

Hon Michael Wood

Transport

Enabling Drone Integration: Release of Discussion Document

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Description

The following document has been proactively released by Hon Michael Wood, Minister of Transport on the Ministry of Transport website <http://www.transport.govt.nz/>

Title: Cabinet paper DEV-21-SUB-0033 Release of Discussion Document – Enabling Drone Integration
Date: 17 March 2021
Author: Office of Minister of Transport

Redactions

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In Confidence

Office of the Minister of Transport
Cabinet Economic Development Committee

Release of Discussion Document – Enabling Drone Integration

Proposal

- 1 This paper seeks the Cabinet Economic Development Committee's agreement to release the discussion document "Enabling Drone Integration" for public consultation. The paper sets out a proposal to enhance the regulatory regime for drone operations in New Zealand.
- 2 The proposal is important to achieve the long term objective set by the Government for the drone sector for the full integration of drones into the civil aviation system.
- 3 The draft discussion document is attached for your consideration.

Relation to government priorities

- 4 The proposal fits within the Government's vision to enable a thriving, innovative and safe drone sector. It is part of a wider cross-agency drone work programme led by the Ministry of Transport (the Ministry), the Civil Aviation Authority (CAA), the Ministry of Business Innovation and Employment (MBIE), and Airways New Zealand (Airways).

Executive Summary

- 5 The Government's vision is to enable a thriving, innovative and safe drone sector in New Zealand with the long-term objective of the safe integration of drones into the civil aviation system and ultimately within the wider transport system.
- 6 To progress drone integration efficiently and effectively, Government would need to take steps now to cater for the rapid growth in the use of drones, and ensure it has the tools to maintain appropriate levels of aviation safety and security.
- 7 I propose to introduce a series of complementary regulatory measures including:
 - updates to the current Civil Aviation Rules (the Rules) applicable to drone operations (mainly Part 101)
 - mandatory basic pilot qualification that involves online theory testing of pilots
 - mandatory registration of drones above 250 grams and their owners
 - requirements for the remote identification of drones
 - requirements for geo-awareness capabilities, including the creation of a single standardised map and new requirements for the use of geo-awareness technology.
- 8 These measures would be gradually implemented and their efficiency and benefits would be maximised once they have all taken effect.

- 9 I am ready to publicly consult on this proposal and I am seeking Cabinet's approval to release the attached discussion document. Consultation will take place over a six-week period.

Background

The Government's vision is to enable a thriving, innovative and safe drone sector

- 10 In 2019, the Government released the vision paper "*Taking Flight: an aviation system for the automated age*" (*Taking Flight*), which sets the strategic direction of the cross-government drone work programme.¹ The paper outlined the Government's long-term objective of the safe integration of drones into the aviation system and ultimately within the wider transport system.
- 11 Integration requires an iterative and phased approach, and is a collaborative exercise that involves working towards the best outcomes for all airspace users. In an integrated system, both manned and unmanned aircraft can operate safely and seamlessly in the same airspace and with other transport modes. Effective drone regulation was identified in *Taking Flight* as a key building block to achieve drone integration.

The Government is partnering with industry to enable drone integration

- 12 In 2019, the Government established the Airspace Integration Trials Programme (AITP) to facilitate the safe testing, development and market validation of advanced drones and accelerate their integration into our aviation system.² The AITP is lead by MBIE's Innovative Partnerships team, working alongside the CAA, the Ministry and other key stakeholders to support industry partners to take their technology from testing to in-service operations.
- 13 The testing and trialling activities undertaken by industry partners will generate evidence to inform the policy and regulatory development required to enable drone integration in New Zealand. It will also further position New Zealand as a location of choice for R&D in the advanced aviation sector, build on our existing competitive advantage and grow our R&D ecosystem.

The current drone Rules are interim measures

- 14 The regulatory regime applicable to drone operations was introduced in 2015 and is covered in two parts under the Rules:
- Part 101 contains 12 prescriptive rules that captures low risk operations and drones weighing 25 kilograms or below; and
 - Part 102 is a risk based certification framework that accommodates riskier operations (those falling outside the remit of Part 101) and drones weighing more than 25 kilograms on a case by case basis. A *Part 102 Operator Certificate* is required to conduct such operations.

