

Minister of Transport



Ministre des Transports

Ottawa, Canada K1A 0N5

JUN 21 2017

Ms. Judy Sgro
Chair
Standing Committee on Transport, Infrastructure and Communities
House of Commons
Ottawa, ON K1A 0A6

Dear Colleague:

Pursuant to Section 109 of the Standing Orders of the House of Commons, I am pleased to provide the Government of Canada's response to the 10th Report of the Standing Committee on Transport, Infrastructure and Communities on Unmanned Aerial Vehicle (UAV) Regulations, which was tabled in the House on February 21, 2017.

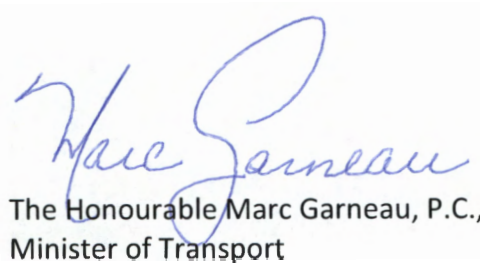
I thank the members of the committee for their time in studying this topic and making recommendations on how we can provide a safe regulatory environment for UAVs that balances safety and economic growth. I have considered the Committee's perspectives on UAV regulations, and have provided a response to the 24 recommendations in your report.

As the Committee's report has noted, UAVs are an important and potentially transformational technology for Canadians, and Transport Canada is taking important steps to integrate UAVs into Canada's transportation system. In 2018, my department is planning to implement regulations for small UAVs 25 kilograms or less, operated within visual line-of-sight. These proposed regulations are being developed to align with the Committee's recommendations and aim to balance the public's interest in safety, while establishing the conditions to enable innovation and economic growth.

My department has taken into consideration the views of Canadians throughout the regulatory development process and will continue to work with various stakeholder groups. I remain committed to providing Canada's growing UAV sector with the regulatory certainty it needs to innovate, while ensuring the safety of Canada's aviation system remains of paramount importance.

Once again, I thank the committee for their Report, and welcome any future perspectives that members may have on this important topic.

Yours sincerely,

A handwritten signature in blue ink that reads "Marc Garneau". The signature is fluid and cursive, with a large loop at the end of the last name.

The Honourable Marc Garneau, P.C., M.P.
Minister of Transport

Enclosure

GOVERNMENT RESPONSE

Report of the Standing Committee on Transport, Infrastructure and Communities on the *Study of Unmanned Air Vehicle (UAV) Regulations.*

Number	Committee Recommendation	Transport Canada (TC) Response
Canada's Place in the Global UAV Policy Environment		
1.	That any future government regulatory framework for UAVs be appropriately flexible so as to ensure the ability to effectively adapt in order to keep pace with a rapidly evolving industry and the varying needs of Canadians, while continuing to balance the public interest for safety and security.	<p>The government agrees with this recommendation. TC recognizes the growth of the UAV sector and the unique benefits that this technology brings to transportation, agriculture, infrastructure inspection and aerial photography. The success of this sector and the widespread use of UAVs will be contingent upon safe operations and the mitigation of risks to aircraft, the travelling public and people on the ground.</p> <p>To this end, TC will be publishing proposed regulations for small UAVs weighing 25 kilograms and less, operated in visual line-of-sight (VLOS) (hereafter referred to as the proposed regulations). The proposed regulations will establish classes of UAVs based on a UAVs weight, the operating environment and the complexity of the operation. The regulatory requirements are designed to be commensurate with the level of risk. The aim is to balance the safe integration of UAVs into Canadian airspace, enabling innovation in the sector and protecting the safety of Canada's transportation system as the department's top priority.</p> <p>The proposed regulations will be published in Canada Gazette Part I in 2017, providing Canadians with an opportunity to share their views.</p>
2.	That TC designate additional, safely-situated airspace for UAV testing, training, and recreational use.	<p>The government agrees with this recommendation. Creating a safe airspace environment for the UAV industry is important to enable the testing of products, to conduct research and development (R&D) and to train the pilots of tomorrow. Test sites are key to innovation by providing a platform for</p>

