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Flying Robots and Privacy in Canada

Paul D.M. Holden

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Abstract

Drones have been a hot topic in recent years particularly when used in war and in domestic police operations. Drones have also attracted attention because of high-profile plans to use them for package delivery, among other things. While the glamourous and future uses of drones catch media attention, drones are already being used in the private sector for more mundane purposes including surveying, infrastructure inspection and real estate sales promotion. While the privacy threats of military and police drones are widely discussed, privacy concerns of private drones have attracted much less consideration.

This paper looks at the privacy risks of private drones in Canada. It begins with an overview of the uses of private drones and their regulation in Canada. Regulation of drones in Canada is quite permissive and does not address the privacy risks. The paper then presents several privacy theories and a deeper discussion of two problems caused by technology such as drones: data aggregation and erosion of privacy in public. The paper then considers some theoretical and practical legal protections that might be used to protect against drone privacy invasion. The more theoretical include the torts of trespass and nuisance. The more practical include the tort of intrusion upon seclusion and the Personal Information and Electronic Documents Act. *The paper concludes that the dominant theories of privacy embedded in Canadian law are not fully prepared for the challenge of drones, though the tort of intrusion upon seclusion holds some promise for the future.*

INTRODUCTION

Drones represent a significant development in robotic technology.[1] They are used routinely in war and increasingly in police operations. Drones are also used in Canada today by private actors for many less dramatic applications.

Some drones are as big as small aircraft and will routinely fly in controlled airspace while smaller drones will be found navigating cities at lower altitudes.

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* BCL/LLB, McGill University. BSc, University of Victoria. Admitted to the New York State Bar. The author would like to thank Ciara Bracken-Roche, Queens University, Paul S. Dempsey, McGill Institute of Air & Space Law, Shayna Gersher, Carleton University, and the blind reviewer, for their comments on earlier drafts of this paper.

[1] Transport Canada refers to drones as Unmanned Air Vehicles (UAV) while the International Civil Aviation Organization uses the terms Remotely-Piloted Aircraft System (RPAS) and Unmanned Aircraft System (UAS): Transport Canada, Staff Instruction 623-001, "The review and processing of an application for a Special Flight Operations Certificate for the Operation of an Unmanned Air Vehicle (UAV) System" (27 November 2008) at 13, online: < www.tc.gc.ca > [SI2008].

Like other technology, drones are falling in price while becoming more sophisticated. For several years, Transport Canada has been anticipating increased private use of drones and has been developing regulations to integrate them into Canadian airspace. Transport Canada's regulation development is motivated by the economic opportunity of drones as well as the safety risks they present to other manned aircraft and people on the ground.

This paper focuses on the privacy impact of private drones. Like other technology developments, drones reveal latent ambiguities in legal doctrines and will influence development of the law. This paper is concerned with how the law will respond to the privacy threat of drones and also how the latent ambiguities in current privacy thinking will evolve in response to these challenges. In Canada, privacy is protected through the tort of intrusion upon seclusion, as well as through private sector privacy legislation.

This paper has three sections. The first section will provide the context by giving an overview of the history of private drones in Canada, their current capabilities and uses, and Transport Canada's plans for the future of drones. While private drones are not uncommon, many people are not aware of their current uses or how they may intrude on privacy. The second section will discuss privacy theories and will show why privacy law must address data aggregation and privacy in public. The third section will look at legal remedies to protect against privacy violations by private drones. Since drones challenge current privacy thinking, it is worth considering alternatives to privacy law itself. To this end property law, in particular torts related to airspace rights, will be reviewed. This section will focus on the tort of intrusion upon seclusion and private sector privacy legislation, reviewing the jurisprudence and providing a critical analysis of the law's capacity to deal with the privacy threats of drones.[2]

While state use of drones, particularly by police, raises concerns for privacy, the impact of private drones on privacy has not been fully explored. This paper does not take a position on the utility of drones or whether they should be promoted, discouraged or heavily regulated. Like other technology, drones have the potential for both positive and negative effects. One of the negative effects of drones is a diminishing of privacy, which is the primary motive and subject of this paper.

I. PRIVATE DRONES AND THEIR REGULATION

This section provides a detailed description of the private use of drones and their regulation in Canada. This will show that commercial drone use is already common, and that the regulation development process for them is already advanced. Private drones are not a thing of the future. They are already in active

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[2] This paper considers federal legislation and privacy protection in common law provinces. The *Civil Code of Quebec* and other legislation in Quebec provide a different legal approach to privacy. Evaluating the capacity of Quebec's approach to dealing with the privacy threat of drones merits a separate paper.

use in ways that some do not even realize are possible and Transport Canada is laying the regulatory base to promote expansion of this nascent industry. While privacy threats from above in the form of aircraft and helicopters are not new, drones are different because they are more flexible and economical than aircraft. The regulatory background provided here, along with the examples of current private drone applications, will inform the privacy law analysis that follows.

(a) History of Drones and their Regulation

Private use of drones has been a hot media topic recently, but drones are not new to Canada.[3] One of the first private drone flights in Canada happened in 1998 off the coast of Tofino, British Columbia.[4] This was the result of collaboration between Environment Canada and Insitu, the latter wanting to deploy drones for meteorological use. A few months later, Insitu completed the first transatlantic drone flight, from Newfoundland to Scotland.[5] This helped to generate excitement for non-military drones in Canada though it was another eight years before the Canadian government started serious work on drone regulation.

Since 2006 Transport Canada has convened three different working groups to address drone regulation. The first was the Unmanned Aerial Vehicle Working Group (UAV-WG). That working group reported in 2007. Its report proposed a number of amendments to the *Canadian Aviation Regulations* (CAR) and developed a 5-year work plan for safe integration of drones into Canadian airspace.[6] The second working group was convened in 2008 to review the Special Flight Operations Certificate (SFOC) process, which currently regulates private drone operations.[7] The working group recommended changes to the SFOC process which were implemented that same year.[8] The third and current working group, called the UAV Systems Program Design Working Group (PDWG) was convened in 2010.[9] Its purpose is to implement the work plan created by the original UAV-WG. It is expected to complete its work in 2017.[10]

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3 See e.g. "Hong Kong protest: Drone captures scale of protest", *BBC News* (30 September 2014), online: <www.bbc.com>; Alex Wilhelm, "Google Challenges Amazon for Drone Supremacy", *TechCrunch* (28 August 2014) online: <techcrunch.com>; Lauren O'Neil, "Sexual harassment by drones a growing concern", *CBC News* (11 June, 2014) online: <www.cbc.ca>; "BP allowed commercial drones by US regulators in unprecedented decision", *The Guardian* (10 June 2014) online: <www.theguardian.-com>.

4 Shayna Gersher, "Regulating Spies in the Skies: Recommendations for Drone Rules in Canada", *IEEE Technology and Society Magazine* 33:3 (17 September 2014) 22 at 22.

5 *Ibid.*

6 Transport Canada Civil Aviation, *Terms of Reference: UAV Systems Program Design Working Group*, (Ottawa: Transport Canada, 2010) at 1 [TCCA].

7 *Aeronautics Act*, R.S.C. 1985, c. A-2, *Canadian Aviation Regulations*, S.O.R./96-433, ss. 602.41, 603.67 [*CAR*]; Gersher, *supra* note 4 at 23. A detailed description of the SFOC process is provided below.

8 TCCA, *supra* note 6 at 1.

The 2007 UAV-WG report stressed the economic importance of drones and the hope that if Transport Canada developed regulations quickly, Canada could become a world leader in drone technology.[11] In 2012 Transport Canada issued 347 SFOCs and in 2013 that number increased to 945.[12] With a SFOC, it is possible for private individuals to operate just about any type of drone.

(b) Applications for Drones in the Private Sector

While the military and police applications for drones are well-known, the scope of existing private sector applications are less well-known. Amazon has received much publicity for its plan to deliver packages within 30 minutes via drone, and the US Federal Aviation Authority (FAA) has received an equal amount of publicity for its reluctance to authorize the Amazon project.[13] Amazon's plans remain a future prospect, not only due to the regulatory framework in the US, but also because Amazon still has a lot of testing to do before its drones are ready to be put into widespread operation. While Amazon and others have plans for the future, many businesses and individuals in Canada are already using drones in commercial and personal operations. The Special Flight Operations Certificate process, described later in the paper, already allows for drones of any size with any payload to be approved for private use in Canada.

Drones are being used to help navigate ice in the arctic. Fednav uses drones equipped with cameras to survey the ice ahead of a ship to help the captain see fractures in the ice.[14] Drones are used in agriculture and in fact have been used for this purpose in Japan since the 1970s.[15] They can deliver pesticides and fertilizers. The drone uses sensors that detect nitrogen levels to help the farmer

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9 Canada, UAV Systems Program Design Working Group, *Phase 1 Final Report* (Ottawa: Transport Canada, 2012) at 1 [Phase 1].

10 Charlotte Santry, "Droning on", *Canadian Lawyer* (3 February 2014), online: < www.canadianlawyermag.com > .

11 *Ibid*. Given that the policy review process started in 2006, and will continue until at least 2017, it appears that Transport Canada has not moved very quickly. However, Transport Canada is well ahead of its American counterpart, something which has been the subject of media attention in the United States.

12 Gersher, *supra* note 4 at 24-25.

13 See e.g. Charles Arthur, "Amazon seeks US permission to test Prime Air delivery drones", *The Guardian* (11 July 2014), online: < www.theguardian.com > . In March of 2015 media reported that Amazon had started doing outdoor tests in British Columbia, because of the continued reluctance of the FAA to allow outdoor testing. In April of 2015, the FAA authorized Amazon to do outdoor testing at a company-owned site. See Ed Pilkington, "Amazon tests delivery drones at secret Canada site after US frustration", *The Guardian* (30 March 2015), online: < www.theguardian.com > ; "Commercial drones that fly beyond operator's sight could be OKed in U.S.", *CBC News* (4 May 2015), online: < www.cbc.ca > .

14 "Canadian shipping company uses drones to check ice conditions", *Vancouver 24 hrs* (25 March 2014), online: < vancouver.24hrs.ca > .

decide where to spread fertilizer. Using infrared sensors, a farmer can keep track of the health of crops.[16] Similarly, the US Geological Survey (USGS) is using a previous generation of military drones for land-use planning and to monitor wildlife. Using cameras the USGS can map roads and wetlands, and using infrared cameras it can track the movements of wildlife at night.[17] There are some businesses in operation in Canada which provide "drones as a service". The services they offer include 3D mapping for surveys, aerial photography for real estate agents, and infrastructure inspection.[18] In general, drones are useful for what Finn calls the three Ds: work that is dull, dangerous or dirty.[19]

While these examples are generally innocuous, like any technology, drones also have more sinister applications. Drones used by stalkers and paparazzi are examples that come to mind easily.[20] At least one private security company in Canada has considered using drones in its business, though it is not clear exactly how.[21] In addition to the cameras and sensors described already, drones can carry heat & motion sensors, odour detectors and facial recognition cameras.[22] Drones can be used to find and follow a particular individual.[23] It is also worth noting that any information collected by a private organization via drone may eventually find its way into the hands of state authorities.[24] Even drones not used for surveillance collect large amounts of data about their surroundings as they fly. The persistent observation that is possible using drones is more invasive than casual observation and easily rises to the level of invasion of privacy. As the director of NASA's drone program for tracking hurricanes said: "If you drove by a drug dealer's house, you wouldn't catch him; but if you stood there all day,

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15 Mark Edward Peterson, "The UAV and the Current and Future Regulatory Construct for Integration into the National Airspace System" (2006) 71 J. Air L. & Com. 521 at 546.

16 Omar el Akkad & Kelly Cryderman, "Canadian technology and the flight of the drones", *The Globe and Mail* (6 April 2014), online: < www.theglobeandmail.com > ; Brian Handwerk, "5 Surprising Drone Uses (Besides Amazon Delivery)", *National Geographic* (2 December 2013), online: National Geographic < news.nationalgeographic.com > .

17 Handwerk, *supra* note 16.

18 See e.g. UAV Services, online: < www.uavservices.com > ; High Eye Aerial Imaging, online: < higheye.ca > .

19 See Rachel L. Finn & David Wright, "Unmanned aircraft systems: Surveillance, ethics and privacy in civil applications" (2012) 28:2 Computer L. & Sec. Review 184.

20 See e.g. John Villasenor, "Observations from Above: Unmanned Aircraft Systems and Privacy" (2013) 36:2 Harv JL & Pub Pol'y 457 at 461.

21 See e.g. "Private security company poised to launch drones", *The Province* (25 October 2013), online: < www.canada.com > .

22 Margot E. Kaminski, "Drone Federalism: Civilian Drones and the Things They Carry" (2013) 4 Cal. L. Rev. Circuit 57 at 57-59.

23 M. Ryan Calo, "The Drone as Privacy Catalyst" (2011) 64 Stan. L. Rev. Online 29 at 30.

24 *Personal Information Protection and Electronic Documents Act*, S.C. 2000, c. 5 s. 7(3) [*PIPEDA*].

you might."[25] This is as applicable to the activities of ordinary people as it is to the activities of drug dealers.

As suggested by these examples, drones come in many shapes and sizes. They can be small devices flown at low altitudes with the potential to trespass in a land owner's airspace. They can be larger and fly at high altitudes alongside manned aircraft. Drones of all sizes may be operated by individuals or for commercial purposes. The characteristics of the drone, where it is flown and who the operator is will affect the property and privacy law that applies to it. Some of the legal doctrines discussed in this paper will have broader or narrower application, depending on the scenario in which the drone is operated.

