apprehending a person who is seen engaging in suspected illegal activity). However, the Court has shown some reticence about giving law enforcement carte blanche search power at the border. Roving vehicle patrols and indiscriminate searches in *Almeida-Sanchez v. United States* and *United States v. Brignoni-Ponce* were deemed unconstitutional.[105] It is unclear whether this reticence would extend to drone surveillance along the border if it were to become significantly widespread.

Technology Used

Like location, the technology used by UAVs may be a decisive factor considered by courts in determining whether individuals have a legitimate expectation of privacy in the object or area of the challenged drone search. Technological developments make it increasingly easy to share and acquire personal information about others, oftentimes without their direct knowledge or consent. As surveillance technology advances and becomes ever-present in Americans' lives, people's conception of privacy may tend to oscillate. Justice Scalia, writing for the majority in *Kyllo v. United States*, remarked on this trend:

> It would be foolish to contend that the degree of privacy secured to citizens by the Fourth Amendment has been entirely unaffected by the advance of technology. For example, ... the technology enabling human flight has exposed to public view (and hence, we have said, to official observation) uncovered portions of the house and its curtilage that once were private. The question we confront today is what limits there are upon this power of technology to shrink the realm of guaranteed privacy.[106]

Justice Alito, joined by three other Justices in his *United States v. Jones* concurrence, likewise observed:

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[103] *Ciraolo*, 476 U.S. at 212. However, in determining society's privacy expectations, a reviewing court might also take into consideration the proliferation of aerial mapping such as Google Maps and Google Earth conducted by private actors. *See generally* Google Maps, Street View, http://www.google.com/streetview.

[104] U.S. CONST. art. IV, §4 ("The United States shall guarantee to every State in this Union a Republican Form of Government, and shall protect each of them against Invasion[.]").

[105] Almeida-Sanchez v. United States, 413 U.S. 266 (1973); United States v. Brignoni-Ponce, 422 U.S. 873 (1975).

[106] Kyllo v. United States, 533 U.S. 27, 33-34 (2001).

> The *Katz* test rests on the assumption that this hypothetical reasonable person has a well-developed and stable set of privacy expectations. But technology can change those expectations. Dramatic technological change may lead to periods in which popular expectations are in flux and may ultimately produce significant changes in popular attitudes. New technology may provide increased convenience or security at the expense of privacy, and many people may find the tradeoff worthwhile. And even if the public does not welcome the diminution of privacy that new technology entails, they may eventually reconcile themselves to this development as inevitable.[107]

The crucial question, then, is whether drones have the potential to be significantly more invasive than traditional surveillance technologies such as manned aircraft or low-powered cameras—technologies that have been upheld in previous cases. In this vein, some have asked whether using sophisticated digital platforms on a drone is any different from attaching the same instrument to a lamppost or traditional aircraft.[108] Take, for example, the tracking of license plates. Currently, many states and municipalities employ automatic license plate readers (ALPRs), which are usually mounted on police vehicles or stationary objects along the streets, to take a snapshot of a license plate as a car drives by, and store this information in a large database for possible later use by law enforcement.[109] It is alleged that these devices can be used to track a person's movements when police aggregate the data from a multitude of ALPR stations.[110] A majority of the reviewing federal circuit courts have held that a person has no reasonable expectation of privacy in his license plate number.[111]

However, it appears that no federal court has addressed the constitutionality of the use of ALPRs (whether attached to a drone, manned vehicle, or a stationary device), as opposed to plate numbers collected by a human observer. Nonetheless, the question remains whether attaching an ALPR—or any similar sophisticated technology—to a drone would alter the constitutionality of its use by law enforcement. Some say yes, arguing that the sophistication of drone technology in and of itself "present[s] a unique threat to privacy."[112] Drones are smaller, can fly longer, and can be built more cheaply than traditional aircraft. For instance, defense firm Lockheed Martin's Stalker—a small, electrically powered drone—can be recharged from the ground using a laser.[113] It now has a flight time of more than 48 hours. As this technology advances, it is reported that

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[107] United States v. Jones, 132 S. Ct. 945, 962 (2012) (Alito, J., concurring).

[108] Stanford Law Review Symposium, *Drones—Privacy Paradox: Privacy and its Conflicting Values* (February 2, 2012), http://cyberlaw.stanford.edu/multimedia/drones-privacy-paradox-privacy-and-its-conflicting-values-video.

[109] *ACLU Seeks Details on Automatic License Plate Readers in Massive Nationwide Request,* AMERICAN CIVIL LIBERTIES UNION (July 31, 2012), http://www.aclu.org/technology-and-liberty/aclu-seeks-details-automatic-license-plate-readers-massive-nationwide-reque-4.

[110] *Id.*

[111] *See, e.g.*, Olabisiomotosho v. City of Houston, 185 F.3d 521, 529 (5th Cir. 1999) ("A motorist has no privacy interest in her license plate number. Like the area outside the cartilage [sic] of a dwelling, a car's license plate number is constantly open to the plain view of passersby.") (internal citation and quotation marks omitted); United States v. Ellison, 462 F.3d 557, 562 (6th Cir. 2006) ("No argument can be made that a motorist seeks to keep the information on his license plate private. The very purpose of a license plate number, like that of a Vehicle Identification Number, is to provide identifying information to law enforcement officials and others."); United States v. Castaneda, 494 F.3d 1146, 1151 (9th Cir. 2007); United States v. Walraven, 892 F.2d 972, 974 (10th 1989).

