



# Whose Skies? Drones, Privacy, and the Law

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Ethereal minstrel! pilgrim of the sky!  
Dost thou despise the earth where  
cares abound?

—“To a Skylark,”  
William Wordsworth

Three years ago we wrote that it wouldn't be long before assessors used drones to do their jobs more frequently, efficiently, and effectively, but that laws and regulations were struggling to keep up with this emerging technology (Cunningham and Cunningham 2013). As we write today, this technology has begun to come of age. A spirited national conversation is now roiling over the issue of these little flying toys with cameras that seem to be buzzing everywhere—over parks, backyards, and city alleyways. Drones are the consumer-level versions of the more

expensive, remotely piloted vehicles that commercial operators refer to as “unmanned aircraft systems,” or UAS. They have caused a sensation by allowing for the easy collection of high-quality still photos and live video feeds often less than 100 feet above ground level. A drone can see whatever is left out in the public eye.

But the question asked by so many individuals going about their own private activities (often on their own private properties) is, *Should there be a private eye-in-the-sky trained on me, especially when I'm in private?* This article examines these concerns under the light of historical perceptions of personal privacy, the U.S. Constitution, state legislation, and court decisions.

## Drones in the Spotlight

With automated flight-capable, high-definition camera-equipped drones available on the internet or at hobby stores for only a few hundred dollars, many people without

any previous flight experience are picking up drones for a variety of purposes. For example, mountain bicyclists, skiers, and daredevils of every stripe have taken to positioning drones to capture their exploits.

Some of drone pilots' more foolish actions have caught the attention of federal agencies. Curious drone pilots flying near forest fires have grounded aerial firefighting operations. Drones chasing bighorn sheep have resulted in the exclusion of drones from all national parks (Costello and Fieldstat 2015). In April 2015, a drone pilot was Tasered and arrested by a park ranger at the Kilauea volcano after being repeatedly told to stop flying near a massive crowd of tourists watching the lava lake at night (Lincoln 2015).

Notwithstanding the popularity of consumer-level drones for all manner of tomfoolery, not to mention high-profile publicity

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Yes, it's real: A remote-controlled chainsaw drone.  
(<https://www.youtube.com/watch?v=6Viwwetf0gU>).  
Photo permission courtesy of Noodletail Videos)

stunts, savvy operators are testing new domestic and commercial drone applications, for instance, checking home gutters for obstructions or locating breaks in cattle fencing. Commercial photographers have begun to use drones for wide-angle tasks, such as a large group shot at a wedding or high school graduation. Drone photography's current ubiquity has even earned a place in the common lexicon for the noun "dronie," meaning an images of oneself taken from a drone; more ominously, to be "droned" is to be assassinated via an armed forces or national intelligence service-operated drone-based missile strike.

### Citizen William Merideth, Drone-Slayer

Not everyone is enthusiastic about the flying eyes being used by a very small minority of persons. In fact, in October 2015 a Kentucky man was so unhappy about the drone flying above his property line that he used his shotgun to destroy the offending aircraft. The shooter, William Merideth, claimed that the drone operator, Merideth's neighbor, violated his and his family's privacy. (The neighbor, in turn, maintained that the drone remained on his side of the property line.) When the drone operator took the drone-slayer to court seeking \$2,500 in damages, the judge stated,

*I think it's credible testimony that his drone was hovering anywhere ... [from two or three times] over these people's property, that it was an invasion of their privacy and that they had the right to shoot this drone. (Fieldstat 2015)*

But one decision does not a precedent make. Today the shotgun diplomacy approach to drones is working its way back through the courts. Unhappy with the judge's decision in the Kentucky case, the

Drone Lexicon	
<b>BLOS (Beyond line of sight)</b> —FAA rule that a drone cannot fly further than can be seen by the drone pilot. This is specified to be a half-nautical mile, which is also the range of most of the radio controls used to pilot the drone.	to be flying in a specific area on a specific date.
<b>COA (Certificate of Authority)</b> —Special permission from the FAA to operate a drone in restricted airspace or above 400 feet altitude.	<b>Octocopter</b> —UAV with eight rotors.
<b>Cyber-drone</b> —A drone capable of hacking WiFi connections.	<b>Predator</b> —Military UAV.
<b>Drone</b> —Any unmanned mobile device in the air, on water, or on the ground.	<b>Quadcopter</b> —UAV with four rotors.
<b>Dronerazzi</b> —Drone-using paparazzi.	<b>Reaper</b> —Military UAV.
<b>FAA (Federal Aviation Administration)</b> —Agency that is working to regulate drone activities in the National Airspace System.	<b>Rotary Wing</b> —A drone with horizontal propellers capable of vertical take-off and landing. The propellers function like wings to provide lift.
<b>Fixed Wing</b> —A drone that looks like a traditional aircraft with non-moving wings attached to a fuselage.	<b>RPV (remotely piloted vehicle)</b> —Military term for a drone. Section 333 and Part 108—Permissions from the FAA for businesses to operate drones for commercial purposes.
<b>FPV (First-person view)</b> —Video images detected by a camera on an unmanned aerial vehicle (UAV) and transmitted in real time to the remote pilot of the UAV.	<b>TFRs</b> —Temporary flight restrictions.
<b>Geofencing</b> —Using GPS coordinates to restrict where UAVs can travel.	<b>UAS (unmanned aircraft system)</b> —The term system refers to all of the gear and people required to work with the drone and the data it collects.
<b>Hexacopter</b> —UAV with six rotors.	<b>UAV (unmanned aerial vehicle)</b> —Unmanned autonomous vehicle.
<b>NOTAM (Notice to Airmen)</b> —A report to pilots that a drone can be expected	<b>UGS</b> —Unmanned ground-vehicle system.
	<b>UUS</b> —Unmanned underwater-vehicle system.
	<b>UWS</b> —Unmanned water-vehicle system.
	<b>VTOL</b> —Vertical take-off and landing.

drone operator appealed the case to the federal court in January 2016. The appellant's lawyer cited federal law (49 U.S. Code § 40103), which states that only the U.S. government has sovereignty over airspace, not a landowner (Legal Information Institute undated). The lawyer wrote that,

*... airspace, therefore, is not subject to private ownership[,] nor can the flight of an aircraft*

*within the navigable airspace of the United States constitute a trespass. (Farivar 2016b)*

If the drone in question were operating in government territory, rather than private real estate, then the defendant would have no right at all to take action against the supposed intrusion into his property because the property in question would not truly be his own to defend.