Some of the jobs currently being done by drones have been done by aircraft for some time, meaning that privacy concerns are not entirely novel. For example, aircraft are used to deliver pesticides and high-altitude aircraft are used by the military for surveillance. Similarly, drones may trespass into the airspace of a landowner but this already happens occasionally with helicopters and hot air balloons. Drones are different because they combine the flight abilities of aircraft with the data recording capabilities of computers. Drones are effectively flying robots that constantly collect and record data. In addition, drones are significantly different from aircraft because they are more economical to operate than conventional aircraft and therefore the intrusive capacity of drones will be accessible to many more actors.[26] The occasional intrusion by low-tech hot air balloon may become the regular intrusion by high-tech drone.

(c) Current Regulatory Framework

Transport Canada regulates private use of drones through issuing Special Flight Operations Certificates (SFOC).[27] Military drones are not regulated by Transport Canada but other state uses are, including police drones.[28] Recreational drones are not regulated. The SFOC process is broad and flexible and therefore can be used to authorize flights for any type of drone.

A drone is defined, using the term "unmanned aerial vehicle", as:

> ...a power-driven aircraft, other than a model aircraft, that is designed to fly without a human operator on board.[29]

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[25] Handwerk, *supra* note 16 (quoting Scott Braun).

[26] Office of the Privacy Commissioner of Canada, "Drones in Canada" (Ottawa: Privacy Commissioner of Canada, 2013) at 13 [OPC, "Drones"]; Villasenor, *supra* note 20 at 460.

[27] *CAR*, *supra* note 7 ss. 602.41, 603.67.

[28] *Ibid* at s. 102.01; Transport Canada, Staff Instruction 623-001, "Review and processing of an application for a Special Flight Operations Certificate for the Operation of an Unmanned Air Vehicle (UAV) System" (19 November 2014) at 13, online: < www.tc.gc.ca > [SI2014].

[29] *CAR*, *supra* note 7 s. 101.01(1).

This definition should be read together with the definition of "model aircraft". Other than the use to which they are put, there is no practical difference between drones and model aircraft. A model aircraft is:

> ...an aircraft, the total weight of which does not exceed 35 kg (77.2 pounds), that is mechanically driven or launched into flight for recreational purposes and that is not designed to carry persons or other living creatures.[30]

Three elements of the definition of model aircraft distinguish it from private drones that are regulated by SFOCs. First, the maximum take-off weight (MTOW) of a model aircraft must be less than 35kg. Second, it must only be used for recreational purposes. Third, it must not carry people or animals.[31] The result of reading these definitions together is that the SFOC process applies to all commercial uses of drones, and all drones with a MTOW more than 35kg. There are some exceptions to this general framework. Drones with MTOW less than 2kg, and drones with MTOW less than 25kg used for "work or research" do not require a SFOC.[32] These exceptions reflect the recommendations of the UAV Systems Program Design Working Group, which emphasize integration of drones and some deregulation.[33]

The regulations allow Transport Canada to issue an SFOC for drones with any type of payload. For example, video cameras, infrared sensors, and synthetic aperture radar can all be mounted on a drone.[34] The SFOC process only regulates the payload to the extent that it impacts safety. This includes the impact on operation of the drone, whether the payload is operated by the pilot, and whether it poses any danger to people or property on the ground.[35] This means that drones with a variety of privacy invasive payloads may be authorized to fly.

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30 *Ibid.*

31 See also SI2008, *supra* note 1 at 8.

32 SI2014, *supra* note 28 at 13, 14. Transport Canada, News Release, "Simpler rules for small unmanned aerial vehicles" (5 November 2014) online: Canada News Centre <news.gc.ca>; Diana Marina Cooper, "Transport Canada Releases New Framework for UAV Operations" (27 November 2014), *Diana Marina Cooper: Thoughts on tech law...* (blog), online: <dianamarinacooper.com>. Note that the original terms of reference for the PDWG stated the MTOW boundary would be 35kg, presumably based on the definition of model aircraft in the Canadian Aviation Regulations. However, the PDWG has settled on the lower limit of 25kg. See TCCA, *supra* note 6 at 3 and Phase 1, *supra* note 9 at 2.

33 SI2014, *supra* note 28 at 49. In 2016, Transport Canada is expected to create new and permanent exceptions for drones under 25kg. The expectation is that these exceptions will be based on safety concerns and will have different qualifying requirements, depending on whether the drone is operated in built up or more remote areas. See Kathryn McGoldrick, "New drone regulations expected from Transport Canada in 2016" (6 January 2016), *Aviation Law Blog*, online: <aviationlawblog.ahbl.ca>.

34 See e.g. SI2014, *supra* note 28 at 8, 9, 45, 46.

35 See e.g. *ibid* at 18, 20, 24, 25, 34, 44-46.

As mentioned earlier, the SFOC process is broad and flexible. SFOCs are not limited to simple systems that involve a single drone flown within visual line of sight (VLOS) and controlled using a mobile phone. It includes for example, systems where a single control station may be used to control multiple drones.[36] For those systems that are flown within VLOS, there can be multiple visual observers who communicate information to the pilot who may not have the drone within VLOS.[37] In other cases, visual observers may follow the drone in a "chase aircraft."[38]

The focus of the SFOC process is safety. Safety themes that are emphasized include: sense & avoid, system maintenance, training for pilots, maintenance staff and visual observers, radio frequency interference, security of communication links, and emergency procedures. Transport Canada's approach to drones reflects its traditional role regulating manned aircraft. The certification process adapts its reading of terminology in the *Aeronautics Act* and *Canadian Aviation Regulations* to accommodate the differences between drones and manned aircraft.[39] In general, drones are expected to operate according to the rules that apply to manned aircraft and in most cases drones should give way to manned aircraft.[40]

Authorization for drone flights follows a graduated certification process. Initially, an applicant will be issued a SFOC for a specific mission with specific conditions.[41] This will restrict the certificate holder to a particular flight plan executed with a specific model of drone. As the certificate holder develops a history of successful flights, the authorization granted by the SFOC may be broadened, for example to include a larger geographic area and longer validity periods to cover multiple flights.[42]

The SFOC process does not address privacy directly, though the *Staff Instruction* does indicate that the holder of a SFOC must comply with other legislation governing its activities, including *PIPEDA*.[43] The SFOC process does look after the interests of property owners in two ways, which may indirectly affect privacy. First, drone operators must have plans to avoid, and actually avoid damage to property. This includes obtaining permission to enter property to retrieve a drone that has crashed.[44] Second, some SFOCs include a minimum

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36 *Ibid* at 12, 24.

37 *Ibid* at 17.

38 *Ibid* at 118, 121.

39 See e.g. competence requirements for pilots and system maintainers in SI2014, *ibid* at 16, 18.

40 *Ibid* at 21, 29, 32.

41 Sarah Fitzpatrick & Kenneth Burnett, "Regulation and use of drones in Canada" *Altitudes* (October 2013), online: Canadian Bar Association < www.cba.org > .

42 See generally SI2014, *supra* note 28 at 38, 39.

43 *Ibid* at 14; Gersher, *supra* note 4 at 23; OPC, "Drones", *supra* note 26 at 2.

44 SI2014, *supra* note 28 at 14, 21, 33, 37, 38, 46, 93, 94.

vertical and lateral distance that must be maintained during flight in built-up areas, between the drone and structures or vehicles.[45] The repeated emphasis on avoiding damage to property is in contrast to the lack of emphasis on privacy rights.

In summary, the SFOC process is adapted from traditional regulation of manned aircraft. It is broad enough to permit flights of almost any type of drone with any payload, and for these flights to operate in controlled airspace along with manned aircraft. The process allows for certificate holders to build on a history of safe drone flights to obtain more generalized flight authorization. Privacy is not part of the SFOC assessment process, nor is it something that Transport Canada expects certificate holders to take into consideration in their flight planning.

(d) The Future of Drone Regulation

The UAV Systems Program Design Working Group (PDWG) is considering the future of drone regulation in Canada. As mentioned earlier, the PDWG started its work in 2010 and is expected to wind up in 2017. The PDWG mandate comes from its terms of reference and the work plan is based on the plan developed by the original Unmanned Aerial Vehicle Working Group (UAV-WG), which completed its work in 2007.

The PDWG's work is divided into four phases. The four phases are oriented around developing regulations for different weight categories of drones, and includes developing regulations for drones operated beyond visual line of sight (VLOS).[46] Phase 1 was completed in March, 2012. Phase 2 should have been completed in 2014, however the PDWG has yet to release its Phase 2 report.[47] One of the problems with Transport Canada's development of drone regulations is secrecy. During the writing of this paper, Transport Canada documents on drone regulation were hard to come by, and some could only be obtained from third parties, who in turn obtained them through access to information requests. The UAV-WG's 2007 report was available on the Transport Canada website as late as March 2014 but is no longer. In 2015 Transport Canada issued a Notice of Proposed Amendment for drone regulations and accepted public comments, which is a welcome improvement in transparency.[48] The proposed amendments are consistent with the PDWG's work, particularly in the area of deregulation, however the PDWG reports remain secret.

The PDWG recommendations for Phase 1 are consistent with existing practices for SFOCs. The underlying assumption is that drones will be fully

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[45] See e.g. *ibid* at 82, 102, 105.

[46] TCCA, *supra* note 6 at 3, 4.

[47] *Ibid* at 7.

[48] Canadian Aviation Regulations Advisory Council, *Notice of Proposed Amendment: Unmanned Aerial Vehicles* (Ottawa: Transport Canada, 2015), online: Transport Canada < wwwapps.tc.gc.ca > .

integrated into Canadian airspace. They will be able to fly in all classes of airspace, following the directions of air traffic control.[49] The recommendations emphasize that drones are aircraft.[50] In order to reinforce that drones are aircraft, the PDWG recommends that, like manned aircraft, they be registered, marked and that owners be required to conform to airworthiness reporting requirements.[51] Also, the PDWG avoided as much as possible creating separate regulations for drones because the goal is integration with manned aircraft rather than segregation.[52]

Of particular interest for this paper is the PDWG's recommendation that drones be allowed to operate at low altitudes.[53] In general, aircraft and helicopters may not be operated lower than 1000ft above built-up areas or places where people are assembled.[54] In other situations the minimum altitude is 500ft.[55] Low altitude is anything below these minimums. Currently there are exceptions which allow low altitude flights for, among other things, police operations, life saving, and aerial photography.[56] Because drones are regulated through SFOCs, they are exempt from the minimum flight altitude regulations, though the SFOC may contain its own limits on proximity to structures and vehicles.[57] Because the SFOC process is not centrally managed, Transport Canada is unable to provide details on SFOCs actually issued and it is therefore not possible to know how often SFOCs include such limits.[58] In later phases, the PDWG will revisit low altitude flight regulations for larger drones and those flown beyond VLOS.[59]

In summary, the PDWG is engaging in a rather secretive review of aviation regulations related to all types of drones. As with the SFOC process described earlier, there is no consideration of privacy. The PDWG follows the general themes of the current SFOC process with a focus on deregulation and integration.

II. DRONE PRIVACY RISKS

Examples of current drone applications show how drones may present formidable threats to privacy. Keeping these examples in mind, this section will

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49 Phase 1, *supra* note 9 at 2, 17.

50 *Ibid* at 11, 14.

51 *Ibid.*

52 *Ibid* at 5.

53 *Ibid* at 17.

54 *CAR*, *supra* note 7 s. 602.14(2)(a).

55 *Ibid* at ss. 602.14(2)(a), 602.14(2)(b).

56 *Ibid* at s. 602.15.

57 *Ibid* at ss. 602.14(2)(a), 602.15(2)(a), 603.65(d), 603.66.

58 Santry, *supra* note 10.

59 Phase 1, *supra* note 9 at 17.

delve into privacy theory and the challenge that new technologies such as drones present to the dominant theories of privacy that exist in Canadian law. First, there is an overview of definitions of privacy including those found in Canadian law. Second, there is a discussion of how the law interacts with new technology. That discussion will explore at length privacy violations that the dominant legal theories of privacy do not address and why it is important for the law to incorporate a theory of privacy that does address these violations. There are two notable problems that drones pose for privacy law: data aggregation and privacy in public. Privacy scholars have already considered these problems in relation to other technology. This paper takes the position that privacy theories addressing both of these problem must be embedded into Canadian law.

(a) Definitions of Privacy

Privacy is a difficult concept to pin down.[60] There are many definitions and they differ substantially. Some argue that privacy does not protect interests that are not already protected by other areas of law.[61] Others argue that privacy interests are distinct but privacy is inadequate to protect against the negative effects of surveillance.[62] This is a short overview of some theoretical approaches to privacy.

The historical starting point in American and Canadian legal scholarship is the right to be let alone, developed originally by Warren & Brandeis.[63] This is in some ways broader than privacy itself and also too narrow to deal with some privacy threats.[64] The right to be let alone is broader because it demands a general freedom from interference or regulation, not just interference with privacy. It is narrower because it does not protect against some clear privacy violations, for example, disclosure of medical records by one physician to another without the patient's consent.[65] The right to be let alone implies a sharp distinction between public and private space.[66] Since Warren & Brandeis first elaborated the idea, courts and scholars in the United States have developed it as

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60 Finn, *supra* note 19 at 185.

61 Colin H. H. McNairn & Alexander K. Scott, *Privacy Law in Canada* (Markham: Butterworths Canada Ltd, 2001) at 6; See also Ruth Gavison, "Privacy and the Limits of Law" (1980) 89:3 Yale L.J. 421, at 421.

62 Finn, *supra* note 19 at 186.

63 McNairn, *supra* note 61 at 4; *Jones v. Tsige*, 2012 ONCA 32, 2012 CarswellOnt 274, 108 O.R. (3d) 241, [2012] O.J. No. 148 (Ont. C.A.) at para. 16 [*Tsige*]; Neil M. Richards & Daniel J. Solove, "Prosser's Privacy Law: A Mixed Legacy" (2010) 98 Cal. L. Rev. 1887 at 1913; See generally Samuel D. Warren & Louis D. Brandeis, "The Right to Privacy" (1890) 4:5 Harv. L. Rev. 193.