[112] *Using Unmanned Aircraft Systems Within the Homeland: Security Game Changer? Hearing Before the Subcomm. on Oversight, Investigations, and Management of the H. Comm. on Homeland Sec.*, 112th Cong. 3 (2012) (statement of Amie Stepanovich, Counsel, Electronic Privacy Information Center).

[113] Mark Brown, *Lockheed uses ground-based laser to recharge drone mid-flight*, WIRED (July 12, 2012), *available at* http://www.wired.co.uk/news/archive/2012-07/12/lockheed-lasers.

some drones could theoretically "stay in the air forever."[114] Unlike a stationary license plate tracker or video camera, drones can lock on a target's every move for days, and possibly weeks and months. This ability to closely monitor an individual's movements with pinpoint accuracy may raise more significant constitutional concerns than some other types of surveillance technology.

Furthermore, the technology and sophistication of drones may mark a considerable departure from the traditional technologies used in the three manned aerial surveillance cases decided by the Supreme Court. First, all three holdings in *Ciraolo*, *Riley*, and *Dow Chemical* were premised on naked-eye searches. Chief Justice Burger remarked in *Dow Chemical*: "It may well be, as the government concedes, that surveillance of private property using highly sophisticated surveillance equipment not generally available to the public, such as satellite technology, might be constitutionally proscribed absent a warrant."[115] As noted above, the sophistication of surveillance technology available to drones, such as facial recognition or laser radar which can "see" through walls, may lead some to question the relevance of prior Fourth Amendment jurisprudence concerning more rudimentary forms of surveillance technology.

The sophistication of drones also has the ability to break down any practical privacy safeguard. In the pre-computer age, the greatest privacy protections were neither constitutional nor statutory, but practical. Putting officers everywhere in the community cost too much for local police departments. This acted as a natural barrier to excessive police presence. Drones are not hindered by similar limitations. This is similar to the expansion of GPS technology observed by the five concurring Justices in *United States v. Jones*. There, Justice Sotomayor, writing for herself, noted that because GPS technology was cheaper and performed in a surreptitious manner, it "evades the ordinary checks that constrain abusive law enforcement practices: limited police resources and community hostility."[116] Justice Alito sounded a similar note in *Jones*: "Traditional surveillance for any extended period of time was difficult and costly and therefore rarely undertaken. [GPS devices] make long-term monitoring relatively easy and cheap."[117] Instead of putting more officers in the field, a police force could put drones in the sky for potentially less expense. Already, drones with video capabilities can be purchased from private vendors for a few hundred dollars.[118] This access to inexpensive technology may significantly reduce budgetary concerns that once checked the government from widespread surveillance.

This access to inexpensive technology may significantly reduce budgetary concerns that once checked the government from widespread surveillance.

The duration and pervasiveness of drone surveillance—two factors closely associated with the technology employed by law enforcement—may also influence a court's Fourth Amendment analysis. Consider the Fifth Circuit Court of Appeals' ruling in *United States v. Cuevas-Sanchez*.[119] In that case, federal law enforcement agents suspected the defendant was using his home as a drop house for drug traffickers. After obtaining a court order, the agents installed a

[114] *Id.* Lockheed has reportedly been working on extending flight times from days to months. *Id.*

[115] *Dow Chemical*, 476 U.S. at 238.

[116] United States v. Jones, 132 S. Ct. 945, 956 (Sotomayor, J., concurring) (internal quotation marks omitted).

[117] *Id.*

[118] *See, e.g.*, Apple Store, Parrot AR.Drone 2.0, http://store.apple.com/us/product/H8859ZM/A/parrot-ar-drone-2-0. This aircraft, is remote-controlled by an iPhone or iPad, and has a high-definition camera that can take both pictures and videos. *Id.*

[119] United States v. Cuevas-Sanchez, 821 F.2d 248 (5th Cir. 1987).

video camera on a utility pole overlooking the defendant's 10-foot high fence surrounding his back yard. The officers observed the removal of drugs from the gas tanks of several cars parked in the defendant's yard. Based on these observations, the defendant was arrested whereupon the police seized a large amount of marijuana. At trial, the defendant moved to suppress the evidence on the basis that the warrant was defective. However, the court first addressed whether the video surveillance was a search under the Fourth Amendment. In determining that the video surveillance was a search, the panel noted that this "was not a one-time overhead flight or a glance over the fence by a passer-by.... It does not follow that *Ciraolo* authorizes any type of surveillance whatever just because one type of minimally-intrusive aerial observation is possible."[120] Drones have the capability to stay in the air for long periods of time and can hover in one location. Similar to the mounted camera in *Cuevas-Sanchez*, this permits law enforcement to employ drones in prolonged surveillance operations. This capability may sway a court's determination of whether certain types of warrantless drone surveillance are compatible with the Fourth Amendment.