¹ *Taking Flight: an aviation system for the automated age*, 2019:

<https://www.transport.govt.nz/assets/Uploads/Paper/Drone-Integration-Paper-Final.pdf>

² The AITP provides a mechanism for Government to work with industry partners to develop drones for applications including passenger transport, cargo delivery, agriculture, and hazard management and monitoring. Current industry partners are developing autonomous electric aircraft for urban air mobility, high-altitude vehicles for cost-effective aerial imagery and environmental monitoring, and remotely-piloted aircraft for precision bait delivery for conservation.

- 15 These rules were only intended to be an interim step to manage and mitigate short-to-medium-term safety risks of more advanced drone operations.³

Maintaining the status quo would fail at integrating drones, addressing the problems, and realising benefits

- 16 Maintaining the status quo and making changes later may be viable in the short-term. However, it does not support drone integration, nor does it create an enabling environment for more advanced drone operations. It does not achieve the objectives outlined in this paper and does not enable the realisation of identified benefits.
- 17 The current system of interim rules is not sustainable and it does not cater for the current number of drones or anticipated growth. It would become increasingly difficult to address the demands of safety, security and privacy risks over time, and New Zealand would very likely end up with more severe problems. The effectiveness of the rules is also likely to erode over time.

Officials have engaged on early thinking with key domestic and international stakeholders

- 18 In 2019, the Ministry completed two rounds of engagement with key domestic stakeholders including:
- Government agencies: to better understand their roles and responsibilities in relation to drones and any related regulatory and legal frameworks that are in place
 - Industry stakeholders (manned and unmanned aviation sector) and local authorities: to test early thinking on possible policy initiatives for drone integration, and to seek their ideas. Feedback was varied, but most stakeholders generally agreed with the overall approach the Ministry had in mind and the proposed regulatory package.
- 19 In addition to domestic engagement, the Ministry and the CAA have actively engaged with overseas counterparts, and participated in various drone international fora, such as the International Civil Aviation Organisation Unmanned Aircraft Systems Advisory Group (UAS-AG), Joint Authorities for Rulemaking on Unmanned Systems (JARUS), and the International Transport Forum (ITF).

Analysis

An effective commitment is necessary to achieve the Government's long-term objective of integration

- 20 Since 2015, there has been rapid progression in drone technology, numbers and their use in New Zealand. According to a recent Colmar Brunton survey, as of February 2019, New Zealand has approximately 156,610 drones used solely or mainly for recreational purposes and approximately 15,322 drones used solely or mainly for business or scientific purposes.⁴
- 21 Drones have the potential to make fundamental changes to how New Zealanders operate their businesses, move goods, and transport people. The growth of the drone sector has given rise to a key opportunity to develop a sustainable and innovative drone ecosystem. This would lead to economic and social benefits, such

³ Regulatory Impact Statement – Remotely Piloted Aircraft Systems, 2015,

<https://www.transport.govt.nz/assets/Uploads/RIA/RIS-Remotely-Piloted-Aircraft-Systems.pdf>

⁴ New Zealand Drone Research, 2020, <https://www.aviation.govt.nz/assets/about-us/news/New-Zealand-drone-research-2020.pdf>

as those identified in the 2019 Drone Benefit Study that estimates that commercial drone use is worth \$4.6 billion to \$7.9 billion over the next 25 years.⁵

22 Any changes to the current system will require balancing several, sometimes opposing, objectives, these include:

- enabling **innovation** and **development** in the drone sector, while supporting the interests of the wider aviation sector
- maintaining appropriate standards of **safety** and **security** by deterring and identifying drone pilots operating illegally
- laying the early groundwork for **future integration of drones** into the transport system
- fostering **social licence** as there are a growing number of public concerns about drones' use, including safety and security as well as privacy and nuisance.

I am seeking to consult on a series of regulatory measures that will progress the Government's objective of drone integration

23 Officials have prepared a discussion document (Appendix 1) for public consultation. The document outlines the proposal for a series of complementary regulatory measures. These measures have been assessed against the following criteria: effectiveness of the measures, ease of implementation, proportionality, cost efficiency, and international alignment.