These are not real...yet. Less practical ideas for drone use have engaged the popular imagination.

### Kodak Consumer Cameras

As it stands, personal rights against unwanted surveillance by drones are unclear. In fact, the explosion of consumer-level drones is testing the social and legal boundaries separating the public and private spheres. But drones are hardly the first example of a new technological development clashing with a society unprepared for some of its repercussions.

For example, consider the National Security Agency's mass collection of telephone metadata records, the dark obscurity of which belies its far-reaching consequences. Because questions of legality are often addressed only after litigation climbs its way from the lower courts all the way up to the U.S. Supreme Court, the law is usually one of the last things to catch up with emerging technology. Settled law can lag technology by many years, if not decades.

Kodak's box camera, later models of which were known as the Brownie, is another prominent historical example of a piece of consumer technology upsetting established notions of social propriety. Generally taken to be the first consumer camera, the box camera was introduced by Kodak in 1888, when large, clumsy plate cameras were still the norm. By comparison, the Kodak box camera was small and lightweight, could be carried almost anywhere, and was

operable by almost anybody. More importantly, the Kodak's flexible film format allowed the photographer to take a number of exposures before sending the unit back for development to the company in Rochester, New York.

In 1888, the camera sold for \$25, and processing costs were \$10, not exactly cheap for the time but accessible to well-heeled early adopters. This meant that any number of budding photographic amateurs with a little pocket money were transformed overnight into freelance documentarians on the streets.

The box camera allowed a new level of spontaneity to enter photography. When the earliest camera technology format was introduced in the mid-nineteenth century, photo subjects typically adopted stiff postures and donned unsmiling expressions to avoid image blur over the course of the long exposure time.

Naturally, nineteenth-century society had to adapt quickly to the proliferation of spontaneous photographs. Rumors of sneaky people clicking pictures of persons without the subjects' knowledge or consent

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On the beach, Palm Beach, Florida, Detroit Publishing Co., publisher; taken between 1900 and 1906. (Library of Congress Prints and Photographs Division)

abounded in popular culture. Fearing the “camera fiend,” one resort posted a notice reading, “People Are Forbidden To Use Their Kodaks On The Beach” (Brayer 2012, 71).

But for all the popular hysteria surrounding the Kodak camera, it was so popular that the price fell to only \$1 by 1890. The ready adoption of such technologies as the telephone, automobile, and cinema in a rapidly changing modern society indicates that people were prepared to become much more casual about the camera (Lindsay undated).

## Surveillance

### “Peeping Tom”

The ubiquity of high-resolution digital photo sensors on all but the cheapest cellular phones—not to mention the presence of closed-circuit TV surveillance cameras in major cities like New York and London—testifies to an implicit social acceptance of the likelihood of personal images being taken at any time people are in public view. Critics of drones contend that drone photography is particularly invasive because aerial photography allows for persons to be surveilled in places not normally considered public, that is, in private places, even one’s home. In some circumstances, it is argued, drone photography constitutes *voyeurism*.

What can stop a plague of flying Peeping Toms? Given that drone aircraft are often sold bundled with high-resolution imagers with live streaming video, it seems reasonable to assume that some protections should exist against drones being used as mobile eavesdropping platforms.

### History of Privacy in Common Law Nations

In many states it is a misdemeanor or a felony offense to capture images or sound recordings of persons unawares, in their homes,

According to English legend, in the 1600s, Lady Godiva pleaded with her husband, the lord of Coventry, England, to relieve the town’s oppressive taxes. Growing exasperated with her pleas, he relented, provided she would ride naked on a horse through town at midday, with only her long hair as cover. Everyone in town was ordered by the Lady to stay inside their homes with the windows shuttered during her ride. But Tom the tailor, because of his curiosity, peeped through a small hole in a shutter to watch the naked lady, thereby becoming Peeping Tom.



or in any other place where they would have the reasonable expectation of privacy or solitude. However, most of these laws actually predate drones and were enacted to prevent the secret recording of telephone calls. As for the issue of drone voyeurism, the lesson of the ongoing Kentucky drone-slayer affair is that the line dividing private and public in the skies is a very thin one indeed.

However, some major legislative attempts have been made to regulate intrusion of personal privacy by drone. Anticipating paparazzi sneaking up on celebrities with drones, California in 2015 attempted to enact a broad piece of legislation making it illegal to operate a drone “less than 350 feet above ground,” regardless of whether anyone’s privacy was being violated (Pfeiffer 2016). But the governor vetoed this broad legislation, claiming that it would impinge on the rights of legitimate commercial drone operations approved by the Federal Aviation Administration (FAA) as well as the activities of hobbyists.

More narrow legislation subsequently passed in California to the effect that a person operating a drone in violation of the airspace of private property is guilty of trespass when it is being used to capture a picture or record a private person (Peters 2015).

Drones are slowly changing what *privacy* means for the twenty-first-century legal idiom. Although the concept has a limited history in Anglo-American common law, in the United States a substantial jurisprudence has developed around the right to privacy for individuals since the beginning of the twentieth century. The U.S. Constitution does not explicitly guarantee a right to privacy, but the U.S. Supreme Court has ruled repeatedly that the Constitution does imply various “zones of privacy” with several constitutional guarantees. One such guarantee is the right of persons and their property to be free from unwanted public scrutiny or exposure.

Conversely, the U.S. Supreme Court has also ruled that the First Amendment protects the right of journalists to intrude upon others’ personal lives from time to time; similarly, the rights of picketers have been repeatedly upheld, even if the picketing is unwanted. Thus the rights of paparazzi clicking unwanted pictures, perhaps even by drone, are protected by the Constitution. But the First Amendment does not permit trespass or other types of intrusion, such by electronic means, when there is a reasonable expectation of privacy.

