

DPAC Position Paper: Transport Canada 2023 RPAS Regulations Proposal

EXECUTIVE SUMMARY

On June 24, 2023, Transport Canada formally announced a set of proposed changes to the RPAS regulations under the banner of “RPAS – Beyond Visual Line-of-Sight and Other Operations”. The Drone Pilot Association of Canada (DPAC) has evaluated these proposals, and tables this detailed position paper, discussing both the positive and negative elements from the perspective of recreational and small commercial RPAS pilots. Recreational and small commercial RPAS pilots represent the vast majority of RPAS pilots in Canada today and into the foreseeable future. Wherever possible, DPAC recommendations have been constructed to be directly actionable by Transport Canada. DPAC representatives are available to discuss these recommendations and to help operationalize the improvements we suggest.

GENERAL COMMENTS:

1. As a general observation, the new and revised regulations have been presented in a somewhat disjointed manner, without connection to ‘use cases’. And yet, clearly there are use-cases that have been agreed-upon behind the scenes. For example, the rewording of the dangerous payload regulations was clearly due to commercial interests wanting to carry cargo such as fuel to remote locations. DPAC recommends spelling out these use-cases explicitly in the pre-amble material for new/revised regulations so reviewers and end-users can better understand the context and intention of the changes.
2. The regulations are already complicated, to the extent that even well-intentioned RPA pilots have trouble consistently complying with them. In addition, the overly complex rules act as a hurdle for many recreational pilots, leading to non-compliance due to ignorance or obstinance. The regulations should be made simpler to avoid either of these scenarios, and yet this iteration of changes just adds to the complexity. DPAC has made several explicit and actionable proposals in this position paper that could simplify the rules, improve compliance, and increase safety.
3. Somewhat related to item 2, the RPAS regulations tend to be overly prescriptive, specifying too many explicit details and restrictions (an example being 901.23 Procedures). These regulations should be revised to reflect key, enforceable principles and transfer the specifics, guidelines, and best practices into the Aeronautical Information Manual (AIM). The “don’t do anything stupid” rule (900.06) is a good example of a non-prescriptive rule that can be used as a model. DPAC has identified several cases where this approach can be implemented easily.
4. Fees. DPAC’s position is that extraordinary fees and fee increases needlessly raise the entry bar into an activity that has a remarkably safe history and that serves as a STEM-related training ground for future aviators. The registration fee should not be increased, and the cases requiring SFOCs should be minimized.
5. The proposed regulations include many positive changes and improvements. While the majority of these are outside the realm of most recreational and small commercial pilots, such as the new rules for lower-risk BVLOS and Medium RPAs, there are many minor improvements in the regulations that DPAC welcomes. For example, the change of 901.22 from disallowing the carriage of animals to disallowing (without an SFOC) the carriage of people, is an improvement. Similarly, the new 901.50 Dropping of Objects rule is a good addition and is worded in a clear, non-prescriptive manner.

A. EXTENDED VLOS:

Overall, the Extended VLOS proposal is a good one and positively reflects the level of safety-orientation of Advanced RPAS Pilots. DPAC proposes four adjustments to the rule to improve the practical implementation:

1. In the current proposal, the Visual Observer (VO) must have their Advanced RPAS Pilot Certificate. This level of certification is excessive for a task that essentially involves watching for approaching aircraft and alerting the pilot of potential risks. Certainly, the VO needs to be trained for their task, and a set of guidelines in this respect would be valuable in the AIM.
2. Given that the task involves watching for hazards potentially several kilometers away, the use of binoculars or other visual aids should be permitted. Binoculars, when used occasionally, would readily allow the VO to distinguish between a bird or a plane, whereas unaided eyesight might not. Note that binoculars are commonly used in control towers. This would be a practical improvement that improves safety.
3. Clarification is required on how the pilot and VO can communicate. Any reliable means of communication should be acceptable.
4. There are many use-cases where the RPA is relatively close to the pilot, yet may be out of visual line of sight, either due to the size of the drone or lighting conditions. In the current proposal, a VO is required to see the airspace where the RPA is operating. DPAC proposes that for operations within 1km of the pilot, a visual observer should be optional. In that close-range scenario, if the pilot can see the airspace and ensure deconfliction with manned aircraft, an additional person should not be required.