64 McNairn, *supra* note 61 at 7-8; Richards, *supra* note 63 at 1913.

65 McNairn, *supra* note 61 at 7-8.

66 *Ibid* at 7; See generally William L. Prosser, "Privacy" (1960) 48 Cal. L. Rev. 383 at 383-387.

four separate torts.[67] One of these, the tort of intrusion upon seclusion, also exists in Canadian law and will be considered in detail later in the paper.

Another approach to privacy present in Canadian law is the information control approach. The information control approach does not protect privacy directly but indirectly by enabling individuals to control their personal information.[68] Information control operates by giving individuals control of the collection, use, and disclosure of personal information.[69] This is the concept that underlies Canada's private sector privacy law which will be considered in more detail later.[70] One limitation is that information control does not address intrusion into private space, though this is addressed by the tort of intrusion upon seclusion.[71]

Building on the information control approach, Gratton argues for a new way of interpreting the term personal information. Literal interpretation of the term and the difficulty of determining whether information pertains to an identifiable individual has led to unwanted outcomes.[72] The problem with literal interpretation is amplified by changing technology, in particular the increasing volume of personal information, new collection tools, new types of data (e.g. geographic information) and new techniques for linking individuals to information.[73] Gratton proposes a purposive interpretation of personal information to ensure that the definition and its application remain consistent with the purpose of data protection legislation such as Canada's *Personal Information Protection and Electronic Documents Act*.[74] The purpose of *PIPEDA* is to protect against risk of harm, which is a function of several variables including: the circumstances of the situation, intentions of the parties, the kind of information collected and how the information is processed.[75] In Gratton's view, only data that poses a risk of harm should be subject to *PIPEDA*.[76] Harm can be either subjective, such as unwanted perception of observation, or objective, such as when information is used to discriminate.[77] Subjective harm would be protected through application of *PIPEDA* to *collection* and *disclosure* of

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67 See generally Prosser, *supra* note 66; McNairn, *supra* note 61 at 5.

68 Michael Power, *The Law of Privacy* (Markham: LexisNexis Canada Inc, 2013) at paras. 1.4, 2.1.

69 McNairn, *supra* note 61 at 5.

70 *PIPEDA*, *supra* note 24 s. 3; OPC, "Drones", *supra* note 26 at 14.

71 McNairn, *supra* note 61 at 12.

72 Éloïse Gratton, *Understanding Personal Information: Managing Privacy Risks* (Markham: LexisNexis Canada, 2013) at 146.

73 *Ibid* at 21, 24-28, 30-33.

74 *Ibid* at 146; *PIPEDA*, *supra* note 24.

75 Gratton, *supra* note 72 at 157-158.

76 *Ibid* at 179.

77 *Ibid* at 220, 334; Ryan Calo, "The Boundaries of Privacy Harm" (2011) 86:3 Ind. L.J. 1131 at 1133, cited in Gratton, *ibid* at 227.

information, while only objective harm would be protected by *PIPEDA*'s application to *uses* of personal information.[78] This approach places responsibility for preventing harm in the hands of organizations using personal information and acknowledges that individual control of personal information is a utopic idea.[79]

A more philosophical view of privacy is that it protects human dignity or that it is a right of inviolate personality.[80] The human dignity view describes the protected interest differently from how it is described by Prosser's privacy torts. Bloustein illustrates this using the example of a woman giving birth.[81] A woman giving birth does not want an audience other than medical staff and close family, for reasons broadly described as privacy. For tort law, the objective is to protect against the harm of mental distress. The inviolate personality view says that the protected interests are her individuality and human dignity, regardless of the harm.[82]

Gavison argues that privacy can be described as concern over accessibility to others.[83] There are three elements of accessibility: the extent to which we are known to others, the extent to which others have physical access to us and the extent to which we are the subject of others' attention.[84] Gavison calls these secrecy, solitude and anonymity.[85] Each element presents its own challenges for understanding privacy and whether a loss of privacy has occurred. With secrecy, as with the information control approach, information must be about an individual for a privacy loss to occur.[86] Sometimes it is not clear whether information is about an individual or for example, about the individual's car or house.[87] Anonymous information, which does not appear to be linked to an individual, can sometimes be connected to the individual by correlating it with other known information about the individual or a group to which the individual belongs.[88] There is always a loss of privacy when an individual becomes the subject of others' attention, because attention is a primary way of acquiring

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78 Gratton, *supra* note 72 at 217.

79 *Ibid* at 172-174, 410-417.

80 McNairn, *supra* note 61 at 10.

81 Edward J. Bloustein, "Privacy as an Aspect of Human Dignity: An Answer to Dean Prosser" (1964) 39 N.Y.U. L. Rev. 962, at 973.

82 *Ibid.*

83 Gavison, *supra* note 61 at 423.

84 *Ibid.*

85 *Ibid* at 428.

86 *Ibid* at 430.

87 *Ibid* at 431; See generally Teresa Scassa, "Geographical Information as 'Personal Information'" (2010) 10:2 O.U.C.L.J. 185 at 193-197.

88 Gavison, *supra* note 61 at 430-31; See also Ciara Bracken-Roche et al, *Surveillance Drones: Privacy Implications of the Spread of Unmanned Aerial Vehicles (UAVs) in Canada* (Kingston: Surveillance Studies Centre, Queen's University, 2014) at 45-54.

information.[89] Privacy is a combination of these three independent and interrelated elements.[90] By thinking about the basis of privacy and addressing the challenges presented by the three elements of accessibility, it is possible to establish a coherent notion of privacy that is also a useful legal concept.[91]

Contextual integrity says that breaches of privacy are better understood as breaches of context, rather than merely breaches of intimate or sensitive information.[92] There are no areas of life that are not governed by norms of information flow.[93] That is to say, even in public, information is not simply up for grabs. Contextual integrity has two information norms: norms of appropriateness and norms of distribution or flow.[94] If either norm is violated, privacy is violated.[95] Norms of appropriateness define what is appropriate to reveal in a particular context, for example in a friendship, to a physician or in a job interview.[96] Norms of distribution, an idea based on distributive justice, define when it is appropriate for information to flow, either within a context, or to another context.[97] For example, in the context of friendship, a friend ferreting out information from third parties might not comply with the context's distribution norms.[98] To assess whether privacy has been violated, it is crucial to know the context: who is gathering and analyzing information, who is disclosing it and to whom it is disclosed, the relationships among the parties and nature of the information.[99]

(b) Latent Ambiguities

Drones are one of many new technologies that are having a significant impact on privacy protection. Other technologies appeared before drones and have already presented challenges to accepted definitions of privacy and to privacy law. Warren & Brandeis were concerned about the same thing: the development of instantaneous photography which invaded the privacy to which they had become accustomed.[100] Modern examples include increased use of

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89 Gavison, *supra* note 61 at 432.

90 *Ibid* at 433-434.

91 See Gavison, *ibid* at 422, 459, 462-463.

92 Helen Nissenbaum, "Protecting Privacy in an Information Age: The Problem of Privacy in Public" (1998) 17 Law & Phil. 559 at 584 [Nissenbaum, "Privacy in Public"].

93 Helen Nissenbaum, "Privacy as Contextual Integrity" (2004) 79:1 Wash. L. Rev. 119 at 137 [Nissenbaum, "Contextual Integrity"].

94 *Ibid* at 138.

95 *Ibid*.

96 *Ibid* at 138, 142, 143.

97 *Ibid* at 140-141.

98 *Ibid* at 142.

99 *Ibid* at 153-155.

100 Warren, *supra* note 63 at 195, 206, 211.

video surveillance by private businesses and mobile phone location tracking features.[101]

Drones will also have an impact on property and aviation law though they are not the first aircraft to do so. In the twentieth century, as manned flight became more common, it challenged existing concepts of property law. Prior to manned flight, a land owner owned everything above and below his land, from heaven down to hell.[102] This previously 'clear' principle of law became more complicated with regular overflights by aircraft. It was desirable for aircraft to be able to fly freely over private land without being liable for trespass in the land owner's airspace.[103] Eventually the law changed and an upper limit was imposed on the surface owner's rights in airspace.[104] As will be seen later in this paper, some of the same debates about the extent of a land owner's rights in airspace are likely to reoccur in relation to drones.

The interaction between technology and the law, be it aircraft or surveillance cameras, is not well understood.[105] Some argue that new technologies require special treatment in the law.[106] Others say that there is really nothing new and that it makes no more sense to have specialized law for a given technology than it would to have specialized law for horses.[107] Lessig has long made the case that new technology reveals latent ambiguities in the law that existed all along. New technology shows that existing legal doctrines are incomplete and that the gaps need to be filled in to address the challenges posed by the new technology.[108] Calo makes the case for moderate exceptionalism, saying that technology can be considered exceptional if it requires a systematic change to the law in order to replace or reproduce an existing balance of values.[109] Drones, like aircraft and the internet, are challenging existing doctrines in property law and privacy law.

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[101] See Office of the Privacy Commissioner of Canada, *Guidelines for Overt Video Surveillance in the Private Sector* (Ottawa: Privacy Commissioner of Canada, 2008) at 1-2 [OPC, "Overt"]. See also Ian Kerr & Jena McGill, "Emanations, Snoop Dogs and Reasonable Expectations of Privacy" (2007) 52:3 Crim. L.Q. 392 at 393.

[102] *Didow v. Alberta Power Ltd.*, 1988 CarswellAlta 109, 88 A.R. 250, [1988] A.J. No. 620 (Alta. C.A.) at para. 8, leave to appeal refused 1989 CarswellAlta 809 (S.C.C.) [*Didow*].

[103] Stuart Banner, *Who Owns the Sky?* (Cambridge: Harvard University Press, 2008) at 69.

[104] *Bernstein of Leigh (Baron) v. Skyviews General Ltd.*, [1978] 1 Q.B. 479 (U.K.) at 488 [*Bernstein*].

[105] Banner, *supra* note 103 at 3.

[106] Ryan Calo, "Robotics and the Lessons of Cyberlaw" (2015) 103:3 Cal. L. Rev. 513 at 550-551 [Calo, "Robotics"].

[107] *Ibid* at 551-552; See e.g. Banner, *supra* note 103 at 223.

[108] Lawrence Lessig, *Code and Other Laws of Cyberspace* (New York: Basic Books, 1999) at 25.

[109] Calo, "Robotics", *supra* note 106 at 552-553.

(c) Law and Changing Technology

Drones pose two different but related challenges. One of these is data aggregation and the other is privacy in public. These challenges emerged earlier than drones, with the popularization of other technologies, such as the internet, digital cameras and mobile phone location tracking. The popularization of private drones will continue to strain existing privacy protections. This section of the paper will argue that to meet the privacy challenge of drones it is necessary to find a way to protect against data aggregation and to protect privacy in public.

Data aggregation, also called data mining or profiling, is a technique of matching disparate data sets and drawing inferences to learn new things or make predictions about the subject.[110] Data aggregation brings a whole new meaning to the data sets that are matched.[111] Data mining allows Netflix to predict films customers might be interested in watching and helps Amazon maintain its supply chain.[112] Data mining also enables discovery of information about individuals that those individuals may not have wanted to reveal and may not be aware are revealed, such as predicting a Facebook user's sexuality or guessing her Social Security Number.[113] While it may be obvious to the reader why this kind of data aggregation is undesirable, it is not clear that dominant theories of privacy either recognize these problems, or can distinguish between acceptable and unacceptable data aggregation. Where personal or sensitive information is used in aggregation, it easy to see the privacy violation. It is harder for dominant privacy theories to grapple with the fact that non-personal information can be usefully aggregate in a way that can threaten an individual's interests.[114]

Gratton identifies data aggregation as one of the most important changes that technology brings to the privacy landscape.[115] Another important change identified by Gratton is the volume of data collected and stored.[116] With a

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[110] Elizabeth Paton-Simpson, "Privacy and the Reasonable Paranoid: The Protection of Privacy in Public Places" (2000) 50:3 U.T.L.J. 305 at 341; Nissenbaum, "Contextual Integrity", *supra* note 93 at 95.

[111] Gratton, *supra* note 72 at 34.

[112] *Ibid* at 36; Nissenbaum, "Contextual Integrity", *supra* note 93 at 152-153.

[113] Gratton, *supra* note 72 at 36, 38.

[114] Nissenbaum, "Privacy in Public", *supra* note 92 at 587; Gratton, *supra* note 72 at 27, 32; Paton-Simpson, *supra* note 110 at 341; OPC, "Drones", *supra* note 26 at 14. For a discussion of when information derived from data aggregation becomes personal information under the *Personal Information Protection and Electronic Documents Act*, see Éloïse Gratton, "Personalization, Analytics and Sponsored Services: The Challenges of Applying PIPEDA to Online Tracking and Profiling Activities" (2010) 8:2 C.J.L.T. 299; Office of the Privacy Commissioner of Canada, *Policy Position on Online Behavioural Advertising*, (Ottawa: Privacy Commissioner of Canada, 2012), online: < www.priv.gc.ca >.

[115] Gratton, *supra* note 72 at 21, 34-38; See also Nissenbaum, "Privacy in Public", *supra* note 92 at 576-577.

[116] Gratton, *supra* note 72 at 21, 27.

greater volume of data, more data aggregation is possible and more accurate inferences can be drawn. There is a greater volume of data not only because there is more of the same *stuff* or because digital storage allows indefinite data retention. There is a greater volume of data because of new types of data and new techniques for collecting it.[117] The concept of an IP address as personal information is relatively new, though commonly used as an example in discussions of privacy and technology.[118] Other new types of information include web browsing patterns, user names, email addresses, and location information.[119] New techniques of collecting information include mobile phones, browser cookies, thermal imaging, automated toll collection systems for roads and transit, and RFID tags.[120] The sensors that drones can carry are also a new technique of collecting information.

