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Committee Findings and Recommendations

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# Drone Use Regulation

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Legislative Program Review  
and Investigations Committee

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Connecticut General Assembly

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## Drone Use Regulation

### Background

In June 2014, the program review committee authorized a study of drone use regulation. The study focuses on current and potential drone use regulation in Connecticut. Drones are any unmanned, powered aircraft that sustain flight through remote operation, autonomous control, or some combination of the two.

The 2012 Federal Aviation Authority (FAA) Modernization Act distinguishes between three different types of drones – civil, public, and model aircraft. At the federal level, these drone types are defined by their physical characteristics and capabilities as well as by the purpose for which they are being used.

Most jurisdiction for aircraft regulation is FAA at the federal level, excepting some aspects of state and local governmental aircraft. This includes authority regarding: regulation of the navigable airspace; operation of aircraft; setting airworthiness standards; and, establishing pilot licensing or certification requirements. Commercial use of drones is regulated federally and is currently prohibited by FAA, with a few exceptions. Draft federal regulations for use of small drones (i.e., under 55 pounds) for commercial purposes are expected to be made public sometime in 2015.

Program review staff relied on data from the National Conference of State Legislators for review of legislative efforts in other states. Drone laws that were adopted or considered by other states were summarized through a combination of primary examination and review of stakeholder and academic criticisms of the laws. Stakeholders representing a variety of interests, including drone users, law enforcement agencies, legal experts, and privacy advocates were interviewed as part of a study process. A panel discussion regarding law enforcement interaction with drones was held on October 8, 2014.

### Main Staff Findings

**Connecticut stakeholder concerns about drone use are primarily those of privacy and safety.** Some Connecticut stakeholders expressed interest in commercial use of drones, and are concerned that lack of timely FAA regulations limited the potential positive economic impact of drones.

**State or local attempts at regulating non-governmental flight or aircraft directly are preempted by federal authority.** However, states have authority over aircraft owned or used by state and local governments. That authority includes placing limits on drone use for governmental purposes and/or by government employees in the course of their job responsibilities.

**Within the last two years, 20 states have passed legislation directly dealing with drones,** while almost all states have considered some legislative action. Because of the recency of state regulatory efforts, no determination of the efficacy of the regulations was possible at this time.

**Most types of criminal drone use can be addressed through existing state law,** but some statutory clarification may be helpful. The same is true for civil actions.

As is existing practice for manned craft, **state and local governmental safety protocols for drones should be at least as stringent as FAA requirements for non-governmental aircraft.**

### PRI Recommendations

**State statutes should be reviewed and revised to reflect the existence and capabilities of drones.** Statutes regarding aeronautics, in particular, should be revised to address possible federal preemption issues.

**Remote operation of weapons, including via drones, shall be prohibited.** This prohibition should be applied to both governmental and non-governmental drone users.

**Law enforcement use of drones for targeted surveillance shall be limited in duration unless there is probable cause and a warrant.** This limitation is intended to reduce possible violation of an individual's fourth amendment rights, while allowing law enforcement access to possible beneficial uses of drones. **The legislature should adopt a drone-based data retention policy for all state and local law enforcement agencies.**

**All state and local governmentally-owned drones shall register with the Office of Policy and Management (OPM).** Registration data on governmentally-owned drones should be publicly published on a regular basis. **Governmental drone use shall be recorded, summarized, and publicly reported in an aggregate format annually.**

## Acronyms

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COA	Certificate of waiver or authorization
FAA	Federal Aviation Authority
NCSL	National Conference of State Legislatures
NTSB	National Transportation Safety Board
UAS	Unmanned aerial system
UAV	Unmanned aerial vehicle

## Drone Use Regulation

In June 2014, the Legislative Program Review and Investigation Committee approved a study of drone use regulation with a focus on examining how drones are regulated under current law and how they might be regulated by the state. This report builds on the study update presented to the committee on October 1, 2014. That update included information on the wide range of drone sizes, uses, and definitions, as well as clarifying the current status of federal regulatory efforts and how those efforts may inform state policymaking. The main points of the interim study update were:

- Drones are any unmanned, powered aircraft that sustains flight through remote operation, autonomous control, or some combination of the two.
- The 2012 Federal Aviation Authority (FAA) Modernization Act:
  - defined unmanned aircraft (i.e., drones) for the first time in federal statute;
  - distinguished between three different types of drones – civil, public (i.e., government), and model aircraft; and
  - required the development of a number of plans and regulations to “safely accelerate the integration of civil unmanned aircraft systems in the national airspace system.”
- The regulations to implement the Modernization Act are still in progress and have not yet been made public;
- The Modernization Act defines drone types by their physical characteristics and capabilities as well as by the purpose for which they are being used.
- Most jurisdiction for aircraft regulation is under FAA, excepting some aspects of state and local governmental aircraft. This includes authority regarding:
  - regulation of the navigable airspace;
  - operation of aircraft;
  - setting airworthiness standards; and,
  - establishing pilot licensing or certification requirements.
- State or local attempts at regulating flight or aircraft directly are preempted by federal authority over national airspace.
- States have authority over aircraft owned or used by state and local governments, including the ability to place limits on drone use for governmental purposes and/or by government employees in the course of their job responsibilities.

Another main theme presented in the study update was that primary stakeholder concerns about drones revolve around the issues of privacy, safety, economic activity, and the proper balance between all areas of concern. To further develop these points, program review staff

interviewed several different stakeholders and stakeholder groups within the state, reviewed legislation adopted in other states, examined a sample of proposed recommendations in other states, and examined some of the testimony and media reports about legislative proposals from outside of Connecticut. On October 8, 2014, the program review committee also held a drone demonstration at the Capitol, followed by a panel discussion of drone use stakeholders and an informational public hearing.

**Recent federal activity.** Since the October study update, there has been relatively little federal activity regarding drones, except for two notable actions: 1) a set of six filmmaking companies were given FAA approval to use drones commercially in limited, controlled situations; and 2) the National Transportation Safety Board (NTSB) overturned an earlier March 2014 administrative decision<sup>1</sup>, which held “model aircraft” were not included in the federal definition of aircraft and thus not regulated by FAA, as a matter of statutory interpretation. NTSB came to a different statutory interpretation conclusion based on a plain language reading of the aircraft definition, and found that “model aircraft” are “aircraft” for the purposes of FAA regulation of “reckless or careless” operation. (Neither event has major implications regarding states’ authority over drones, which is the main focus of this report.)

**Potential commercial uses.** Almost all commercial drone use is currently prohibited. But once allowed, drones have the potential to be used for commercial activity in many ways. There have been some high profile examples of attempts to use drones for delivery of goods, but the current most practical use of drones is in capturing images or sound. For examples, drones can help a photographer create pictures or videos from vantage points not normally accessible. Drones may also be helpful in developing house profiles for real estate transactions. There are also numerous ways in which drones may be used to help survey agricultural areas.

**Governmental drone use waivers.** The number of governmental users is strictly limited, though much higher than the number of allowed commercial uses. Governmental uses are currently only allowed under the terms of a certificate of waiver or authority (COA) issued by FAA to a governmental sponsor for a particular use. The COAs themselves are generally issued for a limited duration. In a January 2014 fact sheet on FAA drone regulation, FAA indicated there were 545 active COAs as of December 4, 2013. The total number of COAs issued by year is shown in Table 1. Program review staff obtained information from FAA showing that at least eight COAs were approved for Connecticut higher education institutions for research purposes, all of which were sponsored by either Central Connecticut State University or the University of Connecticut.

Year	# of COAs
2009	146
2010	298
2011	313
2012	257
2013	373*
*as of October 31, 2013	
Source: FAA	

**Report organization.** This report contains four chapters. The first chapter provides an examination of how drones might be addressed under current law. Chapter Two describes legislative efforts regarding drones in other states. The third chapter describes and proposes certain legislative actions regarding non-governmental drone use, while the final chapter does the same regarding governmental drone use.

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<sup>1</sup> FAA v. Pirker

# Chapter One

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## Drones Under Current Connecticut Law

The term “drone” is not mentioned in Connecticut state statutes.<sup>2</sup> Still, some state laws may already apply to certain aspects of drones and drone use. This chapter looks at the current legal status for different drone uses and users under existing laws, criminal or otherwise. Also, the chapter examines how drones may be used by law enforcement agencies given existing statutes and case law.

### Aircraft Statutory Definitions

Chapter 266 of the Connecticut General Statutes sets out a number of provisions regarding aeronautics in the state, and the Department of Transportation (DOT) commissioner’s responsibilities to enforce them.<sup>3</sup> These provisions include a definition of “aircraft”, along with definitions of related terms. According to statute, aircraft:

*means any contrivance used or designed for navigation of or flight in air, including (A) airplanes, meaning power-driven fixed-wing aircraft, heavier than air, supported by the dynamic reaction of the air against their wings, (B) gliders, meaning heavier than air aircraft, the free flight of which does not depend principally upon a power-generating unit, and (C) rotorcraft, meaning power-driven aircraft, heavier than air, supported during flight by one or more rotors. (C.G.S. Sec. 15-34(2))*

This definition reads as inclusive of all aircraft, as it does not specify whether aircraft are manned or unmanned. The word “aircraft” is then referenced in several other definitions, such as of “operation of aircraft.”<sup>4</sup> The current statutory definition of “operation of aircraft” does not exclude drones, as there is still an operator for drones – even when drones are automated, the person programming the automation is considered the operator.

Because drones fall under the state’s broad definition of aircraft, the regulations and restrictions already in place for aircraft would also apply to drones. In some instances, this makes the current status of certain aspects of drone regulation under state law fairly clear, but in other cases this may create restrictions not intended for unmanned aircraft. For instance, under current law any “aircraft accident” that causes substantial damage to the aircraft must be reported to the DOT commissioner or to the state police.<sup>5</sup> Since drones are covered by the blanket term “aircraft,” it would seem drone accidents, which can end with considerable damage to the drones

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<sup>2</sup> Nor are other commonly used synonymous terms (e.g., unmanned aircraft, unmanned aerial systems (UAS)).