Number	Committee Recommendation	Transport Canada (TC) Response
		<p>testing product reliability, identifying existing barriers and building new technological solutions.</p> <p>TC recognizes the importance of establishing test site locations in Canada to supports these activities and to foster innovation in Canada, while also positioning Canada as an international destination for R&D.</p> <p>To date, TC has worked with NAVCANADA and the UAV industry to restrict airspace for the creation of UAV test sites in Foremost, Alberta and Alma, Québec. As the UAV sector continues to grow, TC will support the creation of other test sites, where there is a need and a benefit to the UAV community.</p>
3.	<p>That any future government regulatory framework for UAVs appropriately complement the regulatory structures utilized by the United States in an effort to establish and maintain a seamless and effective cross-border regulatory environment.</p>	<p>The government agrees with this recommendation. Collaboration with our international partners remains essential to the success of our safety and innovation objectives. TC continues to work with its United States' counterpart, the Federal Aviation Administration, through the Regulatory Cooperation Council to ensure a consistent regulatory approach to UAVs and to collaboratively address harmonization issues where appropriate.</p> <p>Through the Regulatory Cooperation Council, TC and the Federal Aviation Administration are focusing on four work streams: rulemaking; outreach, compliance and enforcement practices; future collaboration on R&D; and advancing common interests internationally.</p> <p>As the global UAV continues to grow and industry looks to conduct beyond-visual-line-of-sight (BVLOS) operations, TC recognizes the importance of this bi-lateral collaboration and will continue to work closely with the Federal Aviation Administration to establish an effective cross-border regulatory environment.</p>

Number	Committee Recommendation	Transport Canada (TC) Response
4.	<p>That TC, the UAV manufacturing industry and commercial operators work together in order to actively engage with private individuals who are involved in experimental modifications to UAVs. This may be done through a co-funded program designed to encourage, recognize, and reward innovation.</p>	<p>The government agrees with this recommendation. Canada's UAV sector requires an environment that fosters innovation and collaboration between the private and public sectors.</p> <p>TC proposed regulations are intended to provide a predictable regulatory environment that is conducive to innovation for manufacturers, operators and private individuals.</p> <p>In addition to the regulations, TC is committed to supporting the establishment of Canadian test sites to provide a safe environment for industry to test, innovate and find solutions that will overcome today's technology limitations.</p> <p>TC also collaborates with its federal partners to engage the private sector to promote innovation and to look for funding opportunities to support this innovative work. This includes participating at national, regional, and international events to offer regulatory expertise and guidance to both individuals and industry stakeholders when appropriate.</p>
UAV Regulations		
5.	<p>That any future government regulatory framework place an appropriate onus on UAV manufacturers, and on the industry at large, to assist in maintaining the continued safety of all Canadians within an environment that includes the responsible</p>	<p>The government agrees with this recommendation. The success of a regulatory framework requires clear and predictable regulations with an onus placed on manufacturers to produce safe and reliable products, UAV pilots to have appropriate knowledge of aviation safety and risk management and for the rules to be enforced when the law is violated.</p> <p>The proposed regulations will establish requirements based on the weight of the UAV, the operating environment and the complexity of the operations. The proposed regulations will include a</p>

Number	Committee Recommendation	Transport Canada (TC) Response
	use of UAVs and UAV technologies.	<p>UAV design standard for UAVs operated in more complex environments, pilot knowledge requirements and a pilot permit for operations in more complex environments as well as an obligation for UAV pilots follow operating and flight rules. Non-compliance with these requirements could result in financial penalties.</p> <p>The continued safety of Canadians is a priority for TC and the department will continue to work with the UAV industry to ensure it follows the rules, operates safely and does not introduce risks to other airspace users, the travelling public or Canadians.</p>
6.	That TC introduce classes of UAVs and that each class be regulated in a manner that considers the common elements of the UAVs of that class.	<p>The government agrees with this recommendation. The proposed regulations will include classes of UAVs based on the weight of the UAV, the operating environment and the complexity of the operation. Each class of UAVs will be subject to regulatory requirements commensurate to the risk of that class.</p> <p>For example, the pilot of a large and heavier UAV operating in a more complex environment (e.g., proximity to airports, cities and people) will be subject to more rigorous regulations than the pilot of a small UAV operating in a non-complex environment (e.g., remote area with no people and limited infrastructure). The regulatory requirements are commensurate with the level of complexity of the operation.</p>
7.	That TC assess the appropriateness of immediately regulating the use of robot UAVs, which fly without any human intervention.	<p>The government agrees with this recommendation. TC has prioritized the regulation of UAVs operated within VLOS and will begin to examine the regulation of UAVs engaged in BVLOS operations as the industry is looking to move into this environment.</p>