24 The proposed measures are:

- **rules updates:** Some major changes will be required to improve the effectiveness of the current regulatory framework and allow greater use, such as relaxing or removing the consent provisions for flying over people and property, and the distance from aerodromes that drones can fly. I will also make minor updates to the drone rules to enhance clarity and ensure consistency.
- **basic pilot qualification:** I propose to introduce a mandatory drone pilot test for Part 101 operators. This would complement CAA-led education initiatives. The new measure would take the form of an online basic theory test that involves a number of questions based on specific knowledge and skills related to aviation safety, security and privacy. Implementing basic pilot qualification requirements will provide assurance that drone pilots are aware of their obligations and know how to operate a drone safely. It will also increase confidence that the aviation system is safe and secure.
- **drone registration:** I propose to also introduce mandatory drone registration for all drones weighing more than 250 grams. This would require owners of drones to register their drone by providing specific information about their aircraft and themselves to the Director of Civil Aviation. Implementing this proposal would encourage drone owners/operators to be responsible and accountable, while allowing authorities to communicate directly with them and provide important safety, educational and operational information.

⁵ Drones: Benefit Study, 2019, <https://www.transport.govt.nz/assets/Uploads/Report/04062019-Drone-Benefit-Study.pdf>

- **remote identification:** I propose introducing the mandatory use of remote identification capability on certain drones during flight to enable the transmission of a range of data to receivers. This proposal would build on drone registration and only be implemented when a technical standard is adopted. It will support drone integration by improving situational awareness for drone pilots and aviation participants sharing the airspace. It would underpin information sharing for more advanced operations, like Beyond Visual Line of Sight (BVLOS).⁶
- **geo-awareness:** A single standardised map available in different formats (i.e. paper or digital) that provides all necessary aeronautical information for drone operations to all pilots and industry will be created. Following this, I propose mandating the use of geo-awareness technology on certain drones or for certain operations, e.g. drones used for specific and/or advanced operations (e.g. BVLOS). Geo-awareness improves situational awareness for drone pilots and mitigates the risk of entering prohibited zones or sensitive areas. Like remote identification, this will only be implemented when a technical standard is adopted.

- 25 I propose a phased implementation of these measures. These measures build on each other but require separate implementation. Each of them have their own distinct benefits and challenges, which are further described in the discussion document.
- 26 The combination of these measures maximises their respective benefits over time, and effectively addresses the identified problems in the following section. For example, a registration system combined with remote identification will maximise the ability to identify drone pilots and enhance their situational awareness.

The proposed regulatory measures also effectively address existing problems related to aviation safety and security, as well as privacy

- 27 The growing drone sector has challenged aviation safety and security, and created privacy issues which need to be addressed. Through our analysis, we have identified the following key problems:
- **Lack of compliance:** there is currently a lack of compliance from some drone pilots
 - **Ineffective enforcement:** this lack of compliance combined with current drone technology often makes enforcement difficult, and sometimes impossible, as pilots and drones cannot be identified or located
 - **Suitability of the current regulatory framework:** some of the current rules are no longer fit for purpose
 - **System sustainability:** the current aviation system and infrastructure do not enable drone integration

The discussion document outlines the potential benefits and costs associated with the proposed approach

⁶ BVLOS is an operation in which the remote pilot does not use visual reference to the remotely piloted aircraft in the conduct of flight. Part 101 requires pilots to maintain visual line of sight with the drone and be able to see the surrounding airspace in which the drone is operating.

- 28 The discussion document does not attempt to quantify and monetise any of the impacts at this stage. It is too early to quantify the benefits and costs of the proposed approach.
- 29 **Short-term benefits** identified include reduced illegal airspace incursions; reduced personal injuries and property damages; reduced costs to society, improved social acceptance; and reduced investigation costs. **Longer-term benefits** include the laying of the groundwork necessary for drone integration; creation and/or improvement of markets leading to increased job opportunities; and reduced barriers to accessing the aviation system.
- 30 The costs considered in the discussion document are two fold: system costs related to the implementation of the measures, such as IT and administration processes; and compliance costs. In principle, such costs would likely be on a cost recovery basis but alternative or additional funding options could also be considered. A key principle is that any costs should be equitable so that participants are paying their fair share based on the risk they pose.