Warrant Requirement and Suspicionless Drone Searches

Applying the Fourth Amendment to drones requires application of the threshold question: was there a search? Again, this will depend on all the factors discussed above—the area of the search, the technology used, and whether society would respect the target's expectation of privacy in the place searched. If a reviewing court concludes that the drone surveillance was not a search, neither a warrant nor any degree of individualized suspicion would be required. If, however, the court concluded there was a search, then a court would ask whether a warrant is required, if one of the exceptions apply, and what level of suspicion, if any, is necessary to uphold the search.

Unless a meaningful distinction can be made between drone surveillance and more traditional forms of government tracking, existing jurisprudence suggests that a reviewing court would likely uphold drone surveillance conducted with no individualized suspicion when conducted for purposes other than strict law enforcement. The Supreme Court has hesitated from interfering in what they see as the executive's function in protecting the health and safety of the American population. As Chief Justice Rehnquist noted in the *Sitz*, the Court does not want

> to transfer from politically accountable officials to the courts the decision as to which among reasonable alternative law enforcement techniques should be employed to deal with serious public danger.... [F]or purposes of Fourth Amendment analysis, the choice among such reasonable alternatives remains with the governmental officials who have a unique understanding of, and a responsibility for, limited public resources, including a finite number of police officers.[121]

The Court may defer to law enforcement officials in the drone context also. There are countless instances where the government may seek to utilize drones for health and safety purposes that go beyond mere law enforcement. These may include firefighting, search and rescue missions, traffic safety enforcement, or environmental protection. If, on other hand, surveillance is conducted primarily to enforce the law, a warrant may be required, unless one of the exceptions to the warrant requirement applies.

[120] *Id.* at 251.

[121] Mich. Dep't of State Police v. Sitz, 496 U.S. 444, 453-54 (1990).

Legislative Proposals in the 113th Congress to Constrain Domestic Use of Drones

Although the Supreme Court is the final arbiter of the Constitution, Congress and the President can provide for greater regulation of drones than the Fourth Amendment requires. Congress has taken such steps over the years to address government surveillance of communications in transit (commonly known as wiretapping),[122] communications in storage such as e-mails,[123] bank records,[124] and health records,[125] among a host of other private information. Several measures have been introduced in the 113th Congress that would restrict the domestic use of drones, and establish arguably greater constraints on their usage than the Fourth Amendment requires. Several bills were prompted by a general concern for potential privacy intrusions by federal and state law enforcement and executive agencies.[126]

Preserving Freedom from Unwarranted Surveillance Act of 2013 (H.R. 972)

In the 113th Congress, Representative Austin Scott has introduced the Preserving Freedom from Unwarranted Surveillance Act of 2013 (H.R. 972).[127] This bill would require any entity acting under the authority of the federal government to obtain a warrant based upon probable cause before conducting drone surveillance to investigate violations of criminal law or regulations. There are, however, several exceptions to this warrant requirement: (1) to prevent or deter illegal entry of any persons or illegal substances into the United States; (2) when a law enforcement officer possesses reasonable suspicion that under particular circumstances "swift action to prevent imminent danger to life or serious damage to property, or to forestall the imminent escape of a suspect, or destruction of evidence" is necessary; or (3) when the Secretary of Homeland Security determines credible intelligence indicates a high risk of a terrorist attack by a specific individual or organization. H.R. 972 would create a right to sue for any violation of its prohibitions.

Preserving American Privacy Act of 2013 (H.R. 637)

Representative Ted Poe introduced the Preserving American Privacy Act of 2013 (H.R. 637), which would restrict the domestic use of drones.[128] To begin, the bill regulates surveillance of "covered information," which means "information that is reasonably likely to enable

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[122] Omnibus Crime Control and Safe Streets Act of 1968, P.L. 90-351, 87 Stat. 197, 211 (codified at 18 U.S.C. §2510-2522).

[123] Electronic Communications Privacy Act of 1986, P.L. 99-508, 100 Stat. 1848 (codified at 18 U.S.C. §2701-2712).

[124] Right to Financial Privacy Act, P.L. 95-630, 92 Stat. 3697 (codified at 12 U.S.C. §3401-3422).

[125] Health Insurance Portability and Accountability Act of 1996, P.L. 104-191, 110 Stat. 1936.

[126] Several bills introduced in the 113th Congress aim to restrict the government's use of drones to lethally target U.S. citizens on U.S. soil. See, e.g., No Armed Drones Act of 2013, H.R. 1083, 113th Cong (1st Sess. 2013); S. 505, 113th Cong. (1st Sess. 2013). These bills, however, are beyond the scope of this report.

[127] H.R. 972, 113th Cong. (1st Sess. 2013). Senator Rand Paul filed similar legislation in the 112th Congress, but has not re-introduced it in the 113th Congress. *See* S. 3287, 112th Cong. (2d Sess. 2012). Unlike H.R. 972, S. 3287 included an express exclusionary rule for evidence obtained in violation of the act.