Number	Committee Recommendation	Transport Canada (TC) Response
		<p>The department recognizes the potential for autonomous technologies, but this technology remains the subject of current and future R&D.</p> <p>In the absence of a regulatory framework for autonomous air vehicles, the department, through the Canadian Aviation Regulations, has regulatory tools available to authorize the deployment of autonomous air vehicles in the future, should an applicant demonstrate that such technology could be deployed safely.</p>
8.	<p>That the federal government grant TC greater regulatory authority over recreational and commercial UAVs and increase its relevant budget accordingly.</p>	<p>The government agrees with this recommendation. Through Budget 2017, the federal government committed \$76.7 million to provide a regulatory environment that facilitates the safe integration of both UAVs and Connected and Automated Vehicles into Canada's transportation system, working with provincial, territorial, and municipal partners, and creating standards and certifications for the safe deployment of UAV technology.</p> <p>TC's UAV strategy is consistent with the federal government's Budget 2017 commitment.</p>
9.	<p>That the federal government ensure that regulation of the commercial use of UAVs is not exclusively subject to self-regulation standards.</p>	<p>The government agrees with this recommendation. With exclusive federal jurisdiction over aviation, TC's proposed regulations for UAVs that will outline requirements for UAV pilots, for UAVs as an aeronautical product and flight rules for the safe operations on UAVs. The proposed regulations will provide more rigour, further aim to mitigate risks and promote the safe operations of UAVs similar to that of traditional aviation. The department will not exclusively rely on the self-regulation of the UAV industry.</p>
10.	<p>That the federal government ensure that UAV regulations do not</p>	<p>The government agrees with this recommendation. With the proposed regulations, TC will introduce more rigorous requirements for both recreational and non-recreational operations. The proposed</p>

Number	Committee Recommendation	Transport Canada (TC) Response
	unreasonably restrict access to their recreational use.	<p>rules aim to improve the safe operation of UAVs whether it be for business or fun, so that the operation of a UAV does not pose a risk to other airspace users, the travelling public or people on the ground. This approach will continue to allow recreational operations while maintaining both public and aviation safety.</p> <p>Until such time as the proposed regulations come into force, TC has published an Interim Order Respecting the Use of Model Aircraft. The Interim Order introduces certain restrictions on recreational aircraft operations in response to growing incidents in proximity to airports, aircraft in flight and people on the ground. The Interim Order, however, does not apply to the Model Aeronautics Association of Canada (MAAC) and its approximately 12,000 members who operate at MAAC sanctioned locations.</p> <p>TC will continue to work with the aeromodelling industry to promote safe operations and to enable this sector to continue to enjoy its hobbies.</p>
Registration and Marking of UAVs		
11.	That the federal government require permanent markings (eg. electronic or physical) for UAVs.	<p>The government agrees with this recommendation. Under the proposed regulations and consistent with piloted aircraft, TC will require UAV pilots to mark their UAVs (owner's name and contact information) and in certain circumstances pilots will be required to register with TC, receive a certificate of registry and mark their UAV with a TC issued registration number.</p> <p>Marking and registration requirements will encourage owner accountability, facilitate enforcement should a UAV operator break the law, assist with accident investigations and enable communication with Air Traffic Management Services.</p>