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**Eavesdropping** means to listen to another's conversation in secret, the term deriving from the practice of standing beneath the eaves of a house, from which the rain drops from the roof.

**Voyeurism** stems from the French verb "to see," and means to spy on a person unawares.

### **An Implicit Right to Privacy?**

What, after all, is privacy? With no well-developed theory for the concept in common law, the idea becomes a bit difficult to pin down in practice. Theorists of the right to privacy in the United States have cited the Fourth, Fifth, and Ninth Amendments to the Constitution as constitutive of an implicit privacy guarantee: the Fourth Amendment protecting persons from self-incrimination, the Fifth prohibiting extralegal seizures of property, and the Ninth guaranteeing other non-enumerated rights.

Today in the United States fundamental questions of privacy are at the legal root of abortion rights. *Roe v Wade* was upheld in the U.S. Supreme Court in 1973 because the issue of a pregnancy was determined to be an issue of personal privacy (Wikipedia contributors 2016b).

But even legal authorities disagree about what this right to privacy should protect. Does it prohibit trespass without a person's approval or any property trespass of property? What about the taking of personal details like those known

only to a friend or lover? Is privacy guaranteed for high-profile celebrities who think they have protected themselves from eavesdroppers or paparazzi? Does a basement pot farmer have a right to privacy, even when the radiant thermal signature of her windows might indicate some less-than-legal activity to a drone-flying neighbor with an infrared camera?

### **Brandeis and Warren**

The camera, specifically, the Kodak box camera, was a key figure in the development of American privacy rights. In 1890, future U.S. Supreme Court Justice Louis Brandeis and Boston Attorney Samuel Warren published the landmark legal article, "The Right to Privacy" in the *Harvard Law Review* (Warren and Brandeis 1890). Allegedly inspired by an incident in which journalists for a newspaper society column armed with box cameras crashed a wedding party, the article mentions the word "photograph" no less than nine times.

"The Right to Privacy" made the case for privacy protection by appealing to the more familiar personal privacy intrusions of their day: unwanted exposure through unscrupulous journalism practices. The authors wrote,

*Recent inventions and business methods call attention to the next step which must be taken for the protection of the person [ . . . ]*

Furthermore, they contended that,

*[I]nstantaneous 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.' (Warren and Brandeis 1890)*

## We the People of the United States

### *Amendment I.*

*Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof, or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the government for a redress of grievances.*

### *Amendment IV.*

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

### *Amendment V.*

*No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a Grand Jury, except in cases arising in the land or naval forces, or in the Militia, when in actual service in time of War or public danger; nor shall any person be subject for the same offenses to be twice put in jeopardy of life or limb; nor shall he compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.*

### *Amendment IX.*

*The enumeration in the Constitution, of certain rights, shall not be construed to deny or disparage others retained by the people.*

### **Katz v. United States**

Warren and Brandeis's argument hinges upon an implicit distinction between a "public" sphere —

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business, politics, life on the street, and all other situations in which a person is aware that others may see or hear them—and “private... domestic life.” This latter domain would include what occurs among a person’s family, within that person’s household; proverbially, the private sphere is what goes on behind closed doors.

In point of fact, legal definitions of voyeurism and other unlawful invasions of privacy mirror this public/private cleft. Voyeurism laws vary by state and municipality, but a voyeurism offense generally constitutes watching, photographing, or videotaping a person without his or her knowledge. Such laws frequently require that the offended party has a reasonable expectation of privacy. Places such as bathrooms, bedrooms, and tanning booths can be included as locales where a person would have such a “reasonable expectation of privacy.”

Because unlawful voyeuristic viewing or recording can be considered a form of unlawful search or seizure, the “reasonable expectation” criterion ultimately refers to the Fourth Amendment. This was first tested in the 1967 landmark *Katz v. United States* decision, in which the U.S. Supreme Court determined that the police violated a suspect’s privacy when they recorded his conversations on a public pay phone (Wikipedia contributors 2016a). The FBI, having suspected Katz of exchanging illegal gambling tips from the pay phone, placed a recording device on the exterior of the booth.

The case turned on an interesting point: that is, if the suspect closed the glass door on the phone booth, he had the expectation of privacy, thus requiring a warrant, which the FBI did not have. But if the suspect had left the glass phone booth door open, he would have then forfeited his expectation of a private telephone call. *Katz v United States* set the precedent that the individual



Justice William O. Douglas, taken after 1930. (Library of Congress Prints and Photographs Division)

person has the right to expect privacy, not just his or her possessions or “things” as generally interpreted by the Fourth Amendment.

The *Katz* decision thereby set the legal litmus for privacy violations: (1) Does the person have a reasonable expectation of privacy? and (2) Does society recognize this expectation as being reasonable? In the case of a privacy protection against surveillance by drone, this second criterion is crucial. If the person being viewed by a drone through the bedroom window leaves the window curtains open, does he or she forfeit the expectation of privacy?

Historically, society slowly assimilates technological developments into its fabric. With the advent of Kodak’s box camera, people became used to the possibility of being photographed at any time on the beach, boardwalk, or neighborhood grocer. More than 100 years later, society accepts the presence of selfie-taking tourists anywhere from the Santa Monica Pier to Fifth Avenue, and who would ever think of asking a bystander’s consent before posting a selfie to Facebook or Instagram?

### ***Ad Coelum et ad Inferos***

The real question about drones is

not whether people will get used to them buzzing through the skies, but when. It will not be long before people take no more notice of a drone than they do of migrating Canada geese or a commercial airliner cruising at 35,000 feet.

However, in examining recent legal tests of consumer drone operation like the Kentucky drone-slayer case, a different thread emerges. The real question people are asking *vis-à-vis* drones is not, “*Can I be sure drones won’t record me changing clothes in my bedroom?*” but rather, “*Why should someone else’s drone have any right at all to fly over my property?*”

In the Kentucky case, the legal question at hand was, *Who owns the airspace above a property and home?* The case ultimately hinged on a question of interpretation of another post-World War II U.S. Supreme Court decision, that is, in the sky, where does private property end and the public domain begin?