<sup>3</sup> As a larger matter not completely within the scope of this study, it is possible that much of the current state law pertaining to aircraft is preempted by federal law. This issue is addressed in Chapter Three.

<sup>4</sup> C.G.S. Sec. 15-24 (20) ‘Operation of aircraft’ means the use of aircraft for the purpose of air navigation and includes the navigation or piloting of aircraft. Any person who causes or authorizes the operation of aircraft, whether with or without the right of legal control thereof, shall be deemed to be engaged in the operation of aircraft within the meaning of the statutes of this state.’

<sup>5</sup> C.G.S. Sec. 15-71a

themselves, should be reported. However, for the purposes of the reporting requirement, an “aircraft accident” is statutorily defined as:

*“an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, in which any person suffers death or serious injury as a result of such person being in or upon the aircraft or in direct contact with the aircraft or anything attached thereto or as a result of the operation of the aircraft, or the aircraft receives substantial damage[.]”(C.G.S. 15-71b(a).)*

This definition of “aircraft accident”, which refers to persons boarding the aircraft, means that unmanned aircraft are exempt from the accident reporting requirements. Similarly, the statutes regarding aircraft registrations and aircraft use of airports or helipads both have instances where drones might be included and others where drones are excluded. As such, *program review staff finds that current state aeronautic statutes are not clear about state requirements for drone use, as the statutes that are most applicable were largely crafted regarding manned aircraft exclusively and without possible use of drones in mind.*

### **Criminal Use of Drones**

Criminal law intersects with drone use in two main ways – instances where the use of the drone itself may be considered criminal and other cases where a non-flight based criminal act is committed through the aid of a drone. The former should generally be dealt with federally, while the latter may be addressed at different levels of government. That is, there are laws of general application that are relevant beyond only drones or aircraft. For example, there are several different felonies (e.g., assault, murder, robbery, burglary) with statutory description that is inclusive of the possession or use of a “dangerous instrument”.<sup>6</sup> Certain uses of drones fit this description by virtue of being aircraft, regardless of any other equipment the drone might be carrying. But these laws apply beyond just aircraft or drones, as there are many other examples of non-aircraft “dangerous instruments.”

The use of a weapon, deadly weapon, or dangerous instrument in the course of many crimes is already illegal - using a drone to enable the use of the deadly weapon is generally not any different than using it directly without a drone’s involvement. Likewise, stalking is when a person “directly, indirectly or through a third party, by any action method, device or means, (1) follows, lies in wait for, monitors, observes, surveils, threatens, harasses...” a person – use of a drone to stalk is covered within that definition as either “indirectly” stalking or “by action method, device, or means.”<sup>7</sup>

**Weapon possession.** Possession and use of certain weapons is already illegal, so use of such weapons via a drone is also illegal. There are also statutory items that clarify what

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<sup>6</sup>C.G.S. Sec. 53a-3 (7) "Dangerous instrument" means any instrument, article or substance which, under the circumstances in which it is used or attempted or threatened to be used, is capable of causing death or serious physical injury, and includes a "vehicle" as that term is defined in this section and includes a dog that has been commanded to attack, except a dog owned by a law enforcement agency of the state or any political subdivision thereof or of the federal government when such dog is in the performance of its duties under the direct supervision, care and control of an assigned law enforcement officer.

<sup>7</sup> C.G.S. Sec. 53a-181d

constitutes breaking a particular law or as evidence for the same. For example, the “presence of a machine gun in any room, boat or vehicle shall be presumptive evidence of the possession or use of the machine gun by each person occupying such room, boat or vehicle.”<sup>8</sup> Drones that can carry weapons appear to fit the statutory definition of “vehicle,”<sup>9</sup> but since this particular law is based on the vehicle being occupied, it remains unclear whether the presence of an illegal weapon on a drone implicates the owner of the drone for possession.

**Remote use of firearms.** Current statute prohibits the use of remote devices to operate firearms.<sup>10</sup> This implicitly includes drones within the definition of remote devices, but this statute is limited to forbidding remote hunting via computer software and does not address any remote use of firearms outside of hunting activities.

**Trespass.** One area of criminal law with very limited applicability to drones is trespassing. All degrees of trespass are described as “a person” entering a building or an area without permission or consent. As a drone is not “a person,” it is difficult to see how current law might apply here. Likewise, trespass requires either being in a building or on the premises of a location. Even if trespass could be committed by a proxy for a person, criminal trespass with a drone would most likely be done by flying in the air above a property, rather than clearly inside a building.

Current law, state or federal, does not make clear the elevation at which private property becomes public airspace. The *United States v. Causby* (1946) decision said that flying aircraft at 83 feet from the ground was so low as to have a material negative impact on the property owner, but did not make clear that this elevation was an actual demarcation of where private property ended. Without a definition of the upper elevation limits of private property, it would be difficult to argue that a drone had entered that property criminally by flying over it.

## Civil Action

A civil action is the procedure by which a person, against whom a civil wrong has been committed by another, seeks by a lawsuit to stop the wrong or be compensated for it. Civil wrongs are distinguished from criminal laws, and can be either enacted as statutes or developed in case law. In the case of drones, it can easily be imagined that a drone could fly into property not owned by the drone operator, which could, for example, lead to a civil action for trespass (as opposed to criminal) if these elements were established:

- (1) ownership or possessory interest in land by the plaintiff;
- (2) invasion, intrusion or entry by the defendant affecting the plaintiff's exclusive possessory interest;
- (3) done intentionally; and
- (4) causing direct injury.

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<sup>8</sup> C.G.S. Sec. 53-202(e).

<sup>9</sup> C.G.S. Sec. 14-1 (100) "Vehicle" includes any device suitable for the conveyance, drawing or other transportation of persons or property, whether operated on wheels, runners, a cushion of air or by any other means. The term does not include devices propelled or drawn by human power or devices used exclusively on tracks.

<sup>10</sup> C.G.S. Sec. 26-80b.

On the issue of whether a civil action based on state law for a drone flying over someone's backyard would be allowed, or preempted by federal authority, the common legal reference Restatement of Torts<sup>11</sup> states in a section on "Intrusions Upon, Beneath, and Above Surface of Earth" that "a trespass may be committed on, beneath, or above the surface of the earth. Flight by aircraft in the air space above the land of another is a trespass if, but only if:

- (a) it enters into the immediate reaches of the air space next to the land, and
- (b) it interferes substantially with the other's use and enjoyment of his land."

As noted elsewhere, there is no clear formula for determining the elevation that would be considered the "immediate reaches of the air space next to the land", but appears to be a case by case determination.

### **Law Enforcement Search Warrant Requirements**

In the course of criminal investigations, law enforcement agencies have several tools to access privately held areas or information. One main tool is the search warrant, required in many law enforcement activities because both the federal and state constitutions protect the rights of citizens against "unreasonable searches and seizures."

The Fourth Amendment to the United States Constitution reads: "[t]he 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." A key concept underlying the meaning of *unreasonable search* is whether the person affected has a "constitutionally protected expectation of privacy", determined by whether: 1) the person showed a subjective expectation of privacy and 2) society is willing to recognize that expectation as reasonable.<sup>12</sup>

There are numerous situations where search warrants may be necessary, most notably for searches of homes, cars, or other private property or in searches of persons themselves. A search warrant must be authorized upon application to a judge and a showing by law enforcement officials to the judge's satisfaction there is "probable cause" that an item of interest in a criminal investigation is being held at a specific location or by a particular individual (i.e., more likely than not). In effect, the independent judicial review and consent that is necessary for a warrant to be issued for a search helps protect a person from an unreasonable search.

There are exceptions to the need for a search warrant. For example, a search of a person's house (or other private property) is deemed reasonable if the owner of the property consents to the search, or if there is a reasonable belief a crime is being committed or there is an imminent threat to life or safety (i.e., exigent circumstances).<sup>13</sup> A search is also deemed reasonable if it

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<sup>11</sup> Restatement (Second) of Torts § 159 (1965)

<sup>12</sup> Katz v. United States 389 U.S. 347 (1967)

<sup>13</sup> Per *People v. Ramey*, "'exigent circumstances' means an emergency situation requiring 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."

consists of items in plain view of the non-aided human eye from an appropriate vantage point, which may also involve an expectation of privacy analysis.

Use of drones raises questions in regard to search warrants because drones are potentially capable of providing viewpoints outside of those normally available to law enforcement officials, and because they are capable of carrying and operating imaging equipment at those alternative viewpoints. Both advantages have already been addressed to some degree by the judicial system, but neither has been considered specifically in the context of current (or future) capabilities of drones. In particular, numerous rulings have been made on the necessity of a warrant for searches conducted using aerial surveillance and with so-called sense-enhancing devices.

**Reasonable expectation of privacy and aerial surveillance.** Aerial searches have been ruled legal so long as the information collected was visible to the unaided human eye from a public vantage point. As the national airspace is a “public highway,” views from that vantage point are allowed to the public and law enforcement agents alike (via manned aircraft). Since the public has a right to that aerial view, it does not bring with it an expectation of privacy. The result here is that items on private property that can be seen from above are potentially admissible evidence even when collected without a warrant. This is true even in situations when active precautions have been taken to prevent ground-level viewing (e.g., installing a tall fence or thick vegetation). This aspect of warrant law is commonly called the open-fields doctrine.

However, the cases that have permitted aerial surveillance by law enforcement without a warrant have not had to consider some of the advantages of small, light, unmanned aircraft – namely, that drones are able to operate safely at a much lower elevation than most manned aircraft. Some of the rulings have included specific heights at which aircraft flew as limiting the expectation of privacy.<sup>14</sup> But the static elevations mentioned in those cases have been cited because they were within FAA proper use guidelines. If FAA guidelines change, it may be that the acceptable elevations change along with them.