In the online world and the offline world, we give away information about ourselves, both willingly and unwillingly. Some of the information, which Kerr calls emanations, is not susceptible to the individual's control.[121] An emanation is any thing that flows from an individual's body or property.[122] Examples include odours, DNA from flaking skin and hair, fingerprints, heat radiating from a person's body or from a building, and mobile phone signals.[123] Emanations provide useful clues for police investigations, even enough to justify a search of a person or property.[124] Emanations are also useful clues for private actors wanting to build a profile of individuals going about their daily affairs.

People go about their daily affairs in private and in public. The dominant theories of privacy protect that which is in private and undisclosed, and often do not protect that which happens in public. A person who goes to the corner store to buy bread and milk can expect to be seen by neighbours as he comes and goes, and can also expect that other people in the store may know what he bought.[125] According to the dominant theories of privacy, when a person goes out in public, he waives the right to privacy.[126] Several scholars have argued that the sharp

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[117] See *ibid* at 21, 30.

[118] See *ibid* at 31.

[119] *Ibid* at 30-32.

[120] *Ibid* at 28-30.

[121] Kerr, *supra* note 101 at 393.

[122] *Ibid*.

[123] *Ibid*.

[124] See e.g. *R. v. Tessling*, 2004 SCC 67, 2004 CarswellOnt 4351, 2004 CarswellOnt 4352, [2004] 3 S.C.R. 432, [2004] S.C.J. No. 63 (S.C.C.) at paras. 4-6, 27, 58; See also *R. v. Brown*, 2008 SCC 18, 2008 CarswellAlta 523, 2008 CarswellAlta 524, (*sub nom. R. v. Kang-Brown*) [2008] 1 S.C.R. 456, [2008] S.C.J. No. 18 (S.C.C.).

[125] Austl, Commonwealth, Law Reform Commission, *Unfair Publication: Defamation and Privacy* (Report No 11) (Canberra: Australian Government Publishing Service, 1979) at 125 cited in Paton-Simpson, *supra* note 110 at 321.

[126] *Ibid* at 320; Chris D. L. Hunt, "Privacy in the Common Law: A Critical Appraisal of the

distinction between private and public space is not feasible and does not accurately reflect either individuals' own judgements about privacy or how they behave in public.[127]

If privacy in public does not exist, then a reasonable person must go to great lengths to preserve her privacy. Paton-Simpson argues that the person who goes to such great lengths is not in fact reasonable, but paranoid. Paton-Simpson uses the example of Prudence to show the kind of behaviour necessary to preserve privacy. Prudence keeps her curtains closed day and night. She does not speak with friends in cafés. She shreds all documents before discarding them. She buys all personal items via mail order, lest she be observed by others buying them, and receives them addressed to a pseudonym at a post office box. Prudence never goes to specialist health clinics and never attends controversial political meetings.[128] If Prudence were to leave her curtains open, she could not complain about people looking in through her window. If she discusses sensitive subjects with friends in a café, she cannot expect people nearby not to overhear. In spite of these ostensibly common sense arguments, ordinary people who do not behave like Prudence do not intend to waive their privacy rights when they go out in public.[129]

Private and public spaces cannot be sharply distinguished. In reality there are degrees of private and public.[130] As an example, consider a locker room, a church and a gay bar. Individuals in these different contexts assess how public the space is and adjust their behaviour accordingly.[131] For example, while it is acceptable to take photos in the street, this is not acceptable in the locker room context, even though that space is to some degree public, by virtue of there being others around. Dominant theories of privacy would say that if a man's attendance at a gay bar was revealed to his church congregation, there would no privacy violation. In reality, this view is at odds with ordinary people's intuitions and judgments about these spaces.[132]

Ontario Court of Appeal's Decision in *Jones v. Tsige*" (2012) 37:2 Queen's L.J. 661 at 674.

[127] UK, Home Office, *Report of the Committee on Data Protection* (London: Her Majesty's Stationery Office, 1978) at paras. 31.02-31.05, cited in Gratton, *supra* note 72 at 50-51; Paton-Simpson, *supra* note 110 at 308, 321; Nissenbaum, "Contextual Integrity", *supra* note 93 at 134; Hunt, *supra* note 126 at 676, 679-680, 693.

[128] Paton-Simpson, *supra* note 110 at 305-306, 314-315, 320. Paton-Simpson cites both American and Canadian jurisprudence, arguing that though Canadian courts have often expectations such as these on Prudence, there are also some cases showing a more nuanced view of the distinction between private and public.

[129] Paton-Simpson, *supra* note 110 at 346; See e.g. Hunt, *supra* note 126 at 676.

[130] Paton-Simpson, *supra* note 110 at 322; *Australian Broadcasting Corporation v. Lenah Game Meats Pty Ltd.*, [2001] HCA 63 (Australia) at para. 42, cited in Hunt, *supra* note 126 at 682.

[131] Paton-Simpson, *supra* note 110 at 323.

[132] Nissenbaum, "Privacy in Public", *supra* note 92 at 584.

A number of factors affect the degree of privacy in public spaces. These are information dispersion, anonymity and impermanence.[133] Information dispersion means that publicly observable activities are dispersed over space and time. Individuals normally expect that their public activities are only being casually observed by others. This is in contrast to systematic observation which can produce a detailed profile of an individual's life.[134] Anonymity means that in most cases, those who casually observe someone in public do not actually know that person.[135] The result is that any information gained about that individual does not contribute to building a profile. Impermanence means that what happens in public and what others observe, is mostly transient.[136] That is, an individual passes through the pharmacy, buys a pregnancy test kit, and then moves on. Those who observed this also move on and the event vanishes into history.[137] New technology reduces privacy in public by reducing the influence of these three factors.[138] The earlier example of how it is unacceptable to take photographs in a locker room shows the impact of technology on these three factors. While individuals in a locker room would expect to be seen by others, they do expect not to be recorded, and they expect that any observations will fade into history.

Underlying the claim that there is no privacy in public are flawed assumptions about consent and voluntariness. The reasoning about consent is as follows: since it is generally true that there is less privacy in public than in private places, then an individual who goes out in public knowing this, implicitly consents to whatever intrusions or publicity that follow.[139] For example, someone who talks over the fence to their neighbour risks being overheard by another neighbour and has no claim against the eavesdropper.[140] This assumption about consent equates knowledge of a risk with consent to suffer the consequences if the risked event occurs.[141] Equating knowledge of a risk with consent to its occurrence in turn assumes that the choice to go out in public is voluntary.[142] In reality we must go out in public to get to work, see doctors, buy groceries and participate in civic life, including controversial political meetings.[143] Attending political meetings may be optional but the other activities are not, and opting not to participate in political meetings limits the

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[133] Paton-Simpson, *supra* note 110 at 321.

[134] *Ibid* at 323-324.

[135] *Ibid* at 325-326.

[136] *Ibid* at 327.

[137] Nissenbaum, "Privacy in Public", *supra* note 92 at 576, 595.

[138] *Ibid* at 576-577. See also Gratton, *supra* note 72 at 21, 27, 50-52.

[139] Paton-Simpson, *supra* note 110 at 332; Hunt, *supra* note 126 at 676.

[140] Paton-Simpson, *supra* note 110 at 333.

[141] *Ibid* at 332.

[142] *Ibid* at 337; Hunt, *supra* note 126 at 677.

[143] Paton-Simpson, *supra* note 110 at 338; Hunt, *supra* note 126 at 677.

individual's exercise of other rights, including freedom of association and expression.[144]

In summary, privacy law needs to address data aggregation and privacy in public. Approaches to privacy that ignore the impact of technology are not able address these problems. Theories of privacy that look at information or events in isolation will not protect against data aggregation. Theories of privacy that assume a sharp divide between private and public will not protect privacy in the way we are accustomed to, as we go about our daily affairs, moving from one context to another. The dominant approaches to privacy do protect privacy, in a world where Prudence goes to the drug store to buy a pregnancy test kit and when she leaves, the event fades into history. However, this is no longer the world we live in. Prudence's visit to the drug store is recorded, maybe forever, and likewise for her other activities in public. Privacy theory must accurately account for the complex reality of an individual's expectations: that for example, it should be possible to use location features of a mobile phone, without having one's movements recorded and used to build a digital profile. Drones represent the next step in an increased capacity to interfere with individuals' privacy. If drones continue to be financially attractive to deploy, as it is expected they will be, then the frequency and intensity of this interference will increase. The threats caused by data aggregation and lack of privacy in public have already strained privacy law and will continue to do so as drones with their arrays of sensors take to the sky.

III. LEGAL PROTECTION AGAINST DRONE PRIVACY INVASION

(a) Property Law

This section will discuss the possibility of a land owner using property law to protect his privacy against drones. Protection of privacy depends to some extent on ownership and control of property.[145] To provide background, the discussion will start with a review of the nature and extent of the surface owner's rights in airspace. Depending on the nature and extent of rights in airspace, the surface owner may have a claim in trespass or nuisance against drones that enter his airspace. These types of claims may be useful in some situations, even though they do not address privacy invasions from airspace outside the surface owner's control.

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[144] Paton-Simpson, *supra* note 110 at 342; Finn, *supra* note 19 at 190; Ryan Calo, "Robots and Privacy" in Patrick Lin, Keith Abney & George A. Bekey, eds, *Robot Ethics: The Ethical and Social Implications of Robotics* (Cambridge: MIT Press, 2012) 187 at 190. For a longer discussion of the values that are affected by norms of information flow, see Nissenbaum, "Contextual Integrity", *supra* note 93 at 147-151.

[145] Paton-Simpson, *supra* note 110 at 306, 307.

(i) Property Rights in Airspace

Before considering how an occupier or land owner might use property law to protect her privacy from drones it is necessary to establish what rights she has in the airspace above her land. As mentioned earlier, the legal principle used to be: the surface owner owns everything above and below her land, from heaven down to hell.[146] As manned flight became more common in the 20th century, courts in the UK, US, and Canada all made decisions limiting the surface owner's rights in airspace.[147]

At least one British judge stated that the principle of ownership of airspace up to heaven was fanciful and absurd since it would result in trespass "...being committed by a satellite every time it passes over a suburban garden."[148] Aside from absurdity, the benefits of aircraft were too great to allow them to be hindered by surface owners.[149] In the modern world of aircraft, satellites and "visits to the moon", an unlimited right to airspace by the surface owner made no sense.[150] Besides, overflights by aircraft several thousand feet above the surface could have little impact on the surface owner below.[151] The rights of the surface owner and the right of the public to make use of the air were balanced by putting an upper limit on the surface owner's rights.[152]

Though an upper limit was imposed, where that limit is has not been clearly defined.[153] In *Causby*, the Supreme Court of the United States described the extent of airspace rights in three different ways:

1. Extending to the "immediate reaches" of the surface.
2. Including as much airspace as the surface owner can use or occupy.
3. Extending as far as necessary to ensure the surface owner's full enjoyment of the land.[154]

These descriptions of the extent of rights in airspace have all appeared in Canadian decisions either directly or in citing UK decisions.[155] In Canada, the

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[146] *Didow*, *supra* note 102 at para. 8.

[147] *Manitoba v. Air Canada*, 1978 CarswellMan 120, 86 D.L.R. (3d) 631, [1978] M.J. No. 15 (Man. C.A.) at para. 15, affirmed 1980 CarswellMan 170, 1980 CarswellMan 177 (S.C.C.) [*Air Canada*]; *Bernstein*, *supra* note 104 at 488; See generally *United States v. Causby*, 328 U.S. 256 (U.S. Sup. Ct., 1946).

[148] *Bernstein*, *supra* note 104 at 487.

[149] Banner, *supra* note 103 at 240, 251, 293.

[150] *Air Canada*, *supra* note 147 at para. 15; *Lacroix v. R.*, 1953 CarswellNat 272, [1954] Ex. C.R. 69 (Can. Ex. Ct.) at 73 [Ex. C.R.] [*Lacroix*].

[151] *Didow*, *supra* note 102 at para. 25.

[152] Bruce Ziff, *Principles of Property Law*, 6th ed (Toronto: Thomson Reuters Canada Limited, 2014) at 95; *Bernstein*, *supra* note 104 at 487, 488.

[153] Ziff, *supra* note 152 at 95.

[154] Banner, *supra* note 103 at 254, 255.

[155] *Lacroix*, *supra* note 150 at 75; *Bernstein*, *supra* note 104 at 488; *Didow*, *supra* note 102 at paras. 20, 24, 32, 34, 37.

courts have found interference with the surface owner's rights at heights of 50ft[156] and 70ft.[157] Other decisions have found interference without mentioning the height.[158] None of the Canadian or UK cases involved intrusions by aircraft.

Courts in the United States have decided cases involving aircraft interference with the surface owner's rights, both for and against surface owners. In American law, the "fixed height theory" holds that airspace rights extend up to the minimum safe altitude for flight, which is 500ft above the surface.[159] The fixed height theory has not been consistently applied by American courts.[160] The result is that, like Canada, the extent of the surface owner's rights in the airspace remain unclear. Cahoon argues that the fixed height theory is based on an incorrect reading of *Causby* and in any case fails to protect the surface owner's rights when the intrusion is above the minimum safe altitude for flight.[161] If this is the case at 500ft then it is even more true if the surface owner's rights extend only to 70ft. In Canada, the minimum safe altitude for flight in built-up areas is 1000ft above the highest obstacle and everywhere else is 500ft above the highest obstacle.[162] If the minimum safe altitude for flight was a guide for the upper limit of the surface owner's rights in airspace, those rights would extend much further than currently contemplated in Canadian jurisprudence.