Risks

- 31 There has been some resistance with the proposal from parts of the drone sector – mainly hobbyists and model aircraft affiliates – and some degree of criticism about the necessity of the measures. The discussion document should effectively address these concerns. Officials have also started to develop a stakeholder engagement plan that includes in person meetings with key stakeholders from the aviation sector.
- 32 To a lesser extent, there are some challenges with social acceptance of drones with the general public. This may be reflected in the submissions. However officials have also tried to address these concerns in the discussion document.

Implementation

- 33 As I am seeking to consult, there are no immediate implementation steps required. The consultation will occur over a six week period starting soon after Cabinet approves the consultation. The discussion document will be published on the Ministry's website. Stakeholders and the public will be able to make submissions by email. Officials are also considering the use of other online channels.
- 34 Should consultation be successful, officials will seek approval for final policies later in the year. A plan for implementation of the proposals and the likely cost will be provided post consultation, when final policy decisions are being sought.

Financial Implications

- 35 There are no additional financial implications arising as a direct result of releasing this discussion document. If the proposed measures are adopted following consultation, then financial implications will be fully outlined for each measure with final policy recommendations.

Legislative Implications

- 36 There are no legislative implications arising as a direct result of releasing this discussion document. Should consultation be successful, implementation of the proposals will require updates to the Civil Aviation Rules.

Regulatory Impact Statement

- 37 The Ministry's Regulatory Impact Analysis (RIA) panel (the panel) along with a representative from MBIE have reviewed and confirmed that the discussion document substitutes for a regulatory impact statement. The discussion document is likely to lead to effective consultation and elicit informed responses to support the delivery of a quality RIA should the proposals progress.
- 38 The panel notes that a RIA will be prepared following consultation, to inform Government decisions on enabling the integration of drones into the aviation system. The panel expects a RIA will be prepared and assessed at that time.

Climate Implications of Policy Assessment

- 39 The Climate Implications of Policy Assessment (CIPA) team has been consulted and confirms that the CIPA requirements do not apply to this proposal as the threshold for significance is not met. The CIPA team will work with the Ministry to assess the emissions impacts of policy proposals as appropriate at a later date.

Population Implications

- 40 This paper has no population impacts.

Human Rights

- 41 This paper has no human rights impacts.

Consultation

- 42 The discussion document was prepared by the Ministry, with support from the CAA.
- 43 Departmental consultation on the discussion document with interested agencies was undertaken to ensure that consequential impacts to other areas of law such as criminal liability, conservation and privacy are considered.
- 44 MBIE (Innovative Partnerships team), Airways, New Zealand Police, Department of Conservation, Office of the Privacy Commissioner, Department of Corrections, Department of Internal Affairs, Ministry of Defence, Ministry of Justice, New Zealand Defence Force, New Zealand Search and Rescue, Fire and Emergency New Zealand; Ministry of Primary Industries; Te Puni Kōkiri; Department of the Prime Minister and Cabinet; and Treasury have been consulted and provided opportunity to review drafts of the discussion document.
- 45 Agencies are supportive of the proposals and there are no significant issues to address. The Ministry will continue to work with agencies to address policy issues raised during consultation.

Communications

- 46 I intend to announce the proposal by Ministerial press release and, if my diary allows, attend the next Drone Forum hosted by the Ministry.

Proactive Release

- 47 I intend to proactively release this paper and associated papers within 30 days of the Cabinet decision.

Recommendations

The Minister of Transport recommends that the Committee:

- 1 **note** the discussion document "Enabling Drone Integration" for public consultation and the proposed options, which sets out a proposal to improve the existing regulatory framework applicable to drone operations;
- 2 **approve** the release of the discussion document "Enabling Drone Integration: Proposed Approach for change" for a six week consultation period;
- 3 **authorise** the Ministry of Transport to make any necessary editorial changes that arise during the finalisation of the discussion document;
- 4 **agree** that the Ministry of Transport publishes the discussion document on its website and accepts online submissions;
- 5 **note** that following public consultation I will report back on submissions and final policy recommendations.

Authorised for lodgement

Hon Michael Wood

Minister of Transport