It is not clear whether or how the courts may view the ability of drones to operate safely and within FAA guidelines at lower elevations and how that might impact on searches. If aerial surveillance is allowable from any height the FAA deems safe, then lower-elevation drone surveillance may be used in place of manned-helicopter surveillance. This could potentially lead to more effective, but also more invasive, aerial searches, if the decrease in elevation translates to more detailed imaging.

Another consideration is that current manned aerial surveillance efforts are typically limited to primarily overhead views due to the combination of topography and minimum safe flying elevations, but a relatively small drone would potentially be able to fly (or hover) at an elevation parallel to windows above the ground floor. This may lead to law enforcement officials being able to capture images from viewpoints they cannot currently easily get to. However, it is not clear that capturing images from this vantage point would require a warrant now. It is possible that evidence collected from that viewpoint would be admissible without a warrant in

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<sup>14</sup> California v. Ciraolo (1986) specified that unwarranted aerial surveillance from an altitude of 1,000 feet is reasonable. Florida v. Riley (1989) similarly allowed unwarranted aerial surveillance, but from the lower altitude of 400 feet.

certain situations (e.g., for looking over fences or shrubs into the backyard) but not for others, depending largely on whether that viewpoint was deemed publicly accessible or not.

**Reasonable expectation of privacy and sense-enhancing devices.** Beyond “human eye” aerial surveillance, the use of technology to aid or alter what and how much can be seen from an allowable vantage point has generally not been ruled as admissible evidence. In *Kyllo v. United States* (2001), the U.S. Supreme Court ruled 5-4 that heat-sensing imaging that allowed law enforcement to effectively see certain aspects of the inside of a private home amounted to a violation of an individual’s expectation of privacy and thus was deemed an unreasonable search that is not allowable without a warrant. The other notable feature of this ruling was that the expectation of privacy had been violated not only because the technology was looking into the house through the very features the individual relied on to provide privacy (e.g., walls, roofs, or curtains), but also because the technology employed to perform the search (infrared imaging sensors) was not publicly available and/or commonly used among the public.

**Implications of current warrant law on drone use.** Both aspects of the *Kyllo* decision have potential ramifications for use of drones. Most plainly, drones can potentially be equipped with infrared technology (or other types of sensors that reveal something about the content of a home) and doing so would be an unreasonable search given current case law precedent. However, as one factor of the ruling deals with the public use of technology, it may be that eventually infrared technology (or other sensors that can give someone an image of what happens within a building) becomes so publicly pervasive that using it to look inside a house is no longer determined to be a violation of the expectation of privacy.

This factor could impact drone use; while drones may not be commonly flown just yet, their increased functions and affordability may lead to such common use that the judicial view of the expectation of privacy may conform to acknowledging the presence of drones. In particular, this is a possibility with decreasing the expectation of privacy in areas that are current not viewable from non-aerial public viewpoints (e.g., upper story windows not near other buildings) or areas that may be shielded from overhead aerial views by overhangs. This change in the interpretation of what is a reasonable expectation of privacy is not assured to happen and may be avoided without any state action, but it does remain a possibility that should be considered as drone use increases and drone laws are developed.

### Other State Laws Summary

Within the last two years, 20 states have passed legislation directly dealing with drones.<sup>15</sup> Almost all states have considered some legislative action regarding drones.<sup>16</sup> Program review staff examined these laws in other states in order to determine what aspects of drone use have been regulated under state law elsewhere, examine the concerns about drone use and drone regulation raised and addressed in other states, and decide whether the regulatory efforts put in place in other states would be appropriate to adopt in Connecticut.

Besides looking at the laws themselves, program review staff considered the testimony and media accounts associated with the legislative actions in other states. The concerns expressed elsewhere mirrored the main concerns brought up by stakeholders in Connecticut – privacy, safety, and economics were the most frequently cited issues. Most of the legislative proposals adopted dealt with trying to find the proper balance between safety and privacy. Since the concerns elsewhere were largely the same as in Connecticut, it follows that Connecticut’s efforts at drone regulation may benefit from identifying the basic goals of laws written and adopted elsewhere.

Ultimately, all of the laws were passed so recently that no determination of effectiveness was possible at this time. Faced with extremely limited objective data, no single state method was determined to be appropriate for direct emulation in Connecticut. However, the recommendations made in Chapters Three and Four of this report are informed by pieces of legislation passed or raised elsewhere, as well as by academic and stakeholder reaction to the same.

### State Regulatory Drone Laws

In total, 20 states have adopted drone-related laws other than resolutions. However, no conclusions can be drawn directly from the number of states that have passed laws, as the issue is recent enough that nearly all legislative action has been adopted within the previous two calendar years. It is probable that more states will pass legislation in the next few years, although some states may intend to wait for more information on federal regulation before addressing the issue at the state level.

Of the 19 states that have adopted legislation, 14 states have passed laws attempting to regulate drone use in some way. Of those 14, all but one has limited law enforcement use in some manner. The other five states that have passed drone laws have done so to fund drone test sites, drone research, or both. This section focuses on those state laws that regulate drone use. Table II-1 summarizes all current state regulatory drone legislation.

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<sup>15</sup> This number does not include states passing just resolutions about drones.

<sup>16</sup> 46 states have considered at least one drone-related bill according to data from the National Conference of State Legislators (NCSL)

<b>State</b>	<b>Bill Number</b>	<b>Chapter</b>	<b>Year</b>	<b>Moratorium</b>	<b>Criminal Penalty</b>	<b>Civil Remedy</b>	<b>Law Enforcement Restriction</b>
Alaska	HB 255	Chapter 105	2014				Yes
Florida	SB 92	Chapter 2013-33	2013				Yes
Idaho	SB 1134	Chapter 328	2013			Yes	Yes
Illinois	SB 1587/1652*	Chapter(s) 569/402	2013		Yes	Yes	Yes
Indiana	HB 1009	Chapter 170	2014		Yes		Yes
Iowa	HF 2289	Chapter 1111	2013		pending report		Yes
Louisiana	HB 1029	Chapter 661	2014		Yes		
Montana	SB 196	Chapter 377	2013				Yes
North Carolina	SB 402/744	Chapter(s) 2013-360/2014-100	2013/2014	Yes	Yes	Yes	Yes
Oregon	HB 2710	Chapter 686	2013		Yes	Yes	Yes
Tennessee	SB 796/1777/1892	Chapter 470/ 629 /876	2013		Yes		Yes
Texas	HB 912	Chapter 1390	2013		Yes		Yes
Utah	SB 167	Chapter 399	2014				Yes
Virginia	HB 2012/ SB 1331	Chapter 755/796	2013	Yes			
Wisconsin	SB 196	Chapter 213	2013		Yes		Yes

Illinois also passed SB 2937, which amended existing drone law to account for use of third party drone-based data.  
Source: NCSL data and PRI analysis

**Moratoriums on governmental use of drones.** To date, only two states, North Carolina and Virginia, have enacted moratoriums on some aspect of governmental drone use, though exceptions to the moratorium are allowed in each state. Virginia’s moratorium applies only to agencies “having jurisdiction over criminal law enforcement or regulatory violations” but allows for drones to be used by those agencies in response to certain emergencies, including search and rescue operation. Virginia’s moratorium, established in 2013, is scheduled to expire in mid-2015.

North Carolina passed a wider-ranging moratorium on all governmental drone use, but allows uses that are approved by the state’s Chief Information Officer on a case by case basis. North Carolina’s moratorium was scheduled to expire in summer of 2015, but was extended through the end of 2015 as part of a larger legislative effort in 2014 that restricted both governmental and non-governmental uses of drones.

## Law Enforcement Drone-Use Restrictions

Thirteen states have passed non-lapsing restrictions on law-enforcement use of drones.<sup>17</sup> All 13 have used a regulatory framework that included blanket prohibitions on law enforcement or governmental use of drones, but all include exceptions that then allow drone use in cases when the drone is operated under the conditions of a warrant or to address an emergency. Emergency use is specified to include search and rescue activities and instances where there is reasonable belief that there is an imminent threat to life or safety, but can also include situations that allow for surveying natural disasters or pursuing a suspect while a crime is in progress. Five states have also specified that drones can be used to address specific terrorist threats, though this iterated allowance is duplicative of the more general emergency allowances. Beyond these core exceptions, there is a lot of variation.

**Allowing use when a warrant is not required.** Five states (Alaska, Iowa, Montana, Utah, and Wisconsin) have exceptions that allow for law-enforcement drone use either with a warrant or in situations where a warrant would not normally be required. Without other restrictions, this type of drone regulation is simply codifying that drones can only be used within existing law and judicial precedent.

**Crime scene documentation.** Three states (Illinois, Texas, and Oregon) specifically allow drones to be used as a method of crime scene documentation. Including the four states that generally allow use outside of warrants brings the total that allow this type of activity to seven of the 12 states with law enforcement restrictions. Program review staff found no evidence of objection to use of drones for crime scene documentation in any of the states examined. Because of this, it is more likely that states overlooked this potentially beneficial, non-objectionable use when crafting legislation than that these states meant to specifically restrict this type of use.

**Data restrictions.** Drone use regulations in six states have included sections that clarify data storage and admissibility rules. The laws in Florida and Iowa state that the information collected with a drone is inadmissible unless obtained under the terms of a warrant. Montana and Alaska places a similar restriction, but allows for the admissibility of all data obtained under the broader terms of its drone law. Since both of these states are generally permissive of use outside of a warrant, this means almost all drone-collected data is admissible.

Utah is generally permissive of law-enforcement drone use and addresses data-retention, but does so in such a permissive way that the restrictions seem, to program review staff, ineffective or unnecessary. The Utah law also specifies that data collected with a drone, but not by law enforcement agents, is allowable and should be considered admissible by the courts. Illinois has a data-retention policy that requires drone-based data to be destroyed within 30 days of collection unless there is a reasonable suspicion that data includes information regarding criminal activity.

