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STANDING COMMITTEE ON ECONOMIC DEVELOPMENT AND TOURISM
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Submission Cover Sheet

Inquiry into drone delivery systems in the ACT

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STANDING COMMITTEE ON ECONOMIC DEVELOPMENT AND TOURISM

Submission: INQUIRY INTO DRONE DELIVERY SYSTEM IN THE ACT

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1. Firstly, it should be noted that I am privy to the points and comments provided to the Standing Committee by my wife, Robyn McIntyre, and by Neville Sheather and Andrea Sheather, in their three separate and very detailed submissions. I am in full agreement with the content of those submissions, and in the interests of expediency I will not be repeating such content in this subject submission. Rather, I wish to emphasise particular aspects of the major problems associated with the Project Wing drone operations over the Bonython suburban area since they commenced, as I see them. Unless specific changes to the drone hardware, and methods of operation, are made by the operator prior to commencement of delivery operations over the northern ACT suburbs, then the same problems will continue to exist.

2. I believe I am well qualified to make critical comments on the subject drone operations, particularly in regard to flight safety and noise aspects, for the following reasons:

- For over eight years, I was a senior manager in the regulatory control area of the Civil Aviation Authority (CAA), which was the predecessor organisation for the current Civil Aviation Safety Authority (CASA) and Airservices Australia (ASA).
- Specifically:
 - I was the author of much airworthiness control regulatory material, and advisory documents for the aviation industry.

- I was the Head of Aircraft Certification, and as such was responsible for airworthiness certification of Australian civil aircraft, large and small. This also meant that I had detailed interface with the noise policy principals within ASA, for noise regulation of all Australian civil aircraft, at that time.

DRONE NOISE

3. Of all the major problems presented by operation of the Project Wing drones over Bonython, I contend that the noise made by the drones is the most serious one. I am well-qualified to make relevant comments, firstly because I live directly next door to the property which almost certainly had the maximum number of drone parcel deliveries for the entire Bonython area over the duration of the operating period, and secondly because of my professional experience interfacing in noise regulation as per the last sub-paragraph of paragraph 2 above.

4. Since the start of the subject drone trials, a large number of individuals in the Bonython suburban area (and this includes my family, members of the Bonython Against Drones (BAD) Action Group and particular friends in the area) have tried to lodge complaints about the drone noise with different agencies in the ACT area. The following is relevant:

– Various ACT Government elements receiving the phonecalls tried to pass the complainants across to CASA. This was naive and completely unhelpful, as CASA has no responsibility under its charter, Regulations and Orders for aircraft noise. When the CAA split into the current two regulatory arms, CASA and ASA, all aircraft noise control matters became the responsibility of ASA.

– If CASA was contacted directly, then complainants were told to contact ASA. This was the correct response from CASA.

– When complainants contacted ASA, they were invariably subjected to operator delays and further connections, as the staff involved often seemed to be unsure as to how complaints should be processed. Some were told to (incorrectly) contact CASA, or to contact the Department of Infrastructure, Regional Development and Cities. (Which includes the Transport policy arm). The majority were told that drones (also referred to as remotely piloted aircraft, or RPAs) were not subject to noise control by ASA or government bodies. In its submission to this Inquiry dated 14 January 2019, ASA has stated it has records of six complaints being received and actioned. Given the oversight that the Bonython Against Drones (BAD) Action Group has over the majority of the disaffected Bonython population, this statement by ASA vastly understates the complaint volume situation.

5. It is therefore obvious that no government or regulatory agency will take responsibility for drone noise control or the proper handling of drone noise complaints. This matter should have been fully investigated by the ACT Government during the period that the Project Wing trials were being planned by the relevant ACT

Government entities – it was obvious that drone noise was going to be a major factor in the acceptability or otherwise of drone operation. Due diligence and proper preparation in regard to noise control was not carried out. The Standing Committee should establish just who should have been responsible in this matter.

6. The ACT government has in recent months sought to downplay the drone noise situation, in various press articles and other forms of media, and by statements from government elected officials such as the Chief Minister. This is unacceptable, because it is contrary to the opinions of many hundreds of Bonython residents, and to qualitative and quantitative evidence. The following is relevant:

– The drone noise is particularly disturbing when the aircraft (this word “aircraft” is further discussed at length later in this submission) is decelerating, coming to the hover and then hovering over a parcel recipient’s property. Qualitatively, the sound is extremely penetrating, consists of many high-frequency pitches, and is likened to an extremely loud screeching, screaming sound. It is far more disturbing and unacceptable compared to other suburban backyard sounds such as those produced by a motor mower.

– The EPA has specified that the maximum allowable daytime residential backyard noise in the ACT is 45dB. Hovering Project Wing drones have been measured at 80-85 dB, such noise being measured approximately 3 m outside the boundary of a residence receiving a drone package, with the noise lasting for up to 1-2 minutes at a time. Sound intensity level is not linear, and so the Project Wing drone noise is many orders of magnitude above the level prescribed by EPA. (Of course, we have pointed out that EPA says it has no responsibility for aircraft noise).