The nature of the surface owner's rights in airspace, which is a distinct question from the extent of those rights, is also not clear.[163] In *Lacroix*, the plaintiff sought compensation for what he claimed was an expropriation of an easement or servitude in the airspace above his land, for flights landing and taking off at what was then called Dorval International Airport.[164] The court held that there could be no expropriation of the airspace because airspace was *res omnium communis* and therefore not susceptible of ownership.[165] If Lacroix did not own the airspace, then the Crown could not have expropriated it. This

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156 *Didow, supra* note 102 at para. 2.

157 *Kingsbridge Development Inc. v. Hanson Needler Corp.*, 1990 CarswellOnt 649, 71 O.R. (2d) 636, [1990] O.J. No. 1070 (Ont. H.C.), additional reasons 1990 CarswellOnt 981 (Ont. H.C.) [*Kingsbridge*].

158 *Anchor Brewhouse Developments Ltd. v. Berkley House (Docklands Developments) Ltd.*, [1987] 2 E.G.L.R. 173 (U.K.) at 174 [*Anchor Brewhouse*]; *Kelsen v. Imperial Tobacco Co.*, [1957] 2 Q.B. 334 (Eng. Q.B.) at 335, 336 [*Kelsen*].

159 Colin Cahoon, "Low Altitude Airspace: A Property Rights No-Man's Land" (1990) 56 J. Air L. & Com. 157 at 171, 172, 181, 191, 197.

160 *Ibid* at 182, 187, 188, 191.

161 *Ibid* at 171, 172, 189, 196, 197. See generally, *Aaron v. United States*, 311 F.2d 798 (Ct. Cl., 1963); *Branning v. United States*, 654 F.2d 88 (Ct. Cl., 1981).

162 *CAR*, *supra* note 7 s. 602.14(2).

163 Franklin O Leger, "Air Rights and The Air Space Act" (1985) 34 U.N.B.L.J. 39 at 46; Ziff, *supra* note 152 at 96.

164 *Lacroix*, *supra* note 150 at 71, 72. Dorval is now called Pierre Elliott Trudeau International Airport.

165 *Lacroix*, *supra* note 150 at 76.

decision denies ownership rights in airspace for the surface owner, though the court did allow that the surface owner had a limited right in airspace, limited to that which he could "...possess or occupy for the use and enjoyment of his land."[166] Somewhat contradictory to this decision is the *Aeronautics Act* which implies that the federal Crown has authority to impose an easement on airspace adjacent to an aerodrome through zoning regulations.[167] The zoning regulations for Dorval Airport included height restrictions on buildings on adjacent land to allow aircraft to take-off and land safely.[168] The *Aeronautics Act* does not refer to zoning regulations as expropriation, nor does it mention easements or servitudes, yet the effect of the Minister's zoning power is similar. It may not be possible to imply ownership rights in airspace based on the Minister's zoning power, however it does illustrate an inconsistent understanding of the nature of airspace rights in Canadian law.

Twenty years after *Lacroix*, the Manitoba Court of Appeal made a similar decision. In *Air Canada*, the court affirmed that airspace was *res communis*, and held that the surface owner's rights in airspace merely prevented others from acquiring exclusive rights to the airspace, an event which would prevent the surface owner from using his own land.[169] Again, this decision clearly denies ownership rights in airspace.[170]

In contrast to these decisions, more than 40 years before *Lacroix*, the Supreme Court of Canada in *Iredale* recognized strata ownership. The court held that a room, not resting on the soil and supported only by the building beneath it, could be treated as "land".[171] This implies that it could be leased or alienated like any other land. Strata ownership suggests that the nature of rights in airspace is fuller than the decisions described above have allowed. Modern statutes in some provinces confirm that airspace parcels can be severed from the surface and treated as land.[172] In those provinces airspace parcels can form the basis of condominium land grants.[173]

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[166] *Ibid.*

[167] Hugh R Smart, "*Lacroix v. The Queen*" (1955) 2:2 McGill L.J. 154 at 159, 160. The relevant provisions of the current *Aeronautics Act* match those in force at the time Smart was writing; *Aeronautics Act*, R.S.C. 1985, c. A-2 ss. 5.4(2), 5.4(3).

[168] Smart, *supra* note 176 at 160. For current zoning regulations, see *Montreal International Airport Zoning Regulations*, C.R.C., c. 96, ss. 2, 5 (2015).

[169] *Air Canada*, *supra* note 147 at para. 15.

[170] While a few other decisions have mentioned *Lacroix*, none have advanced the common law understanding of the nature of rights in airspace. Two of these decisions are considered in this paper: *Air Canada*, *supra* note 147 and *Didow*, *supra* note 102. Other cases mentioning *Lacroix* include *Bridges Brothers Ltd. v. Forest Protection Ltd.*, 1976 CarswellNB 96, 14 N.B.R. (2d) 91, [1976] N.B.J. No. 92 (N.B. Q.B.) and *Ramey v. Canada*, 1986 CarswellNat 86, 1986 CarswellNat 86F, [1987] 1 F.C. 552, [1986] F.C.J. No. 685 (Fed. T.D.), additional reasons 1987 CarswellNat 1161 (Fed. T.D.).

[171] *Iredale v. Loudon*, 1908 CarswellOnt 808, 40 S.C.R. 313 (S.C.C.) at 333 [S.C.R.], cited in Leger, *supra* note 163 at 44; Ziff, *supra* note 152 at 95.

[172] See e.g. *Air Space Act*, R.S.N.B. 2011, c. 109 ss. 1-3, 6(1); Leger, *supra* note 163 at 46.

One of the leading Canadian cases on the extent and nature of rights in airspace is *Didow*. In that case, Haddad J. conducted a thorough review of the Canadian and UK jurisprudence. Though not providing complete clarity, *Didow* does provide some noteworthy observations. First, the surface owner does not have rights in the airspace all the way to heaven, as has already been seen.[174] Second, the airspace above that which is necessary for the surface owner's use, is "public domain".[175] The court's reasoning seems to hinge on the need to balance the public's right to higher altitude airspace with the surface owner's right to full enjoyment of her land.[176] *Didow* was a case of trespass by the arms of power poles, not by aircraft, so this reasoning on the extent of airspace rights may be *obiter*.

The ultimate extent and nature of rights in airspace remains unclear. With most aircraft flying above the minimum safe altitude, the Canadian courts have had no opportunities to consider the ownership, use, and occupation of airspace.[177] One thing that is clear is that the surface owner's rights in airspace do not extend to heaven. The multiple descriptions in *Causby* and other decisions of the extent of the rights in airspace are confusing. It is difficult to know if the courts mean the same thing in using different phrases, or if they have entirely different concepts in mind. Based on decisions such as *Didow*, rights extend up to at least 70ft above the surface, perhaps higher if the minimum safe altitude for flight is taken into consideration. It would be too much to say that ownership is the nature of the right of surface owners, based on *Iredale* and statutes such as the *Air Space Act*. These assume that either the surface owner has severed the airspace from the surface, or that a building with multiple tenancies exists. Nevertheless, this is worth noting. Ziff suggests that the nature of the rights could be possessory or usufructuary.[178] The decision in *Didow* lends weight to the idea of possessory rights since there could be no claim in trespass otherwise. *Iredale* implies that without structures or airspace parcels, the nature of the right is something less than possessory, as suggested in *Lacroix* and *Air Canada*. However this would contradict *Didow* and the other trespass cases.

(ii) Trespass

Trespass is an unauthorized interference with possession.[179] This means that whoever is in possession of the land, whether owner or lessee, can make a claim in trespass.[180] The trespass must be intentional but there is no need to

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[173] Eugene J Morris, "Air Rights are 'Fertile Soil'" (1969) 1:3 Urban Lawyer 247, at 259, cited in Leger, *supra* note 163 at 52.

[174] *Didow*, *supra* note 102 at paras. 24, 37.

[175] *Ibid* at para. 37.

[176] *Ibid* at paras. 24, 29, 31.

[177] See also Leger, *supra* note 163 at 46.

[178] Ziff, *supra* note 152 at 96.

[179] *Didow*, *supra* note 102 at para. 6.

demonstrate harm.[181] It is debatable whether negligence or recklessness meet the threshold of intention.[182]

The classic example of trespass is a person entering land or placing a chattel there.[183] Firing a gun across another's land is a trespass.[184] A bullet travelling through the surface owner's airspace without ever touching the land may be analogous to a drone. Both are chattels and are directed by someone who is not the surface owner. A balloon is also analogous to a drone and may be considered a trespass when it passes through airspace without ever touching the surface.[185]

In *Bernstein*, the plaintiff made a claim in trespass against a defendant who he alleged had flown over his land in an aircraft and taken pictures of his house.[186] Though it was not proven, Giffiths J. felt that the aircraft most likely did enter the airspace over Lord Bernstein's land at some point.[187] The court denied the claim, primarily on the grounds that the surface owner's rights in airspace do not extend to heaven, and therefore not far enough to deny aircraft passage through the airspace above the land.[188] A factor that influenced the decision is the UK's *Civil Aviation Act*, which explicitly denied the possibility of trespass or nuisance claims for overflights of aircraft, where the overflight was at a reasonable height above the surface.[189] Though Lord Bernstein's claim was denied, the court allowed that if an aircraft flew low enough to interfere with the surface owner's ordinary use of his land, then there may be a trespass.[190] Griffiths J.'s reference to "ordinary use of the land" should probably be understood as a way of describing the extent of the surface owner's rights in airspace, rather than describing the nature of the right or the requirements of trespass. As mentioned above, trespass is interference with possession and it is not necessary to show interference with a particular use of the land. *Bernstein* has been accepted by the Canadian courts.[191]

Another factor that may have influenced the court, and one of particular interest for drones, is Giffiths J.'s opinion that the plaintiff was not concerned about the trespass as much as the photographs.[192] The court was sympathetic to

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[180] Lewis N. Klar, *Tort Law*, 5th ed (Toronto: Thomson Reuters Canada Limited, 2012) at 111, 112.

[181] *Ibid* at 110, 114.

[182] *Ibid* at 119; See generally David Elvin & Jonathan Karas, *Unlawful Interference with Land*, 2d ed (London: Sweet & Maxwell Ltd, 2002) at paras. 1-036 - 1-039.

[183] *Klar*, *supra* note 180 at 116.

[184] *Ibid* at 118.

[185] *Elvin*, *supra* note 182 at 1-017.

[186] *Bernstein*, *supra* note 104 at 483.

[187] *Ibid*.

[188] *Ibid* at 487, 488, 489.

[189] *Ibid* at 486, 488.

[190] *Ibid* at 486.

[191] See *Air Canada*, *supra* note 147 at paras. 14, 15; *Didow*, *supra* note 102 at paras. 27, 32, 36.

this concern but noted that the plaintiff would have no claim if the photograph had been taken from the street.[193] In *obiter*, the court seems to have foreseen the privacy risks of drones:

> . . . if the circumstances were such that a plaintiff was subjected to the harassment of constant surveillance of his house from the air, accompanied by the photographing of his every activity, I am far from saying that the court would not regard such a monstrous invasion of his privacy as an actionable nuisance for which they would give relief.[194]

There are some claims for trespass as a result of intrusion into airspace which are consistently allowed by the courts. These are cases where a structure on one person's land intrudes into the airspace possessed by his neighbour.[195] Examples include cranes,[196] signs,[197] extractor fans[198] and power lines.[199]

Lewvest and *Anchor Brewhouse* provide good explanations for why intrusion into airspace constitutes interference with possession. The facts of both cases are similar. The defendants erected construction cranes on their land and the booms of the cranes intruded into the airspace of their neighbours.[200] In both cases the courts held that the defendants were trespassing,[201] despite the courts' misgivings about the plaintiffs' motives or behaviour.[202] In *Lewvest*, the court noted that the defendants would save money by intruding on their neighbour's airspace.[203] If the defendant could gain economic advantage by using his neighbour's property, then it would be a form of expropriation for the court to deny the plaintiff a remedy.[204] While *Anchor Brewhouse* does not mention economic advantage, the court said something very similar: "If an adjoining owner places a structure on

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[192] *Bernstein*, *supra* note 104 at 488.

[193] *Ibid.*

[194] *Ibid* at 489.

[195] *Ibid* at 486, *Didow*, *supra* note 102 at para. 34.

[196] See *Lewvest Ltd. v. Scotia Towers Ltd.*, 1981 CarswellNfld 187, 126 D.L.R. (3d) 239, [1981] N.J. No. 220 (Nfld. T.D.) [*Lewvest*]; But see *Kingsbridge*, *supra* note 157 where the court held that a crane intruding into the neighbour's airspace was a nuisance, not a trespass.

[197] See *Kelsen*, *supra* note 158.

[198] See *Laiqat v. Majid and others*, [2005] EWHC 1305 (QB) (U.K.).

[199] See *Didow*, *supra* note 102.

[200] *Lewvest*, *supra* note 196 at para. 1; *Anchor Brewhouse*, *supra* note 158 at 174.

[201] *Lewvest*, *supra* note 196 at paras. 4, 16; *Anchor Brewhouse*, *supra* note 158 at 175.

[202] *Lewvest*, *supra* note 196 at paras. 7-9, 12, 14, 15; *Anchor Brewhouse*, *supra* note 158 at 178. According to Klar, the possessor is entitled to refuse permission to enter on his land, and has no obligation to accommodate, even if it causes great expense or inconvenience to another: *Klar*, *supra* note 180 at 114.

[203] *Lewvest*, *supra* note 196 at para. 7.