### ***United States v. Causby***

In the 1946 case *United States v. Causby*, the U.S. Supreme Court rejected the property right doctrine of *Cuius est solum, eius est usque ad coelum et ad inferos*, a Latin phrase meaning, “whoever’s the soil, it is theirs all the way to heaven and all the way to hell” (Farivar 2016a). This old principle of property law stated that owners have the rights not only to the plot of land but also to the air above and the ground below.

The plaintiff in the case, a North Carolina chicken farmer named Causby, sought compensation for damages to his livestock caused by the loud noise of U.S. Army Air Force aircraft on low approach over Causby’s farm. Apparently the planes caused such distress to his chickens that they flung themselves against the walls of their coops, many dying in the process. Because Causby was able to claim that the Army Air Force’s operations were

destroying his property's usability, he sued under the takings clause of the Constitution's Fifth Amendment.

In this decision, Justice William O. Douglas resolved the case based not on the government's taking Causby's airspace without compensation, but on the principle that a landowner "owns at least as much of the space above the ground as he can occupy or use in connection with the land," in this case, the usability of land for his chicken ranching business. This created an interesting precedent: the landowner must have "exclusive control over the immediate reaches above his property" to use the land, and this equates under the Fifth Amendment as an invasion of the surface of land itself. Furthermore, the decision extended trespass law to include nuisance takings, including the enjoyment of land (Findlaw.com undated). (Justice Douglas trivia: He also ruled that "trees have standing," or personhood, to sue in court! [Wikipedia contributors 2016c].)

### Airspace Laws

The first legal interpretation of airspace rights was raised in 1783, the then-novel technology in question being the hot air balloon. Eighteenth-century jurists realized that balloon flights were technically illegal because of trespass, thus constituting the first inkling that personal rights to airspace may be a bit ridiculous. The 1926 Air Commerce Act gave the U.S. government exclusive sovereignty of airspace because every aircraft flight would be subject to suit; this law therefore generally declared that the airspace above 500 feet is navigable airspace and that these aircraft have the right of "public right of transit."

The advent of space satellites also brought the absurdity of *ad coelom et ad inferos* into a much more modern light because of the "absurdity of trespass being committed every time a satellite passed

over a suburban garden" (Wikipedia contributors 2016d). The 1967 Outer Space Treaty ratified this concept in international law.

*Causby* is still vexing regulators. The FAA claims that the navigable airspace it regulates begins as soon as any aircraft leaves the ground; however, the 1946 decision leaves flying below 500 feet largely unrestricted, assuming that landowners have rights to the immediate airspace, for planting trees, erecting fences, raising a barn, adding a windmill, and so on.

The City of Northampton, Massachusetts, challenged the FAA regulations in 2013, citing the *Causby* decision, and passed an ordinance declaring that landowners control their airspace up to 500 feet (City of Northampton 2013). In other words, landowners have "exclusive control over the immediate reaches" above their land. This would extend rights of privacy, trespass, and the sovereignty of the landowner.

### Conclusion

Will such a patchwork of local and municipal legal provisions as those enacted in Massachusetts make life very tough for drone pilots in the United States? Although this appears quite possible in the short run, historical precedent indicates that some sort of consistent federal regulatory scheme will eventually be implemented in order to smooth over the headaches that result from inconsistent regulation. Consider, for example, the case of the satellite television industry—cable and telecommunication utilities were successful in banning satellite dishes in many parts of the country before uniform national rules took precedence.

Nevertheless, for all the legitimate concerns raised by the very rapid rise of the drone, one thing is clear: the genie has been let out of the bottle and cannot be put back in. Drones are already performing



Practical uses for UAVs are being developed daily. From cell-tower inspections (shown above) to shark patrols on the beaches of Australia (<https://www.youtube.com/watch?v=THUSlo4f4mA>).

any number of tasks that are currently too dull, dirty, or dangerous for manned aircraft, and they hold the potential to unlock as-yet-unknown solutions to commercial, industrial, and scientific interactions with the built and natural landscapes.

In the coming years existing laws for privacy and trespass will be tested by FAA airspace regulations. The skies are a space of blankness and possibility, metonymically linked with the bird, that symbol of freedom, but officially the government's domain. How will perceptions of the skies change as more and more drones appear silhouetted against the clouds?

### References

Brayer, E. 2012. *George Eastman: A Biography*. Rochester, NY: University of Rochester Press.

City of Northampton, Massachusetts. 2013. "Resolution on Drone Aircraft," June 22 (amended July 11, 2013). <http://www.northamptonma.gov/DocumentCenter/View/1103> (accessed September 23, 2016).

Costello, T., and E. Fieldstat. 2015. "Flying Drones at National Parks Can Result in Penalties, Fines," NBC News, December 15. <http://www.nbcnews.com/news/us-news/flying-drones-national-parkscan-result-penalties-fines-n486206> (accessed September 23, 2016).

Cunningham, R., and K. Cunningham. 2013. "Robot Eyes in the Skies," *Fair & Equitable* 11 (10): 3–9.

Farivar, C. 2016a. "After Neighbor Shot Down his Drone, Kentucky Man Files Federal Lawsuit," *Ars technica*, January 6. <http://arstechnica.com/tech-policy/2016/01/man-whose-drone-was-shot-down-sues-shotgun-wielding-neighbor-for-1500/> (accessed September 23, 2016).

Farivar, C. 2016b. "Attorney for 'Drone Slayer' Says Federal Lawsuit Should Be Dismissed," *Ars technica*, March 8. [arstechnica.com/tech-policy/2016/03/attorney-for-drone-slayer-says-federal-lawsuit-should-be-dismissed](http://arstechnica.com/tech-policy/2016/03/attorney-for-drone-slayer-says-federal-lawsuit-should-be-dismissed) (accessed September 23, 2016).