[128] H.R. 637, 113th Cong. (1st Sess. 2013).

identification of an individual" or "information about an individual's property that is not in plain view." H.R. 637 would create a general prohibition on the use of drones to collect covered information or disclose covered information so collected. It does, however, provide the following exceptions:

- *Warrant*. Law enforcement obtains a court-issued warrant and serves a copy of the warrant on the target of the search within 10 days of the surveillance. However, notice need not be provided if it would jeopardize an ongoing criminal or national security investigation.
- *General Order*. Law enforcement obtains a court-issued order based upon "specific and articulable facts showing a reasonable suspicion of criminal activity and a reasonable probability" that the operation "will provide evidence of such criminal activity." The order may authorize surveillance in a stipulated public area for no more than 48 hours which may be renewed for a total of 30 days. Notice of the operation must be provided to the target no later than 10 days after the operation. Alternatively, notice may be provided not less than 48 hours before the operation in a major publication, on a government website, or with signs posted in the area of the operation.
- *Border searches*. Operation is within 25 miles of national border.
- *Consent*. The targeted individual has provided prior written consent.
- *Emergencies*. Emergency situation involves danger of death or serious physical injury, conspiratorial activities threatening the national security interest, or conspiratorial activities characteristic of organized crime, where a warrant cannot be obtained with due diligence. Law enforcement must then obtain a warrant within 48 hours of such operation.

Any evidence obtained in violation of this act is not admissible in any trial or adjudicative proceeding. Additionally, H.R. 637 requires any governmental entity applying for a certificate or license to operate a UAS to also file a data collection statement with the Attorney General. The statement must include the following:

- Purpose for which the UAS will be used
- Whether the UAS is capable of collecting covered information
- The length of time the information will be retained
- A point of contact for citizen feedback
- The particular unit of governmental entity responsible for safe and appropriate operation of the UAS
- The rank and title of the individual who may authorize the operation of the UAS
- The applicable data minimization policies barring the collection of covered information unrelated to the investigation of crime and requiring the destruction of covered information that is no longer relevant to the investigation of a crime
- Applicable audit and oversight procedures.

Under H.R. 637, the Attorney General may request that the Secretary of Transportation revoke the license or certificate of any entity that fails to file a data collection statement. Further, H.R. 637

contains a provision permitting administrative discipline against an officer who intentionally violates a provision of this act.

Drone Aircraft Privacy and Transparency Act of 2013 (H.R. 1262)

Representative Ed Markey introduced the Drone Aircraft Privacy and Transparency Act of 2013 (H.R. 1262).[129] This bill would amend the FAA Modernization and Reform Act of 2012 to create a comprehensive scheme to regulate government actors' use of drones, including data collection requirements and enforcement mechanisms.

First, this bill would require the Secretary of Transportation, with input from the Secretary of Commerce, the Chairman of the Federal Trade Commission, and the Chief Privacy Officer of the Department of Homeland Security, to study any potential threats to privacy protections posed by the introduction of drones in the national airspace. Next, the bill would prohibit the FAA from issuing a license to operate a drone unless the application for such use included a "data collection statement." This statement would require the following items:

- A list of individuals who would have the authority to operate the drone
- The location in which the drone will be used
- The maximum period it will be used
- Whether the drone would be collecting information about individuals

If the drone will be used to collect personal information, the statement must include the following:

- The circumstances in which such information will be used
- The kinds of information collected and the conclusions drawn from it
- The type of data minimization procedures to be employed
- Whether the information will be sold, and if so, under what circumstances
- How long the information would be stored
- Procedures for destroying irrelevant data.

The statement must also include information about the possible impact on privacy protections posed by the operation under that license and steps to be taken to mitigate this impact. Additionally, the statement must include the contact information of the drone operator; a process for determining what information has been collected about an individual; and a process for challenging the accuracy of such data. Finally, the FAA would be required to post the data collection statement on the Internet.

In addition to the data collection statement, any law enforcement agency which operates a drone must file with the FAA a "data minimization statement." This statement must include policies adopted by the agency that

[129] H.R. 1262, 113th Cong. (2d Sess. 2013).

- minimize the collection of information and data unrelated to the investigation of a crime under a warrant,
- require the destruction of data that is no longer relevant to the investigation of a crime,
- establish procedures for the method of such destruction, and
- establish oversight and audit procedures to ensure the agency operates a UAS in accordance with the data collection statement filed with the FAA.

H.R. 1262 includes several enforcement mechanisms. First, the FAA may revoke a license of a user that does not comply with these requirements. The Federal Trade Commission would have the primary authority to enforce the data collection requirements just stated. Additionally, the Attorney General of each state, or an official or agency of a state, is empowered to file a civil suit if there is reason to believe that the privacy interests of residents of that state have been threatened or adversely affected. H.R. 1262 would also create a private right of action for a person injured by a violation of this legislation.

Conclusion

The introduction of drones into American airspace raises many legal and policy questions. For instance, how far can the government go in its attempts to maintain security and ensure that laws are enforced? What level of privacy should Americans expect in an age where technology facilitating the acquisition of personal information expands at a phenomenal pace? Currently, there is a vast body of Fourth Amendment law that governs the circumstances in which law enforcement must obtain a warrant before conducting surveillance. However, the sheer sophistication of drone technology and the sensors they can carry may remove drones from this traditional Fourth Amendment framework. Beyond the courts and the Constitution, what role should Congress and the President play in regulating the introduction of drones inside the United States? As the integration of drones for domestic surveillance operations quickly accelerates, these questions and others will be posed to the American people and their political leaders.