Number	Committee Recommendation	Transport Canada (TC) Response
12.	That TC streamline the pilot certification process for commercial and professional UAV pilots in the interests of ensuring Canada's competitive advantage in this high-growth sector.	The government agrees with this recommendation. The proposed regulations include a graduated pilot certification process to ensure that UAV pilots have the appropriate knowledge and training. This will include a requirement for UAV pilots operating in more complex environments (proximity to airports, people and cities) to obtain a pilot permit similar to that of pilots in general aviation.
13.	That any government regulatory framework adopt a public education program, working in conjunction with key industry stakeholders, to educate users of the rules, responsibilities (operational and ethical), regulations, and risks associated with UAVs and the regulatory criteria that apply to the UAVs they own or manage.	<p>The government agrees with this recommendation. With the rapid growth in UAV sales and operations, there is a broad spectrum of users from children to aviation professionals. The publication of new regulations alone will not achieve the department's safety objectives. The implementation of new regulations will be supported by an education and outreach campaign whereby TC will partner with retailers, key aviation stakeholders as well as municipalities to educate users of the rules, their responsibilities both operational and ethical as well as the risks associated with the use of UAVs.</p> <p>The department will leverage and build upon the Safety Awareness campaign launched in 2014 to share information through both traditional and social media to promote a high-level of safety for all airspace users.</p>
14.	That the committee recommend that TC require a permit for all pilots of commercial and professional UAVs and that TC study the possibility of requiring a permit for pilots of recreational UAVs that pose a risk to the public based on size, speed or other factors.	<p>The government agrees with this recommendation. As noted in a previous response, TC recognizes the importance of pilot knowledge and familiarity with aeronautics and the airspace system for safe operations.</p> <p>The proposed regulations would mandate a pilot permit for pilots who operate in more complex environments; such as near airports, in cities, or near people. This requirement would apply to both recreational and non-recreational pilots operating in complex environments.</p>

Number	Committee Recommendation	Transport Canada (TC) Response
15.	That any future government regulatory framework establishes regulations for speed and altitude for UAVs in controlled airspace.	The government agrees with this recommendation. The proposed regulations will introduce both airspeed and altitude restrictions for all classes of UAVs. The airspeed and altitude restrictions differ according to the qualifications of the pilots, the operating environment and whether the UAV complies with a design standard.
Design Standards		
16.	That any future government regulatory framework requires UAVs meet specific testing standards based upon the level of risk they may pose.	The government agrees with this recommendation. TC recognizes the importance of product reliability for the safe deployment of UAV technology in the airspace system. As part of the proposed regulations, a design standard for UAVs operating in more complex environments; such as near aerodromes, cities, and people will be required. Manufacturers of UAVs will be required to assess the design of their UAVs against a design standard, provide a declaration of compliance to TC and provide a statement of conformity to each purchaser of its UAV, so that it is clear to the consumer that they are purchasing a design standard compliant product.
17.	That any future government regulatory framework for UAVs be designed with systems to prevent run-aways.	The government agrees with this recommendation. TC recognizes the potential risk of uncontrolled UAV fly-aways, particularly for UAVs operating in areas where there is greater risk of encountering other aircraft, or are operating in proximity to persons and property. The proposed regulations will require the pilot of a UAV operating in a more complex environment; such as near airports, cities and people to use a UAV that complies with a design standard. To further mitigate the risks of UAV fly-aways, the proposed regulations will require the pilot of a UAV to conduct a pre-flight site survey, to follow operational procedures, to have emergency

Number	Committee Recommendation	Transport Canada (TC) Response
		<p>procedures in place, fly-away contingency procedures and to contact and maintain communication with air traffic control in the event of a fly-away.</p>
18.	<p>That any future government regulatory framework incorporate innovative safety and security-based technologies such as, but not limited to, the use of a BFUFly style app, geo-fencing, tracking devices and other ground blocking technologies.</p>	<p>The government agrees with this recommendation. TC encourages industry to develop innovative safety and security-based technologies to further support safe and secure UAV operations. As these products are developed, the department will consider their use as information tools as part of its broader safety promotion and awareness efforts to improve airspace management.</p>
19.	<p>That TC ensure that all UAVs that pose a risk to the public based on size, speed or other factors have transponders.</p>	<p>The government agrees with this recommendation. With the greater integration of UAVs in the Canadian airspace system and in close proximity to other aircraft, it will be important for both air traffic control and other airspace users to know the location of a UAV to avoid incidents or accidents.</p> <p>The proposed regulations will require the use of transponders whenever a UAV is in airspace that requires the carriage of a transponder (unless specifically exempted by air traffic control).</p> <p>TC will continue to assess the use of other technological solutions to enable safe UAV traffic management as part of future regulatory development.</p>
20.	<p>That the committee recommend that TC take small local and regional airports or aerodromes into consideration in developing its regulations, as well as aircraft that do not have</p>	<p>The government agrees with this recommendation. With the growth in UAV operations comes an increase in reported UAV incidents close to airports, both large and small, as well as other piloted aircraft; including both commercial airliners, smaller aircraft and helicopters. Safe access to airports and responsible airspace management practices are</p>