Fieldstat, E. 2015. "Case Dismissed against William H. Merideth, Kentucky Man Arrested for Shooting Down Drone," NBC News, October 27. <http://www.nbcnews.com/news/us-news/casedismissed-against-william-h-merideth-kentucky-man-arrested-shootingn452281> (accessed September 23, 2016).

FindLaw.com. undated. *United States v. Causby* (1946), U.S. Supreme Court, No. 630. <http://caselaw.findlaw.com/us-supreme-court/328/256.html>.

Legal Information Institute, Cornell University Law School. undated. "49 U.S. Code § 40103—Sovereignty and use of airspace" (Pub. L. 103–272, § 1(e), July 5, 1994, 108 Stat. 1101). <https://www.law.cornell.edu/uscode/text/49/40103> (accessed September 23, 2016).

Lincoln, M. 2015. "Drone Operator Chased, Tased by Ranger at Hawaii Volcanoes National Park," April 27, updated April 28. <http://www.hawaii.newsnow.com/story/28914009/drone-operator-chased-tased-by-ranger-at-hawaii-volcanoes-national-park> (accessed September 23, 2016).

Lindsay, D. undated. "The Kodak

Camera Starts a Craze," *pbs.org*. [http://www.pbs.org/wgbh/amex/eastman/people\\_events/pande13.html](http://www.pbs.org/wgbh/amex/eastman/people_events/pande13.html) (accessed September 23, 2016).

Peters, J. 2015. "Good News for Kanye West: California Bans Paparazzi Use of Drones to Spy on Celeb Homes," *future tense*, October 9. [http://www.slate.com/blogs/future\\_tense/2015/10/09/california\\_bans\\_paparazzi\\_use\\_of\\_drones\\_to\\_spy\\_on\\_celebrities\\_at\\_home.html](http://www.slate.com/blogs/future_tense/2015/10/09/california_bans_paparazzi_use_of_drones_to_spy_on_celebrities_at_home.html) (accessed September 23, 2016).

Pfeiffer, J. 2016. "Paparazzi by Drone: Is This Legal?" *Above the Law*, April 27. <http://abovethelaw.com/2016/04/paparazzi-by-drone-is-this-legal/?rf=1> (accessed September 23, 2016).

Warren, S.D., and Brandeis, L.D. 1890. "The Right to Privacy," *Harvard Law Review* IV (5). [http://groups.csail.mit.edu/mac/classes/6.805/articles/privacy/Privacy\\_brand\\_warr2.html](http://groups.csail.mit.edu/mac/classes/6.805/articles/privacy/Privacy_brand_warr2.html) (accessed September 23, 2016).

Wikipedia contributors. 2016a. "Katz v. United States," *Wikipedia, The Free Encyclopedia*, [https://en.wikipedia.org/w/index.php?title=Katz\\_v.\\_United\\_States&oldid=717165423](https://en.wikipedia.org/w/index.php?title=Katz_v._United_States&oldid=717165423) (accessed September 26, 2016).

Wikipedia contributors. 2016b. "Roe v. Wade," *Wikipedia, The Free Encyclopedia*. [https://en.wikipedia.org/w/index.php?title=Roe\\_v.\\_Wade&oldid=739276757](https://en.wikipedia.org/w/index.php?title=Roe_v._Wade&oldid=739276757) (accessed September 26, 2016).

Wikipedia contributors. 2016c.



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"Sierra Club v. Morton," *Wikipedia, The Free Encyclopedia*. [https://en.wikipedia.org/w/index.php?title=Sierra\\_Club\\_v.\\_Morton&oldid=740858394](https://en.wikipedia.org/w/index.php?title=Sierra_Club_v._Morton&oldid=740858394) (accessed September 23, 2016).

Wikipedia contributors. 2016d. "Trespass," *Wikipedia, The Free Encyclopedia*. <https://en.wikipedia.org/w/index.php?title=Trespass&oldid=740831484> (accessed September 23, 2016). ❖

## Stuart Completes Online Instructor Courses



Rick Stuart, CAE, CDEI, has successfully completed training for the CDEI designation through International

Distance Education Certification Center (IDECC).

The CDEI™ program is designed to be used by persons preparing to teach professional and academic education courses via a variety of distance education delivery methods such as Internet, CBT (Computer Based Training), and video-conferencing. Students becoming certified have an excellent credential and knowledge-

base by which to begin or continue their work facilitating distance education courses.

The CDEI™ program is also designed to present theory and good practice for facilitating a distance education course. The program is divided into two courses: (1) How and why adults learn, and (2) Principles of good practice for teaching online. Each course contains five major learning objectives. Completion time for each module is approximately eight hours for a total of 16 hours for the entire program. To earn the CDEI certification, the student must complete both courses.

# ValueArmor

Providing unbiased market values through expanded data and enhanced analytics

ValueArmor, a big data analytics product provided by Courthouse-USA, is a web-based geospatial visualization tool utilizing a valuation model developed by industry veteran Patrick M. O'Connor. Mr. O'Connor is known within the mass appraisal industry as one of the most knowledgeable and respected modelers. ValueArmor involves comparing and analyzing statewide valid sales for the majority of commercial properties of a given class to support a value for comparable commercial property in a local area.