B. SHELTERED OPERATIONS:

Again, the Sheltered Operations proposal is a welcome addition to the regulatory framework. DPAC proposes two changes to the new rule:

1. Given the low risk level associated with this kind of operation (within close proximity to a structure, and 30m away from bystanders), DPAC believes that Sheltered Operations should be permitted for both Basic and Advanced RPAS Pilots.
2. The current proposal explicitly states “building or structure” when defining the obstruction to visual line of sight. This should be generalized to any obstruction, including trees, hills, or other terrain. To compensate for extreme or ambiguous cases, the maximum range from the pilot to the RPA should be constrained to 500m for a Sheltered Operation.

C. MEDIUM RPAS OPERATIONS:

The proposed set of rules for Medium RPAs (25kg to 150kg) do not apply to the vast majority of recreational and small commercial RPAS pilots that DPAC represents. That said, the proposal did raise two important points for Transport Canada to consider:

1. The Standard 922 Safety Assurance requirements appear to be written with commercial use-cases in mind, where multiple units of RPAs would be produced for a given model. In the recreational world, larger RC aircraft are typically custom, one-off models. As such, the kind of potentially destructive testing described in Standard 922 is not practical.. DPAC proposes that Standard 922 be simplified or have a separate category and safety assurance procedure for these one-off cases.
2. Currently, all RPAs, including Medium RPAs, must stay under 122m AGL unless an SFOC is in place. In many cases, however, larger recreational RC aircraft are operated more effectively and more safely at higher altitudes, allowing more latitude for aerobatics and more room for recovery. As such, constraining them to flights under 122m may increase the risk. DPAC proposes that the regulations be expanded to include a framework allowing designated sites to permit operations over 122m without the need for an SFOC. Designated sites like this could be operationalized as Class F Restricted (CYRxxx) or Advisory (CYAxxx) sites.

D. LOWER RISK BVLOS OPERATIONS

Again, for the most part, this extensive set of rules in the new proposal does not apply to recreational or small commercial RPAS pilots. DPAC does have two comments, however:

1. The proposal states that a medical checkup will be required for these 'lower risk' operations. DPAC agrees that a medical checkup like the level required for crewed aircraft pilots should apply to RPAs over 150kg, but for the kinds of operations under the 'Lower Risk BVLOS' umbrella, the medical checkup requirement is excessive. There is no justification for this new requirement, which puts an undue burden on candidates in remote locations or without access to a physician, an unfortunate reality in Canada today. It is our understanding that a shortage of Aviation Medical Examiners already exists. DPAC's recommendation is to 'back burner' the medical checkup requirement and apply it in the future to higher-risk BVLOS operations and/or RPAs over 150kg.
2. The population density mapping data should be provided publicly so third-party apps can incorporate this information and offer it directly to RPA pilots. In order to be available at the time the rules come into force, the mapping data is required at the time of the Canada Gazette Part II publication.

E. COMMERCIAL AIR SERVICE AND FOREIGN PILOTS

The logical connection from crewed Commercial Air Services to RPA applications is tenuous and unjustifiable, particularly for small RPAs. DPAC recommends:

1. For RPAs under 25kg, the ONLY restriction to foreign commercial operators should be to meet normal Canadian work permit requirements. The use of a drone by a foreign commercial operator is no different than any other tool, whether that be a shovel or a camera. The Commercial Air Services framework should not apply to small RPAs.
2. Foreign pilots should be permitted to register RPAs under 25kg, and to become Certified RPAS Pilots for small RPAs.

F. OTHER MINOR IMPROVEMENTS TO THE REGULATIONS

The proposal includes several updates to existing regulations. Here are the DPAC positions on a selection of these updates:

1. CAR 101.06.01 Annual Adjustment: Fee increases should be applicable only in sensible increments such as one dollar, not with tiny increments each year. For example, if the cost-of-living increases by 7%, the RPAS Registration fee should not automatically increase from \$5.00 to \$5.35.
2. CAR 901.14 Controlled and Restricted Airspace: The proposal removes the Class F Restricted Zone part of this regulation and moves that restriction into 601.04. This makes it more difficult for a RPAS pilot to understand their flight restrictions. DPAC recommends the Class F Restricted Zone limitations be retained in 901.14, unchanged. RPAS pilots should not have to read the entire CARs to find applicable regulations.
3. CAR 901.23 Procedures: The TC proposal is to add “(vii) the detection and avoidance of conflicting air traffic and other hazards” to the list of emergency procedures. If justifiable at all, this would be a normal operating procedure, not an emergency procedure. More importantly, adding further to the prescriptive list of written procedures is a move in the wrong direction, making the regulations more burdensome, as opposed to simple and easy to follow. A written procedure to avoid aircraft and other hazards within visual line of sight serves no practical purpose. See Situational Awareness proposal below (section J).
4. CAR 901.27 Site Survey: The wording changes are improvements, but the Situational Awareness proposal below (section J) would be far more effective.
5. CAR 901.29 Serviceability: DPAC is concerned that the new wording of this section disallows alternative drone control systems such as Litchi or Maven. If so, this section needs to be reworked. Again, this kind of regulation is overly prescriptive and needs to be simplified, not made more complex.
6. CAR 901.41 Advertised Events:
 - a. DPAC recommends that this regulation be amended to specifically exclude events such as ‘drone meetups’ from this rule.
 - b. The proposed Orwellian exemption to “police operation...in the service of a public authority” must be removed. DPAC is fully supportive of a clause at an upper level in the regulations that states that first responders are exempt from the RPAS regulations when there is a need for exigency AND when the purpose of the operation is to save human life or to prevent the destruction of property. The current wording, and specifically its presence in the Advertised Event rule, opens the door to potential violations of the Charter of Rights. Transport Canada is encouraged to meet with representatives of first responders and emergency management organizations to ensure the set of allowable operations are clear and addresses public safety requirements.
 - c. See also the SFOC section in this position paper (section I). DPAC contends that a better system to control flights over advertised events can be developed to replace the need for an SFOC.
7. CAR 901.43 Payloads: Clause (1)(d) has minor improvements related to payloads attached by means of a line, but it is still unclear. The current wording implies that if there is no operating

manual (and hence no applicable operating manual), then it is ok to carry a payload by a line. Hence dollar store string is perfectly ok. DPAC recommends this clause be replaced with a more purposeful and general statement such as “is carried by or attached to the aircraft in such a manner as to create a hazardous flight condition.”

8. CAR 901.47 Operations at or in the Vicinity of an Aerodrome, Airport or Heliport: Operations near DND aerodromes have changed from requiring an SFOC to requiring DND authorization. DPAC supports this change.

G. MISSING MINOR IMPROVEMENTS TO EXISTING REGULATIONS

DPAC recommends the following straightforward changes be added to the updated regulations:

1. CAR 901.25 Maximum Altitude: The wording of this rule is confusing, and arguably wrong. DPAC recommends the wording be changed to “The maximum altitude for an RPAS is the greater of a) 122m (400ft), or b) 30 m (100ft) above buildings or structures when operating within 61m (200ft) horizontally.”
2. CAR 901.35 Icing: Clause (2) states that no frost, ice, or snow can be on the RPA. This clause should either be deleted or be reworded to reflect Canadian reality, such as “No pilot shall operate a remotely piloted aircraft with frost, ice or snow adhering to the RPA that would affect safe flight operations.”
3. CAR 901.19 Fitness of Crew Members: DPAC contends that this is a case of inappropriately transferring crewed aircraft rules to RPAs. The 12-hour alcohol clause should be removed, as well as the AIM interpretation of cannabis use (28 days). Clause (2) should be reworded to retain only subclause c (“while using any drug that impairs the person’s faculties to the extent that aviation safety or the safety of any person is endangered or likely to be endangered”) for small RPAs. The operation of RPAs over 25kg should retain the full equivalence to crewed aircraft restrictions.
4. CAR 901.30 Availability of Operating Manual: DPAC states that this is another case of inappropriate transferal of crewed aircraft rules to RPAs. Making access to the instruction book a mandatory rule serves no purpose for the safe operation of a small RPAS. The rule should be deleted, and transferred to the AIM as a recommended best practice.

H. REGISTRATION FEES

1. DPAC opposes the increase in fees for RPAs under 25kg. The TC position that increasing the registration fee can be justified by the user-pay principle is patently false: there is no benefit to RPAS registration to the RPAS owner other than following the rules.
2. A ‘fleet rate’ should be considered for owners of many aircraft. For example, registrations after the tenth active aircraft could be at a 50% discount.