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UAS State Privacy Considerations

Unmanned Aircraft Systems (UAS) are emerging technologies that have the potential to transform America providing wide ranging economic, environmental, and safety benefits. A recent study[i] conservatively estimates that 103,776 high paying jobs could be created and state tax revenue could exceed $482 million by 2025. Every year the integration of UAS into the aviation system[ii] is delayed, America will lose more than $10 billion in potential economic impact. Yet, over 40 states have drafted or passed UAS privacy regulations that would prohibit the use of UAS.

UAS applications include: firefighting, chemical and HAZMAT detection, crop dusting, agricultural development, monitoring of pollution, pipelines, wildlife, traffic, and floods, search and rescue, aerial news coverage, delivering medical supplies to remote areas, aerial photography, filmmaking, communications, broadcasting, arctic and volcanic research, forensic photography, damage assessment, cargo transportation, port, border, and event security, real-estate photography, etc. In addition to these direct benefits, UAS implementation will spawn many new industries and provide an incredible array of manufacturing, operation, and other high paying job opportunities.

Along with these benefits come concerns about individual privacy. There is an existing body of federal, state and local law relating to privacy. The question is whether existing law is adequate, absent extensive judicial review, to alleviate the concerns of state legislators and citizens regarding privacy rights in light of this new technology. Because this technology can use a variety of sensors and some can potentially loiter for long periods of time without detection, there is a fear that government can use these systems to monitor individuals in a way that was not imagined in Supreme Court 4th Amendment rulings based on the presumption of privacy[iii]. Because state law interacts with Federal 4th Amendment rulings, it is appropriate for states to enact legislation addressing this issue. The challenge is to provide privacy protection without impeding the use of UAS in order to achieve UAS' many benefits.

Because of the complexity of this issue and the importance of privacy to citizens in every state, representatives of the Aerospace States Association (ASA)[iv], the Council of State Governments (CSG)[v], and the National Conference of State Legislatures (NCSL)[vi] have joined together to create considerations for states to evaluate in developing UAS legislation. As part of our impartial deliberative process, UAS privacy stakeholder associations including the ACLU, EPIC, and IACPvii, along with AUVSI – the industry trade associationviii -- and academicsix responded to our request to submit their suggestions for state privacy legislation to an independent law firm, Cadwalader, Wickersham & Taft LLPx.[xi] Their submissions can be seen at www.Aerostates.org/privacy. After deliberation, ASA, ASG, and NCSL provide the following considerations:

1. Warrants: A warrant should be required 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.[xii] 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.

2. Information collected for commercial use should not be used for law enforcement purposes, without a warrant.
3. Commercial UAS and model aircraft flights should not track specific individuals without their consent.
4. No weapons should be permitted to be carried by any UAS.
5. Any images recorded during a civil or commercial UAS flight must be time- and date-stamped and show relevant GPS designations. If retained, these records must be corroborated with flight records for the UAS, show the purpose of the information collection, and be available for public viewing on request.
6. States should endorse The International Association of Chiefs of Police (IACP) "Recommended Guidelines for the use of Unmanned Aircraft"[xiii]. These guidelines define UAS and provide guidance for community engagement, system requirements, operational procedures, and image retention for UAS operations by law enforcement organizations.
7. Commercial UAS must be operated according to FAA safety and air traffic regulations[xiv] and in a manner not to present a nuisance to people or property.

End Notes

[i] Economic Impact of Unmanned Aircraft Systems in the United States, March 2013, http://qzprod.files.wordpress.com/2013/03/econ_report_full2.pdf.

[ii] The Federal Aviation Administration regulates all civil airspace, vehicles, and operators within the U.S. for safety and efficient airspace use through federal preemption. UAS safety regulations are being developed by the FAA. Until such regulations are in place, civil UAS operations must be specifically approved by the FAA. Government operations must comply with civil air traffic control directives. A lack of FAA permissive regulation and state prohibitions of UAS use delay integration of UAS into the aviation system and adversely affect America's global competitiveness in the development of this industry.

iii The crucial inquiry for Fourth Amendment protection is whether a person has a reasonable expectation of privacy that society is prepared to recognize. Courts have found that individuals may have a Fourth Amendment right against the unreasonable search and seizure of the area surrounding a house, referred to as the "curtilage." The Supreme Court has found that aerial surveillance over private property does not violate the Fourth Amendment if conducted by an aircraft in legally navigable airspace. However, this holding might not apply to UAVs and their unique capabilities, and arguably remains an open question.

[iv] ASA is a bipartisan organization that represents the grass roots of American aerospace. It is a 501(c)(3) scientific and educational organization of lieutenant governors, governor-appointed delegates, and associate members from industry and academia. ASA was formed to promote a state-based perspective in federal aerospace policy development and to support education outreach and economic development opportunities.