Number	Committee Recommendation	Transport Canada (TC) Response
	the necessary electronic equipment to detect UAVs.	<p>fundamental to the safety of Canada’s aviation system and key pillars in the regulation of UAVs.</p> <p>Through the proposed regulations, TC will implement operational restrictions in close proximity to airports and will introduce altitude restrictions to mitigate the probability that a UAV will come into conflict with other airspace users whether it be in flight paths or near Canadian airports. In the event that a UAV comes into conflict with a piloted aircraft, the UAV pilot will be required to provide the right of way to the piloted aircraft and to not operate in proximity to another aircraft as to create a risk of collision.</p> <p>The operation of a UAV in a reckless or negligent manner that could endanger or likely to endanger the life or property of any person is and will continue to be an offence that will be enforced by TC. The safety of Canada’s air transportation system, the travelling public and Canadians is TC’s priority.</p>
Violations and Enforcement		
21.	That TC engage in ongoing dialogue with the Provinces, Territories, and municipalities on UAVs, in order to: identify and resolve any conflicts between jurisdictional regulations, to streamline the regulatory process, and to discuss any future safety, security, and regulatory concerns that may result from the ongoing evolution of the industry.	<p>The government agrees with this recommendation. Recognizing that aeronautics falls under federal jurisdiction, TC is committed to implementing a regulatory environment for UAVs that promotes the safe and innovative deployment of this technology. In developing the proposed regulations, TC has engaged and maintained an open dialogue with a broad spectrum of stakeholders, including provincial and municipal representatives. To date, consultations have generated diverse and important perspectives that have helped inform the work of the department.</p> <p>As we publish our proposed rules in Canada Gazette Part I, there will be a need to continue to engage stakeholders and ensure open dialogue; specifically with provinces, territories and municipalities to</p>

Number	Committee Recommendation	Transport Canada (TC) Response
		mitigate jurisdictional conflicts before they arise, to discuss how partnerships may be established between TC, its provincial and territorial counterparts as well as municipalities to address the presence of safety, security and regulatory concerns. TC will continue to engage these key stakeholders through stakeholder engagement sessions in 2017.
Privacy Intrusions and Criminal Acts by Operators of UAV Users		
22.	That TC and security agencies work in collaboration with one another on ongoing and future R&D of UAV interdiction systems.	<p>The government agrees with this recommendation. TC will continue to work with law enforcement, security agencies and airport operators on future R&D initiatives focusing on UAV countermeasures.</p> <p>As such, TC supports its federal partners in the public safety and security domain in studying the development and use of emerging UAV countermeasure systems.</p>
23.	That the Committee communicate with the Public Safety and National Security Committee, and the Justice and Human Rights Committee, to consider utilizing their respective expertise to examine any possible privacy, public safety, and/or national security implications of UAVs and UAV technologies resulting from the potential criminal use of this emerging and expanding industry.	<p>The government agrees with this recommendation. TC is supportive of the additional perspectives and guidance offered by stakeholders, including Parliamentary Standing Committees. TC would welcome the opportunity to share its expertise in the further examination of UAV-related implications respecting privacy, public safety and or security.</p>
24.	That the federal government ensure that Canadian privacy legislation adequately protects	<p>The government agrees with this recommendation. Although the legislating of privacy matters does not fall within the scope of authorities of TC, department officials continue to engage the Office</p>

Number	Committee Recommendation	Transport Canada (TC) Response
	Canadians from the recreational and commercial use of UAVs.	of the Privacy Commissioner and other stakeholders to underscore the applicability and relevance of public safety and privacy laws to the use of UAV technologies.