[204] *Ibid* at paras. 9, 13; Ziff, *supra* note 152 at 95, 96.

his...land that overhangs his neighbour's land, he thereby takes into his possession air space to which his neighbour is entitled."[205] Both judgments assume the nature of rights in airspace is possessory. By intruding into the neighbour's airspace, a person takes what belongs to his neighbour, as his own, and this is a trespass. Also noteworthy is that both cases rejected the idea of balancing the plaintiff's rights with the public's right to use the airspace.[206] In these cases, unlike *Bernstein*, the benefit of limiting the surface owner's rights would not be in favour of the public, but in favour of the defendant, who is simply another private party.

As mentioned earlier, *Didow* is a leading Canadian case on intrusion into airspace. In *Didow*, the plaintiff made a claim for trespass after the defendant built a power line next to his land, with the poles intruding into his airspace.[207] The court found in favour of the plaintiff.[208] *Didow* seems to be a case affirming incremental change in the common law of trespass into airspace. *Didow* affirms, in contrast to some earlier jurisprudence, that intrusion into airspace by a permanent structure is a trespass, not a nuisance and that harm need not be shown.[209] In *obiter*, Haddad J. mentions that transient intrusions into airspace, including swinging cranes, would still be a nuisance.[210] In *Kingsbridge*, the Ontario High Court of Justice agreed with Haddad J. on this point.[211] Because of this difference between *Kingsbridge* and *Lewvest*, whether a transient intrusion by a drone would be a trespass or a nuisance is not clear.

Bernstein did not foreclose the possibility that low-altitude flight by aircraft could be a trespass. To the extent that drones are analogous to aircraft, which may depend on their size, this leaves the door open. To succeed with such a claim the surface owner will have to establish that she has a possessory interest in the airspace used by the drone. *Didow* and *Iredale* help in this regard. It is reasonable to say that the lower the flight, the more likely a court will find an interference with the surface owner's rights. It may even be possible in Canada to claim rights in airspace as high as the minimum safe altitude for flight. Aside from the question of the extent and nature of rights in airspace, the major stumbling block for a trespass claim is the distinction between permanent and transient intrusions in *Kingsbridge*. It could be argued that there is no distinction between transient

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[205] *Anchor Brewhouse*, *supra* note 158 at 175.

[206] *Lewvest*, *supra* note 196 at paras. 6, 12; *Anchor Brewhouse*, *supra* note 158 at 175.

[207] *Didow*, *supra* note 102 at para. 2.

[208] *Ibid* at paras. 1, 5, 39, 42.

[209] *Ibid* at paras. 10-12, 20, 24, 39; Ziff, *supra* note 152 at 96, briefly discusses how the nature of the right, be it possessory or something else, would affect whether trespass or nuisance would be the appropriate action for intrusion, and the implication for whether harm must be shown.

[210] *Didow*, *supra* note 102 at para. 41.

[211] *Kingsbridge*, *supra* note 157.

and permanent intrusions at the surface-level, therefore there is no reason for this distinction in airspace.

(iii) Nuisance

Nuisance is unreasonable interference with the use or enjoyment of land.[212] The underlying principle is that a person should use her property in a way that does not injure the property of her neighbours.[213] The possessor of land, including the owner or lessee, may bring a nuisance claim against anyone causing a nuisance, not only adjacent neighbours.[214] Unlike trespass, nuisance requires harm.[215] Fault is not necessary for nuisance.[216] In evaluating a nuisance claim the factors that will be considered by the court are: the type and severity of the harm, its duration, the character of the neighbourhood and the sensitivity of the plaintiff's use of the land. The court will also consider the utility of the defendant's activities.[217] In this section the focus will be on the severity of harm as well as the utility of the defendant's conduct.

Types of harm recognized by nuisance include damage to the land as well as interference with an easement, interference with profiting from the fruits of the land, and discomfort or inconvenience.[218] Whatever type of harm, it must be serious and something that the ordinary occupier would not tolerate.[219] A minor discomfort or inconvenience is not likely to be considered a nuisance.[220] The most relevant type of harm for transient intrusions by drone would be discomfort and inconvenience. With this type of harm distinguishing trivial from serious is not always easy.[221] Using land for an isolation hospital for infectious diseases would not be a nuisance to neighbours but a bawdy house would be,[222] though it seems the discomfort would be similar in these cases. One explanation for the different results may be the utility of the defendant's conduct, which will be discussed below, though this is not always explicitly stated by the courts.[223]

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[212] Allen M Linden & Bruce Feldthusen, *Canadian Tort Law*, 9th ed (Markham: LexisNexis Canada Inc, 2011) at 569.

[213] *Ibid*.

[214] *Ibid* at 580, 592.

[215] *Ibid* at 579.

[216] *Ibid* at 589.

[217] *Ibid* at 580.

[218] *Ibid* at 578.

[219] *Ibid* at 578, 579.

[220] *Ibid* at 580.

[221] *Ibid* at 581.

[222] *Ibid*.

[223] See e.g. *Metropolitan Asylum District v. Hill* (1881), 6 App. Cas. 193 (U.K. H.L.); *Shuttleworth v. Vancouver General Hospital*, 1927 CarswellBC 5, [1927] 2 D.L.R. 573, [1927] B.C.J. No. 71 (B.C. S.C.); *Thompson-Schwab v. Costaki*, [1956] 1 W.L.R. 335 (Eng. C.A.).

Spying or surveillance is not a nuisance except where it is done deliberately for the purpose of harassment.[224]

There is some overlap between nuisance and the torts of harassment and intrusion upon seclusion. The latter, at least in part, grew out of the nuisance jurisprudence involving invasions of privacy.[225] It is not clear whether the tort of harassment exists as a standalone tort in Canada.[226]

There are two different ways the defendant's activities will be considered. Though fault is not necessary for nuisance, where the defendant's conduct is malicious, it could turn activities that are otherwise not a nuisance into viable claims for nuisance.[227] An example is noise that would otherwise not be loud enough to be a nuisance, but when done with malicious intent could be a nuisance.[228] It is easy to see how privacy invasions which are not serious enough for a nuisance claim become a nuisance when done with the purpose of harassment. The other way in which the defendant's conduct is considered is in its value to the community. An example is a highway: "...their utility for the public good far outweighs the disruption and injury which is visited upon some adjoining lands."[229] As seen earlier, the benefits of aircraft were considered significant enough to limit the surface owner's rights in airspace. Depending on the commercial uses to which drones are put, and the severity of nuisance they cause to property owners, nuisance claims against drones may meet the same fate.

Though *Kingsbridge* followed the *obiter* in *Didow*, it offered no clue on what a nuisance by transient intrusion would look like. The court in *Kingsbridge* denied the plaintiff's claim in trespass, saying the crane could only be a nuisance. Nor did the court allow a nuisance claim because there was no harm to the land.[230] Similarly, transient intrusions by drones seem unlikely to harm the land.

The advantage of a nuisance claim is that it protects interests other than possessory interest, for example, comfort and inconvenience. If the nature of the surface owner's rights in airspace are something less than possessory, this would exclude a trespass claim. Given that the tort of intrusion upon seclusion addresses more directly the privacy interests which have been protected by some courts in nuisance cases, it seems more practical to make a claim based on that

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[224] Linden, *supra* note 212 at 581; See e.g. *Saelman v. Hill*, 2004 CarswellOnt 2089, [2004] O.J. No. 2122 (Ont. S.C.J.).

[225] Linden, *supra* note 212 at 59, 60; See e.g. *Lipiec v. Borsa*, 1996 CarswellOnt 4122, [1996] O.J. No. 3819 (Ont. Gen. Div.); *Tsige*, *supra* note 63 at paras. 29-32.

[226] *Mainland Sawmills Ltd. v. IWA-Canada, Local 1-3567 Society*, 2006 BCSC 1195, 2006 CarswellBC 1989, [2006] B.C.J. No. 1814 (B.C. S.C.) at para. 13.

[227] Linden, *supra* note 212 at 590.

[228] *Ibid* at 590, 591.

[229] *St. Pierre v. Ontario (Minister of Transportation Communications)*, 1987 CarswellOnt 678, 1987 CarswellOnt 964, [1987] 1 S.C.R. 906, [1987] S.C.J. No. 27 (S.C.C.) at 916 [S.C.R.].

[230] *Kingsbridge*, *supra* note 157.

tort than in nuisance. Traditional nuisance claims such as noise or harm to land are unlikely to succeed because drones do not normally damage the land, and tend not to be as loud as aircraft. As has been seen, nuisance will protect against privacy invasion that constitutes harassment, which may be a useful tool to protect against more extreme privacy violations by drone.

(b) Privacy Law

This section of the paper will review the tort of intrusion upon seclusion and the federal private sector privacy law.[231] The property law defences against drone invasion of privacy are only useful where the drone has entered airspace in which the surface owner has some rights. Addressing privacy invasions by drones flying over public streets, or at altitudes where they cannot be seen, requires considering privacy law itself.

This paper will not cover the constitutional right to privacy.[232] The *Charter* right to privacy generally only comes into play where there is state action, which most commonly happens in the criminal law context.[233] This paper is concerned with private use of drones and *Charter* rights cannot be invoked in disputes between private parties.[234] The Supreme Court of Canada has said that *Charter* values should influence the development of the common law, but the *Charter* should not be the basis for creating new torts.[235] Nevertheless, *Charter* jurisprudence on the right to privacy has influenced courts and academics in their understanding of privacy law.[236]

(i) Intrusion Upon Seclusion

The common law tort of intrusion upon seclusion emerged in the Ontario case *Tsige* in 2012.[237] Before the emergence of the common law tort, other provinces already had statutory torts with the earliest in British Columbia dating to 1968.[238] The provincial statutory torts are similar.[239] In outlining the common law tort, the Ontario Court of Appeal borrowed from these statutes as well as American tort law.[240] This paper will focus on the British Columbia statute, since

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[231] *PIPEDA*, *supra* note 24.

[232] *Canadian Charter of Rights and Freedoms*, ss. 7-8, Part 1 of the *Constitution Act, 1982*, being Schedule B to the *Canada Act 1982* (UK), 1982, c. 11; Linden, *supra* note 212 at 63.

[233] *Ibid.*

[234] *Charter*, *supra* note 232 s. 32; *Dolphin Delivery Ltd. v. R.W.D.S.U., Local 580*, 1986 CarswellBC 411, 1986 CarswellBC 764, (*sub nom. R.W.D.S.U. v. Dolphin Delivery Ltd.*) [1986] 2 S.C.R. 573, [1986] S.C.J. No. 75 (S.C.C.) at 597 [S.C.R.].

[235] *Ibid* at 603; McNairn, *supra* note 61 at 39.

[236] See e.g. *Tsige*, *supra* note 63 at paras. 40-41; *Hunt*, *supra* note 126 at 686-689.

[237] *Tisge*, *supra* note 63.

[238] *Privacy Act*, R.S.B.C. 1996, c. 373; McNairn, *supra* note 61 at 68.

[239] McNairn, s*upra* note 61 at 68; *Tsige*, *supra* note 63 at para. 52.

[240] *Tsige*, *supra* note 63 at paras. 19-24, 52, 55-60, 70-71.

the jurisprudence there is most developed,[241] and the Ontario tort because it is unique as a common law tort in Canada.

Intrusion upon seclusion does not require harm.[242] The violation must be intentional and without lawful justification.[243] A lawful justification includes an insurer's surveillance as part of a fraud investigation.[244] In *Tsige*, the defendant was a bank employee who viewed the plaintiff's bank records 174 times over a period of four years.[245] Tsige's reason for viewing the bank records was not bank business but her own financial dispute with the plaintiff's ex-husband.[246] The court held that this was not a lawful justification.[247] Other types of claims allowed by the British Columbia courts include peep holes and two-way mirrors in a bedroom[248] as well as surreptitious video recording in a bathroom.[249] In some of these cases the plaintiffs suffered harm.[250] Even without harm punitive damages have been awarded.[251]

The British Columbia and Ontario torts differ in two ways. First, British Columbia's *Privacy Act* refers to a violation of privacy, whereas *Tsige* refers to invading the private affairs of another.[252] Second, the *Privacy Act* protects privacy that is "reasonable in the circumstances,"[253] whereas the Ontario tort protects against a violation that a reasonable person would consider "highly offensive."[254]

The court in *Tsige* noted that the statutory torts in Canada did not define privacy, but simply "proclaimed a sweeping right to privacy", leaving it to the courts to fill in the details.[255] In *Davis*, the British Columbia Supreme Court interpreted privacy variously as "the right to be let alone", "the right to an

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[241] McNairn, *supra* note 61 at 68.

[242] *Privacy Act*, *supra* note 238 s. 1(1); *Tsige*, *supra* note 63 at paras. 74, 90.

[243] *Privacy Act*, *supra* note 238 s. 1(1); *Tsige*, *supra* note 63 at para. 71.

[244] *Milner v. Manufacturers Life Insurance Co.*, 2005 BCSC 1661, 2005 CarswellBC 2891, [2005] B.C.J. No. 2632 (B.C. S.C.) at para. 84, additional reasons 2006 CarswellBC 2615 (B.C. S.C.).

[245] *Tsige*, *supra* note 63 at para. 4.

[246] *Ibid* at para. 5.

[247] *Ibid* at para. 89.

[248] *Lee v. Jacobson*, 1992 CarswellBC 1119, [1992] B.C.J. No. 132 (B.C. S.C.) at paras. 39, 46, 48 [Lee], reversed on other grounds 1994 CarswellBC 515, [1994] B.C.J. No. 2459 (B.C. C.A.).

[249] *Malcolm v. Fleming*, 2000 CarswellBC 1316, [2000] B.C.J. No. 2400 (B.C. S.C.) at paras. 4, 7 [*Malcolm*].

[250] *Lee*, *supra* note 248 at paras. 46, 47; *Malcolm*, *supra* note 249 at paras. 7, 23.