[v] Founded in 1933, The Council of State Governments is our nation's only organization serving all three branches of state government. CSG is a region-based forum that fosters the exchange of insights and ideas to help state officials shape public policy. This offers unparalleled regional, national and international opportunities to network, develop leaders, collaborate and create problem-solving partnerships.

[vi] The National Conference of State Legislatures is a bipartisan organization that serves the legislators and staffs of the nation's 50 states, its commonwealths and territories. NCSL provides research, technical assistance and opportunities for policymakers to exchange ideas on the most pressing state issues. NCSL is an effective and respected advocate for the interests of state governments before Congress and federal agencies.

[vii] In response to our request for information, papers were received from the Airborne Law Enforcement Association (including and referencing the guidelines from the International Association of Chiefs of Police Aviation Committee), the American Civil Liberties Union, the American Legislative Exchange Council, the Electronic Frontier Foundation, the Electronic Privacy Information Center and the National Association of Criminal Defense Lawyers. In addition, the State of Alaska Department of Law provided legal analysis.

[viii] The Association for Unmanned Vehicle Systems International is the world's largest non-profit organization devoted exclusively to advancing the unmanned systems and robotics community. Serving more than 7,500 members from government organizations, industry and academia, AUVSI is committed to fostering, developing, and promoting unmanned systems and robotic technologies. AUVSI members support defense, civil and commercial sectors.

[ix] Douglas Marshall, New Mexico State University, and Paul Voss, Smith College responded to our requests.

[x] Cadwalader, Wickersham & Taft LLP (www.cadwalader.com), established in 1792, is one of the world's leading international law firms, with offices in New York, Washington, D.C., Charlotte, Houston, London, Hong Kong, Beijing and Brussels. Cadwalader has provided pro bono legal services to ASA for over 20 years.

[xi] Our review also included the Congressional Research Service's report "Integration of Drones into Domestic Airspace: Selected Legal Issues, April 4, 2013 and Office of Civil Rights and Civil Liberties, U.S. Department of Homeland Security September 14, 2012 Memorandum for the Secretary.

[xii] Under current law any aircraft can photograph anything outside a home or building. While the surveillance capabilities of UAS are not significantly different

from other surveillance means, we believe that it is prudent to require a warrant for surveillance of a person specifically targeted because of the unique characteristics of UAS.

[xiii] http://www.theiacp.org/portals/0/pdfs/IACP_UAGuidelines.pdf

[xiv] Code of Federal RegulationsTitle14, as amended.

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Proposal for American Legislative Exchange Council (ALEC)
Unmanned Aerial Vehicle Proposal

Program Objective

The objective of ALEC's Unmanned Aerial Vehicle (UAV) program is to educate our policy makers about the issues surrounding the use of UAVs for domestic purposes. We will inform our state legislator members about considered uses for UAVs in law enforcement, border control, firefighting, search and rescue operations and myriad other uses. We will explore the privacy issues involved and would like to present our members a balanced overview of the topic that addresses some of the misconceptions about UAV capabilities and the benefits of UAV use in the domestic sphere.

Situational Overview

State legislatures are rapidly enacting legislation on domestic UAV use without a complete understanding of the issues involved. As of this writing, 35 states had considered or were considering legislation, including Virginia which passed legislation restricting the use of UAVs, including a two-year moratorium on using UAVs except in university research and search and rescue missions.

State legislators are concerned that UAV surveillance could threaten the civil liberties, especially the privacy of their constituents, so the trend in the legislatures is to err on the side of highly restrictive regulations. Unfortunately, these restrictions might ultimately prevent civilian institutions from taking advantage of UAVs as a cost-effective tool to perform their duties more efficiently during a time of shrinking state budgets. In many cases, ALEC legislators are spearheading these restrictive policies, often due to an incomplete understanding of the issues involved and UAV capabilities.

If misconceptions are not corrected in the immediate future, misguided policy will continue to proliferate throughout state legislatures, and this policy is likely to inform future *national* policy on the domestic use of UAVs. As appropriate UAV implementation could help states meet their public safety objectives in a fiscally responsible way, we would like to see the issues surrounding their use explored in a complete and objective manner.

Program Description

A two-pronged approach would be the most effective way to deal with the issue.

ALEC International Relations Task Force (IRTF) Membership

Model policy on the domestic use of UAVs falls under the jurisdiction of ALEC's International Relations Task Force/National Security Subcommittee, and we anticipate that the task force will consider such policy in the very near future. Issues that capture our members' attention the way this one has are generally brought to ALEC. ALEC task force membership would afford the member

the opportunity to participate in the discussions on the model policy and to inform and enrich the debate. The IRTF is relatively small (well over 100 legislators and 6 private sector members) and has the flexibility to consider and vote on model policy for domestic UAV use rapidly. If this policy is passed within the task force and approved by ALEC's Legislative Board of Directors, it becomes official ALEC model policy and can be accessed by all of our state legislators. Other issues that the task force has explored and continues to discuss include Sequestration, Civilian/Commercial Applications for NASA Research, Sustainable Energy Best Practices in the Military and Overseas, H1B visa expansion, Earth Observation, Expanding the Commercial Marketplace for Space Launches, etc.