I. SPECIAL FLIGHT OPERATIONS CERTIFICATES (SFOCs) AND ASSOCIATED FEES

1. DPAC's position is that the SFOC process should not apply to the follow cases:
 - a. Foreign pilots: Foreign pilots should be permitted to fly in Canada as long as they are compliant with Canadian regulations, including RPA registration and pilot certification. In addition, for RPAs under 25kg, the only restriction on foreign pilots to operate commercially should be normal work permit regulations.
 - b. Flights over 122m AGL: The authorization for flights over the altitudes specified in 901.25 should be controlled by NAV CANADA, to ensure seamless flight operations with crewed aircraft. Transport Canada should not be involved other than to provide to NAV CANADA a list of RPAs approved for operations over 122m AGL
 - c. Advertised events: Operations at advertised events should be managed by a simpler 'permit based' mechanism instead of SFOCs:
 - The RPA pilot and aircraft must be qualified for operating in the applicable proximity to bystanders
 - The event coordinator would be the single point of contact for:
 - Defining the boundaries of the event
 - Approving RPA use within the boundaries of the event
 - Specifying event-specific restrictions
 - Coordinating enforcement with police and/or event security
 - Identifying the need for liability insurance
2. DPAC agrees that the user-pay principle does apply to remaining SFOC applications, but with lower fees than proposed. Our proposals above eliminate the need for any 'low complexity' SFOCs, but if those proposals are rejected by Transport Canada, DPAC believes that the proposed increase from \$0 to \$150 for low-complexity SFOCs is excessive. A maximum fee of \$50 is recommended for low-complexity SFOCs. Similarly, the fee for high-complexity SFOCs should be no more than \$500.

J. OVERALL SIMPLIFICATION AND IMPROVEMENT OF SMALL RPAS REGULATIONS

Transport Canada has missed a major opportunity to simplify and rationalize the regulations for small RPAs. DPAC recommends three major updates:

1. NEW SITUATIONAL AWARENESS REGULATION:

DPAC recommends merging a multitude of overly prescriptive and complex rules (see list below) into ONE all-encompassing rule:

CAR 901.xx SITUATIONAL AWARENESS: The small RPA pilot must have full situational awareness by taking appropriate measures to both prepare for and execute a safe flight operation. The small RPA pilot must:

- a) Have sufficient knowledge of the airspace and physical environment for a safe operation
- b) Take into account weather conditions in the area for the duration of the operation
- c) Ensure the small RPA is in safe operating condition

- d) Maintain a clear line of sight to the area of operation
- e) Be prepared for abnormal and emergency situations

The above Situational Awareness rule would apply only to small RPAs and would replace the following current regulations:

- 901.24 Pre-flight information
- 901.27 Site survey
- 901.28 Other pre-flight requirements
- 901.29 Serviceability of the RPAS
- 901.33 Take-offs, launches, approaches...
- 901.34 Minimum weather conditions
- 901.35 Icing
- 901.23 Procedures
- 901.31 Manufacturer's instructions

The details, guidelines, and best practices currently incorporated into the above regulations should be transferred into the AIM document. For example, it should not be a criminal act to fly a drone in sub-zero weather in Canada: not recommended, perhaps, but not criminal.

The existing, detailed regulations should still apply to RPAs over 25kg.

2. NEW FPV OPERATIONS ALLOWANCE

The current regulations require the use of a Visual Observer (VO) when flying 'FPV' (i.e., with vision obscuring goggles). As such, the vast majority of current FPV RPA pilots are essentially breaking the law when flying solo, and yet they appear to be flying without affecting public safety.

DPAC recommends the CAR 901.11 Visual Line-of-Sight rule be amended to indicate that a VO is NOT required when flying FPV unless the safety of bystanders or third-party property is at risk. Possible situations where a VO would be beneficial to safety could be outlined in the AIM, such as:

- a. If the RPA is closer than 30m (100ft) from bystanders
- b. If the RPA is flying over 30m AGL or farther than 150m of the pilot
- c. If the RPA is flying such that the onboard camera view does not allow sufficient situational awareness of hazards.

3. REMOVAL OF OVERLY PRESCRIPTIVE REGULATIONS

The current regulations include several rules that prescribe a specific mechanism for compliance, presumably to improve safety. Many of these rules are direct transfers from crewed aviation but are not necessarily fully applicable to RPAs. DPAC recommends the following regulations be removed, at least for small RPAs, and converted to best practices documented in the AIM:

- a. CAR 901.21 Compliance with pilot instructions
- b. CAR 901.23 Procedures
- c. CAR 901.48 Records
- d. CAR 901.49 Incidents and accidents – associated measures

CONCLUSION

The Drone Pilot Association of Canada (DPAC) has carefully reviewed the Transport Canada proposed RPAS regulatory changes from the perspective of recreational and small commercial RPAS pilots, which represent the vast majority of Canadian RPAS pilots today. In this context, we have recommended changes to the Transport Canada proposal, as well as significant new areas for improvement. Our recommendations are consistent with DPAC's mandate to promote safe RPAS operations, while simplifying the regulatory environment.