**Reporting requirements.** Though not a direct restriction on drone use, reporting requirements can help inform policymakers and the public as to the types and frequency of drone uses by governmental entities. Four states (Illinois, Oregon, Texas, and Utah) require that drone

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<sup>17</sup> The 13 includes North Carolina, as that state has passed laws that extend beyond the moratorium, but excludes Virginia, which so far has only passed the moratorium .

ownership or use be reported on a regular basis. Illinois requires annual reporting on the number of drones owned by any governmental entity. Additionally, Illinois is one of two states (Oregon is the other) that requires emergency use of drones (i.e., drone use outside of warrants and/or criminal investigations) to be reported within 24 to 48 hours of the emergency use. Oregon and Utah require annual reporting of actual drone use, though Utah allows use related to ongoing investigations to be temporarily omitted and reported the following year. Texas requires law enforcement agencies to report drone use in odd-numbered years if the jurisdiction of the agency (local, county, or state) exceeds a population of 150,000 people.

To date, only Illinois has reached a reporting milestone. The first annual report on the number of drones owned shows that three drones are owned by governmental agencies in that state. (The Illinois report can be found in Appendix A.)

**Other notable law-enforcement restrictions.** While many features of current state drone law are common to multiple states, there are several interesting portions, clauses, or features that are only currently found in a single state's law. Wisconsin law includes a definition of drones that sometimes limits their classification as drones to those instances where the drones are recording images or sounds.

Indiana specified that drones are defined as tracking devices. Given that use of tracking devices, especially in instances of ongoing surveillance, was recently restricted by the Supreme Court in the decision of *United States v. Jones* (2012), the Indiana law does meaningfully restrict law enforcement drone use for surveillance activities. Indiana also specifically allows drones to be used for the purposes of geographical survey, outside of criminal investigations.

Idaho drone law is relatively restrictive. Drone use by law enforcement is limited to cases where the use is done under the terms of a warrant or in the case of an emergency, except the use of drones for "marijuana eradication efforts" is also specifically allowed. Current aerial surveillance is often focused on finding where controlled substances are grown, so this allowance is fairly large. Still, limiting unwarranted drone surveillance to just operations involving marijuana seems to unnecessarily leave out operations where other controlled substances may be present.

### **Criminalization of Drone Use**

Some states have passed laws criminalizing some aspect of drone use. As of this writing, nine states have described drone uses that are specifically prohibited and one more, Iowa, passed a law looking into the need for criminal sanctions for certain types of use. Of the nine states that have adopted drone-specific criminal sanctions, eight have also passed law enforcement drone restrictions of some kind. The ninth state, Louisiana, prohibits pointing lasers at a drone or using a drone for targeted surveillance of select types of facilities (i.e., petroleum and alumina refineries, chemical and rubber manufacturing facilities, and nuclear power electric generation facilities) without consent, but has not passed legislation specific to governmental or law-enforcement use.

Four states (Indiana, North Carolina, Tennessee, and Texas) have prohibited some aspects of drone-based photography or videography, though each state's law provides exceptions

for images of videos taken with the consent of the person or property owner involved. North Carolina has made an exception to its photography ban for journalists. In some cases, the photography is permitted when the persons or property being photographed is not identifiable. Additionally, some state laws specify that publishing the pictures (i.e., either posting them publicly on the internet or selling them privately) is a greater crime than possessing the pictures. In these instances, criminal charges may be avoided if the pictures are destroyed without publishing upon discovery that a person or private property was identifiable within the images.

Wisconsin has banned the weaponization of drones (i.e., equipping any drone with a weapon that can be deployed or operated remotely). Illinois passed a law that prohibits hunter interference with a drone, which also includes some potential civil penalties for the same.

Oregon, among others, has passed a drone-related criminal law that serves to protect drones, rather than protect people from drones. In particular, shooting at drones or interfering with their operation without consent, either by taking over the drone by hacking the remote connection or by pointing lasers at a drone, which might cause sensor malfunction, are both illegal.<sup>18</sup>

### **Civil Remedies for Unwanted Drone Use**

Beyond prohibiting certain governmental uses of drones and specifying criminal sanctions for other types of drone use, four states have provided civil remedies to address some unwanted aspect of drone use. As mentioned previously, Illinois adopted both criminal and civil consequences for drone use that interferes with legal hunting or fishing practices.

Oregon provides a civil course of action for drone operators to pursue if their legal drone use is interfered with, which mirrors the criminal sanctions that state put in place. Oregon also specifies that civil suit can be brought for the unwanted use of drones at less than 400 feet above a person's private property, if the property owner has warned the drone operator that the use is an unwelcome behavior at least once prior to the incident that sparks the civil suit.

Idaho also created a civil remedy that allows a person to bring suit against a drone operator if the drone operator is engaging in unwanted surveillance or otherwise photographing an individual in a private area without that person's consent. North Carolina has a similar law that allows civil suit to be brought against persons for unwanted surveillance, stating that the victims of unwanted surveillance may receive a sum of money for each unwanted image taken.

### **Drone Laws Under Consideration**

Besides those states that have passed regulatory drone laws, program review staff, with the assistance of the Office of Legislative Research and the Legislative Commissioner's Office, examined information on bills that were considered in other states. In total, drone-related laws that were passed or proposed in 34 states were analyzed.

The aim of this analysis was to determine if a wider range of possible regulations had been considered beyond just those legislative efforts that had been successfully adopted. Staff

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<sup>18</sup> Louisiana's drone law similarly prohibits use of a laser to interfere with a drone.

also examined whether the issues and possible legislative fixes considered but not adopted had differed in any substantial way from the regulatory efforts that were adopted. The results indicate that the same concern areas, privacy and safety, were present in reviewed states, regardless of whether legislation had been passed. Likewise, almost all states reviewed for this study have considered or passed legislation that restricts law-enforcement use of drones in some manner, and over half of all states reviewed considered or adopted legislation that criminalizes some aspect of drone use.

Table II-2 provides a summary of the legislation considered in 19 states that have not adopted regulatory legislation, which includes looking at what else the five states that passed non-regulatory test site or research funding considered. This sample represents just over half of the 34 states (excluding Connecticut) that have not adopted drone regulation legislation.

<b>Table II-2. Types of legislation <i>considered</i> in states without regulatory drone legislation.</b>			
<b>State</b>	<b>Non-regulatory bill adopted</b>	<b>Types of legislation introduced or considered</b>	
		<b>Law enforcement limitation</b>	<b>Criminalization of non-law enforcement use</b>
Alabama	No	Yes	Yes
Arizona	No	Yes	No
Arkansas	No	Yes	Yes
California	No	Yes	Yes
Delaware	No	No	No
Hawaii	Yes	Yes	Yes
Kansas	No	Yes	No
Maryland	Yes	Yes	Yes
Minnesota	No	Yes	Yes
Missouri	No	Yes	No
Nebraska	No	Yes	No
Nevada	Yes	No	No
New Hampshire	No	Yes	Yes
New Jersey	No	Yes	Yes
New Mexico	No	Yes	No
New York	No	Yes	Yes
North Dakota	Yes	Yes	No
Ohio	Yes	Yes	No
Washington	No	Yes	Yes
Number and Percent of Sample	5 of 19 (26%)	17 of 19 (89%)	10 of 19 (53%)

Source: NCSL data and PRI, OLR, and LCO analysis

### State Options to Regulate Non-governmental Drone Use

Some drone use outside of government agency use may be regulated by the state, though certain efforts may run into federal preemption issues. This chapter examines some non-government agency drone uses and identifies areas where state action may be necessary, including some regulatory paths that might impact both governmental and non-governmental uses. In particular, this chapter provides information in several areas: review of existing statutes, drone registration, criminal use of drones, civil remedies for commercial drone use, and the economic impact of drones.

#### Statute Review

As discussed in Chapter One, current state statutes were crafted without the capabilities, and availability, of drones in mind. Because they do not need to be able to carry the weight of a pilot, drones are available at much smaller sizes and weights than manned aircraft. It is this smaller size that allows them greater maneuverability and safer operation at lower elevations. However, some drones are as big or as heavy as existing manned aircraft. As it is the smaller craft that are expected to be most prominently used going forward, and that the new features and capabilities of those craft that are most likely to exist outside the expectations of current statute for all aircraft, **the program review committee recommends:**

- 1. The statutory definition of “aircraft” in C.G.S. Sec. 15-34 (5) shall be amended to indicate that the term includes both manned aircraft and unmanned aircraft. Definitions of both manned and unmanned aircraft shall be adopted within statute, to allow proper differentiation when the term “aircraft” is found to be overly broad. Also, a subset of unmanned aircraft shall be defined as “small unmanned aircraft” when such unmanned aircraft weigh less than 55 pounds.**

Creating these new categories under the umbrella term “aircraft” should assist lawmakers to modernize existing statutes to explicitly consider unmanned aircraft and small unmanned aircraft. The demarcation of small unmanned aircraft is intended to follow the federal definition of this class of unmanned aircraft. While the federal regulations for small drones have not yet been made public, it is likely that these small craft will be regulated in a substantially different manner than heavier drones.

There has been suggestion by some drone users interviewed by committee staff that the 55 pound weight limit maximum used at the federal level is too heavy to maintain safety adequately. The legislature may eventually need to identify another subset of small drones that is significantly lighter or smaller. However, until there are more drones on the market in the 20 to 55 pound weight range or until federal small unmanned aircraft regulations are adopted, it would be easiest to use the federal 55 pound weight limit to define small unmanned aircraft in Connecticut.