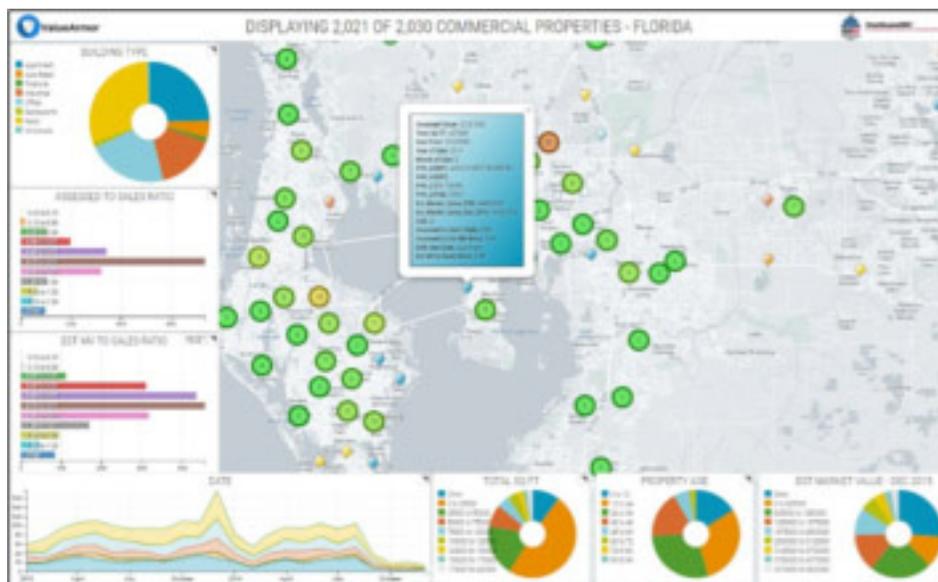
ValueArmor is unique because it:

(1) Expands the geographic area from the local assessment jurisdiction to a statewide or nationwide geographical coverage.

(2) Provides access to a data set of filtered statewide sales and standard estimates of market value for most commercial and industrial properties via the ValueArmor AVM.

ValueArmor makes use of the best of geographic information systems (GIS) and statistical modeling techniques to create a supportable comparable sales program. ValueArmor uses the International Association of Assessing Officers' hybrid model specification to create valuation formulas that have dollar adjustments for qualities like square footage of building. These values per square footage are multiplied by qualitative adjustments (percentages) such as grade or construction quality.

ValueArmor's location adjustment percentage is created by comparison to other surrounding commercial properties that have sold recently. Traditional comparable sold properties are limited by a narrow set of the nearest similar properties, leaving appraisers unable to find



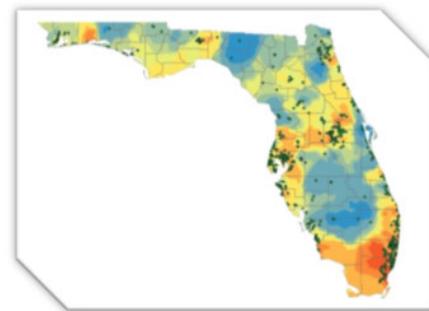
ValueArmor expands the geographic area beyond local assessment jurisdiction

sufficient recently sold properties within a small geographic boundary. Utilizing GIS, ValueArmor uses the nearest recently sold properties to create locational percentages permitting the search of geographically dispersed sold properties, while providing a local adjustment for location.

These location adjustments are checked and adjusted in the valuation model to provide the best possible standard estimates of market value. ValueArmor estimates of market value are unique within the appraisal profession. These standard estimates of market value will provide consistent values across the state for comparison and analytical purposes.

The selection of comparable sales filtered by the modeling process provides the best set of local comparable sales to permit appraisers or clients prepare comparable sales grids that are statistically supportable.

The model then adjusts the selected comparable sales to the subject property's property characteris-



tics. While ValueArmor will only use the best comparable sold properties, all available sales in its database are accessible for your consideration.

ValueArmor also permits the appraiser to select comparable sold properties through an online GIS filtering process. In future version of ValueArmor, standard comparable selection will be available that selects individual comparable sold properties based on the subject properties characteristics and location.

## Trial Subscription Available

ValueArmor™, delivered using Hexagon GeoSpatial's Smart M.apps platform, is available for a trial subscription for \$995 and includes 2013-2014 data with values at date of sale or adjusted for time

*continued on next page*

to January 2015 for the state of Florida. The full subscription for the state of Florida will include the updated data. The trial is available to anyone in any state as an opportunity to gain hands-on experience with the features and functionality of ValueArmor™. If you are not in Florida but would like your state made available for a full subscription, please contact Billy@courthouseusa.com to get your state added to the list.

Check out this informative YouTube video:  
<https://www.youtube.com/watch?v=fKt6BFdQG2Q> ❖



### Lath Reaches a Milestone

Congratulations to Robert Latham (Lath) Harris, CAE, SRA for being recognized by IAAO as a 40-year

member. A member of TEAM, Lath's profile and the classes he instructs can be found on the TEAM website as [www.teamconsulting.cc](http://www.teamconsulting.cc). ❖

## AAS Case Study Review, Anyone?

I have received a few requests for our TEAM AAS Case Study Review workshop to help prepare for sitting for the 8-hour IAAO AAS exam. It is a 2½-day workshop. Cost of the workshop is \$275. If you are interested in this workshop, please email Rick Stuart at [rstuart17@cox.net](mailto:rstuart17@cox.net) and indicate which of the following dates would best fit into your schedule:

- May 9 – 11, 2017 or
- June 6 – 8, 2017

## AAS Designees October

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**William Phillip Ballard, AAS**, fulfilled the requirements for the Assessment Administration Specialist designation in

August. Mr. Ballard has been the Assessor of Property for Knox County, Tenn., for the past eight years. He holds a Senior Claims Law Associate (SCLA) designation from the American Educational Institute and has completed courses at the University of Tennessee, Knoxville, and Hiwassee Junior College, Madisonville, Tenn.

Mr. Ballard has been active in the profession, being a member of IAAO for eight years, the Tennessee Association of Assessing Officers (TNAAO), and the Eastern Tennessee Association of Assessing Officers (ETA AO). He served as president of ETA AO from 2009 through 2016 and was awarded Assessor of the Year in 2010 by TNAAO. His office received Excellence in Operations honors in 2015, also from TNAAO.

"I was elected in 2008 and encouraged to be proactive in IAAO along with the staff," he says. "We have taken over 7,000 hours of education with IAAO and the state certification program. It was the best decision I made during my tenure, both professionally and personally. My staff is equally pleased as they have achieved or [are] close to their own designations."