7. Now going back to the ASA submission to the Inquiry dated 14 January 2019; ASA has said: “Federal Air Navigation (Aircraft Noise) Regulations 2018 are based on International Civil Aviation Organisation (ICAO) noise standards for aircraft types and models. However, RPAS are not included in these international standards and are not covered by the Australian regulations. (Our underlining). The Department of Infrastructure, Regional Development and Cities administers these regulations”. Furthermore, in discussions with some ASA staff during telecons, some members of the Bonython public were told that noise regulations only apply to aircraft, and drones are not aircraft for the purposes of the Regulations. This requires correction – drones are aircraft. ICAO Annex 6 Part 1 defines an aircraft as “..... any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth’s surface”. (The latter after “other” meaning hovercraft). The Department, ASA and CASA fully accept this definition; to not accept the definition would require Australia to lodge a Difference with ICAO in regard to ICAO Standards and Regulatory Practices (SARPs). So the noise control issue remains a major problem, and further investigation and resolution is required.

FLIGHTSAFETY AND AIRWORTHINESS CONTROL

8. Safety aspects of RPAS (and therefore drone) operations are the sole responsibility of CASA. The relevant work is undertaken by the RPAS Branch of the National Operations and Standards Division of the Authority. The Head of Power in this respect is the Civil Aviation Safety Regulations (CASRs) Part 101 titled “Unmanned Aircraft and Rockets”. At the outset, it should be noted that Part 101 does not prescribe, or even allude to, airworthiness design and production standards. Whilst in Australia, and the majority of ICAO Contracting States, small manned aircraft must be designed and built to specific design standards or codes which aim to ensure that the aircraft is sound in an airworthiness design sense. And it can be argued that an aircraft without a pilot requires many more airworthiness/system design requirements for safety and redundancy than one which is piloted – especially if it is going to operate semi-autonomously beyond visual line of sight (BVLOS) as do the Project Wing drones.

9. Chapter 3 of CASA’s Advisory Circular 101-01 v.2.1, “Remotely Piloted Aircraft Systems – Licensing and Operations” states: “It is CASA policy that the RPAS sector demonstrate a level of safety that is similar to that currently achieved in the conventionally piloted/ manned aircraft sector”. (Our underlining). This is only partly possible given what is stated in paragraph 8 above. It is understood that CASA, together with other Australian aviation regulatory agencies, and overseas RPAS control entities, is establishing firmer foundations for the aims expressed. However, this is only happening now. What must be asked is – why did CASA start to approve the Project Wing drone operation several years ago when this operation was going to be an experimental trial with the drones (aircraft!) flying at relatively high speeds at very low levels (usually around 200 feet) over the populous areas of a suburb? The risk levels would be much greater than those for a small manned certificated aircraft flying over the same area at a minimum height of 1000 feet. The follow-on question to this is – was any form of political pressure from the ACT or Federal Governments applied to CASA management to process the approvals? This should be followed up by the Standing Committee. And bearing in mind that CASA were aware (i) at the outset that this was a trial to obtain operating data, develop navigation and autonomous control systems and airspace management, all for the benefit of the drone operator, and (ii) that commencement of the trial would begin when the Federal inquiry into drone operation had identified many unresolved matters of safety importance; the primary purpose of the trial was not to illustrate fascinating commercial benefits to the ACT at large.

10. Having said that, we are aware from brief discussions with CASA some months ago that a failure risk analysis on the subject drone operation was carried out, with a desired risk factor goal of 1×10^{-8} . It was stated this was achieved, and so a

general parallel with the safety levels for small manned aircraft could be accepted. But with reservations established by the paragraphs 8 and 9 discussions above. To this end, it is recommended that the Inquiry require CASA to provide a full flight safety briefing to the Standing Committee to substantiate the levels of safety that are being discussed here.

11. It is also important to note that CASA's involvement required the issue of an Instrument of Exemption (Instrument Number CASA EX82/18, signed by the Director of Aviation Safety) against the requirements of CASR Part 101, already discussed in paragraph 8 above. The most important change incorporated in the Instrument was allowing a Project Wing drone to operate down to 5m overhead a person, and 2m horizontal distance from a person. This reduced the 30m total distance buffer from persons not involved in the operation (i.e. the Bonython residents) by a very large factor – in the full knowledge that this would not have been acceptable for operations in other Australian states, or by the Federal Aviation Administration (FAA) in the USA. We also noted that CASA had much difficulty in properly describing the distance parameters as discussed immediately above, and confusion in regard to this remained. Note here that much tighter restrictions on drone operation are laid down by the FAA in their regulatory document "14 CFR Part 107 – Small Unmanned Aircraft Systems". The most relevant part of this document reads "No person may operate a small unmanned aircraft over a human being, unless the human being is (a) directly participating in the operation of small unmanned aircraft; or (b) located under a covered structure or inside a stationary vehicle that can provide reasonable protection from a falling small unmanned aircraft".

12. Finally, CASA has acknowledged that there is no airworthiness certification process in being for RPAS/drones, and this is logical as there are no airworthiness design standards laid down for these vehicles at this time. Given the comparative risk levels discussed in paragraph 9 above, it would seem to make much sense that small RPAS aircraft such as the Project Wing drone should have airworthiness design standards prescribed (and logically placed in CASR Part 21 "Certification and Airworthiness Requirements for Aircraft and Parts") by CASA, and then subjected to a design certification process.

Thank you.

Ian McIntyre
12 February 2019