Though current statutes do not directly refer to drones, there are instances where drone use seems to be covered under existing state statute, especially for statutes pertaining to aircraft more generally. Chapter 266 on Aeronautics dates back to at least the 1949 statute revisions, and it is possible that much of it is preempted by federal FAA law. Other statutes have been made obsolete through a combination of changes in aviation technology and reorganization of state government (i.e., the Connecticut Department of Transportation no longer has an aviation unit, though current statutes still require the transportation commissioner to oversee certain aeronautic rules and regulations). As much of the aeronautic statutes are outdated, **the program review committee recommends:**

- 2. The Connecticut Law Revision Commission shall review all state aircraft- and aeronautic-related statutes. The review shall include a determination of whether the statutes continue to be useful to the state, particularly for safety, privacy, or financial reasons. The review shall also determine when and if certain statutes should pertain only to a subset of aircraft, such as manned aircraft or small unmanned aircraft. The review should prioritize repealing statutes that are preempted by federal authority.**

## **Registration of Drones**

Notwithstanding the federal preemption issues and outdated aircraft statutes, the state currently has some limited authority regarding non-governmental manned aircraft. The state should expect a similar level of authority over non-governmental unmanned aircraft, except, perhaps, for those activities, capabilities, or uses of unmanned craft that differ from their manned counterparts.

One area of continuing state authority is of registration of aircraft for the purposes of property assessment and taxation. In order to avoid federal preemption, state registration requirements should not be used to prevent the operation of the aircraft. One state, North Carolina, recently passed legislation mandating state registration of drones beyond anticipated federal registration requirements. As the federal registration requirements for drones have not yet been adopted, it is not yet known whether the North Carolina law will need to be adjusted to avoid clashes with federal authority.

There may be a financial incentive for a state to require state registration of drones, as registration fees and property taxes on drones are potentially new sources of revenue. Indeed, Connecticut has some governmental infrastructure in place to register manned aircraft at the local level. However, since drone ownership is expected to eventually be far more common than manned aircraft, it may be that current local resources dedicated to manned aircraft registration would be overwhelmed by the volume of drone registrations. Further, building more infrastructure to register and tax drones universally might result in greater costs than individual revenues. Registration requirements in addition to the anticipated federal one could stifle drone use adoption in the state and, with it, any economic benefit from expanded drone use.

Any benefits from adopting and enforcing a drone registration requirement in the state before the federal program is in place are likely to be outweighed by the costs of the registration program, which might include altering the system to align with the federal registration system or defending the legal status of the state registration program. The information gathered in the registration process at the federal level should be both the same basic information the state might seek about a registered drone and available to the state for review when necessary.

Once federal registration requirements for certain drone weight classes are made available, Connecticut should explore whether instituting a non-government agency drone registration program makes sense to achieve state safety and privacy goals, as well as whether such a program might be a long-term net positive revenue source. As part of this future examination, the state should determine whether drones in low weight classes, such as the small unmanned aircraft definition recommended above, should be exempted from registration requirements. To clarify the intent of this course of action, **the program review committee recommends:**

- 3. Unmanned aircraft shall be exempt from the aircraft registration requirements of C.G.S. Secs. 13b-39a to 13b-39d inclusive for a period of ten years.**

Adding an exemption with a limited duration should allow policymakers time to observe adoption trends, examine federal regulations as they are adopted, and give the local governmental officials, who would be required to administer such registration programs under current law, time to prepare for the added time and expenses that may be incurred as drone use increases.

### **Criminal Use of Drones and State Response**

Outside their operation, which is addressed federally, criminal use of drones can occur when those drones are used to perform activities that are illegal. That is, it is possible that a person using a drone could be committing a crime, but at the state level that crime would not be for drone use generally, but rather what is being done via the drone. The situation gets more complicated, and may require legislative action, when the statutorily-defined elements of the crime inadvertently exclude the possible use of drones.<sup>19</sup>

**Stalking and voyeurism.** One of the greatest concerns brought up in this study is the potential use of drones by private individuals to invade other individuals' privacy. There are numerous ways this general activity has been addressed statutorily, especially laws to prevent stalking and voyeurism. As described in Chapter One, using a drone to stalk seems to be addressed by current statute without modification. This is mostly true for the voyeurism statute as well. It is worth pointing out, however, that the meaning and enforcement of some statutes may eventually be directly or indirectly impacted by drone use.

Current voyeurism law includes definitional language stipulating that the offending filming or photography is made "while (the victim) is not in plain view" and "under

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<sup>19</sup> This inadvertent exclusion of drones seems to occur when the capabilities of lightweight, maneuverable unmanned aircraft were not contemplated at the time the criminal act was described statutorily.

circumstances where (the victim) has a reasonable expectation of privacy.”<sup>20</sup> While not assured to do so, increasing drone use may change the underlying interpretation of what is deemed to be “in plain view” or what a “reasonable expectation of privacy” is in some circumstances. Even if this happens, it is likely that most use of drones for unwanted surveillance that captures images inside a house or otherwise on private property may be considered criminal conduct under existing law. It may be that pending FAA drone regulations directly or indirectly address this issue.

After federal regulations are adopted, current state law or federal regulation could be examined to determine if drone-based voyeurism, along with similar laws like stalking, is addressed adequately. If current law does not adequately address these uses, policymakers should consider adopting legislation that prevents this method of capturing unwanted images or video in a way that is inclusive of all technologies. Rather than specifying that drone-based voyeurism is indeed voyeurism, drones should be held as just one example in the category of technology the use of which is not inherently voyeuristic or otherwise criminal, but nevertheless may be used as part of a criminal activity. **The program review committee recommends:**

- 4. The term “in plain view” as used in C.G.S. Sec. 53a-189a shall be defined to exclude any view obtained through the use of technology, including drones.**

**Criminal trespass.** Under current law, the presence of a drone itself is unlikely to be considered trespassing, because trespass requires a person to be on the property. It may be possible to modify the existing trespass law to state that trespass can be committed by a person or a technological proxy for a person, but that may be overly complicated and contested. Further, for trespass law to be effective outside of a building or house, it would need to be clear how far up personal property extends. That is, a drone would only be trespassing if it is *on* a property, not if it is flying above that property. As stated in Chapter One, current law, state or federal, does not provide a specific elevation end point for property rights.

The state would likely need to adopt a specific height relative to the ground below, a height above the highest structures on a piece of land, or some other demarcation for aerial trespass laws to be effective. This is somewhat problematic, as while this may be legally possible, it is not clear the state has the specific authority to establish aerial property rights in a clear and easy way. Under FAA’s current interpretation of its authority, all airspace is under that agency’s jurisdiction, including the airspace immediately above private property. If a state tried to establish a private property elevation, the state would likely be the subject of legal challenges from FAA. As there are numerous other ways to deter or prevent unwanted drone use around private property, program review staff makes no recommendation to change trespass law or establish a personal property height at this time.

**Weaponization of drones.** There is some concern that drones can be used to remotely control weapons to intentionally harm persons or property with a drone. In the course of this study, the risks and dangers of drones being used to control weapons were deemed by

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<sup>20</sup> C.G.S. Sec. 53a-189a.

stakeholders to far outweigh any potential benefits of allowing the public such a practice. Considering these aspects, **the program review committee recommends:**

**5. Remote operation, including through the use of drones, of deadly or dangerous weapons shall be prohibited.**

As mentioned in Chapter One, while current law prohibits the possession of certain weapons, the presence of such a weapon on a drone may not be presumptive evidence of possession given the statutory definitions involved. For these reasons, **the program review committee recommends:**

**6. The presence of restricted items (e.g., weapons or controlled substances) on, in, or otherwise attached to unmanned aircraft shall be presumptive evidence of the possession of said items by the unmanned aircraft operator.**

### **Civil Remedies for Dealing with Unwanted Non-governmental Drone Use**

As mentioned in Chapter One, states can also establish civil remedies to help private citizens deter or prevent unwanted drone use on or near their personal property. While current law may be inclusive of civil action regarding drones, providing clarification about the applicability of current civil remedies for incidents involving drone use may at least partially address some privacy concerns. An advantage of establishing guidelines for civil action regarding drones, rather than more specific criminal language, is that these should not unnecessarily prevent or discourage private drone uses on a person's own property or with the consent of other property owners.

Given the wording of existing law and the ambiguity associated with the lack of federal regulations, these clarifications may not be necessary at this time. However, if policymakers eventually decide to explicitly include civil drone offenses, such clarifications should be inclusive of drones as one form of technology among several to which these civil rules apply. If written correctly (i.e., avoid setting specific height requirements or forbidding uses the FAA specifically allows), this type of clarification should avoid federal preemption while providing additional avenues for remedy of potential privacy invasions.

### **Commercial Drone Use**

Use of drones by non-governmental agencies for commercial activities is regulated by the federal government through FAA authority. While there is currently a blanket prohibition on commercial drone use, except for certain special uses, that commercial ban is not expected to last indefinitely.<sup>21</sup> As of this writing, FAA has stated that the first commercial drone regulations should be made available for public comment in late 2014 or early 2015. The first required draft commercial regulations are expected to be limited to small drones with regulations on larger

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<sup>21</sup> A very limited number of commercial uses of drones have been allowed to date. In late September 2014, FAA announced that six film making companies had been approved to use drones on closed sets for commercial activity. These waivers joined two previous commercial use approvals that were limited to rural Alaskan locations.

drones coming out in stages in the years following.<sup>22</sup> It is likely that even the earliest commercial regulations will not be adopted until at least 2016.

Not knowing what the federal regulations might include, state legislation crafted now might conflict with these impending FAA regulations. Further, *numerous stakeholders and stakeholder groups in Connecticut have expressed their desire to use drones for commercial purposes* and to do so without state limitations beyond the expected FAA requirements.

Some drone-related legislation in other states (e.g., Texas and North Carolina) includes provisions that attempt to clarify what commercial uses are allowed. But commercial drone use in those states continues to be prohibited under federal law, regardless of whatever laws the state has passed. Commercial drone activity is expected to continue to be regulated federally in the future, so passing state laws allowing or prohibiting certain commercial uses may confuse users. This, in turn, could lead to FAA enforcement actions against those state resident drone users, while putting the state in a position to face legal challenges from the federal government.