[251] *Lee*, *supra* note 248 at para. 48; *Malcom*, *supra* note 249 at para. 9.

[252] *Privacy Act*, *supra* note 238 s. 1(1); *Tsige*, *supra* note 63 at para. 71.

[253] *Privacy Act*, *supra* note 238 s. 1(2).

[254] *Tsige*, *supra* note 63 at para. 71.

[255] *Ibid* at para. 54.

'inviolate personality'", and as the right to be "withdrawn from the society of others, or from public interest."[256] These definitions are similar to Warren & Brandeis.[257] *Tsige* also relies on Warren & Brandeis.[258] As seen earlier, inviolate personality is also associated with the human dignity view of privacy. Hunt is critical of *Tsige* for limiting the definition to a right that protects only "private affairs." Hunt argues that the concept of private affairs incorrectly assumes that private and public affairs can be neatly separated.[259] Though the British Columbia and Ontario courts draw their definitions from the same source, the results have been somewhat different.

The privacy interests protected in the *Privacy Act* and the tort of intrusion upon seclusion are qualified differently. *Tsige* requires that the violation be something that a reasonable person would consider highly offensive.[260] The court suggested that this includes intrusions into matters such as "...one's financial or health records, sexual practises and orientation, employment, diary or private correspondence..."[261] Hunt is critical of *Tsige* for using the "highly offensive" qualifier because it ignores that harm to dignity is inherent in all privacy violations. Otherwise reasonable claims, where dignity is harmed, may be excluded by the "highly offensive" qualifier.[262] Hunt argues that the reasonable expectation of privacy (REP) as interpreted in the UK is a preferable method of qualifying the protected interest.[263] The REP test requires both identifying the privacy interest and assessing whether it is reasonable in the circumstances.[264] The UK's REP test is essentially the same as the REP jurisprudence of the Canadian courts in the criminal law context.[265] Unlike *Tsige*, the British Columbia *Privacy Act* qualifies the protected interest as that which is "reasonable in the circumstances".[266] The previously mentioned examples of claims that were allowed under the *Privacy Act* are less egregious than the hypothetical examples listed in *Tsige*. This suggests a broader application for the *Privacy Act* than the Ontario tort, and seems to respond to Hunt's criticism of *Tsige*.

An example of how the REP approach protects a broader privacy interest is found in the UK case *Murray*.[267] The plaintiff was the infant son of J. K.

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[256] *Davis v. McArthur*, 1969 CarswellBC 230, [1969] B.C.J. No. 249 (B.C. S.C.) at paras. 15-16, reversed on other grounds 1970 CarswellBC 77, [1970] B.C.J. No. 664 (B.C. C.A.).

[257] Warren, *supra* note 63 at 195, 205, 207.

[258] *Tsige*, *supra* note 63 at para. 17.

[259] Hunt, *supra* note 126 at 682.

[260] *Tsige*, *supra* note 63 at para. 71.

[261] *Ibid* at para. 72.

[262] Hunt, *supra* note 126 at 689-690, 694.

[263] *Ibid* at 691, 694.

[264] *Ibid* at 692.

[265] *Ibid* at 689.

[266] *Privacy Act*, *supra* note 238 s. 1(2).

Rowling. The defendant took photos of the family who were walking on the street and subsequently published the photos in the *Sunday Express*.[268] The court held that "...the question whether there is a reasonable expectation of privacy is a broad one, which takes into account all of the circumstances of the case."[269] While Murray was photographed in public, the photo was not merely an inoffensive photo of the street, but a photo taken in secret and in the knowledge that Murray's parents would have objected.[270] This is an example of a situation where privacy in public should be protected by the law, as described in detail earlier, and is relevant for potential invasions of privacy by drones.

The British Columbia cases described earlier are all examples of privacy invasions that happened in private places. There are some British Columbia cases which lean in the direction of *Murray*. In *Heckert*, the landlord positioned a video camera in a hallway in a residential building so that it was focused on the plaintiff's door.[271] The court found that the plaintiff had a REP when entering and exiting her apartment, even though the hallway was a "public place" and even though the landlord has a right to protect its property.[272] *Fillion* was a case of a family dispute.[273] While the plaintiffs were away, the defendant entered the family house, with authorization, to remove some personal belongings.[274] While there, she read and copied some personal documents that were left on a desk.[275] Despite the fact that the defendant had the right to be in the house, and despite the fact that the documents were in the open, the court found that the defendant had violated the plaintiff's privacy and awarded modest damages.[276] Other British Columbia cases have found that where multiple parties have access to the same computer, there may be an invasion of privacy where one person reads the files or emails of another.[277]

In the first 30 years after the *Privacy Act* was adopted in British Columbia, few claims were made and few succeeded.[278] The pace has picked up in recent

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[267] *Murray v. Big Pictures (UK) Ltd.*, [2008] EWCA Civ 446 (U.K.) [*Murray*].

[268] *Ibid* at para. 1.

[269] *Ibid* at para. 36.

[270] *Ibid* at para. 50.

[271] *Heckert v. 5470 Investments Ltd.*, 2008 BCSC 1298, 2008 CarswellBC 2053, [2008] B.C.J. No. 1854 (B.C. S.C.) at paras. 9, 13

[272] *Ibid* at paras. 86, 90.

[273] *Fillion v. Fillion*, 2011 BCSC 1593, 2011 CarswellBC 3414, [2011] B.C.J. No. 2230 (B.C. S.C.).

[274] *Ibid* at paras. 79, 81-82, 85-86.

[275] *Ibid* at paras. 81, 87, 89.

[276] *Ibid* at paras. 160, 162, 199.

[277] See e.g. *Pacific Northwest Herb Corp. v. Thompson*, 1999 CarswellBC 2738, [1999] B.C.J. No. 2772 (B.C. S.C.); *Nesbitt v. Neufeld*, 2010 BCSC 1605, 2010 CarswellBC 3085, [2010] B.C.J. No. 2232 (B.C. S.C.), affirmed 2011 CarswellBC 3403 (B.C. C.A.).

[278] McNairn, *supra* note 61 at 73.

years and the decision in *Tsige* has triggered renewed interest in the tort. The British Columbia cases show that some courts are willing to entertain the possibility of privacy rights in places that are not purely private, thus accepting a less stark division between private and public. However, there are no British Columbia cases quite like *Murray*. This probably reflects the relative maturity of the UK tort and also the influence of the European Court of Human Rights on British privacy jurisprudence.[279] The breadth of the definition of privacy in British Columbia, and the scope for interpretation left to the courts means that the courts could move in either a direction that narrows the protected interest, or one that broadens it. *Tsige* represents incremental change in the common law and its development has not yet addressed the weaknesses pointed out by Hunt.[280] It is noteworthy that in *Tsige*, the court held that an intrusion includes physical intrusion, as well as "...listening or looking, with or without mechanical aids."[281] This is important for any intrusion claims related to drones. To fully protect against privacy invasions by drones, the common law in Ontario will need to move in the direction of British Columbia and the UK by recognizing a privacy rights in public.

(ii) Federal Private Sector Privacy Law

The *Personal Information Protection and Electronic Documents Act* (PIPEDA) regulates the collection, use, and disclosure of personal information in the private sector.[282] *PIPEDA* is an act of Parliament and applies to federally-regulated undertakings and in most provinces also applies to provincially-regulated undertakings.[283] *PIPEDA* will not apply to provincially-regulated undertakings in provinces that have enacted legislation that is substantially

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[279] See Hunt, *supra* note 126 at 683, 686, 695; *Murray*, *supra* note 267 at paras, 20, 23.

[280] See generally *Tsige*, *supra* note 63 at paras. 10, 15, 24-32, 35-38, 65. Notable cases that have built on *Tsige* include: *Hopkins v. Kay*, 2014 ONSC 321, 2014 CarswellOnt 1215, 119 O.R. (3d) 251, [2014] O.J. No. 485 (Ont. S.C.J.), affirmed 2015 ONCA 112, 2015 CarswellOnt 2232, 124 O.R. (3d) 481, [2015] O.J. No. 751 (Ont. C.A.), leave to appeal refused 2015 CarswellOnt 16503, 2015 CarswellOnt 16504 (S.C.C.), which addressed the application of the tort to health records, as well as class-action certification and whether the tort was precluded by Ontario's *Personal Health Information Protection Act*, S.O. 2004, c. 3, Sch. A. *Evans v. Bank of Nova Scotia*, 2014 ONSC 2135, 2014 CarswellOnt 7666, [2014] O.J. No. 2708 (Ont. S.C.J.), leave to appeal refused 2014 CarswellOnt 17769 (Ont. S.C.J.), on facts similar to *Tsige*, in which the plaintiff argued that the defendant bank should be vicariously liable for intrusion by its employee. These cases were not decided on the merits as they were either motions for summary judgement or motions for class certification. Similar cases in other jurisdictions are *Hynes v. Western Regional Integrated Health Authority*, 2014 NLTD(G) 137, 2014 CarswellNfld 343, 357 Nfld. P.E.I.R. 138, [2014] N.J. No. 336 (N.L. T.D.) and *Condon v. R.*, 2014 FC 250, 2014 CarswellNat 1256, 2014 CarswellNat 725, [2014] F.C.J. No. 297 (F.C.), reversed 2015 CarswellNat 2432 (F.C.A.).

[281] *Tsige*, *supra* note 63 at para. 20.

[282] McNairn, *supra* note 61 at 89; Power, *supra* note 68 at paras. 1.5-1.6.

[283] *PIPEDA*, *supra* note 24 ss. 2(1), 4(1); Power, *supra* note 68 at para. 1.21.

similar to *PIPEDA*.[284] Alberta, British Columbia and Quebec have all enacted substantially similar legislation.[285]

The constitutionality of *PIPEDA*'s application to provincially-regulated undertakings has been questioned but remains unresolved.[286] This paper takes the position that since aviation is federally-regulated and Transport Canada is taking the lead on drone regulation, *PIPEDA* and not provincial legislation, will apply to drones.[287] Therefore this paper's focus is *PIPEDA*.

PIPEDA does not protect privacy directly, but indirectly, through the protection of personal information.[288] Personal information is defined as "information about an identifiable individual."[289] The information itself need not precisely identify an individual; it is enough that a particular individual could be identified by combining the personal information with other information.[290] In a case decided on the federal public sector privacy legislation, the Supreme Court of Canada held that the definition of personal information (which is similar to the definition in *PIPEDA*) is deliberately broad and intended to capture any information about a specific person.[291] Examples of personal information include check-in and check-out times at a hotel,[292] the device identifier for a mobile phone,[293] and in some cases an IP address.[294]

Collection, use and disclosure of personal information require the knowledge and consent of the individual.[295] This requires informing the individual of the purpose for collection, use or disclosure.[296] Use and disclosure of the

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[284] See *PIPEDA*, *supra* note 24 s. 26(2)(b); McNairn, *supra* note 61 at 93; Power, *supra* note 68 at paras. 1.20, 1.24.

[285] *PIPEDA, supra* note 24, *Organizations in the Province of Alberta Exemption Order*, S.O.R./2004-219; *Organizations in the Province of British Columbia Exemption Order*, S.O.R./2004-220; *Organizations in the Province of Quebec Exemption Order*, S.O.R./2003-374.

[286] See generally Josh Nisker, "*PIPEDA*: A Constitutional Analysis" (2006) 85 Can. Bar Rev. 317.

[287] Power, *supra* note 68 at para. 1.25.

[288] *Ibid* at paras. 1.4, 2.1.

[289] *PIPEDA*, *supra* note 24 s. 2(1).

[290] McNairn, *supra* note 61 at 109.

[291] *Dagg v. Canada (Minister of Finance)*, 1997 CarswellNat 870, 1997 CarswellNat 869, [1997] 2 S.C.R. 403, [1997] S.C.J. No. 63 (S.C.C.) at para. 69. See *Privacy Act*, *supra* note 238 s. 3.

[292] *PIPEDA Report of Findings No 2013-007* (7 August 2013), online: Privacy Commissioner of Canada < www.priv.gc.ca > .

[293] *PIPEDA Report of Findings No 2013-001* (15 January 2013), at para. 18, online: Privacy Commissioner of Canada < www.priv.gc.ca > .

[294] *PIPEDA Case Summary No 2005-319* (8 November 2005), online: Privacy Commissioner of Canada < www.priv.gc.ca > .

[295] *Model Code for the Protection of Personal Information*, CAN/CSA-Q830-96, s. 4.3.2, being Schedule 1 of *PIPEDA* [*Model Code*].

information collected is limited to the declared purpose.[297] Use or disclosure for other purposes requires further informed consent.[298] Consent can be implied, but only in a narrow set of circumstances.[299] For example, subscribing to a magazine implies consent to the collection of name and address information.[300] However, if the magazine publisher decided to use the information for another purpose, it would require separate consent.

PIPEDA applies only to commercial activities.[301] This includes commercial activities carried out by non-profit organizations.[302] As a result, some drone operations that are regulated by Special Flight Operations Certificates (SFOC) will not be regulated by *PIPEDA*, and vice-versa. For example, non-commercial use of drones with a maximum take-off weight greater than 25kg,[303] are regulated by the SFOC process, but not *PIPEDA*. The result is that protection from intrusions by these drones will be regulated only by the property and privacy torts discussed earlier. *PIPEDA* also does not apply to journalistic or artistic activities.[304] This is an important exception since it is likely journalists will find good uses for drones.

Commercial activity is defined broadly.[305] It is "...any particular transaction, act or conduct or any regular course of conduct that is of a commercial character..."[306] To be classed as commercial activity, the predominant purpose must be making a profit. A single transaction that has the predominant purpose of making a profit may be considered commercial activity.[307] Commercial activity and "commercial relationship" are different, and the absence of a commercial relationship between the individual and the organization collecting the information does not itself preclude the activity from being deemed commercial. In *Rousseau*, the court considered whether note-taking by a doctor, on behalf of an insurer as part of an independent medical examination, was commercial activity.[308] The insurer had a commercial relationship with both the insured and the doctor, but there was no such relationship *between* the

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296 *Ibid* s. 4.2; McNairn, *supra* note 61 at 113.