The issue of our bimonthly magazine *Inside ALEC* that will be distributed at our Annual Meeting in August 2013 in Chicago will focus on International and Energy issues. An article on domestic uses for UAVs would be a welcome addition to the magazine and would automatically be distributed to those in attendance at the meeting – roughly 1,000 state legislators as well as 1,000 policy and business leaders from across the country. Such distribution would give the issue a deserved spotlight. An article in ALEC's blog, *The American Legislator*, could appear before the Annual Meeting.

UAV Educational Sponsorship Opportunity at ALEC Spring Task Force Summit
ALEC's Communications and Technology Task Force will host a panel discussion/lunch to explore the domestic uses of UAVs at ALEC's Spring Task Force Summit on May 3 in Oklahoma City, OK. We expect 30-40 state legislators to attend. Two speakers who favor more restrictions on the use of UAVs have already been confirmed – Jim Harper a noted privacy expert from the Cato Institute and Ryan Kiesel a noted privacy advocate from the American Civil Liberties Union (ACLU). Both will thoroughly cover the privacy challenges UAV technology poses. This will be our members' first exposure to this issue at an ALEC event, and ALEC wants to ensure that we approach the issue in a balanced fashion. We will have presenters who will emphasize some of the benefits of the domestic uses of UAVs, and the sponsor would be able to select two presenters that would offer this point of view. We would also ask the additional panelists to address the general aviation challenges facing domestic UAVs. We would provide travel expenses for four additional ALEC public sector members from the International Relations Task Force to attend and/or moderate the panel from select states currently considering UAV policy.

Annual Meeting Workshop Sponsorship
This year's Annual Meeting will take place in Chicago, IL August 7-10, 2013 where we expect roughly 2,000 state legislators, policy experts and business leaders to be in attendance. Workshops are panel discussions open to all attendees at our Annual Meeting, and we are confident that a panel discussion on the domestic uses of UAVs would be exceedingly popular. We also have workshop sponsorships at our States and Nation Policy Summit in early December 2013 which generally has attendance of 700-800 state legislators, policy experts and business leaders.

Additional Thoughts
This is a timely issue where our members need a better understanding to make informed decisions. However, this topic is also an excellent opportunity to introduce the concept of civilian applications for products that were originally intended for military and/or space applications and to highlight the critical role that public private partnerships in research play in innovation and economic growth.

May 30, 2013

Bob Davis
Cadwalader
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Dear Mr. Davis:

On behalf of the American Civil Liberties Union (ACLU), a non-partisan organization with more than a half million members, countless additional activists and supporters, and fifty-three affiliates nationwide, we appreciate the opportunity to comment on the privacy and civil liberties implications of domestic use of unmanned aircraft systems (UAS), also known as drones, and to recommend new protections for use of the technology.

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Like any powerful surveillance tool, UAS have the potential to be used for good or ill. With implementation of good privacy ground rules, we can enjoy the benefits of this technology without bringing our country closer to a "surveillance society" in which every move is monitored, tracked, recorded, and scrutinized by the authorities.

UAS share some characteristics with manned aerial surveillance, such as planes and helicopters, but their threat to privacy is substantially greater in both scope and volume. Manned aircraft are expensive to purchase, operate, and maintain. They require trained pilots and ground crews and must land in order for pilots to rest. The expense both in dollars and in staffing has always imposed a natural limit on the government's aerial surveillance capacity. UAS's low cost and flexibility erode that natural limit. As technology improves, small, hovering devices will be able to explore hidden spaces, peer in windows, or even, potentially, enter homes, and large static blimps will enable continuous, long-term monitoring – all for much less than the cost of a helicopter or plane.

In our society, it is a core principle that the government does not collect information about individuals' innocent activities just in case they do something wrong. But UAS threaten to turn that principle on its head. What would be the effect on our society if everyone felt the keen eye of the government at all times? Psychologists have repeatedly found that people who are being observed tend to behave differently than when they are not being watched. This effect is so great that a recent study found that "merely hanging up posters of staring human eyes is enough to significantly change people's behavior."[1] There is a real danger that, if faced with the prospect of unregulated UAS, people will change how they behave in public – whether at a political rally or in their own backyards.

[1] Sander van der Linden, "How the Illusion of Being Observed Can Make You a Better Person," Scientific American, May 3, 2011, online at http://www.scientificamerican.com/article.cfm?id=how-the-illusion-of-being-observed-can-make-you-better-person; M. Ryan Calo, "People Can Be So Fake: A New Dimension to Privacy and Technology Scholarship," 114 Penn St. L. Rev. 809, online at http://www.pennstatelawreview.org/articles/114/114%20Penn%20St.%20L.%20Rev.%20809.pdf.