Other states have passed laws restricting certain commercial uses, most commonly prohibiting the capture and distribution of certain images produced with the assistance of a drone. In some cases, these laws, like FAA rules, distinguish between commercial use and private use. Such laws seem overly difficult to enforce, as determining whether a drone is being used for recreation or commercial activity is difficult at the time of the activity and may change at time after the actual drone use (e.g., a hobbyist takes pictures with a drone and later decides to sell an image).

Within the context of state regulation of drones, any restrictions on non-governmental drone use should focus on improving the two main drone-related concern areas of safety and privacy. Based on staff interviews and literature review, there appears to be consensus between various stakeholder groups that any restrictions on non-governmental use of drones should be neutral to the type of drone user (i.e., commercial or hobbyist). Therefore, **the program review committee recommends:**

**7. No laws specific just to commercial drone activity should be adopted in the state until at least such time as relevant federal unmanned aircraft regulations are adopted and can be reviewed.**

Instead, any action restricting non-governmental drones the legislature deems necessary to protect resident privacy and safety should be content-neutral. This means that any law on drone use should address either all drone use or all non-governmental drone use, regardless of whether the use directly or indirectly leads to money changing hands. For instance, the state eventually may choose to restrict the launching, landing, or operation of drones in the direct proximity of active crime scenes to maintain integrity of the scene and alleviate the possibility of a drone crash in a sensitive area.<sup>23</sup> If a restriction like this were adopted by the state, it should apply to private citizens and journalists alike, and not just one group or the other.

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<sup>22</sup> In this context, small drones are expected to be defined federally as drones weighing less than 55 pounds.

<sup>23</sup> This example is not a specific recommendation, as issues like this one may be addressed by federal regulation and may also be complicated by current law surrounding photography of crime scenes more generally.

## Potential Economic Impact of the Drone Industry

Another issue that was brought up by stakeholders regarding drone use is the expected economic impact of the emerging industry - and whether and for whom the impact will be positive or negative. Unfortunately, there has been little work done in this area by neutral, outside observers – the limited information readily available is industry-sponsored research. Accounting for that concern, the overall economic possibilities seem impressive. In one report, the impact of drones is estimated to be over \$13 billion nationally in the first three years after drones are integrated into the national airspace.<sup>24</sup> However, since the FAA regulations necessary to integrate drones into the national airspace have not been adopted yet, any sizeable impact has yet to be felt. Similarly, the same report estimates that with each year that passes without full drone integration in the national airspace, up to \$10 billion is prevented from entering the national economy.

Faced with the massive uncertainty of the real impact of a relatively new technology, there are no surefire options to boost drone-related economic activity through state legislation. On the other hand, if drones are expected to provide a net positive economic impact, states may want to be careful to not impede such a boost through slowing the adoption of technology, particularly through creating additional regulations that may be viewed as cumbersome or unnecessary without added benefit to safety or privacy.

A few other states have adopted resolutions regarding the importance and potential economic benefits of expanded drone use. In some cases, these resolutions were crafted as a way of proactively reaching out to the drone industry to encourage creation of drone-related economic activity in the state. Other resolutions have more directly called for swifter federal action to allow some aspect of drone use or have urged favorable consideration of that state for the location of a drone test site. The nascent nature of the drone industry prevents any meaningful analysis of the impact of such resolutions. But, passing a resolution to encourage FAA timeliness in adoption of regulations that would allow the creation of legal drone uses in the state might be a worthwhile action with little downside.

**Drone test sites.** At this time, there are active drone test sites authorized by FAA located in six different states – Alaska, Nevada, New York, North Dakota, Texas, and Virginia. These sites were selected from 25 different proposals in 24 states. It is not yet known if the FAA will eventually expand the number of drone test sites nationwide. If it does, it may be in Connecticut’s financial interest to provide some funding for a site for use by drone manufacturers in and out of the state. Otherwise, the state may want to explore developing a formal relationship with the current site nearest to Connecticut geographically, in New York.

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<sup>24</sup> Jenkins, Darryl and Dr. Bijan Vasigh. *The Economic Impact of Unmanned Aircraft Systems Integration in the United States*. March 2013.



### State Options to Regulate Governmental Drone Use

States maintain the authority to regulate what state and local government agencies can and cannot do, beyond certain federal minimums, with regard to drones. States can look to FAA guidelines for non-governmental aircraft to establish minimum safety standards, but states may also choose to be more restrictive of governmental drone use than federal regulation dictates for non-governmental drone use without running into issues of federal preemption. The ability to self-direct state and local government agencies opens a wide range of regulatory options to deal with at least some drones while balancing safety and privacy concerns. This chapter outlines several regulatory options - some as comprehensive systems and other as standalone pieces of a regulatory program - and presents committee staff recommendations for legislative consideration.

#### Governmental Drone Use Regulatory Framework Options

Several regulatory framework options will be discussed that address different aspects of drone-related concerns. In particular, there are two extreme options worthy of consideration, as well as several more moderate regulatory paths. While the options are presented as discrete choices, in some cases there are different ways to blend several of the presented options together. Likewise, there are many permutations of these and other policies that might also address the underlying balance of privacy and safety concerns.

All of the options have potential advantages and disadvantages that are inherent in trying to balance the safety and privacy of Connecticut residents. Some regulatory efforts immediately provide specific legislative direction to potential governmental drone users, sometimes at the cost of future flexibility – an important consideration when dealing with emerging and evolving technologies. Some of the most decisive efforts may run afoul of federal regulations or upset local drone stakeholders.

#### OPTION 1: NO LEGISLATIVE ACTION

The possible results of indefinitely not taking legislative action on drones are outlined in Chapter One: that chapter describes current law and how drones may fit into it. However, many of the results from this option rely on waiting for judicial precedent to be set and sorted out, which is likely to take many years, and those court rulings may be unpredictable in both the nature and scope of each ruling.

**Advantages.** No legislative effort is required. Law enforcement agencies will be free to deploy drones as they see fit to maximize public safety, within the bounds of current search warrant requirements.

**Disadvantages.** Concerns about possible infringement or degradation of fourth amendment privacy rights are not addressed. Unless affirmative action is taken by the legislature,

it may not be clear to law enforcement officials whether no change to current law was deemed necessary or if a law change is pending, but not yet agreed upon.

**Conclusion.** This option is desirable if policymakers believe that present law that allows aerial surveillance and currently prevents law enforcement use of certain new imaging technologies is all properly applicable to drones and/or the imaging devices used on drones. This option represents a continuation of the status quo. While this option is not sufficient to address some privacy concerns, it may be a worthwhile temporary option if policymakers prefer to wait to take action until FAA regulations are adopted and there is some evidence of common use of drones by law enforcement agencies in Connecticut. The 37 states that have yet to pass regulatory drone legislation, including Connecticut, are currently using this option, though reliance on this option may be temporary while other options are being considered.

## **OPTION 2: MORATORIUM ON GOVERNMENTAL DRONE USE**

This option would have the legislature prohibit all governmental use of drones, regardless of purpose or agency. A couple of variations of this option include barring governmental ownership, but allowing limited arrangements where drones are used in emergencies, or barring only law enforcement use of drones while allowing drone use in other governmental agencies.

**Advantages.** Not allowing any governmental use of drones is perhaps the cleanest of all options, as there is no ambiguity about what drones can be used for, where they can be used, and by whom. In this case, privacy concerns are exactly where they have been without drones as a law enforcement option.

**Disadvantages.** As discussed throughout this report, there are many potential beneficial uses of drones for governmental work. Even within just law enforcement agencies, a blanket moratorium would prevent search and rescue or emergency response drone uses. Additionally, this would prevent government agencies from being able to provide a positive model of how drones can be flown safely.

**Conclusion.** While privacy advocates may appreciate the full stop to any drone-related encroachment of fourth amendment rights, no stakeholders expressed a desire to prevent all government (or just law enforcement) use of drones, because of the potential positive uses. This option could be used temporarily to halt any drone use while waiting for more information about federal regulations and fourth amendment case law. However, this option does not seem necessary in this state as there has been no law enforcement ownership of drones to date (and only very limited use of drones in emergency situations). This option would also rely on other states to discover innovative governmental uses of drones and develop best practices in the field, regardless of the specific agency using drones. To date, two states have relied on this option, though both states' moratoriums are scheduled to expire by the end of 2015.

## **OPTION 3: EXCEPTIONS TO A GENERAL PROHIBITION OF GOVERNMENTAL DRONE USE**

Under this option, all uses would be prohibited except those explicitly allowed. The major difference between this and a comprehensive moratorium is what exceptions are established. At a minimum, drone use in emergency and life-threatening situations are allowed,

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including use in search and rescue operations, as are law enforcement uses in criminal investigations with a valid search warrant. Another common exception is to allow training for governmental pilots and use.

**Advantages.** This option can be used to put in place restrictions that protect citizen privacy while allowing the most non-controversial law enforcement uses of drones outside of criminal investigations. Because the nature and type of exceptions are customizable, this option can be used to allow only those uses policymakers and stakeholders find most beneficial.

**Disadvantages.** Depending on the exceptions, this option prevents certain law enforcement drone uses, which may or may not be directly related to expectations of privacy. There is also the possibility that a somewhat restrictive set of rules for law enforcement use of drones serves to deter adoption of the technology within the law enforcement community, thus delaying the implementation of some of the beneficial uses (e.g., search and rescue).

**Conclusion.** As discussed in Chapter Two, this is the most common regulatory action taken by those states who have acted so far, but the differences in exceptions are important. Thirteen states have instituted some variation of this option. This option is particularly customizable, with the exceptions being the key to the effectiveness and balance between privacy and safety. Too many exceptions will water down the overall prohibition and with it some of the privacy protections. Too few exceptions may stifle innovative uses, even those outside of the realm of criminal investigations.