297 *Model Code*, *supra* note 295 s. 4.3.

298 McNairn, *supra* note 61 at 118.

299 *Ibid*, at 119.

300 *Ibid.*

301 *PIPEDA*, *supra* note 24 s. 4; McNairn, *supra* note 61 at 89.

302 *PIPEDA*, *supra* note 24 ss. 2(1), 4(1)(a); McNairn, *supra* note 61 at 105.

303 The original terms of reference for the PDWG stated the MTOW boundary would be 35kg but the PDWG has settled on a lower limit of 25kg. See TCCA, *supra* note 6 at 3 and Phase 1, *supra* note 9 at 2.

304 *PIPEDA*, *supra* note 24 s. 4(2)(c).

305 *Halsbury's Laws of Canada, Access to Information & Privacy*, 2011 Reissue (Markham: LexisNexis Canada Inc, 2011) at para. 85 [HAP]; McNairn, *supra* note 61 at 104-105.

306 *PIPEDA*, *supra* note 24 s. 2(1).

307 HAP, *supra* note 305.

insured and the doctor. The court held that the overall transaction did not lose its commercial nature because of the introduction of a third party to the relationship, in part because the insured was required by his insurance contract to submit to the medical examination.[309]

Even an officer of the court may be engaged in commercial activity. In *PIPEDA Case 336*, the Privacy Commissioner considered whether a bankruptcy trustee appointed by the court was engaging in commercial activity.[310] The Commissioner found that being an officer of the court did not remove trustees from the jurisdiction of *PIPEDA* and noted that trustees are remunerated for their work.[311] An investigation by an insurer to defend against a tort claim was held not to be conduct of a commercial character, because the predominant purpose was not to make a profit, even though the insurer was a for-profit business.[312] These cases, in particular *Rousseau*, show that the breadth of "commercial activity" ensures that the technicalities of the parties' relationships do not preclude the application of *PIPEDA*.

The difficult part in applying *PIPEDA* to drones is with knowledge and consent. There are two reasons for this. First, there are practical challenges with informing individuals of the collection of personal information by drone and obtaining consent. Second, this implicates the problem of privacy in public, because some argue that information about activities done in public is "publicly available information" and therefore qualifies for one of the *PIPEDA* exemptions.[313] The Privacy Commissioner has provided some clues on how the knowledge and consent requirements might apply to drones.

The Commissioner's fact sheet on commercial use of imaging technology in public states that *PIPEDA* applies if the images are of identifiable people.[314] Because individuals do not always know their image is being captured, the Privacy Commissioner believes that before pictures are taken, the public should be informed of the time and place of the recording, why it's happening and how to have their image deleted. The Privacy Commissioner suggests that having obvious markings on a vehicle, such as Google's Street View cars, would help in this regard.[315] The fact sheet does not directly address how to obtain consent and

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[308] *Rousseau v. Wyndowe*, 2008 FCA 39, 2008 CarswellNat 246, 2008 CarswellNat 1530, [2008] F.C.J. No. 151 (F.C.A.) at paras. 1, 35.

[309] *Ibid* at paras. 35-36, 39.

[310] *PIPEDA Case Summary 2006-336* (21 June 2006), online: Privacy Commissioner of Canada <www.priv.gc.ca>.

[311] *Ibid.*

[312] *State Farm Mutual Automobile Insurance Co. v. Canada (Privacy Commissioner)*, 2010 FC 736, 2010 CarswellNat 3689, 2010 CarswellNat 2225, [2010] F.C.J. No. 889 (F.C.) at paras. 98, 105-106 [*State Farm*]. See also McNairn, *supra* note 61 at 114.

[313] See *PIPEDA*, *supra* note 24 s. 7.

[314] Office of the Privacy Commissioner of Canada, *Captured on Camera: Street-level imaging technology, the Internet and you*, at 1, online: <www.priv.gc.ca> [OPC, "Captured"].

therefore it seems that notice is sufficient to satisfy *PIPEDA*. This interpretation is consistent with the the practice of posting a notice where video surveillance is used in public places without obtaining explicit consent from individuals frequenting those public places, which appears to satisfy *PIPEDA*.

In the *Street View* investigation, the Privacy Commissioner considered Google's collection of payload data from unsecured wireless access points. Google's Street View cars record images for its Street View service and also wireless network information for use in location services.[316] The Commissioner found that the payload information was beyond what was necessary for the declared purposes and that even though the wireless networks were unsecured, no reasonable person would have considered collecting the payload information to be appropriate.[317] Since individuals did not know their information was being collected from the wireless networks, they could not have consented and therefore Google had violated *PIPEDA*.[318] It is clear that notifying individuals of plans to take photos is not enough to then slurp up payload data from wireless networks. It is significant that the lack of security on the wireless access points was not relevant to the decision, since it is generally considered unwise to leave wireless networks unsecured. Also significant for cutting edge technology like drones is that the Commissioner insisted that Google, which likes to push the limits in its goal of "organizing the world's information", owes a special responsibility to those whose personal information it collects.[319]

Drones will fly within visual range of those being observed but also at high altitudes well beyond an individual's sight. While drones flown within sight of the observed may be analogous to Street View cars, high-altitude drones are different and present unique challenges for *PIPEDA*. High-altitude drones are analogous to covert video surveillance because they operate without any notice to the individuals whose personal information is being captured.[320] The Commissioner has said that covert video surveillance should only be used in the most limited cases. This is because consent, which is the foundation of *PIPEDA*, is not obtained from the individual who is subject to covert surveillance.[321] In order to conduct covert video surveillance an organization must be reasonably satisfied that collection with knowledge and consent would compromise the availability or accuracy of the information and the covert collection must be a reasonable

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[315] *Ibid* at 2.

[316] *PIPEDA Case Summary 2011-001* (20 May 2011), online: Privacy Commissioner of Canada < www.priv.gc.ca > at paras. 6, 7 [*Street View*]. Examples of data collected by Google are listed at paras. 17-18.

[317] *Ibid* at paras. 13, 20-21.

[318] *Ibid* at paras. 38-39, 47.

[319] *Ibid* at paras. 10, 26.

[320] See Office of the Privacy Commissioner of Canada, *Guidance on Covert Video Surveillance in the Private Sector* (Ottawa: Privacy Commissioner of Canada, 2009) online: < www.priv.gc.ca > [OPC, "Covert"].

[321] *Ibid*.

measure to investigate a breach of the law or a contract.[322] In addition, there must be a demonstrable need for covert collection, the information collected must achieve the declared purpose of the covert collection, and the loss of privacy must be proportional to the benefit gained.[323] Given *PIPEDA*'s emphasis on consent, it is surprising that even this limited use of covert video surveillance is permissible. If high-altitude drones are analogous to covert video surveillance, then they will not be able to collect personal information unless they meet the requirements described above. It seems there are few circumstances in which drones would meet these requirements. Yet, Transport Canada is pressing ahead to develop regulations to integrate all drones into Canadian airspace. Routine use of high-altitude drones, which collect personal information as a matter of course, does not appear to be consistent with *PIPEDA*.

In the fact sheet on commercial use of imaging technologies, the Privacy Commissioner notes that *PIPEDA* applies to these activities, even if done in public.[324] *PIPEDA* then applies to the collection, use and disclosure of personal information found in public places. *PIPEDA* provides exemptions for personal information that is publicly available, for example, telephone directory information, records of judicial bodies, and published information.[325] However these exemptions only apply where the collection, use or disclosure of the information related to the purpose of the public registry in which the information is found and also that it be a purpose that a reasonable person would consider appropriate.[326] In 2012 the Alberta Court of Appeal considered the application of the publicly available information exception in that province's privacy legislation, in the context of a labour dispute.[327] In that case, the union and the employer had taken video recordings of individuals crossing the picket line in a public place.[328] The court held that the publicly available information exception was narrow and notwithstanding that the information was captured in public, it did not qualify as publicly available information.[329] It is clear then that simply

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[322] *Ibid.*

[323] *Ibid.*

[324] OPC, "Captured", *supra* note 314 at 1.

[325] *PIPEDA, supra* note 24, *Regulations Specifying Publicly Available Information*, S.O.R./2001-7, s. 1.

[326] *Ibid.* See also Teresa Scassa, "Privacy and Publicly Available Personal Information" (2013) 11:1 C.J.L.T. 1 at 9.

[327] *UFCW, Local 401 v. Alberta (Information and Privacy Commissioner)*, 2012 ABCA 130, 2012 CarswellAlta 760, (*sub nom. United Food and Commercial Workers, Local 401 v. Alberta (Privacy Commissioner)*) 522 A.R. 197, [2012] A.J. No. 427 (Alta. C.A.), additional reasons 2012 CarswellAlta 1393 (Alta. C.A.), affirmed 2013 CarswellAlta 2210, 2013 CarswellAlta 2211 (S.C.C.) [*UFCW*].

[328] *Ibid* at paras. 2, 3.

[329] *Ibid* at paras. 10, 27, 85, *UFCW, Local 401 v. Alberta (Information and Privacy Commissioner)*, 2013 SCC 62, 2013 CarswellAlta 2210, 2013 CarswellAlta 2211, (*sub nom. Alberta (Information and Privacy Commissioner) v. United Food and Commercial*

being in public does not deprive an individual of the right to control her personal information.

The definition of personal information in *PIPEDA* is broad as is the definition of commercial activity. These definition make for broad application of *PIPEDA*. Parliament has made a deliberate policy choice to exclude non-commercial activities and this affects other sectors as much as it affects the use of drones. *PIPEDA*'s strength is its application to information gleaned from individuals' activities in public, but this is also its weakness. The Privacy Commissioner's fact sheet on commercial use of imaging technologies in public does not directly address consent. It implies that notice with an opportunity to have one's personal information deleted is sufficient for *PIPEDA*. As the proliferation of video surveillance in public places shows, this interpretation of knowledge and consent allows for substantial and pervasive surveillance, something not intuitively consistent with protecting privacy. Covertly capturing images in public is also not consistent with protecting privacy, as the Commissioner's guidelines illustrate.

The discussion so far has focused on imaging technology, except for the *Street View* investigation which addressed collection of personal information from wireless networks. While imaging technology is often the focus of attention, it is only one of many ways to collect personal information. Other means of collecting personal information, using some of sensors described earlier in the paper, are analogous to imaging technology. These sensors will be subject to *PIPEDA*, whether they are deployed openly in public or covertly using high-altitude drones. Because Transport Canada is not considering privacy as it develops drone regulations, it is not clear how *PIPEDA* will apply in practice. As mentioned already, the proliferation of video surveillance in public, while compliant with *PIPEDA*, leaves something to be desired. As drones become more common, and in particular as high-altitude drones are integrated into Canadian airspace, it seems likely that the notion of consent underlying *PIPEDA* will be further eroded, thus undermining privacy protection.

IV. CONCLUSION

Drones present significant challenges for existing legal doctrines. The privacy threats of drones are perhaps not new. Rather, there are similar concerns with existing technologies and drones, as Calo has said, accentuate the risks.

Property law as a tool to protect privacy depends on the extent and nature of the surface owner's rights in airspace. These questions have been addressed to the extent necessary to allow aircraft to fly through what used to be considered airspace owned by the surface owner. However, since aircraft do not normally fly

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Workers, Local 401) [2013] 3 S.C.R. 733, [2013] S.C.J. No. 62 (S.C.C.) at paras. 16, 26, 27. Having found the publicly available personal information exception did not apply in the circumstances, the courts then considered whether the legislation itself was consistent with the freedom of expression protections guaranteed in s. 2(b) of the *Charter*.

at low altitudes, except near airports, the Canadian courts have not addressed specifically the rights the surface owner has in the airspace above his land. If the right is possessory, then the surface owner may be able to claim trespass against drones that intrude into his airspace. If the right is something less than possessory, then nuisance may provide a remedy, though its higher threshold for harm would make this difficult.

PIPEDA is comprehensive commercial privacy legislation. Two weaknesses limit the usefulness of *PIPEDA* in protecting against privacy interference by drone. The first is that *PIPEDA* only applies to commercial drone operations, leaving some drone operators free of its privacy regulation. The second weakness is *PIPEDA*'s heavy reliance on the utopic idea of consent. The erosion of consent requirements around the use of video surveillance and Street View are two examples that illustrate the problem. Given the economic value Transport Canada sees in drones, and the historical example of how property rights changed to accommodate air travel, it seems likely that consent and *PIPEDA*'s effectiveness will be further diminished.

The privacy torts, both statutory and common law, may be the strongest existing defences against privacy intrusions by drone. A tort claim is available regardless of whether the drone operation is a commercial activity. There are two weaknesses here as well. As Hunt has pointed out, one problem is the courts' view of privacy and how the right to privacy should be qualified. There have been positive developments in the UK, though it is not clear similar judicial thinking will be adopted in Canada. The view held by the UK courts may be influenced by European privacy law, which is not necessarily persuasive in Canadian courts. The second weakness is a practical one: as legal practitioners know, litigation is expensive, putting the tort remedy out of reach for many.

In the article that precipitated the development of privacy law in the United States, and consequently Canada, Warren & Brandeis were concerned about a problem similar to that of drones. They were faced with the invention of instantaneous photographs and worried about the impact this would have on the privacy to which they were accustomed. It seems likely that Warren & Brandeis would be no more amused to have a private wedding ceremony intruded upon by a drone, than they were by the paparazzi of their time taking instantaneous photographs.