**Robert Wesley Carter, Jr., AAS**, met the requirements of the Assessment Administration Specialist designation in July. Mr. Carter is a Commercial

Appraiser with the Harris County

Appraisal District in Houston, Texas. Prior to assuming this role five years ago, he served as a Land Analyst after beginning as a Residential Appraiser. Mr. Carter attended Stephen F. Austin State University, Nacogdoches, Texas, and Houston Community College.

He says of his assessment career, "I am very thankful to have fallen into this appraisal business. It has been very interesting and always different. I have learned so much about my county and the different property types. I work with a lot of very good and smart people. Before this job I was selling computers retail. Although the hours weren't great, the knowledge I gained gave me an edge at this job and other parts of my life."



**Jordan Charles Taylor, AAS**, earned the Assessment Administration Specialist designation in July. Mr. Taylor is an Analyst II for Knox

County, Tenn., a position he has held for seven years. He began his assessment career as a Property Clerk in 2007 and quickly moved to the position of Field Appraiser one year later, before assuming his present position in 2009. Mr. Taylor attended Louisville Presbyterian Theological Seminary, Louisville, Ky., and earned a bachelor's degree in religion from Maryville College, Maryville, Tenn. ❖

## Travel Squad



TEAM associates continue to move about the country teaching, consulting and speaking. In the fourth quarter of 2016, we have been in Indiana, Kansas, Minnesota, North Carolina, Texas, Washington and Wyoming.

# Upcoming Workshop: Making Presentations & Teaching Adult Students

March 16 – 17, 2017  
Austin, Texas.

Want to make better presentations? Do you wish to teach professional workshops and learn how to reach the adult students? The Texas Association of Appraisal Districts (TAAD) is providing you an opportunity for fulfilling both of the desires.

TAAD is sponsoring a 1½-day workshop using TEAM Consulting LLC material, and Rick Stuart, CAE, CDEI, will be the instructor. Rick has been recognized by IAAO with an Instructor of the Year Award and by TAAD with the James A. Goodwin Excellence in Education Award.

The workshop is designed to help people make better presentations and will demonstrate how to transfer those presentation skills into the classroom, plus develop an understanding on how to reach and teach the adult student. **This is not an IAAO instructor workshop and will not qualify you to teach IAAO material.** The workshop is designed though to help improve presentation skills, classroom instructional skills or to help prepare for becoming an instructor. *And TAAD is working with PTAD to ensure that these presentations will qualify the attending instructors for Texas state certification class instructor recertification credit.*

## The Art of Making a Powerful Presentation – Day 1

Nothing can be more powerful than face-to-face communication, particularly if the message is well researched and the delivery is good and completed with confidence. What the Greek leader Pericles said more than 2,500 years ago is still true today, “One who forms a judgment on any point but cannot explain it clearly might as well never have thought at all on the subject.”

Good delivery will be shown as a combination of both verbal and non-verbal communication. The physical delivery of a presentation will generally not be great the first time or two it is delivered. However, there is no substitute for experience. Experience will help the presenter know when to emphasize points, pause, change voice inflection, make body movements and gestures, and when to change facial expressions and when to recognize that a point was not understood.

Making a presentation is an art, not a science. Multiple people can deliver the same presentation with differing results. What we hope to accomplish in this workshop is the process of preparation, the gathering of knowledge and the development of confidence that you can master “The Art of Making a Powerful Presentation.”

## How to Teach Adult Students – Day 2 (Morning)

If you need a challenge in life, this could be it. There is nothing more rewarding to an instructor than to see the proverbial lightbulb go on when a student grasps what you are telling them or when students use the classroom to advance their careers. Along with those successes come some tough moments when you wished you could have done more. This one-day workshop will identify what an adult student is, their concerns and fears, and how to help them be successful in the classroom setting. This workshop can also be used as a train-the-trainer session.

The classes will be held on March 16–17, 2017, in Austin, Texas. For more information or to enroll, contact Doris Koch at TAAD (dkoch@taad.org). ❖

# High Ratings for Drone Workshop

Keith Cunningham recently presented a workshop on drone technology for the Idaho State Tax Commission. On a scale where 3 is neutral, 4 is agree, and 5 is strongly agree, students gave the course material an average rating of 4.5 and the instructor an average rating of 4.9. *Way to go Keith!*

## Student comments:

- It was interesting & informational
- Awesome class in totality
- The insight into practical county assessor office drone applications, even though many years out — learning history — good, engaging course
- Most interesting class I have taken — cutting edge technology
- I enjoyed learning about new technology — this class was new and interesting
- Very good class
- Unique — very interesting, knowledgeable instructor — good class
- The prospect of being able to use drone technology in the appraisal process in the future
- Great history — the instructor was awesome, fun and knowledgeable
- Very interesting new technology
- Great class — great instructor
- [Liked] Everything ❖

## More Good Reviews

Rick Stuart, CAE, CDEI, presented three TEAM workshops in Austin, Texas, which received great reviews and ratings (below):

Class Title	Rating (5 highest)
Residential Quality, Condition & Effective Age	4.7
Mass Appraisal Analysis & Benchmarks	4.8
Valuation of Residential Land	4.5

# Request For Data

A few years ago we developed a one-day workshop titled *Valuation of Barndominiums*, and it has been very well attended and received by students. I would like to update that workshop as they continue to be the faster-growing home type in rural jurisdictions.

These are structures that appear to be metal clad farm buildings but part or all the structure has been finished on the interior and used as living area. Some are used as temporary living area while the owners construct a new stick-built home, while others are built as a permanent residence. The framing can be pole or steel.

Information requested would be any and all of the following that is available:

- Cost—this could be total turn-key (contractor) cost, cost for



just the shell and/or cost for interior finish. Just make sure and clearly identify what the cost represents.

- Websites or cost sources.
- Valid sales—anything within the years of 2014 – 2016.
- What name you use to describe this property type, such as Metal-Sided Dwelling, etc.
- Any other data that you believe would be beneficial.

I will also be updating the workshops on the *Valuation of Self-Storage Properties* and *Valuation of Lodging Properties*. I would love to have any sales, income and expense

data and cost data. The identity of the properties will not be disclosed.