Five states have included broader exceptions that allow law enforcement use with a search warrant or in situations where a warrant is not normally required. Under provisions like these, the allowable uses where warrants are not required are so vast that this exception does not seem to prevent any expected uses. Instead, this larger exception has the effect of codifying the status quo, as examined in option 1. Eight states have adopted this option with more limited exceptions.

It may take several successive years of legislative observation and action to address the nature and types of exceptions to ensure the right balance between permissiveness and restriction is found. For instance, a few of the states that acted first used this option and included only fairly limited exceptions to the blanket prohibition. In the year or more since those actions, several other states have concluded there are some mostly non-controversial beneficial law enforcement uses outside of emergencies or areas where warrants are available – namely, in crime scene assessment and photography. Any legislative action to regulate drones may need finessing as federal regulations are revealed and use increases. However, without careful consideration, this option may unwittingly prevent beneficial uses, especially those outside of law enforcement criminal investigations (e.g., mapping of wildlife on state lands, or examination of transportation infrastructure).

#### **OPTION 4: PROHIBITION OF SPECIFIC USES OF GOVERNMENTAL DRONES**

Under this option, restrictions would be placed on certain uses, but governmental uses would be allowed by default unless specified otherwise. For instance, if policymakers decide they would rather not have drones be used for traffic enforcement (or even a subset of traffic

enforcement such as misdemeanor moving violations), that type of activity could be prohibited. Several states have employed this method specifically to restrict law enforcement drone activity surrounding hunting and fishing activities.

**Advantages.** Many of the fourth amendment concerns brought up by privacy advocates can be specifically addressed using this option. Drone uses that would not impact privacy concerns but may increase safety would be allowed, as would new or innovative uses.

**Disadvantages.** By allowing everything that is not covered by the specific prohibitions or by other laws or precedent, it is possible some controversial or less-desirable uses will be employed, either because they were not contemplated as possible uses during the crafting of the legislation or because they are unintentionally allowed because of the specifications of the prohibitions.

**Conclusion.** This option may be best suited to situations where there are a limited number of specific uses to be prohibited, as attempts to create a few broad restrictions or a greater number of focused restrictions may be overly burdensome. However, there is the potential with this option to address just the few uses that may be objectionable. For instance, if, in the end, the biggest privacy concern is about a pervasive use of drones for surveillance performed without a search warrant, this option could be used to address that concern and specifically restrict just surveillance activities while maintaining the availability of other uses. This option has been used by one state, Louisiana, for prohibiting criminal uses and for non-governmental drone-based surveillance of certain facilities, but has not yet been used elsewhere to regulate governmental drone use.

## **REGULATION OF GOVERNMENTAL DRONES**

Given that there are many potential beneficial uses of drones by law enforcement or other governmental agencies, there does not appear to be a need to institute a general moratorium on use, as was presented as option 2. Likewise, taking no legislative action largely leaves the decision making on these issues to the judicial system. Adapting regulation through precedent via the judicial system will take considerable time and will be reactionary – only producing new law after a potential misuse is challenged. Additionally, the precedent of judicial rulings is focused on the specifics of a single case. There may not be clear information on how and when the precedent will be relevant in similar situations. Adoption of emerging technologies tends to increase at exponential rates. Therefore, it is expected that innovative new uses of drones will appear as overall use increases, and relying on the relatively slow, reactionary setting of judicial precedent, as is the case in option 1, should be ruled out as a preferred solution.

The framework of the options that remain are: option 3) broadly prohibiting drone use then allowing specific uses; or option 4) broadly allowing drone use and prohibiting specific uses. Both can address the perceived need for regulatory action to maintain an individual's freedom from unreasonable search or seizure while allowing certain law enforcement efforts that should make those same individuals safer. However, a broad prohibition on drone use with exceptions would potentially stifle the development of new, potentially beneficial, uses that may not be specifically addressed within the exceptions. Also, the blanket prohibition approach seems

to be slightly more prone to single out drones among other technologies with similar capabilities, though this could still happen with the more permissive regulatory option.

Program review staff concludes that the best option is to specifically prohibit those actions or uses that seem likely to tip the balance between privacy and safety past the point where most stakeholders feel the tradeoff of one for the other may be worthwhile.

## **Surveillance**

In this case, the biggest government-related privacy concerns are that drones, by virtue of a decreasing cost compared to manned aircraft will enable expanded implementation of general surveillance, targeted surveillance without a search warrant, or both. As such, Connecticut's legislative efforts to regulate drones should focus on setting the boundaries for use of this technology for surveillance activities. **Therefore, the program review committee recommends:**

- 8. The use of drones by Connecticut law enforcement agencies for surveillance of a specific individual or a privately-held property is prohibited except with the person or property owner's consent or when the duration of such drone-based surveillance is limited to the following conditions:**

**Drone-based surveillance of a specific individual or a privately-held property:**

- a) with reasonable suspicion of criminal activity, but without the combination of probable cause and a valid warrant, shall be limited to 24 hours total cumulative duration within a 30-day time period; and**
- b) with probable cause and a valid warrant, shall be limited to the terms of the warrant.**

**A person or privately-held property shall not be considered the target of such surveillance unless the person or property is identifiable via the drone's imaging or other information-gathering device or is otherwise acknowledged as the intended target of such surveillance.**

This limitation on the duration of surveillance should mitigate the concern, perceived or real, of drones eventually being used to provide near-constant, unwarranted tracking of individuals. The exceptions for surveillance with the person or property owner's consent and the clarification of what constitutes surveillance of a specific target are specifically included to allow police surveillance of large public gatherings, such as outdoor concerts or sporting events.

Ordinarily, limiting such a policy to just one type of technology (i.e., drones) violates any broader goal of adopting technology-neutral laws, if such a goal is in place. However, drones are an unfamiliar emerging technology with unknown potential that are not clearly addressed under current statutes. In this instance, it may be more appropriate and effective to address drone use specifically, rather than try to fit drones into a regulatory system that was created without the advantages and capabilities of drones in mind.

If such a surveillance policy is initially limited to drones, it can serve as a test to determine if this approach is worth exploring for the wider range of technologies. This approach to limiting unwarranted surveillance activity is supported by some academic research.<sup>25</sup> However, the implications of such a large policy change beyond drone use were not within the bounds of this study.

**Viewpoint of surveillance.** Another major concern about preserving fourth amendment expectations of privacy is raised because drones are capable of providing additional viewpoints not previously accessible to law enforcement agencies (or the public). Current aerial surveillance is generally limited to overhead views of private property. This overhead viewpoint is helpful to law enforcement for observing what is on the property other than roofed structures without skylights, but has not allowed unobstructed views of windows other than skylights.

Looking through a window under current law may or may not violate a reasonable expectation of privacy depending on the individual circumstance. For example, a first floor window immediately next to a public sidewalk provides little expectation of privacy, but a third floor window in a rural house set 100 yards back from the nearest public road has a greater expectation of privacy.

If desired, one way to ensure this new vantage point was not made available for law enforcement surveillance would be to establish minimum operating heights for governmental drones while collecting information. However, the potential for degradation of expectation of privacy here is rather limited because the expectation of privacy regarding upper-story windows in urban settings is already very low. Also, because this potential invasion of privacy can be addressed by the individual relatively inexpensively through the use of common window-blocking methods (i.e., blinds or curtains). Moreover, looking through the windows of a private dwelling would certainly fall within the targeted surveillance described previously, so adoption of that recommendation should also serve to significantly limit unwarranted observation from even this newly accessible vantage point.

The space that drones make more accessible is a relatively narrow range of elevation, which also changes with the distance from the window. The frequency with which drones might be present in this narrow area that provides this new view into a window is not known, in part because drones are not extremely common just yet. For this reason, and because the FAA regulations here are still unknown, there is no need for an additional regulatory action in this specific area at this time. However, this issue may be worth revisiting in the future after the FAA regulations regarding drone use near the ground or near buildings are adopted or when government use, especially for observing private property, has increased.

## **Data Regulation**

A regulatory approach that is permissive of drone-based data collection should be cognizant of maintaining the privacy of the data that are collected. In instances where a warrant is obtained, current data retention practice applies, which is generally permissive of retaining that data as necessary. However, as the approach recommended above allows some data collection

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<sup>25</sup> McNeal, Gregory. *Drones and Aerial Surveillance: Considerations for Legislators*. Brookings Institution, November 2014.

outside of warrants, data use and retention policies should be established as another way to protect privacy.

Law enforcement agencies typically want to store as much information as possible for as long as possible. These agencies assert such data may immediately or eventually prove useful in a criminal investigation. Privacy advocates prefer that imaging or other data from drones be immediately destroyed unless there is at least a reasonable suspicion that such data pertains to an ongoing investigation of criminal activity. Both positions are held outside of just data collected with a drone, but the issue comes up again since this is a new technology.

One way of limiting data retention to maintain or enhance an individual's expectation of privacy is to limit the data being collected in the first place, as is recommended above. But even within the bounds of the limits of duration of unwarranted surveillance, the collection and aggregation of 30 minutes of data on a specific person once a month over the course of several months or years moves that observation closer to being something like long-term observation rather than one-time incidental observation. Under current law, that may violate that individual's reasonable expectation of privacy given that repeated instances of limited surveillance were ruled unreasonable searches as part of the *United States v. Jones* case. To avoid this long-term unconstitutional act, the data about that person need only be destroyed on a regular basis.