UAS may also suffer from the problems we've seen with video surveillance – voyeurism,[2] racial profiling by operators,[3] and automated law enforcement.[4]

The Supreme Court has not yet had occasion to consider whether the Fourth Amendment places limits on government use of UAS. However, it has allowed some warrantless aerial surveillance from *manned* aircraft. Most notably, in the 1986 decision *California v. Ciraolo*, the Court ruled that there was no intrusion into Ciraolo's privacy when police borrowed an airplane, flew it over his backyard and spotted marijuana plants growing there, because "[a]ny member of the public flying in this airspace who glanced down could have seen everything that these officers observed."[5]

Nonetheless, because of their potential for pervasive use and their capacity for revealing far more than the naked eye, there are good reasons to believe that UAS may implicate Fourth Amendment rights in ways that manned flights do not. In both *Dow Chemical Co. v. United States*[6] and *Kyllo v. United States*,[7] the Supreme Court suggested that using sophisticated technology not generally available to the public may be considered a search under the Fourth Amendment.

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Further, the Supreme Court has suggested that the continuous use of a surveillance technology may heighten Fourth Amendment concerns. In *United States v. Knotts*, although the Court concluded that the use of the beeper in that case did not violate the Fourth Amendment, it held that if "such dragnet type law enforcement practices" as "twenty-four hour surveillance of any citizen of this country" ever arose, it would determine if different constitutional principles would be applicable.[8] Similarly, in *United States v. Jones*, five justices agreed (in two concurrences) that when the government engages in prolonged location tracking, it conducts a search under the Fourth Amendment.[9] While this decision may eventually play a role in regulating drone usage, the technology is moving far more rapidly than our jurisprudence, and it is critical that state legislatures act to protect their constituents' privacy.

State legislation should reflect the following key principles:

First, no one should be spied upon unless the government believes that person has committed a crime. Drone use over private property should occur only with a search warrant based on probable cause – the same standard used to search someone's house or business. It might be permissible to monitor individuals in public at a lower standard – perhaps reasonable suspicion – but the key is to prevent mass, suspicionless searches of

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[2] "Did NYPD Cameras Invade A Couple's Privacy?" WCBS-TV report, Feb. 24, 2005, video no longer available online; Jim Dwyer, "Police Video Caught a Couple's Intimate Moment on a Manhattan Rooftop," *New York Times*, Dec. 22, 2005, online at http://www.nytimes.com/2005/12/22/nyregion/22rooftop.html.
[3] Clive Norris and Gary Armstrong, "The Unforgiving Eye: CCTV Surveillance in Public Spaces," Centre for Criminology and Criminal Justice at Hull University, 1997.
[4] Danielle Keats Citron, "Technological Due Process," 85 Washington University Law Review 1249 (2008), online at http://lawreview.wustl.edu/inprint/85/6/Citron.pdf.
[5] 476 U.S. 207 (1986).
[6] 476 U.S. 227 (1986).
[7] 533 U.S. 27 (2001).
[8] 460 U.S. 276, 283-84 (1983).
[9] 132 S. Ct. at 964 (Alito, J., concurring in judgment), 955 (Sotomayor, J., concurring).

the general population, including for intelligence gathering. Exceptions to this rule should be limited to emergencies connected to life and safety or narrowly drawn administrative exceptions in order to prevent pretextual use of drones.

Additionally, while the Constitution may permit UAS surveillance of public spaces on less than a probable cause standard, the vast majority of the 96 different drone bills being considered in 43 states this legislative session[10] require law enforcement to get a probable cause warrant before using a drone in an investigation, whether that investigation occurs in private or public space, a good indicator that a warrant requirement for drone use is both workable and palatable. Already, warrant requirements have been enacted in Florida,[11] Idaho,[12] Montana,[13] and Tennessee.[14]

Second, images of identifiable individuals captured by law enforcement UAS should not be retained or shared unless they are of the target of the investigation that justified drone deployment, and there is reasonable suspicion that the images contain evidence of criminal activity or are relevant to an ongoing investigation or pending criminal trial.

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Third, while drone use should be permitted for reasonable non-law enforcement purposes where privacy will not be substantially affected, such as geological inspections or environmental surveys, information collected by drones for one purpose should not be used for another purpose such as general law enforcement or enforcing administrative laws.

Fourth, drones should not carry weapons.

Finally, oversight is crucial. Communities must play a central role in deciding whether to purchase drones, and the policies and procedures for the use of UAS should be explicit and written, and should be subject to public review and comment. Similarly, like any new technology, drone use must be monitored to make sure it's a wise investment that works.

Placing reasonable limitations on law enforcement is by no means a new idea – for example, authorities may take a thermal image of someone's home only when they get a warrant – and it is imperative that we implement a system of rules to ensure that we can take advantage of UAS technology without sacrificing our privacy. If you have any questions, would like to discuss the issue further, or would like to see ACLU's model state legislation, please don't hesitate to reach out to me at abohm@aclu.org or (212) 284-7335.

Sincerely,

Allison S. Bohm, Advocacy & Policy Strategist

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[10] "States with UAS Legislation" National Conference of State Legislatures. May 29, 2013. http://www.ncsl.org/issues-research/justice/unmanned-aerial-vehicles.aspx.
[11] S.B. 92 (Fla. 2013)
[12] S.B. 1134, 62nd Legislature (Idaho 2013)
[13] S.B. 196, 63rd Legislature (Mont. 2013)
[14] S.B. 796 (Tenn. 2013)