I would prefer data sent electronically, but it can be sent in hardcopy. I would like the data to include a property record card so I can see sizes, sketches, interior data and a photo(s) of the property. Also include a contact person in your office and preferred contact information if I have questions.

Your assistance in the past has helped us develop products that reflect what you are encountering in your jurisdictions. I would ask that you send your data **no later than Feb. 1, 2017**. The easiest method to contact me is by email. Thanks for your help, and if you are encountered other appraisal issues that you believe would be a good workshop, please tell me.

Rick Stuart, CAE, CDEI  
3533 SW Randolph Ave.  
Topeka, KS 66611  
Rstuart17@cox.net • 785.259.1379 ❖

# Class Coordinator Information

TEAM Consulting LLC often has requests for classes, but the dates are not available for TEAM members to instruct. Outlined below are the general concepts for instructors that will instruct TEAM materials and for the workshop sponsor.

The instructor may also promote and set-up classes in which TEAM material will be used.

1. When a class date is finalized, the sponsor should contact Fred Chmura, AAS, and TEAM will develop an agreement with the class sponsor, if an agreement is required by the sponsor. Fred can be reached at fchmura@teamconsulting.cc or 860.974.1354.

2. Instructors will negotiate their own fee(s) and/or expense reimbursements. The instructor will

be responsible to report the number of students in each class to TEAM, and TEAM will then invoice the class sponsor for the material. Instructor payment will be the responsibility of the instructor.

3. TEAM will provide, when requested, the material and PowerPoint presentation to the instructor.

## General Workshop Sponsor Information

1. Responsibilities of the class sponsor:
  - a. The sponsor will select the instructor and establish the fees and/or expense reimbursements.
  - b. When a class date is finalized, the sponsor should contact Fred Chmura, AAS, and TEAM will

develop an agreement with the class sponsor, if an agreement is required by the sponsor Fred can be reached at fchmura@teamconsulting.cc or 860.974.1354.

c. TEAM will be reimbursed at the rate of \$25 per student per day.

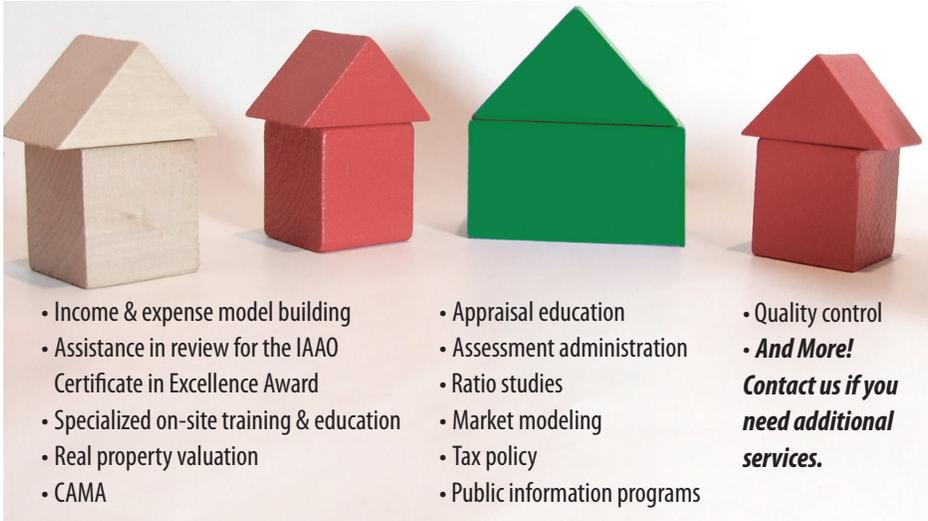
d. The class sponsor will be responsible for any applications and fees for continuing education credits. TEAM will provide to the class sponsor all necessary data for the applications.

e. The class sponsor will be responsible for printing and binding all materials as they desire.

f. If an evaluation of the material and instructor is performed, TEAM requests a recap of the questions and ratings plus any written comments. TEAM does have an evaluation form if requested. ❖

# Professional Services

**TEAM Consulting, LLC** offers expertise in property assessment and valuation to government clients in support of assessing officers and jurisdictions. From discovery and identification through valuation and administration to appeals and policy, our **TEAM** professionals are prepared to help you meet your needs.



## Recent Projects Completed By **TEAM** for Clients Across the U.S.

- Collection, analysis & model building for income & expense data
- Valuation and review of all commercial properties using remote sensing (oblique and street view imagery) and desktop appraisal technology
- Business process review for the Real Property Tax Administration Division
- Review and training on current processes and procedures relating to commercial properties
- Serve as a contracted County Appraiser (department head)
- Provide technical assistance as outlined by the County Appraiser
- Valued the land and improvements on leased lake lots owned by a city
- Conducted desktop review of residential data characteristics using street-view images and oblique photography
- Performance Audit of Residential Property Reassessment



Contact:  
Fred Chmura, AAS, Managing Partner  
860.974.1354 • fchmura@teamconsulting.cc  
Rick Stuart, CAE, Senior Consultant  
785.259.1379 • Rstuart17@cox.net

## Services **TEAM** Consulting provided to Lyon County, Kan.

- ✓ Review neighborhood boundaries
- ✓ Review current staff and staffing requirements
- ✓ Review and development of staff organization charts
- ✓ Field review of a large sample of property data
- ✓ Review all sales and how they are used and maintained
- ✓ Review land values
- ✓ Review collection, storage and model-building processes for the income approach application
- ✓ Establish a plan for the county to proceed with sound processes in place for the valuation of commercial property

## RATING ★★★★★

The County Appraiser for Lyon County, Kan., evaluated the performance of **TEAM** as “EXCELLENT” in all categories, including:

- ★ Quality of services/work
- ★ Timeliness of performance
- ★ Cost control
- ★ Business relations
- ★ Customer satisfaction

*“I highly recommend any assessor wanting to improve their assessment approach or data stratification to work with Team Consulting! They are so progressive in their thinking and approaches that no doubt you will be satisfied with their work.”*  
—Cindy Rogers, Assessor, Buffalo County, Wyoming