To aid in limiting targeted surveillance activities without a warrant, **the program review committee recommends:**

- 9. A drone-based data retention policy shall be established for all law enforcement agencies within the state, as follows. Data collected via drone outside the terms of a warrant (either when no warrant was involved or when the data collected was incidental to the terms of a valid warrant) shall be reviewed within three months of collection.**

**If such data contains identifiable images of persons or property about whom there is no reasonable suspicion of criminal activity, the data shall be destroyed as soon as reasonably possible following the review.**

**If the data contains identifiable images of persons or property about whom there is a reasonable suspicion of criminal activity, the data may be retained for up to five years from the date of collection, unless a valid search or arrest warrant is issued in connection with the criminal activity captured in the data, in which case the data may be retained under the terms of the warrant.**

**If data is collected that contains identifiable images of persons or property across several classification (e.g., target of the warrant or a person about whom there is no reasonable suspicion), modifying the data to remove or otherwise make unidentifiable just those images of persons or property for which there is no reasonable suspicion shall fulfill the terms of this policy.**

Under this policy, data collected within the bounds of a warrant would be retained pursuant to current law enforcement record retention policies (i.e., kept as necessary, based partly on whether it was used as evidence in a criminal proceeding). Data collected inadvertently would be removed, but not at the expense of losing valid, useful data. Drone-based data created by sources outside of law enforcement, but given to law enforcement, would be subject to the same data retention policy. This would allow law enforcement access to useful information brought in from independent sources without compromising additional privacy rights.

This policy, in combination with the recommended surveillance policy, helps to balance concerns of safety and privacy. It assists in maintaining the privacy rights of individuals while allowing law enforcement agencies access to the data which should be most useful in criminal investigations.

## **Registration and Reporting**

Adopting registration and reporting requirements, without doing anything else, serves as an advanced version of keeping the status quo (option 1), but could also enhance all the other options as it gives policymakers significantly greater insight into where governmental drones are and how they are used.

In total, four states have adopted registration or reporting requirements for governmental drones, all of which have done so in conjunction with imposing other law enforcement drone use restrictions.<sup>26</sup> Only Illinois requires ownership reporting (i.e., registration) without more widespread use reporting. It is also the only state where a registration or reporting deadline has already occurred – the initial report indicates that there are three law-enforcement owned drones are present in that state (the full report is available in Appendix A).

Two states, Oregon and Illinois, require that use reports be filed within 24 to 48 hours after a drone has been used in an emergency. Three of the four require annual reporting of some kind, while Texas mandates reporting in odd numbered years. Besides Illinois, the other three states required detailed reporting on drone use. Oregon's legislation, in particular, combines a one-time registration requirement with an annual report on use.

**Governmental drone registration.** Requiring governmental drone registration allows the state to develop an ongoing inventory of the drones that are available and of all government drone users. Since the drones in question are owned by governmental entities, governmental drones do not need to be registered for tax purposes. However, having a complete inventory of governmental drones in the state can be beneficial in several ways.

First, the inventory can give policymakers better information on the pervasiveness of drone use and how that may change over time. This can inform state policy on appropriate use and provide better understanding of the scope of the issue if the state decides to change any drone law. Second, the information provided by the inventory may help the state coordinate more efficient use of the technology. That is, if the state (or another municipality) knows that a particular municipality owns a drone, it may request that the town use that drone in a time of emergency, rather than the state bringing its own drone to an area where one is already available.

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<sup>26</sup> Illinois, Oregon, Texas, and Utah

Likewise, knowing that a particular municipality or state agency has a drone may help alleviate safety issues where two drones from two different governmental groups are interfering with one another.

As awareness of which governmental entities in the state own drones increases government transparency and potentially aids all governmental agencies in coordinating drone use, **the program review committee recommends:**

**10. All state and local government-owned drones shall be registered with the Office of Policy and Management. The registration shall include the name of the government agency that owns the drone, the name(s) and contact information of those individuals who may operate the drone, and identification of the aircraft (at minimum make, model, and serial number). Such information shall be made available on the agency's website and updated monthly if additional aircraft are registered.**

**Reporting drone use.** In most regulatory options, the legislature could require all governmental drone use to be reported. Requiring well-documented use records does not interfere with beneficial uses of drones and allows law enforcement the opportunity to use drones more broadly. Use reporting also gives privacy advocates (along with policymakers and the public) objective information on how drones are being used and how often they are used for activities that might raise privacy concerns.

The specifics of what about the use is recorded can include who is using it and where, and can also include the purpose for which the drone was being used (e.g., mapping, surveillance with or without a warrant, search and rescue). Further, how the information collected from the drone was used (e.g., evidence in a criminal investigation, developing forestry or wildlife plans, or reviewing an emergency situation as part of ongoing training) would also be informative.

Installing reporting requirements does not directly prohibit activities that may lessen an individual's expectation of privacy. Future action would likely be necessary to prevent unwanted governmental activities and that action may be predicated on an undesirable drone use having happened. As with most reporting requirements, there is a chance the reporting requirements will not be monitored well, in which case they lose their effectiveness. Likewise, an overly burdensome reporting system, if adhered to, may discourage drone use of any type, including clearly beneficial uses.

While concerns raised throughout this study about privacy invasions through law-enforcement drone use are plentiful, there are no drones owned by Connecticut state or local law enforcement agencies as of the writing of this report. Careful monitoring of governmental adoption and use of drones could occur simultaneously to observation of other developments in the industry (i.e., adoption of federal regulations and setting of judicial precedent).

As ongoing reporting of non-law enforcement drone use will be beneficial in maintaining knowledge of types of use and help keep all state agencies aware of how drones are used within state government agencies, **the program review committee recommends:**

- 11. All non-law enforcement state use of drones, including drones operated for the benefit of the state that are not owned by the state, shall be recorded and reported to the Office of Policy and Management annually. Such reports shall include the location, time, duration, and purpose of each drone use. The Office of Policy and Management shall publish aggregate summaries of these reports within 90 days of the annual reporting deadline, including identifying those agencies with drone ownership or past drone use that have failed to report on drone use.**

Ongoing reporting of state and local law enforcement drone use will be beneficial in maintaining knowledge of types of use, will help alleviate privacy concerns, and will help keep all law enforcement agencies aware of how drones are used by other law enforcement agencies within the state. Therefore, **the program review committee recommends:**

- 12. All state and local law enforcement use of drones, including drones operated for the benefit of the law enforcement activities that are not owned by the law enforcement agencies, shall be recorded and reported to the Office of the Chief State's Attorney annually.**

**Such reports shall include the location, time, duration, and purpose of each drone use, along with whether the drone use was conducted within the limits of a warrant. Law enforcement agencies shall report the frequency with which data obtained from a drone was deemed to provide evidence of reasonable suspicion of criminal activity, how often data was reviewed and destroyed under the data retention policy recommended above, and how often data was destroyed without being reviewed.**

**The Office of the Chief State's Attorney shall publish aggregate summaries of these reports within 90 days of the annual reporting deadline, including identifying those agencies with drone ownership or past drone use that have failed to report on drone use.**

## **Weaponization of Drones**

Special consideration needs to be given regarding law enforcement agencies' ability to equip drones with weapons. The weaponization of drones can range from delivery of non-lethal pacification systems (e.g., tear gas) to remote control of a lethal firearm. As remote operation of weapons was recommended to be prohibited in Chapter One, allowing law enforcement access to this classification of drone use would need to be specifically allowed.

There may be some precedent for allowing certain law enforcement to remotely control weapons. For instance, law enforcement agencies now may be able use robots with these type of capabilities in some tactical situations. However, drones carry several additional risk factors that ground-based remote controlled technology does not have.

First, there is a possibility that a drone carrying a weapon might malfunction during the flight and fail to get to the appropriate staging area. Were this malfunction to take place, the

weapon may be accidentally discharged upon collision, or it may be that the weapon itself is inadvertently lost or given to those the drone was trying to target.

Second, the precision necessary to properly use a weapon does not appear to be commonly available in drones at this time. The International Association of Chiefs of Police drone use guidelines state that “[g]iven the current state of the technology, the ability to effectively deploy weapons from a small [drones] is doubtful.” Because of these increased risks and a lack of a perceived benefit, **the program review committee recommends:**

**13. Law enforcement use of drones to remotely operate weapons shall be prohibited.**

This prohibition should remain in place until at least such a time that the need for, and safety of, this type of use can be affirmatively demonstrated. Any review of this prohibition should attempt to limit the allowable exceptions for this use to only those situations where all other reasonable alternatives have been exhausted.

**Drone and Drone Pilot Safety**

Drones themselves should be operated in a safe manner. To do so, the drones need to be mechanically sound and the operators of drones must be capable of limiting their use to situations where they can be controlled. Drone safety protocols are currently handled by the FAA on a case by case basis as part of the certificate of waiver or authorization (COA) application process. However, FAA is expected to include requirements for safe operation within its drone regulations. It is not yet known whether federal safety requirements for governmental drones and operators will differ significantly from non-governmental drones.

While governmental and non-governmental manned aircraft (and pilots) are technically faced with different certification requirements, the common practice is for governmental manned aircraft and pilots to follow standards that are at least as stringent as those for non-governmental manned aircraft. As FAA draft regulations pertaining to safety have not yet been made available for comment (or any type of drone, regardless of user or size), no specific recommendation is being made in this study regarding governmental safety protocols. Policymakers should continue to monitor federal developments regarding governmental drone use and take the steps necessary to ensure that drones are only used for governmental purposes when proper safety protocols have been followed.



## **Appendices**



## Illinois Drone Registration Report



### ILLINOIS CRIMINAL JUSTICE INFORMATION AUTHORITY

In accordance with the Freedom from Drone Surveillance Act [725 ILCS 167], the Illinois Criminal Justice Information Authority is mandated to publish on its publicly available website the following information for the previous fiscal year, as affirmed by each reporting agency.

Fiscal Year 2014  
July 1, 2013 – June 30, 2014

Agency	Number of Drones	Date of Purchase	Model	Status	Notes
Champaign County Sheriff's Office	1	March 19, 2008	RP Flight Systems-Spectra Flying Wing	Inoperative	
Downers Grove Police Department	1	June 1, 2014	UDI	Operative	Used for training purposes
Illinois State Police	1	Not reported	UDI	Operative	Model number U818A